Voluntary Draft Environmental Impact Statement (VDEIS)

For

THE PRESERVE AT INDIAN HILLS

Change of Zone Application
21 Breeze Hill Road, Northport
Town of Huntington, Suffolk County, New York

Prepared for:

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October 2016

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Date of Acceptance by Lead Agency: _____

Comments on this document are to be submitted to the Lead Agency by: _____

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SUMMARY

SUMMARY

INTRODUCTION

This document is a Voluntary Draft Environmental Impact Statement (VDEIS) for a proposed rezoning of 145.32 acres of a 149.15 acre site, from R-40 (minimum one acre) Residence District to R-OSC Open Space Cluster District, in order to construct residential housing while preserving the existing recreational land use, a golf course property known as the Indian Hills Country Club (Club). Approximately 3.83 acres of the site will remain R-40 zoning.

PROPOSED PROJECT OVERVIEW

The overall project (*"The Preserve at Indian Hills")* involves five (5) tax parcels, totaling 149.15 acres located on the north and south sides of Breeze Hill Road and west of Fresh Pond Road in the hamlet of Fort Salonga in the Town of Huntington. **Figure 1-1** shows the location of the project site (*All figures are provided in a separate section at the end of the text portion of this document*). The residential development will include 108 duplex senior townhomes to be located in 54 structures and two (2) detached senior single family units. The 108 residences will generally be sited in three (3) areas of the site where there is existing road access and clustered to preserve golf course open space as a single contiguous block. Access to the 46 senior duplex townhomes south of Breeze Hill Road will be provided via tax lot #0400-15-01-16, part of which is proposed to remain zoned R-40 (3.83 acres) and part will be subject to a lot-line change (1.41 acres) and included in the 145.32 acre rezoning. Access will also be provided from Fresh Pond Road for 16 town homes and from Mystic Lane for 46 town homes. Each of the proposed senior duplex townhomes will be served by public water and individual on-site innovative/advanced sanitary systems. The 2 detached senior single family units will be operated as golf cottages, accessible by golf cart only during golf play seasons. These units will have conventional sanitary systems and public water supply. The project includes the removal of the existing clubhouse and re-construction of a new clubhouse for the membership of the Indian Hills Golf Club, as well as relocation of one (1) golf hole and other minor changes to the golf course.

This document has been prepared in conformance with the New York State Environmental Quality Review Act (SEQRA), as administrated by the Huntington Town Board (hereafter, *"the Board"*). This DEIS is submitted on behalf of The Preserve at Indian Hills, LLC (hereafter, "*the Applicant"*) in compliance with the State Environmental Quality Review Act (SEQRA) and in accordance with the requirements of the Town Board of the Town of Huntington, the Lead Agency under SEQRA. This Voluntary Draft Environmental Impact Statement (VDEIS) examines the potential impacts of (i) the proposed development of a residential "golf course community" on the approximate 149-acre site (hereafter, *the subject site or project site*) and improvements to Club facilities, including the golf course.

POTENTIAL IMPACTS AND MITIGATION

Topography

- Mitigation designed to limit the impact on topography at the subject property will consist of limiting the grading necessary in the steep sloped areas of the site using retaining walls and retaining many of the steep slope areas as undisturbed open space. The Conceptual Plans 1, 2 and 3 of **Attachment 2** (in a pouch at the end of the documents) has been devised to minimize the area and volume of disturbance; the grading envisioned is the minimum necessary to achieve the goals for the proposed development. Resultant development areas will be permanently stabilized and slopes will not exceed 1:3.
- An erosion control plan will been prepared during site plan review which will demonstrate the protection methods that will be utilized during construction to control transport of sediment and stormwater runoff and ensure slope stabilization upon the completion of construction activities.
- Use of a water truck, rumble strips, proper internal staging areas and provision of buffer areas.
- During grading operations, truck traffic to and from the site will be routed to each individual development area using the same access roads that will be used for driveways to the three (3) development areas. Trucks waiting to load or unload will be routed and parked within the site in proximity to the grading area, to minimize the amount of truck movements, thereby minimizing the potential to raise dust.
- Applicable erosion and sedimentation control guidelines will be observed during construction of the proposed project in order to minimize impacts. In accordance with the requirements of NYSDEC and Chapter 170 of the Town Code, a SWPPP be prepared for the development of the property, including a detailed erosion and sediment control plan, to manage stormwater generated on-site during construction activities, and for post-construction stormwater management.

Soils

- Any potential impacts that may occur with respect to steep slopes will be reduced by observation of sound grading principals and maintaining slopes with a suitable angle of repose. As noted, erosion control measures and full site plan review for grading and drainage will preclude adverse impacts to surface soils. With respect to a sandy surface layer, topsoil present on the subject property is assumed to be suitable for growth of vegetation as evidenced by the current forested condition of the property. Topsoil is intended to be stockpiled and re-used for landscape areas in the developed parts of the site. Soil augmentation is not expected to be necessary, but can be used if necessary. A detailed landscape plan will be prepared which will be reviewed and approved by the Planning Board, and Planning Board inspectors will ensure that vegetation is established and healthy prior to release of the Certificates of Occupancy for various components of site development. This will ensure that potential impacts with respect to a sandy surface layer and steep slopes are adequately addressed and as a result, no long-term soil impacts are expected. Short-term soil impacts will be mitigated through erosion control measures. High water table issues will be addressed through an engineered drainage plan and low permeability soils will be replaced where necessary with soils that possess more conducive leaching characteristics.
- The developed portions of the site will first be subject to grading operations in order to provide an acceptable surface on which development can take place, followed by installation

of landscaping to provide a means of stabilizing the soil to prevent erosion as soon as practicable following grading.

- Preservation of top soil, which is important for reestablishing indigenous plant growth within previously disturbed areas slated for preservation.
- Prior to the initiation of construction activities, remediation of the areas of the site where contamination is noted to be present will be conducted and removed materials will be disposed of at an appropriate facility.
- Collection of end point samples after completion of remediation activities which will be conducted under the auspices of the SCDHS, will ensure the effectiveness of soil/sediment removal to concentrations below the SCDHS guidance value.
- Dust control and construction management will be utilized to avoid dermal contact and inhalation of soils containing agricultural chemicals.

Water Resources

- The developed area will be served by a comprehensive stormwater drainage system comprised of roadside catch basins, subsurface leaching pools as well as new and existing ponds to gather, store and recharge all runoff generated on the site within the site.
- All sanitary effluent generated from the proposed project will be disposed of on-site through utilization of an innovative, alternative wastewater treatment methods subject to approval by SCDHS.
- The project will utilize public water, to be supplied by the SCWA.
- The project consists entirely of residential uses; no industrial uses are proposed. As a result, household and household-type cleaners and lawn fertilizers are likely to be the only toxic or hazardous chemicals present that could adversely impact groundwater quality. Educational materials regarding HHW and proper use of such substances could be made available to future condo owners and occupants through the site owner, and notification of the Town sponsored collection programs will be provided to residents and occupants, so that potential for spills or leakages of toxic materials can be minimized.
- The applicant will examine expansion of vegetated buffer zones and addition of stormwater detention areas on the golf course in order to reduce surface runoff to the pond system.

Ecology

- Native plant species that provide food and shelter to wildlife will be utilized in some of the landscaped areas.
- The loss of Successional Southern Hardwood forest and Coastal Oak Hickory habitat on the property will be partially mitigated by the proposed retention of 10.27 acres of Coastal Oak-Hickory forest within the subject site and 9.90 acres of Successional Southern Hardwood forest within the subject site.
- Disturbance will be minimized to the maximum extent practicable, including delineating tree-clearing limits at the site prior to construction in order to avoid inadvertent clearing.
- No known invasive plant species will be utilized, including those species specifically those species listed in Suffolk County Local Law 27-2009 and 6 NYCRR Part 575.
- The golf course is an existing, ongoing operation; however, the applicant is pursuing Audubon status for the golf course portion of the site.

Land Use, Zoning and Plans

- In zoning the subject property R-40, the Town deemed the site suitable for single-family residential development on lots of 1 acre or greater. It determined that such development would meet its land use goals and that this particular use, at its proposed density, would be compatible with the envisioned development and land use pattern of the area. A Planning Board modification is being requested for upland buffer setbacks and a continuation of a ZBA conditional use is requested for the golf course. To mitigate the proposed setback reductions, the subdivision design includes the retention of natural buffers and the planting of extensive perimeter landscaping.
- The senior duplex townhome single family residential character of this development will provide greater variety and choice in the Town's housing stock when compared to the conventional residential developments to the south, east and west of the site, and offer a use that is suitably transitional and compatible with adjacent development.
- The proposed project will conform to the review criteria for the R-OSC zoning district, which includes:
  - Buildings are adequately grouped so at least seventy (70%) percent of the total area of the site is set aside as open space. To the greatest extent practicable, open space shall be designated as a single block and not divided into unconnected small parcels located in various parts of the development.
  - Pedestrians can easily access open space.
  - All development is situated to minimize the alteration or disturbance of natural features, natural vegetation, and topography.
  - Existing scenic views or vistas are permitted to remain unobstructed, especially from public streets.
  - Floodplains, wetlands, and steep slopes are protected from development.
  - The cluster development advances the spirit and intent of this legislation.
- The project would mitigate the unfulfilled need for a variety of housing options for the senior population in the Town, which is a goal of the Town Comprehensive Plan Update.
- The project will have a significant beneficial impact on the Northport UFSD by its generation of significant school taxes and, as there would be no school-age children present, would not contribute to any enrollment increase, thereby not increasing school district expenditures.
- Superior site design providing appropriate on-site recreational amenities; landscaping and interior setbacks and open space.
- The proposed development is designed with inherent land use mitigation, as it will provide setbacks and buffers to increase land use compatibility in transition between the Town House style development and single-family development directly west, east and south of the site.
- The project will provide an alternative to single-family home ownership in a quality housing development.
- The project is consistent with the spirit and intent, as well as key elements of, the Town Comprehensive Plan Update, which recognizes the importance of providing a mix of housing types in the Town.

Community Character

- The change in the visual character of the site, from an institutional recreational use to a residential open space cluster residential use will be mitigated by retention of buffers along the property, permanent retention of more than 70% open space, installation of screening trees along the disturbed perimeter, as well as the planting of street trees. As part of the site

plan improvements, an extensive planting plan is proposed. This landscaping will provide perimeter buffers, as well as screen the proposed clubhouse parking area, access road and any retaining walls from adjacent properties.

- As demonstrated by the artist's rendering, particular attention will be given to the architectural design, building materials and landscaping, interior and exterior layout of the site and homes, sustainability and common area maintenance. Careful planning of the layout and design of the future homes will help to ensure the character of the proposed subdivision does not adversely impact the surrounding community.
- Landscaping would be installed in-between buildings and the roads to soften the visible impact and maintain a four season buffer.
- During construction, perimeter construction fencing including solid screening will be provided to help obscure views into the property during construction.
- The proposed street lighting fixtures are equipped with solid/opaque hoods to prevent light from being cast upwards and causing sky glow. As required by § 143-6, of Town Code, there will be no projection of lighting off site from the common lighting on the project site.

Community Services

- The proposed project will generate significant increases in tax revenues and allocations to each of the pertinent community services would offset the increased costs to the pertinent community services to provide services.
- While no age restriction is proposed for the townhome units, the units are expected to attract mainly "empty-nesters" rather than families with children. Significantly fewer school age children will be generated by the proposed project compared with as-of-right single family residential development.
- The proposed project will generate significantly greater taxes to the Northport-East Northport Union Free School District than the cost to educate the estimated 31 school age children likely to attend public schools.
- Smoke and fire detectors will be installed in the proposed homes and current construction standards will be adhered to as mandated by the NYS Building Code.
- Water-conserving plumbing fixtures and mechanical systems will be used where appropriate in order to minimize water consumption.
- While the proposed project will result in a significant increase in solid waste generated on-site, this waste is not expected to contain significant amounts of potentially toxic or hazardous materials (i.e. pesticide or fungicide residues in barrels, etc.). All solid wastes generated will be removed from the site and disposed of properly. As a result, no mitigation measures are necessary or proposed.
- Energy-efficient design and current construction methods will be utilized and buildings will be constructed consistent with NYS Building Code.

Transportation

- All the intersections studied are projected to continue operating at No Build LOS during the weekday AM, PM and Saturday midday peak hours with the construction of the proposed senior housing development with minimal increase in delay with the exception of Fort Salonga Road (NYS 25A) at Makamah Road.
- Due to the proximity of the intersection of Makamah Road at Breeze Hill Road to the Site Access for the Southwest Quadrant of the proposed development, located approximately 65 feet to the east on Breeze Hill Road, the Applicant will modify its configuration to improve

safety. The main concerns are the free-flow nature of the northbound approach combined with the large radius on the southeast corner which would permit vehicles travelling northbound to make a right-turn while maintaining higher than desired speeds. This could create a conflict with vehicles exiting the site access which would not be able to see northbound turning vehicles from Makamah Road.

- The Applicant is proposing to make this intersection all-way stop controlled which will lower operating speeds through the intersection. We are also proposing to decrease the radius of the southwest corner which will lower turning speeds and provide more separation between the site access driveway. After the implementation of the proposed changes, all approaches this intersection are projected to operate at LOS A.
- Other than the modification described above, and based on the results of the Traffic Impact Study as detailed in the body of this report, it is the professional opinion of Nelson & Pope that, constructing the proposed senior housing development on the Indian Hills Country Club property will not result in any adverse traffic impacts in the study area.

Cultural and Historic Resources

- The Summary and Conclusions of the Phase I and II indicated the following: Based upon these results the project site has no research value that would make it eligible for the historic registers. Therefore no further work is recommended and no mitigation required.

ALTERNATIVES

SEQRA requires the consideration of alternatives to the proposed project. Alternatives should represent reasonable and feasible land use, technology and other options to the proposed project that would achieve the applicant's objectives and remain within the applicant's capabilities. The purpose of this analysis is to determine the merits of the proposed project as compared to those of other possible uses, sites and technologies that would also achieve the applicant's objectives and potentially reduce environmental impacts. The discussion and analysis of the alternatives should be conducted at a level of detail sufficient to allow for this informed comparison, to be conducted by the decision-making agencies. Alternative 1 is the "No Action" alternative, which is required by SEQRA and is intended to represent site conditions if the proposed project is not implemented. For the subject application, the following alternatives were evaluated:

- **Alternative 1: No Action** - assumes that the land use, zoning and condition of the site as it currently exists remain unchanged; no site development occurs.
- **Alternative 2: As-of-Right Subdivision** - assumes that the project site is redeveloped under its existing R-40 zoning with a 103-lot subdivision that conforms to all applicable zoning and planning requirements and standards. The map on which this analysis is based (**Town Zoning [R-40 Res] Yield Map)** is contained in a pouch at the back of this document.

The table on the following pages identifies quantifiable impacts of the proposed project, and compares these with potential impacts associated with the alternatives.

This summary provides a brief overview of the Proposed Project, Potential Impacts and Mitigation, and Alternatives that were considered in the VDEIS. The full VDEIS should be consulted for complete information on the proposed project.

SITE AND PROJECT CHARACTERISTICS
Proposed Project and Alternatives 1 & 2

Parameter	**Proposed Project**	**Alternative 1: No Action**	**Alternative 2: As-of-Right Subdivision**
Use	Residential & Recreation (golf course)	Recreation (golf course)	Residential & Parkland
Yield	110 senior units & golf course	Golf course (145.32 acres)	103 lot subdivision (124.60 acres) & Parkland (20.72 acres)
Zoning	R-OSC	R-40	R-40
Wastewater Treatment System	Enhanced Septic	Septic	Septic
Coverages (acres)**:**	---	---	---
Buildings/Impervious	14.41	7.16	16.68
Unvegetated	1.32	1.77	0
Ponds & Recharge Basins	3.49	3.20	11.16
Wetlands	0.50	0.50	0.50
Beach & Tidal Waters	7.46	7.46	7.46
Bluff	2.50	2.50	2.50
Natural	16.36	29.35	83.38 (1)
Landscaped	99.28	93.38	23.64
Fertilized Landscaping	*28.02*	*27.91*	*23.64*
Non-fertilized Landscaping	*71.26*	*65.47*	*0*
Trip Generation (vph)**:**	---	---	---
Weekday AM Peak Hour	109/146 (2)	37	82
Weekday PM Peak Hour	62/115 (2)	53	108
Saturday Midday Peak Hour	62/145 (2)	83	100
Water Resources:	---	---	---
Domestic Use/Wastewater (gpd)	37,250	3,300	30,900
Total Water Use (gpd)	101,098 (3)	67,148 (3)	59,037 (4)
Recharge Volume (MGY) (5)	80.40	63.82	79.13
Nitrate Concentration (mg/l) (5)	2.65	1.92	4.03
Miscellaneous:	---	---	---
Total Residents (capita) (6)	165	0	456
Tax Revenues ($/year)	1,894,524	198,062	1,985,633
School Tax Revenues ($/year)	1,249,991	130,679	1,310,103
School-Age Children (capita)	0 (7)	0	156 (8)
Solid Waste (lbs/day) (9)	843	265	2,280

(1) Includes prior golf course landscaping left in residential lots to undergo natural succession.
(2) As: trips generated by senior residences/trips generated by senior residences plus golf course trips.
(3) Based on actual usage for golf course irrigation, as reported to NYSDEC: 63,848 gpd plus projected domestic use.
(4) Includes landscape irrigation of 16 inches/year, or 28,137 gpd averaged over the entire year.
(5) Based on SONIR model estimate provided in **Appendices E-2, E-3 & E-4**.
(6) Assuming 1.5 capita/senior unit and 4.43 capita/unit for subdivision units.
(7) Since the proposed project is age-restricted, it is not anticipated that it will generate any school-aged children.
(8) Assuming 1.51 school-age children/unit.
(9) Assuming 3.5 lbs/day/capita/senior unit, 0.013 lbs/SF/day for clubhouse, and 5 lbs/day/capita for subdivision units.

SECTION 1.0

DESCRIPTION OF THE PROPOSED PROJECT

1.0 DESCRIPTION OF THE PROPOSED PROJECT

1.1 Introduction

This document is a Voluntary Draft Environmental Impact Statement (VDEIS) for a proposed rezoning of 145.32 acres of a 149.15 acre site, from R-40 (minimum one acre) Residence District to R-OSC Open Space Cluster District, in order to construct residential housing while preserving the existing recreational land use, a golf course property known as the Indian Hills Country Club (Club). Approximately 3.83 acres of the site will remain R-40 zoning.

Project Overview

The overall project (*"The Preserve at Indian Hills")* involves five (5) tax parcels, totaling 149.15 acres located on the north and south sides of Breeze Hill Road and west of Fresh Pond Road in the hamlet of Fort Salonga in the Town of Huntington. **Figure 1-1** shows the location of the project site (*All figures are provided in a separate section at the end of the text portion of this document*). The residential development will include 108 duplex senior townhomes to be located in 54 structures and two (2) detached senior single family units. The 108 residences will generally be sited in three (3) areas of the site where there is existing road access and clustered to preserve golf course open space as a single contiguous block. Access to the 46 senior duplex townhomes south of Breeze Hill Road will be provided via tax lot #0400-15-01-16, part of which is proposed to remain zoned R-40 (3.83 acres) and part will be subject to a lot-line change (1.41 acres) and included in the 145.32 acre rezoning. Access will also be provided from Fresh Pond Road for 16 town homes and from Mystic Lane for 46 town homes. Each of the proposed senior duplex townhomes will be served by public water and individual on-site innovative/advanced sanitary systems. The 2 detached senior single family units will be operated as golf cottages, accessible by golf cart only during golf play seasons. These units will have conventional sanitary systems and public water supply. The project includes the removal of the existing clubhouse and re-construction of a new clubhouse for the membership of the Indian Hills Golf Club, as well as relocation of one (1) golf hole and other minor changes to the golf course.

This document has been prepared in conformance with the New York State Environmental Quality Review Act (SEQRA), as administrated by the Huntington Town Board (hereafter, *"the Board"*). This DEIS is submitted on behalf of The Preserve at Indian Hills, LLC (hereafter, "*the Applicant"*) in compliance with the State Environmental Quality Review Act (SEQRA) and in accordance with the requirements of the Town Board of the Town of Huntington, the Lead Agency under SEQRA. This Voluntary Draft Environmental Impact Statement (VDEIS) examines the potential impacts of (i) the proposed development of a residential "golf course community" on the approximate 149-acre site (hereafter, *the subject site or project site*) and improvements to Club facilities, including the golf course.

Description of Site and Area

The subject site is comprised of two (2) tax parcels on the north side of Breeze Hill Road and three (3) tax parcels on the south side of Breeze Hill Road, designated on the Suffolk County Tax Map as lots: 0400-014-04-1 & 2 and 0400-015-01-11, 12 & 16. The subject property is located within a low density residential community containing single family residences. **Figure 1-2** is an aerial photograph showing relatively recent (2010) conditions at the project site and the

buildings, structures, streets, parking lots and the general development pattern of the surrounding area.

General Project Description

The golf course will be substantially maintained in its present configuration including its many trees and ponds on the course to provide for the conservation and preservation of open space and the support of private recreational use in conformance with the legislative intent of R-OSC zoning codified in Town Code §198-21.3A. The residential use will be added as allowed for in the R-OSC zoning, in order to facilitate the retention of the golf course as an active recreational and open space use.

The project site is currently zoned "R-40 Residence." The minimum lot area requirement in this zone is 43,560 square feet ("SF") (1-acre), lot widths must be no less than 125 feet at the front yard setback line, and the minimum lot frontage is 40 feet. The proposed R-OSC zoning requires a minimum gross area of five (5) acres and a minimum lot area requirement of 40,000 square feet ("SF") (0.92-acre), for yield purposes. No minimum lot width or frontage is required. The R-OSC zone mandates clustering of development to provide for the preservation and enhancement of open space. Owners of properties containing recreational uses may then fully yield their lots while preserving the recreational use and/or the aesthetic and scenic qualities of their properties. A yield plan, prepared by Nelson & Pope Engineers and Surveyors (see **Attachment 1**) depicts a total of 103 residential lots, prior to the addition of tax lot #0400-015-01-16 in compliance with the R-40 standards, as set forth by Chapter 198, "Zoning," of the Town Code.

It is the intention of the Applicant to build a development whose focus is the creation of conservation area to preserve the environmental integrity of the property. The proposed layout, as depicted in **Attachment 2, Project Plans**[1], maximizes open space conservation area and preserves ecological features, topography, scenic views, and community character in conformance with Town Code §198-21.3F.

Site design shall be consistent with the principles required by Town of Huntington, Subdivision Regulations and Site Plan Specifications, **Section 5.2.2.2.7 Architectural and Site Design Requirements** based upon property location (hamlet center boundaries are defined in the Horizons 2020 Comprehensive Plan Update). These requirements set the proposed design intent of the proposed project and the high standard of quality and provide visual controls for the proposed homes. As demonstrated by the design requirements and indicated in the architectural renderings provided in **Appendix B**, particular attention will be given to the architectural design, building materials and landscaping, interior and exterior layout of the site and homes, and common area maintenance.

The proposed homes will fully comply with Town height requirements (maximum 35 feet) and building footprints have been analyzed at less than 8 percent of the area of the site, an average of 4,400 square feet (SF) per building. The community building (clubhouse), which is a recreational amenity developed for the exclusive use of residents and members, is included on

[1] **Attachment 2** includes project plans as follows: Concept Sketch (Sheets 2 & 3 of 13); Conceptual Plans 1, 2 & 3 (Sheets 4, 5 & 6 of 13); and Conceptual Sanitary Plans 1, 2 & 3 (Sheets 7, 8 & 9 of 13); select plans included for VDEIS presentation; full plan set on file with the Town Planning Department.

the Concept Sketch (see **Attachment 2**) and is located within the permitted setbacks of the R-OSC District (50 feet from all exterior lot lines of the property). A 20,414 SF (footprint) clubhouse and associated parking area are illustrated on the Concept Plan. Access to the residential areas shall remain open and non-gated, with the exception of residential areas where any gate related structure such as the maintenance building is located on a private road. Such accessory structures are typical of outdoor recreational uses such as golf courses and where clustering of development to provide for the preservation and enhancement of open space is mandated. Development will be subject to individual plot plan review by the Planning Board pursuant to **Section 5.2.2.2.7 Architectural and Site Design Requirements** of the Town Subdivision and Site Plan Regulations. The proposed zone change includes not less than seventy (70%) percent of the site reserved as open space in perpetuity in the manner provided for in § 198-21.3G. More specifically, Town Zoning Code defines Open Space as follows (§198-2): "A portion of land where buildings and roadways are prohibited. Open space shall include natural areas, agricultural fields, parks, playgrounds, athletic fields, and landscaped areas such as lawns and buffer strips." Using this definition and the applicable site quantities for buildings (5.21 acres) and cartpaths/roads/ parking lots (9.2 acres), the sum of 14.41 acres is subtracted from the total acreage of 145.32, resulting in 130.91 acres of open space or 90%.

The development will be served by a network of internal streets that will be privately owned and maintained by the Property Owners Association (POA). All wastewater generated in connection with the townhomes and clubhouse will be treated by innovative and alternative onsite wastewater treatment systems to be approved by the Suffolk County Department of Health Services (SCDHS). The Suffolk County Water Authority (SCWA) provides water service in the area and will be the source of potable drinking water for future homeowners. **Section 1.4** provides a detailed description of the proposed project.

The subject property is the site of the Indian Hills Country Club. The 18-hole "Indian Hills" course at the Indian Hills Country Club facility features 6,631 yards of golf from the longest tees for a par of 72. Designed by Alfred H. Tull, ASGCA, the Indian Hills golf course opened in 1961. The structures currently present on the subject property include: the main clubhouse, a pro shop, a halfway house, a barn utilized for storage, an equipment shed, a fertilizer and spray rig storage structure, and a maintenance garage with associated offices. All of the buildings are connected to separate sanitary systems with the exception of the storage barn, the equipment shed, and the fertilizer storage structure, which are not connected to sanitary systems. The clubhouse is connected to two (2) separate sanitary systems, one (1) for the kitchen and one (1) for the bathrooms. These structures will be removed and the sanitary systems, properly abandoned under the auspices of the SCDHS, prior to site development.

<u>State Environmental Quality Review Act (SEQRA) Intent</u>

This VDEIS has been prepared in accordance with the SEQRA) and its implementing regulations under Part 617, Title 6 of the New York Code of Rules and Regulations (6 NYCRR Part 617). The Applicant has opted to prepare this VDEIS voluntarily at the outset of the SEQRA review process in order to provide the Town Board, as lead agency, with a thorough evaluation of the Proposed Action and its potential impacts at the earliest possible stage (hence, a Voluntary DEIS). The VDEIS describes the methods and techniques proposed by the Applicant to

eliminate or mitigate potential environmental impacts, and provides the bases for issuance of a "Determination of Significance" as required by 6 NYCRR Part 617, SEQRA.

1.2 Project Background, Need, Objectives and Benefits

1.2.1 Project Background

In March of 2010, the Town added the Residence-Open Space Cluster District to the Zoning Code. It is the intention of the Applicant to implement land use policies set forth in this section of the Code specific to the conservation and preservation of open space and the support of private recreational endeavors.

The Applicant submitted the current application on January 13, 2016. A copy of the application submission and Full Environmental Assessment Form (EAF) Part 1 is included in **Appendix A**. In an effort to address several key issues, a community information meeting was arranged by the Fort Salonga Association on behalf of the Preserve at Indian Hills. The meeting was held at the Fort Salonga Elementary School on Wednesday, January 20, 2016. After compiling and reviewing comments from the meeting, the Applicant investigated several plan modifications, subsequently revising the Concept Sketch, reducing the unit count; the unit footprints; paved areas, and the cut volumes of soil that would need to be removed from the site. Subsequent meetings have been held with the Fort Salonga Association. The association will participate in the Town Board change of zone review and hearing process as the project advances.

The application review will continue after the filing of this VDEIS to provide information for consideration by the Town in connection with the environmental review of the change of zone application. This stage includes this Voluntary DEIS as well as a traffic impact study, and a revised Concept Sketch. A public hearing will be held and the public, community groups, Planning Board and other involved and interested agencies and organizations will provide commentary on the proposed project.

1.2.2 Public Need and Municipality Objectives

The public need for the project is related to the benefits to be derived if the project is implemented. The Applicant has designed the proposed project to achieve the highest and best use of the property based on the Horizons 2020 Comprehensive Plan Update, adjacent land uses and residential market trends. The project sponsor believes there is a demand for a well-designed senior duplex townhome residential development at this location that will offer an attractive alternative to individuals seeking high quality housing within a private community that is, in part, maintained and overseen by a property owners association and has amenities including a golf course. The project will increase housing opportunities in the Town by diversifying the housing stock in the area, which includes adjacent residential developments to the east, west and south. The subject property has convenient access to a network of roadways including Breeze Hill Road, Fresh Pond Road and Mystic Lane.

The property contains adequate infrastructure resources and public facilities (including local and regional transportation network, water supply, parks, utilities, and fire and police protection) to permit, serve, and support the proposed development. The subdivision complies with the standards, spirit, and intent of the Town's R-OSC Residential zoning district. Conformance to Town zoning standards is not only necessary to ensure a well-planned compatible residential development but demonstrates consistency with the comprehensive long-range land management goals and overall community vision for the site and area, as embodied in the policies of the Town Code.

The project is also consistent with the Town Comprehensive Plan Update land use recommendation for the property indicated on the Master Plan's future land use map. The Plan specifically identifies the project site as one that should be developed for "Parks, Recreation & Conservation Land." The intent is to maintain and preserve the established character of these neighborhoods through conservation strategies; although it provides no further specific recommendations for the property. The proposed development would be developed with 110 homes at an average density of approximately 0.80 units per acre (of the proposed R-OSC zoned portion of the property), based on the 137.86 acres of upland (non beach/water) area on site.

After calculating the average slope of hillside areas on the site pursuant to Town Code, Article X Steep Slope Conservation Law and setting aside (subtracting) land for streets and stormwater recharge areas, the density for the Project would continue to remain low in the Town's classification system. Providing development at this lower density not only complies with County and Town land development goals, but along with provision of adequate drainage controls and other environmental safeguards, will help in protecting the Crab Meadow Watershed which the subject site is located within and underlying resources of the Fresh Pond Greenbelt Special Critical Environmental Area (CEA) located immediately to the east, to the maximum extent practicable.

The proposed project will provide a permanent high-quality use on a property. The development will preserve a recreational land use that was becoming less economically viable and had potential to be discontinued, and replaces it with a residential-recreational use development that is in high demand and complies with the proposed zoning of the property and long-range planning policies. The proposed project will provide an opportunity for senior duplex townhome residential use within an area of the Town that is well-suited to accommodating growth and will result in the permanent retention of the golf course. At the same time the residential units will provide greater variety and choice in the Town's housing stock when compared to the conventional residential developments to the south, east and west of the site. The proposed use retains 90% open space, complements the surrounding area through design and offers a use that is suitably transitional and compatible with adjacent development.

1.2.3 Objectives of the Project Sponsor

It is the intention of the Applicant to build a development whose focus is the creation of conservation area to preserve the environmental integrity of the property while adding a taxable use to supplement the existing golf course and improve the financial viability of the overall site

use. The objectives of the project sponsor include the desire to produce a profitable economic return on a substantial financial investment, which would result from a senior residential community that addresses a need the Applicant believes is unmet in the area. The project would establish a well-planned senior residential community that is complementary to surrounding land uses, consistent with Town and County land management goals, provides fiscal and secondary economic benefits, and is compatible with the surrounding community. The Applicant is seeking to provide a use that will conform to the proposed zoning; the Legislative Intent of the R-OSC district, of which the Indian Hills property satisfies, while at the same time, mitigating environmental impacts to the maximum extent possible.

In summary, The Preserve at Indian Hills will provide an opportunity for viable residential growth within an area of the Town of Huntington well-suited to accommodate such growth and will achieve the Legislative Intent of the R-OSC district by preserving open space and an important recreation use. The project will address the public need for a luxury senior residential community in an attractive setting and a desirable area.

1.2.4 Benefits of the Project

The benefits of the proposed project are based on social, economic and land use considerations that include new housing opportunities, substantial fiscal (tax revenue generation) and economic (job creation) benefits, and the preservation and enhancement of open space into a more viable permanent productive land use. The project will provide an opportunity for high quality residential housing in a desirable area of the hamlet of Fort Salonga. The community will benefit economically from the increased value of the property. The development will be self-contained and will be responsible for maintenance of its own private streets, thereby absorbing the costs associated with their maintenance and upkeep. The proposed project will also result in the generation of a substantial number of jobs during the construction phase of the project, with subsequent secondary spin-off or "ripple" effects that will increase the demand for goods and services within the local area, during and following construction (i.e. clearing, landscaping, maintenance, plowing) and consumer spending (food, furnishings, apparel, personal services, entertainment, etc.). A Home Owners Association (HOA) will be established to maintain common areas, drainage features and landscaping, thereby relieving the Town of this responsibility and expense. The project will also provide a permanent land use for the site that is viable and consistent with local zoning.

1.3 Location

The 145.32 acre property, comprising five (5) tax parcels is located on the north and south sides of Breeze Hill Road, west of Fresh Pond Road in the hamlet of Fort Salonga, County of Suffolk, New York. The physical address of the property is 21 Breeze Hill Road and its Suffolk County tax lot designations are: 0400-014-04-1 & 2 and 0400-015-01-11, 12 & 16 (see **Figures 1-1** and **1-2**).

The subject site is within the following service and planning districts:

- Northport - East Northport Union Free School District
- Northport Fire District
- Suffolk County Water Authority
- Suffolk County Police Department (SCPD), 2nd precinct
- PSEG Long Island (electricity)
- National Grid (natural gas)

The subject property is located adjacent to the Fresh Pond Greenbelt Critical Environmental Area (CEA) as designated by Suffolk County in 1988. This greenbelt includes lands east of Fresh Pond Road and does not include the subject site.

1.4 Project Design and Layout

1.4.1 Overall Site Layout and Description

The proposed action involves the rezoning of a 145.32 acre golf course property including 1.36 acres of an adjoining 5.24 acre tax parcel (SCTM # 0400-15-01-16, a total of 145.27 acres from R-40 (minimum one acre) Residence District to R-OSC Open Space Cluster District) in order to construct 110 senior residential units. The development site is comprised of a total of five (5) tax parcels located on the north and south sides of Breeze Hill Road, west of Fresh Pond Road in the hamlet of Fort Salonga, Town of Huntington, Suffolk County, New York. The golf course will be substantially maintained in its present configuration to provide for the conservation and preservation of open space and the support of private recreational use in conformance with R-OSC zoning. The proposed residential development will include 108 senior duplex townhomes to be located in 54 structures and 2 senior single family residences for seasonal use. The buildings will be sited in areas where there is existing road access and clustered for preserving open space as a single contiguous block. Access to the 46 town homes south of Breeze Hill Road will be provided via tax lot #0400-15-01-16, part of which is proposed to remain zoned R-40 (1.36 acres) and part will be subject to a lot-line change and included in the rezoning (3.88 acres). Access will also be provided from Fresh Pond Road for 16 town homes and Mystic Lane for 46 townhomes. The two detached senior single family residences will be seasonally accessed by the golf cart paths. Each of the proposed dwellings will be served by public water and clustered alternative sanitary waste treatment systems approved by SCDHS . Site plan review/approval will be required for the proposed development subsequent to the zone change and subdivision.

The proposed interior roadways will be privately owned and maintained by the POA. The right of way and pavement width is proposed to be 30 feet wide, consistent with many private developments within the Town.

Two accessory structures are proposed in support of the proposed recreational-residential development: an approximate 20,414 square foot clubhouse located south of Breeze Hill Road and east of the proposed 46 town homes and retention of the existing maintenance building located within an approximate 12,000 SF maintenance area on the northwest side of Fresh Pond

Road. The clubhouse is anticipated to be single-story building with finished basement, which will provide a recreational amenities (such as a dining room) for the exclusive use of the homeowners and their guests. A 56 space parking lot will be provided for employees and residents. A 168 space general parking lot is also proposed.

The proposed open space-recreational-residential land use fully complies with the use requirements of the district as set forth under § 198-21.3 of the Town Code. The proposed zone change will also comply with the dimensional zoning standards set forth by the Town of Huntington Code. Generally, concept or sketch plans do not require engineering detail and are early drafts of proposed developments that, by their review, enable agreement and consensus with the Town as to the design, size, access, layout, extent, location and degree of the necessary and/or proposed improvements in conjunction with a proposed development. Sufficient engineering has been completed with respect to access, design, grading, drainage and sanitary waste handling to allow for a complete assessment of potential impacts as part of this VDEIS. Following the change of zone, plans will be submitted with Subdivision and Site Plan applications for the purpose of accurately conveying the full extent of the proposed construction work and operations

In particular, Chapter 198, Article IX Height, Area and Bulk Regulations and § 198-21.3 (E) of the Town Code shall apply. The later includes the following specific requirements:

- Not less than seventy (70%) percent of the site shall be reserved as open space in perpetuity in the manner provided for in § 198-21.3(G).

- A building and parking lot setback of at least fifty (50) feet in depth shall be provided, as measured from all exterior lot lines of the property under review.

- Building height shall not exceed thirty-five (35) feet, unless modified by the Planning Board to allow up to an additional fifteen (15) feet. This modification may be granted if it can be demonstrated by the applicant, to the satisfaction of the Board, that the visual impacts from surrounding properties shall be minimal and the increased height shall result in conserving the natural and scenic qualities of open lands.

- More than one principal building may be placed on a lot.

- A minimum separation of ten (10) feet shall be provided between all principal buildings.

- Any community building, recreational or related amenity developed for the exclusive use of residents of the cluster development must be set back at least fifty (50) feet from all exterior lot lines of the property under review.

- An upland buffer of native vegetation of at least one hundred (100) feet in depth shall be provided adjacent to wetlands and surface waters, including creeks, streams, springs, lakes, and ponds. The buffer area shall not be fertilized.

Additionally, existing wooded buffers are proposed to be retained along Breeze Hill Road and along Fresh Pond Road, opposite the west-central portion of the Suffolk County designated Fresh Pond Greenbelt CEA.

The proposed project includes the relocation of golf course hole #11 to a location west of the current location. This relocated hole will be installed and landscaped to maintain similar characteristics of the existing golf hole. There are several other minor changes to tee locations will also be completed in order to provide safe play areas for golf in consideration of the added residential use of the site.

The proposed project will include an extensive landscape plan with site plan applications to maintain harmony with neighboring uses; provide privacy and buffer the proposed development and protect floodplains, wetlands, and steep slopes. This proposed landscaping and the retention of natural areas will screen the proposed improvements from adjacent properties. Street trees will be planted along both sides of each of the proposed streets, and will be spaced, on average, 40 feet on center. Decorative street lighting will line one side of each of the streets and, like the street trees, will also be spaced at 40-foot intervals. Extensive landscaping will also be installed around the proposed clubhouse parking lots to enhance the aesthetic setting and provide screening from adjacent properties. Residential use areas will be landscaped after dwellings are constructed, to further enhance residential privacy, the physical beauty and character of the development and area, and to screen and buffer any potentially undesirable aspects of.

Stormwater from the private street system will be captured in individual leaching catch basins and conveyed to retention ponds and drainage infiltration systems. The overall drainage system will be designed to store in conformance with Town engineering requirements.

All wastewater generated in connection with the 108 senior duplex townhomes and the clubhouse will be treated in Innovative and Alternative Onsite Wastewater Treatment Systems (I/A OWTS) in conformance with SCDHS requirements. I/A OWTS systems are technologies that are accepted by the SCDHS as capable of achieving the total nitrogen concentrations that are less than Conventional Onsite Wastewater Treatment Systems. Potable water will be furnished by the Suffolk County Water Authority. School aged children to attend the public school system will attend the Northport - East Northport Union Free School District and fire and police services will be provided by Northport Fire District the Suffolk County Police Department's 2nd Precinct, respectively.

The **Table 1-1** provides a listing of the subject site's existing and proposed coverages and physical characteristics.

TABLE 1-1
SITE AND PROJECT CHARACTERISTICS

Parameter	Existing Conditions	Proposed Project
Use	Recreation (golf course)	Residential & Recreation (golf course)
Yield	Golf course (145.32 acres)	110 senior units & golf course
Zoning	R-40	R-OSC
Wastewater Treatment System	Septic	Enhanced Septic
Coverages (acres):	**---**	**---**
Permanent Open Space	**0**	**130.91**(1)
Mowed	**93.38**	**99.28**
Mowed with Trees	9.88	8.75
Greens (Fertilized)	2.37	2.39
Fairways (Fertilized)	23.90	23.96
Tees (Fertilized)	1.64	1.67
Shrub beds	0.41	0.11
Other Landscaped (Mowed)	55.18	62.40
Natural	**31.85**	**18.87**
Coastal Oak	9.31	8.93
Successional Southern Hardwood	20.04	7.45
Maritime Bluff	2.49	2.50
Wetlands	**0.50**	**0.50**
Ponds	**3.20**	**3.49**
Beach & Tidal Waters	**7.46**	**7.46**
Unvegetated	**1.77**	**1.32**
Non-paved Cartpaths	0.63	0.16
Bunkers	**1.15**	**1.16**
Cartpaths/Roads/Parking Lots	**6.68**	**9.20**
Buildings	**0.48**	**5.21**
Total	**145.32**	**145.32**
Trip Generation (vph)**:**	**---**	**---**
Weekday AM Peak Hour	37	109/146 (1)
Weekday PM Peak Hour	53	62/115 (1)
Saturday Midday Peak Hour	83	62/145 (1)
Water Resources:	**---**	**---**
Domestic Use/Wastewater (gpd)	3,300	37,250
Total Water Use (gpd)	67,148 (2)	101,098 (2)
Recharge Volume (MGY) (3)	63.82	80.40
Nitrate Concentration (mg/l) (4)	1.92	2.65
Miscellaneous:	**---**	**---**
Total Residents (capita) (5)	0	165
Tax Revenues ($/year)	198,062	1,894,524
School Tax Revenues ($/year)	130,679	1,249,991
School-Age Children (capita)	0	0 (6)
Solid Waste (lbs/day) (7)	265	843

Notes for **Table 1-1**:

(1) As: trips generated by senior residences/trips generated by senior residences plus golf course trips (see **Appendix I**; Traffic Impact Study)
(2) Based on actual usage for golf course irrigation, as reported to NYSDEC: 63,848 gpd plus projected domestic use.
(3) Includes landscape irrigation of 16 inches/year, or 28,137 gpd averaged over the entire year.
(4) Based on SONIR model estimate provided in **Appendices E-2, E-3 & E-4**.
(5) Assuming 1.5 capita/senior unit.
(6) Since the proposed project is age-restricted, it is not anticipated that it will generate any school-aged children.
(7) Assuming 3.5 lbs/day/capita/senior unit, 0.013 lbs/SF/day for clubhouse, and 5 lbs/day/capita for subdivision units.

Abbreviations: vph (vehicles per hour); gpd (gallons per day); MYG (million gallons per year); mg/l (milligrams per liter)

Table 1-2 provides the coverages for the golf course only, determined based on the existing golf course conditions and the proposed conditions with the proposed project surface areas:

TABLE 1-2
GOLF COURSE COVERAGES

Parameter	Existing Conditions	Proposed Conditions
Golf Course (acres):	**100.38**	**92.86**
Greens	2.37	2.39
Tees	1.64	1.67
Fairways	23.90	23.96
Landscape/Rough	62.06	58.46
Bunkers	1.15	1.16
Cart Paths	4.07	3.48
Driving Range	5.20	1.75
Fertilized Area	27.90	28.01
Unfertilized Area	72.48	64.85

The proposed homes will fully comply with Town Height, Area and Bulk requirements. Although four stories are allowed within the R-OSC Residence District, two stories are proposed (maximum 35 feet). All structures, including the proposed Clubhouse and the Maintenance Area building as well as parking lots have been included on the Concept Sketch (see **Attachment 1**) and are placed within the permitted setbacks of the R-OSC District. Such structures are typical of residential-recreational development, and will be subject to Planning Board review with Subdivision and Site Plan application pursuant to Town Code.

1.4.2 Vehicle Access, Road System and Parking

The subject site is presently accessible from Breeze Hill Road, which has convenient access off of Makamah and Fresh Pond Roads via Fort Salonga Road (New York State 25A). The existing entrance on the south side of Breeze Hill Road is proposed to remain unchanged. This entrance

provides vehicle access to the clubhouse, pro shop, golf cart storage barn and practice facilities. The access consists of a drive, approximately 50 feet in total width at its entrance point which immediately splits as it extends into the site and parking areas. Parking will consist of two lots that accommodate 68 stalls and 56 stalls and are for use by members only. Golf carts will continue to be stored on the south side of Breeze Hill Road and cross through a striped path to the north side to access the golf course proper. No change is proposed to this existing golf cart entrance.

As depicted on the site plan prepared by Nelson & Pope, the proposed development areas will be located in three different areas within the Indian Hills Country Club property. Access to the proposed 46 senior duplex townhomes in the northwest part of the site will be provided via an easterly extension of Mystic Lane as envisioned by providing this "tap" road when the subdivision was originally planned. Access to the 16 units in the northeast part of the site will be provided via a newly constructed access driveway which will extend in a westerly direction from Fresh Pond Road approximately 1,250 feet north of Breeze Hill Road. Access to the 46 units in the southwest part of the site will be provided via an existing full access unnamed roadway which extends to the south from Breeze Hill Road approximately 65 feet east of Makamah Road. This access will be provided via tax lot #0400-15-01-16. Due to the proximity of this intersection to the Site Access for the southwest development area (i.e., approximately 65 feet to the east of Makamah Road), it is proposed that each approach of the existing roads and the site driveway, each be controlled by a stop sign. The two detached senior single family residences will be accessed by the golf cart from the existing network of cart paths.

Internal streets will be designed to buffer adjoining properties from vehicular impacts and provide ample access to resident and guest vehicles and emergency vehicles and will be reviewed by the Town Engineer to ensure that the street's design and construction materials satisfy the requirements of the Town. All internal roadways and will be maintained by the POA.

Section 198-47 of Town Code, "Table of Minimum Spaces Required" requires that there shall be at least one space per dwelling. Private parking will be provided within individual driveways and two-car garages and will comply with the above requirement. Two parking lots consisting of 68 and 56 stalls will be provided for the clubhouse building. The latter will be exclusively for clubhouse members.

1.4.3 Wetlands

Both freshwater and tidal wetlands exist on the subject property. The site consists of a series of ponds located through the central portion of the golf course. Based upon review of the historic aerial photograph, the ponds appear to be manmade. The two westerly most ponds are listed by the New York State Department of Environmental Conservation (NYSDEC) as fresh water wetlands and fall under their jurisdiction. These are the only freshwater wetlands on the subject property regulated under Article 24 of the NYS Environmental Conservation Law (NYSECL). The property also maintains approximately 1,500 feet of frontage on the Long Island Sound shoreline. The majority of the shoreline is armored with stone revetment (western and central portions) and the eastern portion of the shoreline has been stabilized with a line of partially

buried concrete rings. Apparent high water is typically less than 50 feet from the stone revetment, however in some areas, high water reaches the revetment. Long Island Sound is a tidal wetland which is regulated by the NYSDEC under Article 25 of the NYSECL from the Sound landward to the top of the slope running along the north side of the 12th tee, fairway and green. Pursuant to Article 24 and 25 of the NYSECL, permits from the NYSDEC will be necessary for construction activities within the jurisdictional limits (100 feet from the delineated freshwater wetland boundary and either 300 feet from the tidal wetland boundary, or to the top of the adjacent slope or bluff). The shoreline and slope is also regulated by the Town of Huntington under the Coastal Erosion Hazard Area (CEHA) regulations to the north of the CEHA boundary. These resources will be addressed in **Section 2.0** (Natural Environmental Resources) of this VDEIS.

1.4.4 Grading and Drainage

Clearing and Grading

Soil disturbance is necessary to establish suitable grades for the proposed paved areas, driveways, recharge features and building locations. Site grading and established surface slopes must consider requirements for low grades required for proper drainage, road grades, conformance with requirements of the Americans with Disabilities Act (ADA), and the convenience of the site's residents. Grade transitions will be made using slopes not to exceed 1:3. As the portions of the site proposed for development are utilized for the existing golf course and characterized by slopes ranging from 1% to 16%, grading consisting of cutting and filling will be required. All disturbed soil areas will be stabilized and all areas other than buildings, paved surfaces and athletic fields will be landscaped. Generally, the applicant anticipates that grading will be balanced between cut and fill resulting in the re-use of excavated soil on-site, so that no significant import or export of soil is necessary (see **Section 2.1.2** for additional information regarding potential impact of grading activities). Overall, it is anticipated that grading activities will require cuts ranging from less than 1 foot to approximately 20 feet and fill ranging from 0 feet to 20 feet. The most extensive cut and fill will be in areas designated for the proposed townhomes which will result in the excavation of approximately 10,000 cubic yards (CY) of soil during grading operations, all of which is anticipated to be reused as fill.

The proposed project involves a change of zone. The plans provided herein are conceptual development plans prepared to a level of detail sufficient for analysis of potential environmental impacts. A detailed site plan for the project will be prepared for the Town Planning Board; that submission will include grading and drainage plans showing the final engineered grading design. The entire site plan, including the grading and drainage plans, will require Town review and approval prior to implementation and subsequent to the change of zone.

Drainage

Town and State stormwater regulations require that all on-site stormwater (rainfall) runoff be collected and recharged on-site pursuant to design storm criteria and unless approved otherwise. Both the Town and State regulations have minimum stormwater volume detention requirements. The Town has differing requirements for the subdivision and for the golf course related facilities. The Town does require the residential units and any golf course related structures to have roof

runoff collected in downspouts and conveyed using leaders to dry wells. Typically, stormwater is collected and discharged to conventional on-site subsurface leaching facilities, such as precast concrete or reinforced fiberglass leaching structures or excavated recharge basins. Due to the underlying soils, the use of underground leaching structures and/or recharge basins may be limited, requiring the use of alternative stormwater handling systems that may include bio-retention areas, rain gardens, and ponding areas. The project engineer will design stormwater systems specific to the conditions of the subject site, and these systems will be reviewed and approved by the Town during the site plan review process. The following paragraphs discuss the stormwater system design as intended for this project, subject to final design and Town review.

All stormwater runoff generated on developed surfaces will be initially retained on-site and recharged to groundwater through the existing pond network, a new retention pond, a system of catch basins and leaching pools, individual roof drains and pervious vegetated/landscaped groundcover that allows for direct filtration. Development on the subject property will be partitioned into three separate drainage areas to accommodate stormwater runoff and are designated Drainage Areas A, B & C.

Drainage Area A consists of the portion of the development located in the northwestern portion of the property which will consist of 46 units as well as 2 single family senior residences. Drainage Area B consists of the portion of the development located in the eastern portion of the property which will consist of 16 units, and Drainage Area C will consist of the portion of the proposed development south of Breeze Hill Road and will consist of the golf course clubhouse and 46 units.

Drainage Areas A and B will utilize the existing pond network that traverses the central part of the property north of Breeze Hill Road from northwest to southeast for the retention of stormwater runoff. Runoff from Drainage Area A will be initially directed to Pond A and runoff from Drainage Area B will be initially directed to D & E. The pond network will be improved with a series of weirs which will promote the retention of stormwater to overflow areas surrounding each pond and will be designed to accommodate a nine (9) inch storm event. Ultimately, runoff will travel through the pond network to the eastern property line where it will overflow at the current weir overflow from the easternmost pond. The current pond overflow enters a drainage ditch along Fresh Pond Road and ultimately to overflows to Fresh Pond. Roadways within this portion of the development will also be provided with a network of catch basins that will discharge to the pond system.

The townhouse portion of Drainage Area C will discharge stormwater runoff to an excavated pond in the western and downslope part of the site for detention of runoff. Roadways within this portion of the development will also be provided with a network of catch basins connected to the excavated pond. This drainage pond will also be designed to accommodate a nine (9) inch storm event.

The portion of Drainage Area C which will be occupied by the proposed clubhouse and associated parking areas will be provided with a network of stormwater leaching pools that will discharge directly to the subsurface and will be designed to accommodate a five (5) inch storm event in accordance with Town requirements.

Ultimately, the drainage systems will be designed in accordance with the requirements of the Town and will be the subject of a Stormwater Pollution Prevention Plan (SWPPP) which will undergo review by the Town and will be filed with a Notice of Intent (NOI) with NYSDEC.

1.4.5 Water Supply and Wastewater Disposal

Sanitary Wastewater

The project site is located in Groundwater Management Zone VIII as defined by SCDHS. Based on the requirements of Article 6 of the Suffolk County Sanitary Code (SCSC), allowable sanitary flow on a site that is subject to subdivision is based on the 20,000 SF yield map, with the number of lots multiplied by 300 gpd per unit. In lieu of a 20,000 SF yield map, SCDHS provides a formula for determining allowable flow. For the proposed project, the allowable sanitary flow is based on the calculation:

(Site acres - wetland acres) x 0.75 x [(43,560 SF/acre)/(20,000 SF/unit)] = allowed units,

Thus, the calculation for allowable density under Article 6 of the SCSC is as follows:

(149.15 – 3.2) x 0.75 x 2.178 = 238.41 units

As each unit is allocated a flow of 300 gpd, the total allowed sanitary flow for the project site is obtained from: 238 units x 300 gpd/unit = 71,400 gpd.

The design flow is based on the sanitary wastewater generated by the proposed use. It is noted that the proposed project involves a golf course. Under *"General Guidance Memorandum #17, Agricultural and Golf Course Density,"* fertilized areas of golf course use contribute to nitrogen load and are accounted for in terms of wastewater flow by a factor of 300 gpd per fertilized acre. The design flow calculation has been prepared based on the combined wastewater flow and additional flow allocated to golf course use. The proposed project is significantly below the allowable flow provided for under SCSC Article 6.

Based upon SCDHS design flow factors, the 108 townhomes, 2 detached single family residences and the existing dwelling on tax lot 16 are expected to generate 33,300 gallons per day (gpd) based upon 300 gpd/unit. The clubhouse (200 catering seats @ 7.5 gpd; 50 indoor seats @ 30 gpd; and 50 outdoor seats @ 15 gpd) is expected to generate 3,750 gpd. The maintenance building has a design flow of 200 gpd. This results in a total design flow of 37,250 gpd.

The full design flow must consider the existing fertilized area combined with the proposed project flow, and compare this to the allowable flow of 71,400 gpd. Fertilized area per Table 1-1 is 28.01 acres. Therefore, flow due to fertilization per General Guidance Memorandum #17 is:

28.01 acres x 300 gpd (equivalent) = 8,403 gpd

This combined with the 37,250 gpd of flow from the proposed improvements equals: 45,653 gpd, which is substantially less than (25,747 gpd less) than the allowable flow of 71,400 gpd.

The proposed project will have significantly less sanitary wastewater than what is permissible under Article 6 of the SCSC. Nevertheless, the applicant plans to use upgraded sanitary wastewater treatment systems for the new 108 townhomes and clubhouse, in order to reduce nitrogen load associated with site use. The 2 senior seasonal single family units will use conventional systems, but are expected to be occupied intermittently. The existing maintenance facility will not change and will retain its current conventional sanitary system.

Suffolk County recently approved an amendment to the SCSC adding Article 19, which gives the County Department of Health Services the authority to promulgate procedures, protocols and standards for the use of innovative and alternative on-site septic treatment and disposal systems (signed by Suffolk County Executive Steve Bellone on August 10, 2016). The new Article 19 authorizes the first major change to residential wastewater treatment technology since 1973, when rules changed to require a septic tank in addition to a leaching pool. When properly designed, sited, installed, managed, and maintained, I/A OWTS provide a cost-effective and environmentally sound alternative to sewers in portions of Suffolk County that are outside the designated sewer areas, significantly reducing nitrogen in wastewater.

The proposed project will result in the construction of three (3) sanitary system zones for the townhomes, one for each development area. The sanitary handling concept to be employed is illustrated in the Nelson & Pope sanitary design plans included as **Attachment 4**. Each sanitary system zone will be divided into sections comprised of 3 to 5 buildings (6 to 10 townhome units) for achieving an optimal sanitary treatment design based on up to 1,500 gpd per treatment unit. Each of these subzones will utilize a tertiary treatment system that is recognized by SCDHS, or one that may be approved as a pilot installation through SCDHS Board of Review (BOR) approval. Tertiary treatment systems of this style are designed to reduce biochemical oxygen demand, suspended solids and total nitrogen in order to achieve a reduction in nitrogen load to less than 19 milligrams per liter (mg/l). The drinking water standard is 10 mg/l and the nitrogen concentration in untreated effluent is typically in the range of 60 mg/l.

Following tertiary treatment, sanitary waste generated in each zone will be gravity fed or pumped to a communal leaching pool system designed to accommodate the anticipated flow from all the residential units within each subdivided unit. Recharge areas are located based on test hole information that identified suitable soil leaching properties.

With regard to the two single family senior units proposed in the northeastern portion of the property, these units will utilize conventional sanitary systems consisting of septic tanks and leaching pools for the disposal of sanitary wastes.

Sanitary waste generated by the clubhouse will also utilize an I/A OWTS to provide tertiary treatment within the design capabilities of the system. However, since kitchen waste will also be generated sanitary effluent will first be discharged to a grease trap prior to transfer to the selected tertiary treatment unit.

The sanitary wastewater handling methods will be subject to engineering reports, SCDHS review and approval, oversight of installation and monitoring of the effectiveness of systems. If specific technologies for I/A OWTS systems for multiple townhomes and/or clubhouse type facilities are not listed at the time of the SCDHS application, the department has provisions for BOR review and approval of such installations on a pilot basis. The applicant commits to the use of I/A OWTS as outlined above, and will obtain the necessary SCDHS approvals for this installation.

Water Supply

The existing Indian Hills Golf Club is connected to the existing water main distribution system of the SCWA. The Preserve at Indian Hills is proposed to also be connected to public water which includes existing well fields and water mains in the area of the subject site. Interconnection to the existing water main distribution system will be subject to SCWA connection and tariff requirements.

Sustainable strategies will be incorporated into the home designs to provide both efficiency and energy savings. These include compliance with the following:

- All homes will achieve WaterSense label (an U.S. Environmental Protection Agency, "EPA" Partnership Program[2]), which are designed to reduce residential water use indoors and out by approximately 20 percent, allowing homeowners to use less water and energy. Design considerations include demand-controlled recirculating hot water systems and WaterSense labeled fixtures for kitchens and bathrooms.
- All homes will meet Energy Star homes design standards, which provide energy efficiency savings of up to 30%, including excellent air sealing, appropriately-sized mechanical equipment, and proper ventilation in bathrooms and kitchens.
- All homes will meet EPA Indoor air PLUS labeling in conjunction with the Energy Star label. This label requires installation of features that do not introduce pollutants to the air in and around the home during construction and occupancy

The golf course is irrigated using an existing on-site water supply well. This well will remain and will continue to supply irrigation water supply for the course. The well is permitted by NYSDEC under the New York well permit program (Permit # W-4813) and is identified as S-114017. The well is permitted to be pumped at a rate of up to 35 million gallons per year. The average pumpage from the years 2005 through 2015 was 21,503,242 gallons based on annual pumpage data listed below:

2015	26,667,723
2014	20,521,592
2013	22,724,626
2012	16,892,946
2011	20,443,000
2010	26,793,000
2009	17,970,000
2008	22,736,000
2007	26,816,000
2006	17,344,534
2005	17,626,246

[2] http://www3.epa.gov/watersense/

Pumpage records are maintained by the site operator and transmitted to NYSDEC on an annual basis per the well permit. As noted, this is an existing and ongoing golf facility that will continue to operate irrigation systems for turf maintenance of the course.

1.4.6 Landscaping and Lighting

Since the project currently under consideration involves the change of zone and not the subdivision of land or individual site plan design at this time, therefore, landscaping considerations are limited to conceptual and required elements including planting of street trees, perimeter screening vegetation and the installation of street lighting. Street trees will be planted 40 feet on center, including those native species listed in Appendix H of the Town of Huntington's Subdivision Regulations and Site Plan Specifications. Additionally, existing wooded buffers are proposed to be retained along the periphery of the site and in conformance with Town Code §198-21.3E.(7), at least one hundred (100) feet upland in depth adjacent to wetlands and surface waters, including creeks, streams, springs, lakes, and ponds, except as shown on the plan where relief may be required. Buffer areas shall not be fertilized. Since there are no existing wooded buffers, modifications to the pond areas required for drainage will be re-landscaped in similar cover to what currently exists.

Landscaping will be installed along the perimeter of the property where natural vegetation will be removed for the installation of internal roadways and clubhouse parking. Trees and shrubs, including both evergreen and deciduous species, will also be provided within the site around the residential units after home construction.

Subdivision streetlights will be installed to provide night time illumination of streets for resident and visitor safety and security. Street lighting will consist of decorative lantern-style fixtures mounted on 15-foot high light poles. Streetlights will be installed along one side of each of the proposed subdivision streets and the access road and will be spaced on average 40 feet on center. Electrical connections will be underground in accordance with Town Subdivision Regulations and Site Plan Specifications, Section 5.2.2.2.5**,** Right-of-Way Improvements and Dedications.

1.5 Construction and Maintenance

<u>Construction Schedule</u>
Based on the Concept Sketch, construction of streets and drainage improvements, installation of utilities, lot preparation, and home and driveway construction will largely occur within previously disturbed areas of the golf course. Although wooded area will be cleared, the majority of the site to be used for residential use involves existing mowed areas with trees and previously disturbed areas of the site.

The structures currently present on the subject property include: the main clubhouse, a pro shop, a halfway house, a barn utilized for storage, an equipment shed, a fertilizer and spray rig storage structure, and a maintenance garage with associated offices. All of the buildings are connected

to separate sanitary systems with the exception of the storage barn, the equipment shed, and the fertilizer storage structure, which are not connected to sanitary systems.

All of the existing buildings will remain except for the clubhouse and possibly the pro shop which may be incorporated into the new clubhouse. The clubhouse is connected to two (2) separate sanitary systems, one (1) for the kitchen and one (1) for the bathrooms. Buildings and structures that include the clubhouse proposed for demolition will be properly demolished by a properly licensed contractor, and solid waste will be transported to a licensed off-site location that accepts C&D materials for proper disposal. Prior to demolition, the sanitary systems will be properly abandoned in conformance with SCDHS protocols. In addition, a demolition permit will be obtained from the Town. An asbestos survey will be conducted to determine if asbestos may be present in any of the structures to be removed. Any known or suspected asbestos containing materials (ACM) that are identified will be removed prior to demolition in accordance with the NYS Department of Labor Industrial Code, Part 56.

Environmental remediation, system closure/abandonment will occur prior to demolition of the building. Overall, demolition activities and sanitary system abandonment are expected to take a limited period of time (2-3 months).

Access to the property during construction will be via Breeze Hill Road, Fresh Pond Road and Mystic Lane. The property is large enough to provide staging areas and worker parking on-site; thus no worker parking is anticipated to occur on public streets.

Daytime noise levels would increase in the vicinity of the project site during the construction phase of the project. During the construction period, trucks and other heavy equipment working within the Project Site as well as conveying equipment and materials to the location, will generate noise in excess of the ambient noise levels. The effect of this noise generation will be attenuated as one moves away from the source of the noise through a combination of factors, including distance, intervening topography and vegetation. Noise levels will be higher during initial site grading and road construction and more limited during home construction. The noise impacts will be temporary in nature and intermittent depending on the construction stage. Construction activities are limited to Monday through Friday between the hours of 7:00 am and 6:00 pm to conform to Chapter 141-4, “Noise disturbances enumerated,” of the Town Code.

The construction process will begin with the installation of project limiting fencing to establish clearing limits, and for protecting public safety. Silt fencing and perimeter erosion controls will also be put into place at this time to minimize the transport of soil on- and off-site during the construction period. The existing/remaining structures will be demolished and the debris generated from this demolition will be trucked off-site to an approved construction and demolition (C&D) landfill for disposal. Tree clearing will then occur, followed by overall rough grading, recharge basin excavation and the installation of landscape retaining walls (if necessary) to establish the required street grades and lot areas for future individual lot development. Permanent evergreen screening will be planted on the east side of the proposed 56 space parking lot and between the interior road and the southeast boundary of tax lot #0400-015-01-12 as early in the construction process as possible. Drainage improvements, stabilization of the interior roadways and the emergency access, and underground utilities will then be constructed or

installed. Exposed soils will be seeded as soon as possible after disturbance to help stabilize them. The site entrance roadway from Breeze Hill Road and related roadway improvements are expected to first be completed, for safe construction access in this area. Installation of the interior roadways, drainage and subsurface utilities may proceed in a single phase or in multiple phases depending on lot sales. Remaining common area landscaping will be installed as season permits, once rough grading is completed and interior access roadways are established. Site preparation work is anticipated to require 3-6 months, with home construction beginning during this time, as individual building permits are issued.

Site development will be subject to architectural review by the Planning Board with site plan application. Pursuant to Town Code § 198-116, the project will be designed with respect to the local community context in terms of building and parking location, massing, scale, materials, color, and style. Construction on each lot is anticipated to proceed as necessary approvals are received. It is anticipated that the overall construction period will be 18 months and be completed in one phase overlapping with other construction activities. Construction will proceed as follows:

- A stabilized construction entrance would be provided on the interior subdivision roadway.
- Project limiting construction fencing will be installed to provide a visual barrier, as well as security during construction activities.
- Erosion controls will be installed, including perimeter silt fencing and drainage inlet protection around all grated drainage inlets to prevent sediments from entering and settling within any subsurface drainage structures.
- Clearing and rough grading for roadway improvements and of the individual lot in accordance with the approved Site Plan and installation of evergreen screening, as necessary. Material staging areas and designated stock pile locations will be identified and protected.
- Foundation excavations, pouring of concrete and backfilling around basement walls would occur next. Temporary soil stabilization by the use of erosion control measures immediately following backfilling of the foundation on each lot would follow.
- Installation of subsurface utilities connections, drainage and sanitary systems.
- Final grading and temporary seeding of disturbed areas to stabilize disturbed areas and prevent or minimize sediment from washing on to adjacent properties. Dust control will be implemented during the course of soil disturbing activities.
- Exterior framing, installation of windows and doors, interior framing and utility hookups, and interior/exterior finishing.
- Final landscaping and driveway paving.

To minimize sediment and debris transported off-site by stormwater runoff and the impact to local water quality, erosion and sedimentation controls will be provided during project construction activities. Coverage under the NYSDEC General Permit for Stormwater Discharges from Construction Activities (GP-0-15-002, or General Permit) will be obtained prior to the initiation of construction activities. Prior to filing for any coverage, the NYSDEC requires that a SWPPP be prepared, including a detailed erosion and sediment control plan, to manage stormwater generated on-site during construction activities, and for post-construction stormwater management. A SWPPP would be prepared to ensure compliance with water quality and quantity requirements pursuant to NYSDEC Technical Guidance and the General Permit requirements. In addition, an erosion control plan incorporating the NYSDEC Technical

Guidance manual, and use of erosion and sedimentation control measures such as silt fencing, storm drain inlet protection, turf reinforcement mat, and good housekeeping procedures will be utilized.

Large trucks and project site excavation have the potential to create fugitive emissions during the construction phase of the project. Dust control measures including use of watering trucks, limited the areas of disturbance undergoing grading activities, and temporary seeding, mulching and stabilization practices will reduces the potential for fugitive dust generation at the site. Additional best management practices that will be included in the SWPPP include covering of all trucks transporting soils and ensuring control of exhaust emissions from construction vehicles through documented maintenance of the vehicles' air pollution controls.

The drainage system and revegetation of the site will further provide permanent stormwater controls once construction is completed. Development of the property is not anticipated to significantly increase erosion/sedimentation or stormwater impacts, as a result of proper site grading procedures, erosion controls, and drainage system design.

Maintenance

The development will be operated by a POA established for the purpose of maintaining common elements of the project. It is also proposed that landscaping be done by the groundskeeping staff of the Indian Hills Country Club. This will significantly reduce impact on neighborhoods from landscaping equipment, as all necessary equipment and staff are currently maintained on site, and will have the ability to internally access residential areas for lawn care and maintenance. Sanitary facilities, drainage improvements, roads maintenance/plowing and other common area improvements will be maintained through contracts with service companies as needed. Once established, and post-development, the POA will manage the affairs of the community.

1.6 Permits and Approvals Required

This VDEIS has been prepared in accordance with the NYS Environmental Quality Review Act (SEQRA) and its implementing regulations under Part 617, Title 6 of the New York Code of Rules and Regulations (6 NYCRR Part 617). The Applicant has opted to prepare this VDEIS voluntarily at the outset of the SEQRA review process in order to provide the Town Board, as lead agency, with a thorough evaluation of the Proposed Action and its potential impacts at the earliest possible stage). The Voluntary DEIS describes the methods and techniques proposed by the Applicant to eliminate or mitigate potential environmental impacts, and provides the bases for issuance of a "Determination of Significance" as required by 6 NYCRR Part 617, SEQRA.

Table 1-3 lists the permits and approvals required for the proposed project, along the reviewing/issuing agency.

TABLE 1-3
PERMITS AND APPROVALS REQUIRED

Agency	Approval
Huntington Town Board	Zone Change
Huntington Town Zoning Board of Appeals	Special Use Permit
Huntington Town Planning Board	Subdivision, Site Plan; Buffer Relief
Huntington Highway Office	Road Access Permit, Drainage
Suffolk County Department of Health Services	Water Supply Sewage Discharge
Suffolk County Water Authority	Water Supply Connection
NYSDEC	Tidal and Freshwater Wetland Permits; SPDES Stormwater Permit
Huntington Town Building Department	Demolition and Building Permits

SECTION 2.0

NATURAL ENVIRONMENTAL RESOURCES

2.0 NATURAL ENVIRONMENTAL RESOURCES

2.1 Topography

2.1.1 Existing Conditions

Overall the entire property has an undulating topography which was first created by natural glacial advance and retreat processes and later altered to accommodate development of the golf course. The subject property is transected by Breeze Hill Road which divides the property into a northern parcel which is occupied by the golf course and a southern parcel which is occupied by the clubhouse and driving range.

The most notable topographic features present on the northern parcel consist of a ridgeline located in the northern end of the golf course, a hill located just south of the ridgeline and a glacial outwash trough which arcs from the center of the western golf course boundary to the southeastern portion of the golf course. This trough is occupied by a network of natural and man-made pond which create water hazards that have been incorporated into the golf course layout. The highest point on the property is found at the crest of the hill which is centrally located south of the ridgeline in the northern end of the property and is encountered at an elevation of approximately 157 feet above mean sea level (msl). The lowest point on the property is located in the southeastern portion of the property at the end of the glacial outwash trough and is encountered at an elevation of approximately eleven feet above msl.

The western end of the ridgeline sits at an elevation of approximately 50 feet above msl and ascends to an elevation of approximately 100 feet at its eastern end. From the ridgeline, the topography of the northern parcel descends to the north at varying slopes ranging from approximately 25% to 50% to a bench which comprises the thirteenth fairway of the golf course and then down a secondary slope that ranges from 20% to 40% down to a second bench which comprises the twelfth fairway. From the second bench the property then descends down a bluff at slopes ranging from 20% to 60% which terminates at the beach along the Long Island Sound.

From the glacial outwash trough the property ascends to the northeast towards the ridgeline at slopes ranging from 5% to 40% and the southwest at slopes ranging from 10% to 20% towards the southwest corner of the golf course. The glacial outwash trough itself descends from a high elevation of approximately forty feet above msl towards the southeast at a slope of approximately 2% to an elevation of approximately fourteen feet above msl in the southeastern portion of the golf course.

The southern parcel is dominated by an elevated plateau on which lies the golf course clubhouse and paved parking areas. The plateau sits at an elevation of approximately 125 feet above msl and slopes towards the north at slopes of approximately 5%, east at a slope of approximately 50% and the west at a slope of approximately 15%. The lowest elevation in this portion of the property is found at 26 above msl and is located along the western boundary.

Figure 2-1 depicts topography and landforms on and in the vicinity of the project site. **Attachment 2** provides additional topographic detail at a larger scale on the Concept Sketch plans for the site.

2.1.2 Anticipated Impacts

The clearing and grading process is expected to take 1-2 months to complete. Grading activity will be conducted internally within the site and will not impact adjacent properties. In addition, construction management techniques outlined in **Section 1.5** will ensure that sedimentation and erosion control measures are implemented.

Planned grading of the site will be necessary to provide appropriate and stable surface areas to allow development of the proposed project. The proposed project involves the minimum grading necessary to permit use of the property in accordance with the proposed zoning. It is expected that 32.75± acres of the proposed development area will require clearing and grading to provide adequate surface areas for the proposed buildings, paved areas, landscaping and recharge features.

The grading to establish suitable road profiles for safe access to and circulation within the site will control overall site grading; roads will maintain slopes ranging from one to ten percent. From the roads, grading will be conducted to provide locations for buildings, paved areas, and drainage. Once complete, slopes of 1:3 or less will be established in newly graded areas. In general, following development, the site will continue to slope from a topographic high located along the southwestern corner of the proposed development area towards the southeastern corner of the proposed development area.

As the portions of the site proposed for development are utilized for the existing golf course and characterized by slopes ranging from 1% to 16%, grading consisting of cutting and filling will be required. All disturbed soil areas will be stabilized and all areas other than buildings, paved surfaces and athletic fields will be landscaped. Generally, the applicant anticipates that grading will be balanced between cut and fill resulting in the re-use of excavated soil on-site, so that no significant import or export of soil is necessary. Overall, it is anticipated that grading activities will require cuts ranging from less than 1.0 foot to approximately 20 feet and fill ranging from 0.0 feet to 20 feet. The most extensive cut and fill will be in areas designated for the proposed townhomes which will result in the excavation of approximately 10,000 Cubic Yards (CY) of soil during grading operations, all of which is anticipated to be reused as fill.

The proposed grading program has been designed to minimize potential impacts to topography to the maximum extent practicable. Measures include proposed 1:3 grade transitions, planting of ground cover materials, installation of retaining walls and stormwater retention facilities. As noted all created slopes will be 1:3 or less and will be stabilized using ground cover material. It is noted that the proposed project will be subject to review by the Town of Huntington Planning Board which pursuant to §198-65(H) of the Town of Huntington Code, allows the Planning Board to "make changes to a site plan in order to protect steep slopes and the environment, and may require conditions and restrictions as deemed necessary to assure compliance with all

applicable laws, rules and standards." The Board may take into account the degree of slope, the suitability of the location for construction, attempts to mitigate clearing and grading and the environmental features of the lot during this review. As a result, the potential erosion of surface soils and proposed grades will be mitigated through project design combined with further measures described below.

Precautions will be taken to ensure sediment will not be transported off-site by stormwater runoff both during and post construction. In accordance with the NYSDEC SPDES Phase II Program and Chapter 170, Article II of the Town of Huntington Code, a Stormwater Pollution Prevention Plan (SWPPP) will be prepared for the development of the property, including a detailed erosion and sediment control plan to manage stormwater generated on-site during construction activities, and for post-construction stormwater management. The SWPPP will ensure compliance with water quality and quantity requirements pursuant to the 2010 NYS Stormwater Management Design Manual ("Design Manual"), Chapter 170 of the Town of Huntington Code and NYSDEC requirements and will be submitted to the Town for review and approval prior to final site plan approval and filing with the NYSDEC. The SWPPP will include detailed erosion control and phasing plans incorporating the NYSDEC Guidelines for Urban Erosion and Sediment Control, and use of measures such as:

- Silt fencing, storm drain inlet protection, sediment traps, settling basins and good housekeeping procedures will be utilized.
- Construction equipment and vehicles will be parked and loaded/unloaded within the site.
- A construction entrance with "rumble strips" will be placed at the site entrance to prevent soil on truck tires from being tracked onto the public road system.
- The construction process will begin with establishment of flagged clearing limits, followed by installation of the erosion control measures.
- Construction of the structures can then begin concurrent with the utility connections. Once heavy construction is complete, finish grading will occur followed by soil preparation using topsoil mix, seeding and installation of the landscaping, which will be performed while the structures are being completed.
- Weekly inspections of erosion controls will occur in accordance with Chapter 170 of the Town Code to ensure proper installation and maintenance of erosion controls.
- The drainage system and revegetation plan will further provide permanent stormwater controls once construction is completed.

Development of the property is not anticipated to significantly increase erosion/sedimentation or stormwater impacts as a result of proper site grading procedures, erosion controls, and drainage system design. It is anticipated that clearing, grading, drainage excavations and road, utility, and commencement of construction (final grading, construction and finishing) will take approximately 24 months. During grading operations, truck traffic to and from the site will be routed to each individual development area using the same access roads that will be used for driveways to the three (3) development areas. Trucks waiting to load or unload will be routed and parked within the site in proximity to the grading area, to minimize the amount of truck movements, thereby minimizing the potential to raise dust.

No significant long-term adverse impacts are expected with respect to topography, since a grading plan has been devised to minimize the area and volume of disturbance; the grading will

be the minimum necessary to achieve the goals for the proposed development. Short term impacts will be controlled by proper grading, erosion control, construction inspection and management, and site stabilization techniques consistent with NYSDEC and Town requirements.

2.1.3 Proposed Mitigation

- Mitigation designed to limit the impact on topography at the subject property will consist of limiting the grading necessary in the steep sloped areas of the site using retaining walls and retaining many of the steep slope areas as undisturbed open space. The Conceptual Plans 1, 2 and 3 of **Attachment 2** (in a pouch at the end of the documents) has been devised to minimize the area and volume of disturbance; the grading envisioned is the minimum necessary to achieve the goals for the proposed development. Resultant development areas will be permanently stabilized and slopes will not exceed 1:3.
- An erosion control plan will been prepared during site plan review which will demonstrate the protection methods that will be utilized during construction to control transport of sediment and stormwater runoff and ensure slope stabilization upon the completion of construction activities.
- Use of a water truck, rumble strips, proper internal staging areas and provision of buffer areas.
- During grading operations, truck traffic to and from the site will be routed to each individual development area using the same access roads that will be used for driveways to the three (3) development areas. Trucks waiting to load or unload will be routed and parked within the site in proximity to the grading area, to minimize the amount of truck movements, thereby minimizing the potential to raise dust.
- Applicable erosion and sedimentation control guidelines will be observed during construction of the proposed project in order to minimize impacts. In accordance with the requirements of NYSDEC and Chapter 170 of the Town Code, a SWPPP be prepared for the development of the property, including a detailed erosion and sediment control plan, to manage stormwater generated on-site during construction activities, and for post-construction stormwater management.

2.2 Soils

2.2.1 Existing Conditions

The US Department of Agriculture's Soil Survey of Suffolk County, New York **(Warner, 1975)** provides a complete mapping, categorization, and description of soils found in the County. Soils are classified by similar characteristics and depositional environment into soil series, which are in turn grouped into soil associations. An understanding of soil character is important in environmental planning as it aids in determining vegetation type, slope, drainage characteristics, engineering properties, and land use limitations. These descriptions are general, however, and soil characteristics may vary greatly from place to place; particularly soils of glacial origin.

The Soil Survey identifies the subject property as lying within an area characterized by the Carve-Plymouth-Riverhead Association soils. This association is characterized as containing deep, rolling, excessively drained and well drained, coarse textured and moderately coarse textured soils on moraines.

Twelve soil types have been identified on the project site. The approximate locations and aerial extent of these soils are depicted in **Figure 2-2**. As can be seen, the Carver and Plymouth sands (Cp) of varying slopes is the most prevalent soil type identified on the property, and has been disturbed in part by grading associated with the golf course. None of the remaining on the property are particularly dominant and are distributed in varying degrees across the site. A detailed description of each of the soil types identified on-site is provided below:

Beaches (Bc) – Beaches are made up of sandy, gravelly or cobbly areas between water at mean sea level and dunes or escarpments. Slope is nearly level in most areas but it is as much as 15% in some places on the Atlantic shore. All beaches along the Long Island Sound are very gravelly and cobbly. A few very large boulders that rolled down from the adjoin bluffs of the Harbor Hill Moraine are present. Measures should be taken to control erosion to keep the beaches wide enough to protect nearby dunes or uplands.

Berryland Mucky Sand, (Bd) - The Berryland series consists of deep, very poorly drained coarse-textured soils. These nearly level soils formed in deep sandy outwash deposits on low lying wet areas adjacent to ponds, tidal creeks and low gradient streams or between areas of tidal marsh and better drained uplands. This (Bd) is the only Berryland soil mapped in the county. The hazard for erosion is slight.

Carver and Plymouth sands, 15-35% slopes (CpE) - The Carver series consists of deep, excessively drained coarse-textured soils. This soil type is found almost exclusively on moraines except for a few steep areas on side slopes along some of the more deeply cut drainage channels on outwash plains. The hazard for erosion is moderate to severe.

Cut and fill land, gently sloping (CuB) - This series is comprised of areas that have been cut and filled for nonfarm uses. The areas generally are large, but some areas are about five (5) acres in size. This soil type is comprised of moderately sloping areas that have been graded for building sites. Slopes range from 1 to 8 percent.

Cut and fill land, sloping (CuC) - This series is comprised of areas that have been altered in grading operations for housing developments, shopping centers, and similar nonfarm uses. Generally, the initial grading consists of cuts and fill for streets or parking lots. This soil type is comprised of moderately sloping areas that have been graded for building sites. Slopes range from 8 to 15 percent.

Escarpments (Es) – Escarpments are made up of bluffs that have slopes greater than 35%. Except for a few scattered areas, this unit is devoid of vegetation. Generally, the slopes are uniform with very little dissection. Height of the escarpments range from 20 to more than 100 feet. The material in the escarpments along the north shore is sand. Many escarpments have large boulders embedded in the soil, which rolls to the beach as the escarpment erodes. Escarpments are used by some species of songbirds. Where possible, slopes should be stabilized to reduce erosion.

Plymouth loamy sand, 3-8% slopes (PlB) - Consists of deep, excessively drained, coarse-textured soils that formed in a mantle of loamy sand over thick layers of stratified coarse sand and gravel. This soil is on moraines and outwash plains. The erosion hazard is slight and soil tends to be droughty.

Raynham loam (Ra) - This nearly level soil is in low lying areas besides marshes and creeks. In many areas it forms a transition between poorly drained areas and better drained areas on

uplands. It is on outwash plains and moraines. Because of its position on the landscape, it is difficult to locate adequate drainage outlets. This soil is better suited to woodland and to recreational uses than to other uses.

Riverhead Sandy Loam, 8-15% slopes (RdC) - Consists of deep, excessively drained, coarse - textured soils that formed in a mantle of sandy loam or fine sandy loam over thick layers of coarse sand and gravel. This soil is found in narrow bands on outwash plains along the side slopes of deep intermittent drainageways. Hazardous of erosion is moderately severe.

Scio silt loam, sandy substratum, 2-6% slopes (SdB) – This soil is found on moraines and outwash plains. The hazard of erosion is moderate to sliht and measures are required to help erosion control.

Sudbury sandy loam (Su) – This nearly level soil is between areas of more poorly drained soils and adjoining well drained soils of the Riverhead series. In a few places this soil is in the bottom of closed depressions in large tracts of Riverhead sandy loam and these areas are small. The hazard of erosion is slight and this soil is used for building sitesif it is part of a larger development area.

Walpole Sandy Loam (Wd) - The Walpole series consists of deep, somewhat poorly drained and poorly drained, moderately coarse textured soils that formed in a mantle of sandy loam or fine sandy loam over coarse sand or sand and gravel. This (Wd) is the only Walpole soil mapped in the county. Slopes are 3 percent or less. The hazard of erosion is slight.

The Soil Survey was reviewed for information relating to possible limitations that the identified soils may present. Constraints commonly associated with these soils are summarized below in **Table 2-2**.

As noted in **Table 2-2**, all but one of these soils were found to pose “moderate” and “severe” limitations for site use and development due to high water table, sandy surface layer, slopes and slow permeability.

Twenty site specific test borings were installed in the northern, eastern and southern portions of the site in order to characterize subsurface soils conditions on the subject property. Groundwater was encountered in six of the soil borings with all but one being representative of perched conditions due to low permeability clay and silty clay units that underlie portions of the site. Only one boring was found to have intersected the underlying water table and was located in the eastern end of the site with fairway #3. Groundwater was encountered in this area at a depth of approximately twenty-five feet below ground surface (bgs). Review of soil boring data for the site indicates the presence of a variety of soil textures and mixtures, with much of the upper layers of soils consisting of low permeability and poorly drained SM, ML, SC or CL classified soils consisting of silt, silty sand, silty clay and clay. These soils were found to extend to depths ranging from 10 to at least 70 feet bgs. Well drained SP or SW classified soils consisting of sand and gravel mixes were identified in the lower layers of the majority of the borings. The complete boring logs for each of the on-site test borings, including characterization of the soils at greater depths, are included in **Appendix C**.

TABLE 2-1
SOIL RESTRICTIONS AND LIMITATIONS

Soil Type	Beaches (Bc)	Berryland Mucky Sand (Bd)	Carver and Plymouth Sands, 15-35% slopes (CpE)	Cut and fill land, gently sloping (CuB)	Cut and fill land, sloping (CuC)	Escarpments (Es)	Plymouth Loamy Sand, 3-8% slopes (PlB)	Raynham Loam (Ra)	Riverhead Sandy Loam, 8-15% slopes (RdC)	Scio Silt Loam, sandy substratum, 2-6% slopes (SdB)	Sudbury Sandy Loam (Su)	Walpole Sandy Loam (Wd)
Limitaions for:	---	---	---	---	---	---	---	---	---	---	---	---
Sewage disposal fields	Severe: high water	Severe: prolonged high water table	Severe: slopes	Slight	Moderate: slopes	Variable; no interpretations made	Slight	Severe: moderately slow permeability; seasonal high water table	Moderate: slopes	Severe: moderately slow permeability in substratum	Moderate: seasonal high water table	Severe: seasonal high water table
Homesites								Severe: seasonal high water table		Moderate: seasonal high water table		
Streets and Parking lots				Moderate: slopes	Severe: slopes		Moderate: slopes	Moderate: seasonal high water table	Severe: slopes			
Lawns and Landscaping		Severe: sandy surface layer; high water table	Severe: slopes; sandy surface layer	Severe: sandy surface layer	Severe: sandy surface layer		Severe: sandy surface layer		Moderate: slopes	Slight	Slight	
Picnic areas		Severe: prolonged high water table		Moderate: sandy surface layer	Moderate: sandy surface layer		Moderate: sandy surface layer		Moderate: slopes			
Paths and trails									Slight			
Engineering Properties:	---	---	---	---	---	---	---	---	---	---	---	---
Top soil	Characteristics too variable to estimate	Poor: prolonged high water table; coarse texture	Poor: coarse texture	Characteristics too variable to estimate			Poor: coarse texture	Fair: seasonal high water table	Good	Good: seasonal high water table		
Embankment foundations		Strength generally adequate for high embankments; slight settlement; moderately steep to steep slopes on CpE					Strength generally adequate for high embankments; slight settlement					
Low building foundations		Poor: prolonged high water table; low compressibility	Low compressibility; large settlement possible under vibratory load; moderately steep to steep slopes				Low compressibility	Season high water table; low compressibility; large settlement possible under vibratory load	Low compressibility; moderate and moderately steep to steep slopes	Seasonal high water table; low compressibility		
Embankments		Poor resistance to piping; fair stability; moderate to high permeability	Fair to poor resistance to piping; fair stability; high permeability				Fair to poor resistance to piping; fair stability; high to moderate permeability	Fair to poor resistance to piping; fair to poor stability; moderate permeability	Fair to poor resistance to piping; fair to poor stability; moderate to high permeability			
Irrigation		Prolonged high water table; very low available moisture capacity; rapid water intake	Very low available moisture capacity; rapid water intake; moderate and moderately steep to steep slopes				Very low available moisture capacity	Seasonal high water table; moderate to slow water intake; moderate to high available moisture capacity	Moderate to rapid water intake; moderate available moisture capacity; moderate and moderately steep slopes	Seasonal high water table; moderate to slow water intake	Seasonal high water table; moderate to slow water intake; moderate available moisture capacity	Seasonal high water table; moderate to rapid water intake; moderate available moisture capacity

A Phase I Environmental Site Assessment (ESA) was undertaken for the property in July, 2008 to determine whether any potential environmental or public health concerns are present on the site. The purpose of the assessment was to, in part, establish a basis of understanding of the past and present uses of the sites in order to identify any recognized environmental conditions which may exist in connection with the site and surrounding properties. The Phase I ESA report and summaries are provided in **Appendix D-1**.

The object of the Phase I ESA was to identify obvious actual and potential sources of contamination associated with the property. The scope of the Phase I reports was consistent with American Society for Testing and Materials (ASTM) 1527-00 standards for format and content. Specifically, the Phase I included: a site reconnaissance, a review of available environmental regulatory databases, a review of available history of ownership and land usage records, a review of municipal and County records, an interview with the property owner for consideration of past and present operational practices, a reconnaissance of the surrounding area, and a review available aerial photographs and topographic and Sanborn maps. At the time of the Phase I ESA site inspection, the site was vacant. The findings of the Phase I ESA for the property were as follows:

1. Due to the presence of maintenance buildings which are used for a variety of vehicle maintenance and the storage of chemicals, the sanitary systems associated with these buildings should be sampled to determine if bottom sediments/soils have been impacted by previous discharges.

2. The two (2) stormwater leaching pools located in the northern end of the asphalt parking lot should be sampled to determine if bottom soils/sediments have been impacted by prior discharges.

3. Soil samples should be collected from the equipment wash area located northeast of the golf course maintenance building and from the trench created by the runoff flowing down the slope to the east to determine if wash water runoff has impacted surface soils.

4. Soil samples should be collected from the areas of the site used for the dumping of soils and debris located across the subject property to determine if they contain any materials that would indicate an adverse environmental release.

5. According to Industrial Code 56, if major renovation or demolition of the building is contemplated, a complete asbestos survey for both friable and non-friable ACM is required.

Based on the recommendations of the Phase I ESA report, a Phase II ESA (dated August 8, 2011; see **Appendix D-2**) was conducted on the property to address specific issues raised in the Phase I ESA specifically related to items# 1 through 4. The results of the Limited Phase II ESA are summarized below:

1. Four (4) distinct dumping areas were identified on the subject property. Three of these areas are located north of the proposed development area. However, one is located within the area of proposed development. Due to the unknown origin and nature of the material dumped on-site composite soil samples were collected at various locations and depths throughout the dumped

material. These samples were analyzed for the presence of volatile and semi-volatile organic compounds and metals to determine if any elevated concentrations were present. The laboratory results revealed several of the samples exhibited elevated concentrations in excess of the regulatory guidance values set forth in the New York State Department of Environmental Conservation (NYSDEC) Part 375 for Unrestricted Uses. Based on these findings, the soil/debris located in the identified dumping areas should be removed and properly disposed of at an approved facility. Additional soil sampling may be necessary to identify the extent to the contamination exists.

2. The equipment washing area and drainage channel associated with equipment wash area were sampled and analyzed. The laboratory results revealed no elevated concentrations of volatile or semi-volatile organic compounds in excess of the guidance values set forth in NYSDEC Part 375 - Unrestricted Uses were identified. Several of the analyzed metals exhibited elevated concentrations, all of which were below the guidance values, except of mercury in samples WA-W & WA-D. These samples were also analyzed for the presence of pesticides. This analysis revealed elevated concentrations of chlordane in excess of the USEPA SSL guidance values were present in sample WA-E. As a result, the surface soils in these areas should be excavated and transported for disposal to an approved facility. Additional sampling may be necessary in order to delineate the extent of the contamination.

3. The two (2) open grate stormwater leaching pools located in the parking area were sampled and analyzed. The analytical results revealed that both of the samples exhibited elevated concentrations of semi-volatile organic compounds which exceeded the guidance values set forth in SCDHS SOP 9-95. As a result, the two (2) open grate leaching pools should be remediated under the auspices of the SDCHS.

4. The on-site sanitary systems associated with the golf course maintenance building and the building maintenance building were sampled and analyzed. The laboratory results revealed no elevated concentrations of any of the analyzed constituents were exhibited, except in sample GCM-CP which had elevated concentrations of mercury. As a result, the sanitary system associated with the golf course maintenance building should be remediated under the auspices of the SCDHS.

The recommendations of the Phase II ESA are proposed to be completed as noted below in **Section 2.2.2**.

2.2.2 Anticipated Impacts

Nine of the twelve soil types present on the property pose “severe” limitations for development due to steep slopes, high water table, slow permeability and a sandy surface layer. It should be noted that the area of the property proposed for development is currently occupied by the existing golf course and amenities and has been previously graded and stabilized for this use. Any potential impacts that may occur with respect to steep slopes will be reduced by observation of sound grading principals and maintaining slopes with a suitable angle of repose. As noted, erosion control measures and full site plan review for grading and drainage will preclude adverse impacts to surface soils.

With respect to a sandy surface layer, topsoil present on the subject property is assumed to be suitable for growth of vegetation as evidenced by the current property use. Topsoil is intended to be stockpiled and re-used for landscape areas in the developed parts of the site. Soil augmentation is not expected to be necessary, but can be used if necessary. A detailed landscape plan will be prepared which will be reviewed and approved by the Planning Board, and Planning Board inspectors will ensure that vegetation is established and healthy prior to release of the Certificates of Occupancy for various components of site development. This will ensure that potential impacts with respect to a sandy surface layer and steep slopes are adequately addressed and as a result, no long-term soil impacts are expected. Short-term soil impacts will be mitigated through erosion control measures which were previously discussed.

Limitations related to high water table are not anticipated to impact the subject property since development will be outside of the areas of the existing ponds and the Long Island Sound. However, the drainage system proposed for the project will utilize the existing pond network and details related to impacts are discussed further in **Section 2.3.3**.

Limitations related top slow permeability will be addressed through the removal of inadequate soils and replacement with materials more suitable to drainage and recharge where necessary.

Site remediation activities will be performed to address the issues discovered during the Limited Phase II ESA. Removed soils will be transported by a licensed waste hauler to an appropriate facility for disposal. All remediation activities will be coordinated with the SCDHS to ensure that appropriate methods and procedures are utilized to insure that all impacted materials are removed in compliance with their requirements and standards. Given this oversight, no significant adverse impacts are anticipated with respect to soils due to past site uses or existing contamination conditions.

2.2.3 Proposed Mitigation

- Any potential impacts that may occur with respect to steep slopes will be reduced by observation of sound grading principals and maintaining slopes with a suitable angle of repose. As noted, erosion control measures and full site plan review for grading and drainage will preclude adverse impacts to surface soils. With respect to a sandy surface layer, topsoil present on the subject property is assumed to be suitable for growth of vegetation as evidenced by the current forested condition of the property. Topsoil is intended to be stockpiled and re-used for landscape areas in the developed parts of the site. Soil augmentation is not expected to be necessary, but can be used if necessary. A detailed landscape plan will be prepared which will be reviewed and approved by the Planning Board, and Planning Board inspectors will ensure that vegetation is established and healthy prior to release of the Certificates of Occupancy for various components of site development. This will ensure that potential impacts with respect to a sandy surface layer and steep slopes are adequately addressed and as a result, no long-term soil impacts are expected. Short-term soil impacts will be mitigated through erosion control measures. High water table issues will be addressed through an engineered drainage plan and low permeability soils will be replaced where necessary with soils that possess more conducive leaching characteristics.
- The developed portions of the site will first be subject to grading operations in order to provide an acceptable surface on which development can take place, followed by installation of landscaping

to provide a means of stabilizing the soil to prevent erosion as soon as practicable following grading.

- Preservation of top soil, which is important for reestablishing indigenous plant growth within previously disturbed areas slated for preservation.
- Prior to the initiation of construction activities, remediation of the areas of the site where contamination is noted to be present will be conducted and removed materials will be disposed of at an appropriate facility.
- Collection of end point samples after completion of remediation activities which will be conducted under the auspices of the SCDHS, will ensure the effectiveness of soil/sediment removal to concentrations below the SCDHS guidance value.
- Dust control and construction management will be utilized to avoid dermal contact and inhalation of soils containing agricultural chemicals.

2.3 Water Resources

2.3.1 Existing Conditions

Surface Waters and Wetlands

Both freshwater and tidal wetlands exist on the subject property. The site consists of a series of ponds located through the central portion of the golf course. Based upon review of the historic aerial photograph, the ponds appear to be manmade. The two westerly most ponds are mapped by the NYSDEC as fresh water wetlands and fall under their jurisdiction (see **Figure 2-3**). The property also maintains approximately 1,500 feet of frontage on the Long Island Sound shoreline. The majority of the shoreline is armored with stone revetment (western and central portions) and the eastern portion of the shoreline has been stabilized with a line of partially buried concrete rings. Apparent high water is typically less than 50 feet from the stone revetment; however, in some areas, high water reaches the revetment. The Sound is a tidal wetland (see **Figure 2-3**), which is regulated by the NYSDEC from the Sound landward to the top of the slope running along the north side of the 12th tee, fairway and green. The shoreline and slope is also regulated by the Town of Huntington under the Coastal Erosion Hazard Area (CEHA) regulations (see **Attachment 2** which includes Coastal Hazard Erosion Area limits).

The NYSDEC regulates freshwater wetlands under Article 24 and tidal wetlands under Article 25 of the Environmental Conservation Law (ECL). Pursuant to Article 24 and 25 of the ECL, permits from the NYSDEC will be necessary for construction activities within the jurisdictional limits (100 feet from the delineated freshwater wetland boundary and either 300 feet from the tidal wetland boundary, or to the top of the adjacent slope or bluff).

The project site lies at elevations ranging between 157 feet and 11 feet above msl. There are no natural or significant surface water bodies on or near the property that could overflow and cause site flooding and the property is not within any Federal Emergency Management Agency (FEMA) Special Flood Hazard Areas or the 500-year-flood zone.

Water samples were collected from the outfall of the easternmost pond located on the property during two separate sampling events in May and August of 2016. Both samples were analyzed

for the presence of nitrogen and related compounds to assess what impact site use may be having on the pond water quality. A summary of the analytical results is provided in **Table 2-2** presented below. The laboratory analytical data sheets for the water samples is provided in **Appendix E**.

TABLE 2-2
POND OUTFALL ANALYTICAL RESULTS

Parameter	Results	
	May	August
Total KjeldahlNitrogen	1.50 mg/L	5.90 mg/l
Total Nitrogen	1.73 mg/L	6.03 mg/L
Nitrate	0.23 mg/L	0.13 mg/L
Nitrite	ND	ND
Orthophosphate	ND	ND
Ammonia	ND	ND
Total Phosphorus	ND	1.75 mg/L

Notes: mg/L – milligrams per liter; ND – non-detect

It should be noted that the increase in concentration in nitrogen and related compounds may be attributable to increases in fertilization rates over the course of the golfing season. The operation of the golf course is an existing and ongoing operation.

Groundwater

Water table contours from the USGS (2009) indicate that the groundwater table in the area of the site is encountered at an elevation ranging from sea level along the Long Island Sound to approximately seventeen feet in the southern end of the property. The topographic elevation across the site ranges from 0 feet to 157 feet above msl, resulting in a depth to groundwater ranging from 0 feet to approximately 155 feet below the site's ground surface. The project site is located on the north shore of Long Island indicating that groundwater flows towards the north and eventually discharges to the Long Island Sound. Water table elevations and contours are illustrated in **Figure 2-4**.

Stormwater & Drainage

Precipitation falling on the subject property is either recharged directly into the ground, evaporated in place, absorbed by plant life, captured by stormwater infrastructure, runs off to flatter and/or more pervious ground where it infiltrates the soil, or runs off to the network of pond within the golf course where it evaporates or is transported off-site. Stormwater generated on the subject site that is not directly recharged, evaporated or absorbed and transpired by plant life, would flow toward lower elevations, which, in general, is from upper elevations downward to the north, south and east.

Stormwater runoff deposited within the northern portion of the site generally drains from the ridgeline located in the northern end of the property to north towards the beach along Long Island Sound and to the south towards the glacial outwash trough located in the center of the property which contains the network of interconnected ponds. This outwash trough also receives

runoff from higher elevations to the southwest as well as the northwest portions of the golf course. Water deposited within the outwash trough descends through the network of ponds and eventually exists the eastern end of the property where in is deposited within a drainage ditch on the west side of Fresh Pond Road.

Stormwater runoff deposited in the southern portion of the property falls on the elevated plateau upon which rests the clubhouse and paved parking areas. Stormwater runoff which is not collected by parking lot leaching pools and catch basins for direct recharge to the subsurface are directed to lower elevations to the north, east and west where it will be subject to evapotranspirative processes, infiltrates overlying soils or transported to adjacent properties.

Stormwater, as runoff, is the vehicle by which pollutants move across land and through the soil to groundwater or surface waters. Contaminants accumulate or are disposed of on land and improved surfaces. Sources of contaminants include:

- animal wastes
- highway deicing materials
- decay products of vegetation and animal matter
- fertilizers
- pesticides
- air-borne contaminants deposited by gravity, wind or rainfall
- general urban refuse
- by-products of industry and urban development
- improper storage and disposal of toxic and hazardous material

In 1982, the Long Island Regional Planning Board (LIRPB) prepared the L.I. Segment of the Nationwide Urban Runoff Program (NURP Study). This program attempted to address, among other things, the following:

- the actual proportion of the total pollutant loading that can be attributed to stormwater runoff, given the presence of other point and non-point sources and conditions within the receiving waters;

The purpose of the NURP Study, carried out by the USGS, was to determine:

- the source, type, quantity, and fate of pollutants in stormwater runoff routed to recharge basins, and
- the extent to which these pollutants are, or are not attenuated as they percolate through the unsaturated zone.

In order to accomplish this, five recharge basins, located in areas with distinct land use types, were selected for intensive monitoring during and immediately following storm events. Five recharge basins, three in Nassau and two in Suffolk, were chosen for the study on the basis of type of land use from which they receive stormwater runoff. The following is a listing and description of each drainage area:

Site Location	Land Use
Centereach	Strip Commercial

Huntington	Shopping Mall, Parking Lot
Laurel Hollow	Low Density Residential (1 acre zoning)
Plainview	Major Highway
Syosset	Medium Density Residential (1/4 acre zoning)

Based on the sampling program, the NURP Study reached the following relevant findings and conclusions:

Finding: Stormwater runoff concentrations of most of the inorganic chemical constituents for which analyses were performed were generally low. In most cases, they fell within the permissible ranges for potable water; however, there were two notable exceptions:

- median lead concentrations in stormwater runoff samples collected at the recharge basin draining a major highway (Plainview) consistently exceeded the drinking water standards;
- chloride concentrations in stormwater runoff samples generally increase two orders of magnitude during the winter months.

Conclusion: In general, with the exception of lead and chloride, the concentrations of inorganic chemicals measured in stormwater runoff do not have the potential to adversely affect groundwater quality.

Finding: The number of coliform and fecal streptococcal indicator bacteria in stormwater range from 10^0 MPN (Most Probable Number) to 10^{10} MPN per acre per inch of precipitation.

Conclusion: Coliform and fecal streptococcal indicator bacteria are removed from stormwater as it infiltrates through the soil.

The handling of stormwater for the proposed use and potential impact on groundwater will be considered in **Section 2.3.2**.

Water Resources Plans and Studies

208 Study - The Long Island Regional Planning Board (LIRPB), in conjunction with other agencies, prepared a management plan for Long Island groundwater resources in 1978 under a program funded by Section 208 of the 1972 Federal Water Pollution Control Act Amendments. The purpose of the "208 Study" was to investigate waste disposal options and best practice for ground and surface water protection. The study delineated Hydrogeologic Zones for the formulation of management plans based on groundwater flow patterns and quality (**Koppelman, 1978**). These delineations were the basis for the establishment of Groundwater Management Zones by the SCDHS (see **Section 1.3.4**), and have been utilized to establish the SCSC Article 6 standards applied to sanitary wastewater treatment requirements. The subject site is located in Groundwater Management Zone VIII, which is characterized as a shallow flow system which discharges to streams and saltwater bays, and hence will affect the quality of surface water.

Suffolk County Comprehensive Water Resource Management Plan, 2015 - The 2015 Suffolk County Comprehensive Water Resource Management Plan (SCCWRMP) is an update to the 1987 SCCWRMP to reflect more recent development trends, resource plans and studies, and government programs and regulations pertinent to water supply and water resource protection.

The following description of that update program has been taken from the Executive Summary, dated March 2015:

Introduction

Water is the single most significant resource for which Suffolk County bears responsibility. As the impact of Superstorm Sandy underscored, more than at any time in our history, we are obliged to come to terms, in every sense, with the water that surrounds us. Suffolk County's water quality is at a tipping point. We face an alarming trend in the quality of the water our families drink, compounded by impairment of many bodies of water in which our families play. Moreover, the source of these impairments has demonstrably degraded the wetlands that serve as our last line of natural defense against storm surge.

While today our drinking water generally meets quality standards, elevating levels of contaminants raise serious concern. Many of our rivers, estuaries and bays are impaired as result of eutrophication. Nitrogen, which primarily spews from residential septics and cesspools, as well as fertilizer, are the principle culprits that spur hypoxia, harmful algal blooms, diminution of sea and shellfisheries, and degradation of our protective natural infrastructure – wetlands and seagrass beds that act as wave and storm surge buffers. Sea level rise, which also contributes to marshland degradation, is projected to raise groundwater levels, increasing vulnerability to saltwater inflation, and further compromising on-site wastewater treatment infrastructure largely composed of cesspools and septic tanks.

Perhaps nowhere have we seen the impact of nitrogen pollution in more stark terms than in the Great South Bay. At one time, this bay produced more than half the clams eaten in our country. However, over the past quarter-century, the clam harvest in the Great South Bay has fallen by 93 percent, destroying an entire industry which once accounted for 6,000 jobs. While clams were once over-harvested, they have largely failed to recover due to recurrent brown tides fed primarily from nitrogen from septic systems and cesspools. We must decide if this type of impaired surface water body will be our region's future or if we can restore our bays to health.

In advance of the release of the 2015 Suffolk County Comprehensive Water Resources Management Plan ("Comp Plan"), this Executive Summary Update is spotlighting the Comp Plan's critical findings, and relevant post-Superstorm Sandy considerations, in order to spur a critical public dialogue about the scope of the problem and begin to frame near-term solutions. While many environmental issues related to groundwater and surface waters have arisen since the previous Plan (1987), one elemental condition has remained constant: the vast majority of Suffolk residents rely on on-site wastewater disposal systems that discharge to groundwater. In addition, fertilizer use, industrial and commercial solvents, petroleum products, pesticides and a host of other manmade contaminants have had profound and long-lasting impacts on groundwater quality, as well as on fresh surface waters and coastal marine waters into which groundwater and stormwater runoff discharge.

In the face of sea-level rise and extreme weather events, Suffolk County is compelled to devise the means and methods to live and thrive with the water beneath, by and around us.

The updated SCCWRMP delineated and addressed the following Critical Findings:

Critical Findings

"We have a million and a half people, approximately 74%, or roughly a million people, who are ***not sewered****. This is probably the only place in the world with that large a density in this tight a space where the waste is going into a sole source aquifer immediately beneath us that we're drinking, and this is* ***a big concern.****"*

Downward Trajectory in Groundwater Quality:

1. Nitrogen is public water enemy #1, as **nitrate contamination** from unsewered housing and fertilizer use poses a threat to both drinking water supplies and coastal marine habitat and resources. Nitrogen-induced nutrient loading and eutrophication can lead to many negative impacts on estuarine environments including harmful algal blooms (HABs), hypoxia [little or…], and even anoxia [no oxygen];
2. Volatile organic chemicals (VOCs), another **priority contaminant group**, derived from commercial, industrial, and consumer use, impacting large portions of the aquifer, public water supply and private wells;
3. Pesticides pose a threat, especially to private wells in agricultural areas; and,
4. Pharmaceuticals and personal care products are an **emerging concern.**

Surface Water Impairments:

5. Due to excess coliform bacteria and nitrogen, **many of the water bodies surrounding Suffolk County have been designated as impaired by the New York State Department of Environmental Conservation** (NYSDEC). In fact, the vast majority of Long Island's 60-mile long South Shore Estuary Reserve was declared impaired by the NYSDEC in 2010.
6. **Brown tide** algae invasions have been plaguing Long Island estuaries for nearly a quarter-century, according to Dr. Chris Gobler of Stony Brook's School of Marine & Atmospheric Sciences (SoMAS), **obliterating a shellfish habitat** that once provided one half of all hard clams for the nation.
7. There was an 18-36% **loss of tidal wetlands** between 1974 and 2001 according to NYSDEC.
8. The NYS Seagrass Taskforce estimates that the 200,000 acres of seagrass in Long Island's bays and harbors in 1930 have shrunk by nearly 90% to 22,000 acres.

*The costs of redressing water-related issues are significant; the economic consequences of not doing so are **potentially devastating in property values alone.** Then there is Long Island tourism, producing revenues of $4.7B/yr, with approximately 28% of visitors – 5.1M/yr – visiting parks and beaches. "Coastal habitats shield people and property from sea-level rise and storms," reducing their exposure by half, according to marine ecologists at Stanford Woods Institute for the Environment.*

<u>Nitrogen from Unsewered Areas</u>

Suffolk County, with a population larger than 11 states and a region that derives its drinking water from the ground, must pay particular attention to the 360,000 sub and non-performing septic/cesspools in Suffolk, accounting for well over 74% of the homes. They are particularly problematic in areas with high water tables and in close proximity to surface waters. When flooded or submerged in groundwater, septic systems do not function as designed and they fail to adequately treat pathogens. Excess nitrogen from sewage threatens our valuable natural resources, coastal defenses, and human health.

Suffolk County has identified priority high density (greater than 5 homes per acre) and medium density (1 to 5 homes per acre) residential subregions within the contributing areas with the following characteristics:

1. With a depth to groundwater of 10 feet or less; and/or
2. Contribute to an area that is listed as a 303(d) impaired water body.

Finally, the updated SCCWRMP settled on the following management goals, designed to protect groundwater and surface water resources:

Water Resource Management Plan Goals

The goals and objectives summarized on Table ES-1 are targeted to protect and improve ground and surface water quality in the coming years, recognizing that maintenance of these invaluable resources is vital to the health and economic well-being of Suffolk County residents, and to enable provision of a healthy and safe supply of potable water to County residents through 2030. Although it is acknowledged that full achievement of these goals within the next twenty years may not be realized, the recommendations presented in this document provide the framework for continued improvement of the County's water resources and provision of a reliable, high quality potable supple for future generations.

The goals and objectives are consistent with County policy declarations that are articulated in the Suffolk County Sanitary Code:

> *…760-701: "The designated best use of all groundwaters of Suffolk County is for public and private water supply, and of most surface waters for food production, bathing and recreation…it is hereby declared to be the policy of the County of Suffolk to maintain its water resources as near to their natural condition of purity as reasonably possible for the safeguarding of the public health, and to that end, to require the use of all available practical methods of preventing and controlling water pollution from sewage, industrial and other wastes, toxic or hazardous materials, and stormwater runoff" and*
>
> *760-401: "the policy of the County of Suffolk is to protect the groundwater to insure the availability of an adequate and safe source of water supply for generations to come by: enforcing the local, state and federal laws regulating water supply; promoting the extension of public water supply to all areas of the County; maintaining a process of groundwater planning; carrying out research and development in the field of alternatives to community water supply; and by promoting education and acceptance of the importance of groundwater management and protection."*

Groundwater Quality

Water samples were collected from the irrigation well located on the property during two separate sampling events in May and August of 2016. Both samples were analyzed for the presence of nitrogen and related compounds to assess what impact site use may be having on the pond water quality. A summary of the analytical results is provided in **Table 2-3** presented below. The laboratory analytical data sheets for the water samples is provided in **Appendix E-1**.

TABLE 2-3
IRRIGATION WELL ANALYTICAL RESULTS

Parameter	Results	
	May	August
Total KjeldahlNitrogen	ND	ND
Total Nitrogen	7.21 mg/L	7.56 mg/L
Nitrate	7.21 mg/L	7.56 mg/L
Nitrite	ND	ND
Orthophosphate	ND	ND
Ammonia	ND	ND
Total Phosphorus	ND	2.04

Notes: mg/L – milligrams per liter; ND – non-detect

Nitrogen is elevated above ambient conditions at the location of the irrigation well. Based on the anticipated direction of groundwater flow **(Figure 2-4)**, the contributing area to this well includes part of the golf course and areas of residential development upgradient of the subject site. Residential use on lots of less than 1 acre may result in nitrogen in the range of 6-8 mg/l. Nitrogen present in the aquifer in the vicinity of the subject site is expected to be due to sanitary wastewater and use of fertilizer on turfed land.

Water Balance and Nitrogen

Groundwater flows generally perpendicular to the lines of equal water table elevation as a result of this hydraulic gradient.

The groundwater budget for an area is expressed in the hydrologic budget equation, which states that recharge equals precipitation minus evapotranspiration plus overland runoff. This indicates that not all rain falling on the land is recharged. Loss in recharge is represented by the sum of evapotranspiration and overland runoff. The equation for this concept is expressed as follows:

$$\mathbf{R = P - (E + Q)}$$

where: **R** = recharge
P = precipitation
E = evapotranspiration
Q = overland runoff

Nelson, Pope & Voorhis, LLC (NP&V) has utilized a microcomputer model developed for its exclusive use in predicting both the water budget of a site and the concentration of nitrogen in recharge. The model, named **SONIR** (**S**imulation **O**f **N**itrogen **I**n **R**echarge), utilizes a mass-balance concept to determine the nitrogen concentration in recharge. Critical in the determination of nitrogen concentration is a detailed analysis of the various components of the hydrologic water budget, including recharge, precipitation, evapotranspiration and overland runoff.

The **SONIR** model includes four sheets of computations: 1) Data Input Field; 2) Site Recharge Computations; 3) Site Nitrogen Budget; and 4) Final Computations. All information required by the model is input in Sheet 1. Sheets 2 and 3 utilize data from Sheet 1 to compute the Site Recharge and the Site Nitrogen Budget. Sheet 4 utilizes the total values from Sheets 2 and 3 to perform the final Nitrogen in Recharge computations. Sheet 4 also includes tabulations of all conversion factors utilized in the model.

It should be noted that the simulation is only as accurate as the data which is input into the model. An understanding of hydrologic principles is necessary to determine and justify much of the data inputs used for water budget parameters. Further principles of environmental science and engineering are applied in determining nitrogen sources, application and discharge rates, degradation and losses, and final recharge. Users must apply caution in arriving at assumptions in order to ensure justifiable results. There are a number of variables, values and assumptions concerning hydrologic principles, which are discussed in detail in a user manual developed for the SONIR Model and provided in **Appendix E-2.**

The model was run to obtain the existing water budget and nitrogen concentration in recharge. The run was based on current site conditions and land use coverages for the overall Indian Hills golf course property which includes 31.84 acres of natural area, 7.16 acres of impervious surfaces, 93.38 acres of landscaping, 3.20 acres of surface water, 0.50 acres of wetlands and 1.78 acres of unvegetated area. Based on the SONIR model calculations the site currently has a total site recharge of 63.82 million gallons per year (MG/Y), with a total nitrogen concentration of 1.92 milligrams per liter (mg/l). Of the total nitrogen concentration approximately 61.94% is attributed to fertilization of the golf course and landscaping, 35.28% is attributed from on-site sanitary discharge, and 2.78% is attributable to precipitation. The results of this analysis are presented in **Appendix E-2.**

Water Supply

The overall project site lies within distribution area #9 of the SCWA, which currently serves the existing golf course. The SCWA maintains seven (7) active wells within distribution area #9. Correspondence from the SCWA (letters dated September 2 & 9, 2016, provided in **Appendix H**) indicate that public water service will be provided to the subject site from water mains within Breeze Hill Road, Mystic Lane and Fresh Pond Road.

The golf course is irrigated using an existing on-site water supply well. The well is permitted by NYSDEC under the New York well permit program (Permit # W-4813) and is identified as S-114017. The well is permitted to be pumped at a rate of up to 35 million gallons per year. The average pumpage from the years 2005 through 2015 was 21,503,242 gallons based on annual pumpage data listed below:

2015	26,667,723
2014	20,521,592
2013	22,724,626
2012	16,892,946
2011	20,443,000
2010	26,793,000
2009	17,970,000
2008	22,736,000
2007	26,816,000
2006	17,344,534
2005	17,626,246

Pumpage records are maintained by the site operator and transmitted to NYSDEC on an annual basis per the well permit. As noted, this is an existing and ongoing golf facility that will continue to operate irrigation systems for turf maintenance of the course.

2.3.2 Anticipated Impacts

Surface Water and Drainage

Construction and operation of the proposed project is not anticipated to have a significant impact on drainage on or in the vicinity of the subject property. As noted in **Section 2.3.1**, the only surface water body located in the area of the subject property consists of a man-made water

hazard for the golf course which is situated immediately southeast of the proposed development area and is not identified on either the NYSDEC Freshwater Wetland or National Wetland Inventory maps. While it is noted that this water feature is located downslope of the proposed development area, existing surface water runoff recharge is expected to be limited due to natural infiltration and evapotranspiration processes. In addition, since this is a man-made feature and not a regulated wetlands water levels are maintained through artificial means and as a result any increase or decrease in stormwater recharge is not anticipated to affect water levels. Development of the proposed project is not expected to have an impact on this water feature.

Town and State stormwater regulations require that all on-site stormwater (rainfall) runoff be collected and recharged on-site pursuant to design storm criteria and unless approved otherwise. Both the Town and State regulations have minimum stormwater volume detention requirements. The Town has differing requirements for the subdivision and for the golf course related facilities. The Town does require the residential units and any golf course related structures to have roof runoff collected in downspouts and conveyed using leaders to dry wells. Typically, stormwater is collected and discharged to conventional on-site subsurface leaching facilities, such as precast concrete or reinforced fiberglass leaching structures or excavated recharge basins. Due to the underlying soils, the use of underground leaching structures and/or recharge basins may be limited, requiring the use of alternative stormwater handling systems that may include bio-retention areas, rain gardens, and ponding areas The project engineer will design stormwater systems specific to the conditions of the subject site, and these systems will be reviewed and approved by the Town during the site plan review process. The following paragraphs discuss the stormwater system design as intended for this project, subject to final design and Town review.

All stormwater runoff generated on developed surfaces will be initially retained on-site and recharged to groundwater through the existing pond network, a new retention pond, a system of catch basins and leaching pools, individual roof drains and pervious vegetated/landscaped groundcover that allows for direct filtration. Development on the subject property will be partitioned into three separate drainage areas to accommodate stormwater runoff and are designated Drainage Areas A, B & C.

Drainage Area A consists of the portion of the development located in the northwestern portion of the property which will consist of 46 units as well as 2 single family senior residences. Drainage Area B consists of the portion of the development located in the eastern portion of the property which will consist of 16 units, and Drainage Area C will consist of the portion of the proposed development south of Breeze Hill Road and will consist of the golf course clubhouse and 46 units.

Drainage Areas A and B will utilize the existing pond network that traverses the central part of the property north of Breeze Hill Road from northwest to southeast for the retention of stormwater runoff. Runoff from Drainage Area A will be initially directed to Pond A and runoff from Drainage Area B will be initially directed to D & E. The pond network will be improved with a series of weirs which will promote the retention of stormwater to overflow areas surrounding each pond and will be designed to accommodate a nine (9) inch storm event. Ultimately, runoff will travel through the pond network to the eastern property line where it will overflow at the current weir overflow from the easternmost pond. The current pond overflow

enters a drainage ditch along Fresh Pond Road and ultimately to overflows to Fresh Pond. Roadways within this portion of the development will also be provided with a network of catch basins that will discharge to the pond system.

The townhouse portion of Drainage Area C will discharge stormwater runoff to an excavated pond in the western and downslope part of the site for detention of runoff. Roadways within this portion of the development will also be provided with a network of catch basins connected to the excavated pond. This drainage pond will also be designed to accommodate a nine (9) inch storm event.

The portion of Drainage Area C which will be occupied by the proposed clubhouse and associated parking areas will be provided with a network of stormwater leaching pools that will discharge directly to the subsurface and will be designed to accommodate a five (5) inch storm event in accordance with Town requirements.

Ultimately, the drainage systems will be designed in accordance with the requirements of the Town and will be the subject of a Stormwater Pollution Prevention Plan (SWPPP) which will undergo review by the Town and will be filed with a Notice of Intent (NOI) with NYSDEC. It is expected that stormwater impact will be reduced as a result of the proposed project.

Hydrogeology

The average depth to water ranges from approximately 111 to 177 feet below ground surface (bgs) in the proposed development area. Regionally groundwater is observed to flow in a northerly direction. The subject site has adequate depth to groundwater to ensure that leaching of stormwater recharge will occur efficiently. Recharge quality must be considered to determine water quality impacts. Related to recharge characteristics of the developed site is the density of development and sewage handling which are described below.

Wastewater will be generated as a result of the proposed use of the site for housing, and commercial purposes. Article 6 of the SCSC addresses sewage facility requirements for realty subdivisions, development and other construction projects in order to limit the loading of nitrogen in various groundwater management zones as established by the SCDHS. As promulgated under Article 6, a Population Density Equivalent must be determined for the subject site in order to determine the type of sewage disposal system required for the proposed project. This equivalent (or total allowable flow) is then compared to the design sewage flow for the project. If the project's design sewage flow exceeds the Population Density Equivalent, a community sewerage system or on-lot sewage treatment system is required. If the project's design sewage flow is less than the site's Population Density Equivalent, a conventional subsurface sewage disposal system may be used, provided individual systems comply with the current design standards and no community sewerage system is available or accessible.

The project site is located in Groundwater Management Zone VIII as defined by SCDHS. Based on the requirements of Article 6 of the Suffolk County Sanitary Code (SCSC), allowable sanitary flow on a site that is subject to subdivision is based on the 20,000 SF yield map, with the number of lots multiplied by 300 gpd per unit. In lieu of a 20,000 SF yield map, SCDHS provides a

formula for determining allowable flow. For the proposed project, the allowable sanitary flow is based on the calculation:

(Site acres - wetland acres) x 0.75 x [(43,560 SF/acre)/(20,000 SF/unit)] = allowed units,

Thus, the calculation for allowable density under Article 6 of the SCSC is as follows:

(149.15 – 3.2) x 0.75 x 2.178 = 238.41 units

As each unit is allocated a flow of 300 gpd, the total allowed sanitary flow for the project site is obtained from: 238 units x 300 gpd/unit = 71,400 gpd.

The design flow is based on the sanitary wastewater generated by the proposed use. It is noted that the proposed project involves a golf course. Under *"General Guidance Memorandum #17, Agricultural and Golf Course Density,"* fertilized areas of golf course use contribute to nitrogen load and are accounted for in terms of wastewater flow by a factor of 300 gpd per fertilized acre. The design flow calculation has been prepared based on the combined wastewater flow and additional flow allocated to golf course use. The proposed project is significantly below the allowable flow provided for under SCSC Article 6.

Based upon SCDHS design flow factors, the 108 townhomes, 2 detached single family residences and the existing dwelling on tax lot 16 are expected to generate 33,300 gallons per day (gpd) based upon 300 gpd/unit. The clubhouse (200 catering seats @ 7.5 gpd; 50 indoor seats @ 30 gpd; and 50 outdoor seats @ 15 gpd) is expected to generate 3,750 gpd. The maintenance Building has a design flow of 200 gpd. This results in a total design flow of 37,250 gpd.

The full design flow must consider the existing fertilized area combined with the proposed project flow, and compare this to the allowable flow of 71,400 gpd. Fertilized area per Table 1-1 is 28.01 acres. Therefore, flow due to fertilization per General Guidance Memorandum #17 is:

28.01 acres x 300 gpd (equivalent) = 8,403 gpd

This combined with the 37,250 gpd of flow from the proposed improvements equals: 45,653 gpd, which is substantially less than (25,747 gpd less) than the allowable flow of 71,400 gpd.

The proposed project will have significantly less sanitary wastewater than what is permissible under Article 6 of the SCSC. Nevertheless, the applicant plans to use upgraded sanitary wastewater treatment systems for the new 108 townhomes and clubhouse, in order to reduce nitrogen load associated with site use. The 2 senior seasonal single family units will use conventional systems, but are expected to be occupied intermittently. The existing maintenance facility will not change and will retain its current conventional sanitary system.

Suffolk County recently approved an amendment to the SCSC adding Article 19, which gives the County Department of Health Services the authority to promulgate procedures, protocols and standards for the use of innovative and alternative on-site septic treatment and disposal systems

(signed by Suffolk County Executive Steve Bellone on August 10, 2016). The new Article 19 authorizes the first major change to residential wastewater treatment technology since 1973, when rules changed to require a septic tank in addition to a leaching pool. When properly designed, sited, installed, managed, and maintained, I/A OWTS provide a cost-effective and environmentally sound alternative to sewers in portions of Suffolk County that are outside the designated sewer areas, significantly reducing nitrogen in wastewater.

The proposed project will result in the construction of three (3) sanitary system zones for the townhomes, one for each development area. The sanitary handling concept to be employed is illustrated in the Nelson & Pope sanitary design plans included as **Attachment 4**. Each sanitary system zone will be divided into sections comprised of 3 to 5 buildings (6 to 10 townhome units) for achieving an optimal sanitary treatment design based on up to 1,500 gpd per treatment unit. Each of these subzones will utilize a tertiary treatment system that is recognized by SCDHS, or one that may be approved as a pilot installation through SCDHS Board of Review (BOR) approval. Tertiary treatment systems of this style are designed to reduce biochemical oxygen demand, suspended solids and total nitrogen in order to achieve a reduction in nitrogen load to less than 19 milligrams per liter (mg/l). The drinking water standard is 10 mg/l and the nitrogen concentration in untreated effluent is typically in the range of 60 mg/l.

Following tertiary treatment, sanitary waste generated in each zone will be gravity fed or pumped to a communal leaching pool system designed to accommodate the anticipated flow from all the residential units within each subdivided unit. Recharge areas are located based on test hole information that identified suitable soil leaching properties.

With regard to the two single family senior units proposed in the northeastern portion of the property, these units will utilize conventional sanitary systems consisting of septic tanks and leaching pools for the disposal of sanitary wastes.

Sanitary waste generated by the clubhouse will also utilize an I/A OWTS to provide tertiary treatment within the design capabilities of the system. However, since kitchen waste will also be generated sanitary effluent will first be discharged to a grease trap prior to transfer to the selected tertiary treatment unit.

The sanitary wastewater handling methods will be subject to engineering reports, SCDHS review and approval, oversight of installation and monitoring of the effectiveness of systems. If specific technologies for I/A OWTS systems for multiple townhomes and/or clubhouse type facilities are not listed at the time of the SCDHS application, the department has provisions for BOR review and approval of such installations on a pilot basis. The applicant commits to the use of I/A OWTS as outlined above, and will obtain the necessary SCDHS approvals for this installation.

Water Resources Plans and Studies

The Long Island Comprehensive Waste Treatment Management Plan (208 Study) – The project is in conformance with the recommendations of the 208 Study which would have projects that exceed 1 unit per acre provide for wastewater treatment. The proposed project is far below this density. The proposed project will conform to SCSC Article 6, 7 and Article 12 requirements

which will minimize potential adverse impacts to groundwater quality. In addition, since the project is primarily residential in nature, few potentially toxic or hazardous substances would be present or used on the site and any such materials will be in limited quantities per Article 7 and stored in conformance with Article 12.

The developed area will be served by a comprehensive stormwater drainage system comprised of roadside catch basins, subsurface leaching pools as well as new and existing ponds to gather, store and recharge all runoff generated on the site within the site.

Further discussion of the projects impact related to the 208 Study as it relates to wastewater discharge in Groundwater Management Zone VIII was provided previously in the Hydrogeology portion of **Section 2.2.2**.

Suffolk County Comprehensive Water Resource Management Plan, 2015 - The following lists the Goals of the updated SCCWRMP, along with brief discussions as to the project's conformance to each.

<u>Groundwater Resource Management Goals</u>

GOAL 1: All groundwater shall be in compliance with the stricter of New York State Ambient Groundwater standards and guidance values or Maximum Contaminant Level Goals (MCLGs) to the greatest extent feasible and practical. Water quality that is better than the existing standards should be preserved, to the greatest extent feasible and practical.
This Goal is addressed to regulating agencies and public water suppliers. However, the proposed project will support this Goal to the extent that it will conform to SCSC Article 6 and Article 12 requirements which will minimize potential adverse impacts to groundwater quality.

GOAL 2: Nitrogen loading should be reduced to the greatest feasible and practical for the protecting of current and future drinking water supplies and to restore/maintain ecological functions of streams, lakes, estuaries and marine waters. Arrest and reverse the trend of increasing nitrogen concentrations in ground and surface waters to the greatest extent feasible and practical by decreasing the nitrogen loading from septic systems and fertilizers.
Nitrogen loading will be slightly increased as a result of the proposed project and is limited to the greatest extent feasible through the use of innovative treatment sanitary effluent (I/A OWTS). In addition, the reduction of fertilization of the subject property will also lead to a slight reduction in nitrogen load generated from this source. Under existing conditions it has been calculated that 663.47 pounds of nitrogen is generated on the property from fertilization. Under the proposed project it will be reduced by approximately 30 pounds to 633.68 pounds through the alteration of fertilization practices.

GOAL 3: Concentrations of other regulated and unregulated contaminants in groundwater should be minimized to the greatest extent feasible and practical, to protect current and future drinking water supplies and to restore/maintain ecological functions of streams, lakes, estuaries and marine waters. Reduce the discharge of volatile organic compounds and other regulated and unregulated contaminants to groundwater.
The proposed project will support this Goal to the extent that it will conform to SCSC Article 6 and Article 12 requirements which will minimize potential adverse impacts to groundwater quality. In addition, since the project is primarily residential in nature, few potentially toxic or hazardous substances would be present or used on the site.

GOAL 4: Land use patterns should be consistent with the protection of the County's groundwater and surface water resources, including the protection of existing and future drinking water supplies.
The proposed project will provide a land use pattern that is in keeping with protection of groundwater and surface water resources. The project will retain natural vegetation, limit fertilizer dependent vegetation, and will limit nitrogen load to the greatest extent feasible. The proposed septic systems would not lie in close proximity to either the water table or surface water bodies, so that the project will conform to the SCCWRMP with respect to minimizing nitrogen impacts originating in unsewered areas.

GOAL 5: Groundwater quality and quantity should be maintained to protect and preserve the County's drinking water supply and natural resources.
There is no impact to drinking water supply as indicated by SCWA in correspondence to the applicant. Public water will be used for domestic supply and natural resources will be retained to the greatest extent practicable with natural restoration of additional land to natural conditions.

GOAL 6: Groundwater levels should be maintained to protect and preserve the long term sustainability and ecological functions of existing surface water resources.
The proposed project is not expected to change groundwater levels as a result of provision of water supply by the SCWA. Site use is dispersed such that recharge will be distributed around the site and thus is not expected to impact groundwater elevations.

GOAL 7: Existing programs to monitor, prevent contamination of, and manage Suffolk County groundwater resources should be enhanced and improved to provide the data and programs necessary to protect the groundwater resource that provides the County's drinking water supplies, and to provide the information necessary to develop a long term approach to mitigate expected impacts of sea level rise upon existing infrastructure.
This Goal is addressed to regulating agencies and public water suppliers. The project will contribute to water quality protection and enhancement through the use of innovative sanitary system design and related water quality support to further ensure that surface water quality is improved.

<u>Drinking Water Supply Goals</u>
GOAL 1: All County residents should have access to safe potable water that is in compliance with drinking water MCLs, USEPA health advisories and New York State guidance levels.
This Goal is addressed to regulating agencies and public water suppliers. The project will contribute to water quality protection and enhancement through the use of innovative sanitary system design and related water quality support to further ensure that surface water quality is improved.

GOAL 2: A community public water supply should be available to all Suffolk County residents.
This Goal is addressed to regulating agencies and public water suppliers. It is noted that the proposed project will connect to the public water supply network of the SCWA for drinking water purposes, and will provide necessary connections to that network

GOAL 3: Residential and commercial irrigation should be managed to reduce peak demands on water supply infrastructure.
The existing irrigation well system is subject to NYSDEC well permits. The existing irrigation well system is independent of the SCWA system and therefore will not affect peak demands of the SCWA for drinking water supply.

Surface Water Resource Management Goals

The five Surface Water Resource Management Goals are addressed to regulating agencies. Additionally, there are no surface water bodies on the portion of the subject property scheduled for development or in proximity to the subject site.

Wastewater Management Goals

GOAL 1: Improve groundwater quality to maintain a potable water supply to serve existing and future populations by reducing effluent nitrogen loads from existing and future onsite sewage disposal systems and sewage treatment plants.

Nitrogen loads will slightly increase due primarily to the increase of sanitary nitrogen discharged on the subject property. The nitrogen load resulting from the proposed project is the best that can be feasible achieved and is assisted by limited seasonal occupancy of the residents, fertilizer dependent limitations, and proper turf management. The applicant will utilize advanced wastewater treatment (I/A OWTS) based on approved alternative systems that would be suitable for the site use and approvable by SCDHS.

GOAL 2: Improve surface water quality to increase coastal resiliency and rehabilitate and maintain a vibrant coastal ecosystem by improving dissolved oxygen levels, reducing harmful algal blooms, and controlling nutrient levels through the reduction of effluent wastewater nitrogen loads from existing and future onsite sewage disposal systems and sewage treatment plants.

There are no natural surface water bodies with a connection to groundwater on the subject property. Nitrogen loads will slightly increase at the lowest levels feasible as a result of low density use, limited seasonal occupancy of the residents, fertilizer dependent limitations, and proper turf management as well as through the use of advanced wastewater treatment based on approved alternative systems that would be suitable for the site use and approvable by SCDHS.

GOAL 3: Reduce and/or eliminate the impacts of pharmaceuticals and personal care products from wastewater effluent for increased public health and marine life protection.

This Goal is addressed to regulating agencies and public water suppliers. The proposed project is not of a type that would increase use of pharmaceuticals and personal care products any more than the existing zoning, and the reduced seasonal occupancy would tend to reduce all forms of wastewater flow as compared to existing zoning.

GOAL 4: Provide development opportunities for continued economic growth to support future population growth while limiting wastewater nitrogen discharge.

The proposed project is consistent with the surrounding property use and is therefore an appropriate development that is intended to provide economic growth and benefit. The project will not contribute school aged children which could present a financial burden to the local school district. The project will provide consumers for local business and will increase employment opportunities providing a significant economic benefit from construction, operation and beneficial ripple effect on the economy. The project limits wastewater discharge through low density occupancy and will employ approvable advanced wastewater treatment recognized by SCDHS.

GOAL 5: Improve operations and maintenance of onsite sewage disposal systems and sewage treatment plants to maintain compliance with effluent nitrogen limit and achieve more stringent goals where feasible and appropriate to protect ground/surface waters.

It is noted that one of the public benefits of the project is the applicant's commitment to provide enhanced wastewater treatment where feasible for the project. Further examination is warranted since SCDHS is currently in the process of studying small package systems and alternative treatment

methods for single-family homes and communal systems. The applicant will utilize innovative, alternative wastewater treatment methods subject to approval by SCDHS.

GOAL 6: Provide funding sources to the residents of Suffolk County to permit affordable upgrades to existing onsite sewage disposal systems or connection to community sewers.
This Goal is addressed to regulating agencies; however the proposed project will utilize innovative sanitary treatment technologies to limit nitrogen discharge to underlying groundwater.

GOAL 7: Promote the reuse of effluent wastewater for irrigation and grey water uses to preserve the volume of potable groundwater water supply to serve anticipated future population growth.
The project will promote the reuse of effluent wastewater and gray water whenever practicable..

Groundwater Quality

Groundwater impacts which may occur during construction activities could potentially result from building materials and equipment stored on-site. Building materials stored on-site are anticipated to be inert and therefore are not expected to have an adverse impact on the site. Equipment stored on-site which will be utilized during clearing and construction activities will be properly maintained and reputable contractors will be used for all site work.

The proposed project will consist of a multi-family residential development and is not expected to result in the use, generation or disposal of toxic substances which may be discharged to the subsurface. Household chemicals will likely be the only toxic or hazardous materials used in the residential portions of the on-site. Such materials, termed "household hazardous waste" (HHW) include any waste that is flammable, toxic, corrosive or reactive, and includes many household cleaners, paints, automobile maintenance wastes, pesticides, batteries, etc. These wastes may be exposed to individuals during use, may contaminate groundwater supplies when improperly discarded, and may injure sanitation workers or react with other substances during transport to or deposition in a landfill. According to the NYSDEC Household Hazardous Waste Report (April, 2000), education leading to waste reduction is by far the best approach to managing HHW, and the most environmentally sound method of disposal for many hazardous products is through a community HHW collection program. It is recognized that enforcement of limiting HHW use within the proposed project is generally not feasible. The NYSDEC offers several informational pamphlets concerning the use and disposal of HHW.

Stormwater will be recharged on-site through the use of leaching pools. Based on information presented in the NURP Study, this is an appropriate means of handling stormwater and as a result, such recharge is not anticipated to contain significant concentrations of pollutants. Therefore, the proposed project is in conformance with the applicable recommendations of the NURP Study in regard to the proposed stormwater recharge system and no significant adverse impacts are expected.

Water Balance and Nitrogen

Utilizing the same mass balance model described in **Section 2.3.1**, the water balance and concentration of nitrogen in recharge was calculated for the proposed project. **Table 1-3** provides a tabulation of existing and proposed site conditions. These coverage quantities were used in the SONIR (Simulation of Nitrogen in Recharge) model to obtain the results described herein.

The SONIR computer model results for the overall property following development of the proposed project (**Appendix E-3)** indicate that a total of 80.40 MG/yr of water will be recharged on the site. This represents an increase of approximately 20.62% in recharge generated on the property. This anticipated recharge volume represents 21.48 inches of water distributed annually over the 137.86 acre site. The concentration of nitrates (as nitrogen) in this recharge is anticipated to be increase due to the proposed project to a total of 2.65 mg/l. The increase in recharge and nitrogen concentration is directly attributable primarily to the increase in sanitary discharge on the subject property; however, the magnitude of this increase is limited through the use of I/A OWTS technologies and remains below ambient conditions for the area which are in the range of 7 mg/l. In addition, as will be noted in **Section 5.0**, the concentration of nitrogen in recharge will be less than would occur under as-of-right zoning if the site were developed as a subdivision based on its R-40 zoning. The SONIR computer model results for the proposed development area, only is provided in **Appendix E-4**.

Water Supply

In a letter dated September 7, 2016, information was requested from the SCWA indicated that there is an existing water main available in the area of the property from Breeze Hill Road, Mystic Lane and Fresh Pond Road. Accordingly, public water service for the proposed project will be provided in accordance with the rates and charges applicable at the time of connection. If a main extension is required, the applicant will be responsible for costs associated with the extension and if appropriate, an easement must be provided to the SCWA. Copies of each of the correspondence from the SCWA are provided in **Appendix H**. It should be noted that design of the water supply system will be subject to review and approval by SCDHS.

As noted in Section 2.3.1, the golf course is irrigated using an existing on-site water supply well and it will remain and will continue to supply irrigation water supply for the course.

2.3.3 Proposed Mitigation

- The developed area will be served by a comprehensive stormwater drainage system comprised of roadside catch basins, subsurface leaching pools as well as new and existing ponds to gather, store and recharge all runoff generated on the site within the site.
- All sanitary effluent generated from the proposed project will be disposed of on-site through utilization of an innovative, alternative wastewater treatment methods subject to approval by SCDHS.
- The project will utilize public water, to be supplied by the SCWA.
- The project consists entirely of residential uses; no industrial uses are proposed. As a result, household and household-type cleaners and lawn fertilizers are likely to be the only toxic or hazardous chemicals present that could adversely impact groundwater quality. Educational materials regarding HHW and proper use of such substances could be made available to future condo owners and occupants through the site owner, and notification of the Town sponsored collection programs will be provided to residents and occupants, so that potential for spills or leakages of toxic materials can be minimized.
- The applicant will examine expansion of vegetated buffer zones and addition of stormwater detention areas on the golf course in order to reduce surface runoff to the pond system.

2.4 Ecology

2.4.1 Existing Conditions

Vegetation

The project site is predominantly developed with a golf course and associated landscaping. Areas of natural vegetation exist in patches within the north and south parcels that comprise the site. The site is primarily surrounded by residential development. Contiguous vegetation in the area generally does not exist, as the landscape is highly fragmented due to the existing residential development, with the exception of the Makamah Nature Preserve and Jerome A. Ambro Memorial Wetland Preserve that lie to the west of the project site.

The 145.32 acre subject parcel was inspected on December 11, 2016, June 9, 2016 and July 29, 2016. Qualifications of NP&V staff that inspected the subject parcel are included in **Appendix F-1**. The natural areas within the property can best be described as containing Coastal Oak-Hickory Forest, Successional Southern Hardwood Forest, Red Maple-Hardwood Swamp, Maritime Bluff and Sand Beach as defined by the classification system developed by the NYSDEC **(Edinger *et al.*, 2014).** Areas of the project site developed with the golf course and associated facilities can best be described as Mowed Lawn, Mowed Lawn with Trees, and Paved and Unpaved Paths/Roadways as defined by **Edinger *et al.* 2014**. The Indian Hills Country Club main building as well as associated structures are located on the southern parcel, and the maintenance shed for the golf course exists within the northeastern portion of the north parcel. A small "snack bar" and two sheds are located on the south side of parcel on the north side of Breeze Hill Road. The remainder of the development area is landscaped and maintained as the golf course. **Figure 2-5** provides a habitat map of the subject property. The existing site habitat quantities as determined by aerial photography and field inspections by NP&V are presented in **Table 1-1** and changes in habitat quantities will be described further herein. Below is a detailed description of the habitat types found on site along with a list of species present or expected on the site.

Edinger (2014), defines Coastal Oak-Hickory Forest as "*a hardwood forest with oaks (Quercus spp.) and hickories (Carya spp.) codominant that occurs in dry well-drained, loamy sandof knolls, upper slopes, or south-facing slopes of glacial moraines of the Atlantic Coastal Plain. The forest is usually codominated by two or more species of oaks, usually white oak (Q. alba), black oak (Quercus velutina) and chestnut oak (Q. montana). Scarlet oak (Quercus coccinea) is also a common associate. Mixed with the oaks, usually at moderate densities, are one or more of the following hickories: pignut (Carya glabra), mockernut (C. tomentosa), and sweet pignut (C. ovalis). These hickories can range from nearly pure stands to as little as about 25% cover. There is typically a subcanopy stratum of small trees and tall shrubs including flowering dogwood (Cornus florida) and highbush blueberry (Vaccinium corymbosum). The shrublayer and groundlayer flora may be diverse. Common low shrubs include maple-leaf viburnum (Viburnum acerifolium), blueberries (Vaccinium angustifolium, V. pallidum) and huckleberry (Gaylussacia baccata). Characteristic groundlayer herbs are Swan's sedge (Carex swanii), panic grass (Panicum dichotomum), poverty grass (Danthonia spicata), cow-wheat (Melampyrum lineare), spotted wintergreen (Chimaphila maculata), rattlesnake weed (Hieracium venosum), white wood*

aster (Aster divaricatus), false Solomon's seal (Smilacina racemosa), Pennsylvania sedge (Carex pensylvanica), and white goldenrod (Solidago bicolor). Characteristic animals include eastern towhee (Pipilo erythrophthalamus), vireos (Vireo spp.), woodpeckers, and white-tailed deer (Odocoileus virginianus). Two or more topoedaphic variants are possible." The 38.42 acres of Coastal Oak Hickory forest within the overall property is located primarily in the northeast portion of the property in the only area not identified as previously cleared. Dominant canopy species observed include shagbark hickory (*Carya ovata*), mockernut hickory (*Carya tomentosa*), white oak (*Quercus alba)* and scarlet oak (*Quercus coccinea*). It should be noted that the overall quality of the Coastal Oak-Hickory forest found on the subject site is diminished due to the significant presence of invasive species (particularly multiflora rose, Oriental bittersweet and autumn olive) located along the disturbed edges of the habitat patch.

Edinger (2014), defines Successional Southern Hardwood Forest as *"a 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 elms (Ulmus americana), slippery elm (Ulmus rubra), white ashs (Fraxinus americana), red maples (Acer rubrum), box elders (Acer negundo), silver maple (Acersaccharinum), sassafrass (Sassafras albidum), gray birch (Betula populifolia), hawthorns (Crataegus spp.), eastern red cedar (Juniperus virginiana), and choke-cherrys (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. This is a broadly defined community and several seral and regional variants are known."* Species found within this habitat type include multiflora rose (*Rosa multiflora*), sassafrass (*Sassafrass albidum*), black cherry (*Prunus serotina*), white oak (*Quercus alba*), red maple (*Acer rubrum*) and tree-of-heaven (*Ailanthus altissima*). As evidenced in historic aerial photographs included in **Appendix F-2,** the area dominated by this forest type was previously cleared. As a result of the previous clearing in this area and subsequent lack of maintenance, this forest type became established within a 20.04 acre portion of the overall site.

Red maple-hardwood swamp was identified in the northwest portion of the site and is defined by **Edinger (2014)** as "*a hardwood swamp that occurs in poorly drained depressions or basins, usually on inorganic soil, but occasionally on muck or shallow peat, that is typically acidic to circumneutral. This is a broadly defined community with several regional and edaphic variants. The hydrology varies from permanently saturated to the surface to seasonally flooded/wet with hummocks and hollows. In any one stand red maple (Acer rubrum) is either the only canopy dominant, or it is codominant with one or more hardwoods including ashes (Fraxinus pennsylvanica, F. nigra, and F. americana), elms (Ulmus americana and U. rubra), and yellow birch (Betula alleghaniensis). Other trees with low percent cover include butternut (Juglans cinerea), bitternut hickory (Carya cordiformis), blackgum (Nyssa sylvatica), American hornbeam (Carpinus caroliniana), swamp white oak (Quercus bicolor), and white pine (Pinus strobus). The trunks of maples are typically single-trunked unlike those of floodplain forests with multiple trunks. The shrub layer is usually well-developed and may be quite dense. Characteristic shrubs are winterberry (Ilex verticillata), spicebush (Lindera benzoin), alders (Alnus incana ssp. rugosa and A. serrulata), viburnums (Viburnum dentatum var. lucidum, V. nudum var. cassinoides), highbush blueberry (Vaccinium corymbosum), common elderberry*

(Sambucus nigra ssp. canadensis), and various shrubby dogwoods (Cornus sericea, C. racemosa, and C. amomum). Swamp azalea (Rhododendron viscosum) is more common in southern examples, and poison sumac (Toxicodendron vernix) and black ash are more common in mineral-rich examples with slightly higher pH. The herbaceous layer may be quite diverse and is often dominated by ferns, including sensitive fern (Onoclea sensibilis), cinnamon fern (Osmunda cinnamomea), royal fern (O. regalis), and marsh fern (Thelypteris palustris), with much lesser amounts of crested wood fern (Dryopteris cristata), and spinulose wood fern (Dryopteris carthusiana). Characteristic herbs include skunk cabbage (Symplocarpus foetidus), white hellebore (Veratrum viride), sedges (Carex stricta, C. lacustris, and C. intumescens), jewelweed (Impatiens capensis), false nettle (Boehmeria cylindrica), arrow arum (Peltandra virginica), tall meadow rue (Thalictrum pubescens), and marsh marigold (Caltha palustris). Open patches within the swamp may contain other herbs characteristic of shallow emergent marsh. Examples of wetland fauna that occur in the glaciated northeast red maple-hardwood swamps include wood duck (Aix sponosa), American black duck (Anas rubripes), northern waterthrush (Seiurus noveboracensis), beaver (Castor canadensis), riverotter (Lutra canadensis), and mink (Mustela vison). These swamps provide breeding habitat for many wetland-dependent species, such as northern spring peeper (Pseudacris crucifer crucifer), American toad (Bufo americanus americanus), wood frog (Rana sylvatica), and spotted salamander (Ambystoma maculatum) (Golet et al. 1993). More data on characteristic fauna, especially invertebrates, are needed. More data are needed on reported variants of this community, such as forested seeps, successional hardwood swamp, red maple-white pine swamp on sandy soils, and red maple-tussock sedge swamp with shallow peat." Species identified within the understory of the red maple-hardwood swamp during site visits included bitter dock, jewelweed and yellow sedge (*Carex flava*). The predominant canopy species was red maple (*Acer rubrum*). As evidenced in historic aerial photographs included in **Appendix F-2**, the area identified as red maple-hardwood swamp was previously cleared and as such features an abundance of invasive species along the edges of the habitat including mutiflora rose, oriental bittersweet, autumn olive and mugwort. A significant lack of understory was also present, which may also be due to the previous disturbance associated with the wetland.

Freshwater wetlands are important ecological communities. These habitats are generally more productive than upland habitats, and are typically high in both plant and animal diversity. Wetlands are also vital in controlling floodwaters and filtering pollutants, and are valuable as recreation areas and as refuge for rare species. As the intrinsic value of wetlands has become recognized, they have received increasing protection from Federal, State, and local regulations and are often prioritized for public acquisition and preservation. Wetland boundaries are generally defined by the presence of significant numbers of indicator plant species which are typical of flooded or waterlogged soils. This approach may be somewhat arbitrary and is open to individual interpretation, particularly in areas with shallow slopes and broad transition zones. It is noted that the wetlands are regulated by the NYSDEC under Article 24 and are identified as freshwater wetland N-13. The on-site wetland boundary was flagged on December 11, 2015 and May 20, 2016 by NP&V. It should be noted that any development located within 100 feet of a regulated Article 24 wetland must be approved by NYSDEC through a permitting process.

Edinger (2014) defines maritime bluff as "*a sparsely vegetated community that occurs on vertical exposures of unconsolidated material, such as small stone, gravel, sand, and clay, that is*

exposed to maritime forces, such as water, ice, or wind. There are very few woody species present because of the unstable substrate. Most abundant species are usually annual and early successional herbs. These bluffs are adjacent to maritime and marine communities and are actively eroded by the oceanic forces. The maritime bluff is comprised of areas of unvegetated, near vertical morainal sand cliffs, and less steep (about 45°) areas of slumped bluff-face at the base of the bluff that support beach grass (Ammophila breviligulata), seaside goldenrod (Soligago sempervirens), and bayberry (Myrica pensylvanica). More data are needed for this community." Maritime bluff is located along the northern portion of the site. Species identified in this area include Elliot's goldenrod, Queen Anne's lace, St. John's wort and spotted knapweed.

The remainder of the site is comprised of landscaped areas, golf course ponds, unvegetated beach, and impervious surfaces/structures. **Table 2-4** below provides the quantities of the habitats encountered on the site.

TABLE 2-4
HABITAT QUANTITIES
Existing Conditions

Coverage Type	Existing Conditions Within the Total Site		Existing Conditions Within the Area to be Developed	
	Coverage (Acres)	Percent	Coverage (Acres)	Percent
Mowed	**93.38**	**64.26**	**14.00**	**42.74**
Mowed with Trees	9.88	6.80	1.13	3.44
Greens (Fertilized)	2.37	1.63	0.10	0.29
Fairways (Fertilized)	23.90	16.44	1.06	3.24
Tees (Fertilized)	1.64	1.13	0.00	0.00
Shrub beds	0.41	0.29	0.30	0.93
Other Landscaped (Mowed)	55.18	37.98	11.41	34.84
Natural	**31.85**	**21.91**	**0.00**	**0.00**
Coastal Oak	9.31	6.41	0.38	1.17
Successional Southern Hardwood	20.04	13.79	12.59	38.45
Maritime Bluff	2.49	1.72	0.00	0.00
Wetlands	**0.50**	**0.34**	**0.00**	**0.00**
Ponds	**3.20**	**2.20**	**2.12**	**6.48**
Beach & Tidal Waters	**7.46**	**5.13**	**0.00**	**0.00**
Unvegetated	**1.77**	**1.22**	**0.51**	**1.55**
Non-paved cartpaths	0.63	0.43	0.47	1.43
Bunkers	1.15	0.79	0.04	0.12
Cartpaths/Roads/Parking Lots	**6.68**	**4.59**	**2.85**	**8.69**
Buildings	**0.48**	**0.33**	**0.30**	**0.92**
Total	**145.32**	**100.00**	**32.75**	**100.00**

Table 2-5 presents a list of vegetation observed or expected on site given the habitats present; it is based upon field investigations conducted by NP&V on December 11, 2016, June 9, 2016 and July 29, 2016. Qualifications of the NP&V staff that inspected the site can be found in **Appendix F-1**. This list is not meant to be all-inclusive but was prepared as part of several field inspections to provide a detailed representation of what is found on site. Care was taken to identify any species that might be unusual for the area.

TABLE 2-5
VEGETATION SPECIES

Trees

* Norway maple	Acer platanoides [i]
* red maple	Acer rubrum
silver maple	Acer saccharinum
sugar maple	Acer saccharum
* tree-of-heaven	Alianthus altissima [i]
alder	Alnus serrulata
* yellow birch	Betua allaghaniensis
* black birch	Betula lenta
* white birch	Betula papyrifolia
gray birch	Betula populifolia
bitternut hickory	Carya cordiformis
pignut hickory	Carya glabra
* shagbark hickory	Carya ovata
* mockernut hickory	Carya tomentosa
American chestnut	Castanea dentata
northern catalpa	Catalpa bignonioides
flowering dogwood	Cornus florida [p]
gray dogwood	Cornus foemina racemosa
* Kousa dogwood	Cornus kousa
red osier dogwood	Cornus stolonifera
hawthorne	Craetagus sp.
American beech	Fagus grandifolia
* American holly	Ilex opaca [p]
walnut	Juglans nigra
* eastern red cedar	Juniperus virginiana
* tulip poplar	Liriodendron tulipifera
magnolia	Magnolia sp.
crab apple	Malus coronaria[p]
common apple	Malus pumila
* mulberry	Morus rubra
* sour gum	Nyssa sylvatica
* princess tree	Paulownia tomentosa [i]
pitch pine	Pinus rigida
* white pine	Pinus strobus
eastern cottonwood	Populus deltoides.
* bigtooth aspen	Populus grandidentata
* black cherry	Prunus serotina
* choke cherry	Prunus virginiana

* white oak	Quercus alba
swamp white oak	Quercus bicolor
* scarlet oak	Quercus coccinea
* blackjack oak	Quercus marilandica
pin oak	Quercus palustris
* chestnut oak	Quercus prinus
red oak	Quercus rubra
* black oak	Quercus velutina
* black locust	Robinia pseudoacacia [i]
pussy willow	Salix discolor
gray willow	Salix humilis.
* black willow	Salix nigra
* sassafras	Sassafras albidum
* yew	Taxus floridana
linden	Tilia sp.
eastern hemlock	Tsuga canidensis
slippery elm	Ulmus rubrai
American elm	Ulnus americana
bamboo (several “running” varieties) [i]	
Northern prickly-ash	Zanthoxylum americanum
* Hercules club	Zanthoxylum clava-herculis
Shrubs and Vines	
shadbush	Amelanchier canadensis
porcelain-berry	Ampelopsis brevipedunculata [i]
* chokeberry	Aronia arbutifolia.
* Japanese barberry	Berberis thunbergii [i]
* boxwood	Bux sempervirens
trumpet creeper	Campsis radicans
* Oriental bittersweet	Celastrus orbiculatus [i]
American bittersweet	Celastrus scandens [p]
sweet pepperbush	Clethra alnifolia
sweetfern	Comptonea peregrina
* autumn olive	Elaeagnus umbellata [i]
trailing arbutus	Epigaea repens[p]
winged eunonymous	Euonymus alatus [i]
* burningbush	Euonymus atropurpureus
wintercreeper	Euonymus fortunei [i]
forsythia	Forsythia sp.
black huckleberry	Gaylussacia baccata
* English ivy	Hedera helix[i]
hydrangea	Hydrangea sp.
inkberry	Ilex glabra [p]
winterberry	Ilex verticillata [p]
mountain laurel	Kalmia latifolia [p]
bush clover	Lespedeza sp.
fetterbush	Leucothoe racemosa
spicebush	Lindera benzoin
* Japanese honeysuckle	Lonicera japonica [i]
fly honeysuckle	Lonicera morrowii [i]
trumpet honeysuckle	Lonicera sempervirens

	honeysuckles	Lonicera spp.
	tartarian honeysuckle	Lonicera tatarica [i]
*	sargent crabapple	Malus sargentii
*	bayberry	Myrica pensylvanica [p]
*	Virginia creeper	Parthenocissus quinquefolia
	mile-a-minute vine	Polygonum perfoliatum [i]
*	bitter dock	Rumex obtusifolius
*	common buckthorn	Rhamnus cathartica [i]
	pinkster bloom	Rhododendron nudiflorum [p]
	azaelea	Rhododendron sp. [p, native only]
	rhododendron	Rhododendron sp. [p]
	swamp azalea	Rhododendron viscosum [p]
*	winged sumac	Rhus copallina
	smooth sumac	Rhus glabra
*	staghorn sumac	Rhus typhina
	currant	Ribes lacustre
	gooseberry	Ribes sp.
*	multiflora rose	Rosa multiflora [i]
	swamp rose	Rosa palustris
	wild rose	Rosa sp.
*	blackberry	Rubus allegheniensis
	common dewberry	Rubus flagellaris
*	wineberry	Rubus phoenicolasius [i]
	brambles	Rubus sp.
	common elderberry	Sambucus canadensis
	cat greenbrier	Smilax glauca
*	common greenbrier	Smilax rotundifolia
	bittersweet nightshade	Solanum dulcamara
	Japanese spiraea	Spiraea japonica [i]
	meadowsweet	Spirea latifolia
	hardhack	Spirea tomentosa
*	poison-ivy	Toxicodendron radicans
	low bush blueberry	Vaccinium angustifolium
*	high bush blueberry	Vaccinium corymbosum
*	maple-leaved viburnum	Viburnum acerifolium
	arrowwood	Viburnum dentatum
	myrtle	Vinca minor[i]
*	grape	Vitis sp.
	Japanese wisteria	Wisteria floribunda [i]
	American wisteria	Wisteria frutescens
	Chinese wisteria	Wisteria sinensis [i]

Herbaceous Species

*	yarrow	Achillia millefolium
	sweet flag	Acorus americanus
	redtop	Agrostis gigantea
*	garlic mustard	Alliaria petiolata [i]
*	wild onion	Allium stellatum
	wild leek	Allium tricoccum
	pigweed	Amaranthus sp.

	ragweed	Ambrosia artemisiifolia
	big bluestem	Andropogon gerardii
	little bluestem grass	Andropogon scoparius.
	wood anemone	Anemone quinquefolia
	dogbane	Apocynum maculosa
	wild sarsaparilla	Aralia nudicaulis
	Jack-in-the-pulpit	Ariasaema triphyllum
*	common mugwort	Artemisia vulgaris [i]
	common milkweed	Asclepias syrica
*	aster	Aster sp.
	Lady fern	Athyrium filix-femina [p]
	yellow rocket	Barbarea vulgaris
	bald rush	Brasenia schreberi
	mustard	Brassica sp.
	bluejoint grass	Calamagrotis canadensis
	marsh bellflower	Campanula aparinoides
*	yellow sedge	Carex flava
	bladder sedge	Carex intumecens
	lurid sedge	Carex lurida
	Pennsylvania sedge	Carex pensylvanica
	sedge	Carex sp.
*	umbrella sedge	Carex strigosus
	spotted knapweed	Centurea maculosa
	coontail	Ceratophyllum demersum
	common lamb’s quarters	Chenopodium album
	spotted wintergreen	Chimaphila maculata [p]
	chicory	Cichorium intybus
	enchanter’s nightshade	Circacea quadrisulcata
	creeping thistle	Cirsium arvense
	thistle	Cirsium sp.
*	Asiatic dayflower	Commelina communis
	crown vetch	Coronilla varia
	dodder	Cuscuta gronovii
	black swallow-wort	Cynanchum louiseae [i]
*	umbrella sedge	Cyperus strigosus
	moccasin flower	Cypripedium acaule[p]
	broom	Cytisus scoparius
	poverty grass	Danthonia spicata
*	Queen Anne's lace	Daucus carota
	hay-scented fern	Dennstaedtia punctilobula
	deertongue	Dichanthelium clandestinum
	sundew	Drosera filiformes[p]
	sundew	Drosera intermedia[p]
	sundew	Drosera rotundifolia [p]
	crested wood fern	Dryopteris cristata[p]
	woodfern	Dryopteris spinulosa[p]
	three way sedge	Dulichium arundinaceum
	spikerush	Eleocharis sp.
	waterweed	Elodea sp.
	beech drops	Epifagus virginiana

	pipewort	Eriocaulon aquaticum
	cypress spurge	Euphorbia cyparissias
	Japanese knotweed	Fallopia japonica
	common strawberry	Fragaria virginiana
	cleavers	Galium aparine
	wintergreen	Gaultheria procumbens [p]
	wild geranium	Geranium maculatum
	ground ivy	Glechoma hederaceae
	mannagrass	Glyceria canadensis
	gratiola	Gratiola aurea
	woodland sunflower	Helianthus divaricatus
	giant hogweed	Heracleum mantegazzianum [i]
	hawkweed	Hieracium sp.
	Canadian St.John's-wort	Hypericum canadense
*	common St. Johnswort	Hypericum perforatum
*	jewelweed	Impatiens capensis
	yellow flag	Iris pseudoacorus
	blue flag	Iris versicolor
	Canada rush	Juncus canadensis
	soft rush	Juncus effusus
*	bayonet rush	Juncus militaris
	rushes	Juncus sp.
	rice cutgrass	Leersia oryzoides
	duckweed	Lemna sp.
	field pepperweed	Lepidium campestre
	tiger lily	Lilium canadense [p]
	butter-n-eggs	Linaria vulgaris
	rye grass	Lolium sp.
	bushy seedbox	Ludwigia alternifolia
	white campion	Lychnis alba
	tree club moss	Lycopodium obscurum [p]
	club moss	Lycopodium sp.
	bugleweed	Lycopus virginicus
	whorled loosestrife	Lysimachia quadrifolia
	purple loosestrife	Lythrum salicaria
	tufted loosestrife	Lythrum thrysiflora
	Canada mayflower	Maianthemum canadense
	Indian cucumber root	Medeola virginiana
	Japanese stilt grass	Microstegium vimineum [i]
	Chinese silver grass, Eulalia	Miscanthus sinensis [i]
	Indian pipe	Monontropa uniflora
	milfoil	Myriophyllum sp.
	naiad	Najas flexilis
	yellow pond lily	Nuphar luteum
	white waterlily	Nymphaea odorata
	evening primrose	Oenethera biennis
*	sensitive fern	Onoclea sensibilis
	sweet cicely	Osmorhiza claytoni
*	cinnamon fern	Osmunda cinnamomea [p]
	royal fern	Osmunda regalis [p]

	Wood sorrel	Oxalis sp.
	pachysandra	Pachysandra terminalis
	panic grass	Panicum sp
	arrowleaf	Peltandra virginica
	canary grass	Phalaris arundinacea
	timothy	Phleum pratense
*	common reed	Phragmites australis [i]
*	pokeweed	Phytolacca americana
	coolwort	Pilea pumila
	plantain	Plantago sp
	Soloman's seal	Polygonatum biflorum
*	smartweed species	Polygonum sp.
	water smartweed	Polygonum amphibium
	nodding smartweed	Polygonum lapathifolium
	pink smartweed	Polygonum pensylvanicum
	Virginia polyploid fern	Polyploidium virginianum[p]
	Christmas fern	Polystichum acrostichoides [p]
	hair cap moss	Polytrichium sp.
	pondweed	Potamogeton perfoliatus
	mock or Indian strawberry	Potentilla indica
	cinquefoils	Potentilla spp.
	bald rush	Psilocarya scirpoides[r]
	bracken fern	Pteridium aquilinum
	shinleaf	Pyrola sp.
	common buttercup	Ranunculus acris
	lesser celandine	Ranunculus ficaria [i]
	horned rush	Rhynchospora macrostachya
	black-eyed Susan	Rudbeckia hirta
	dock	Rumex crispus
	bouncing bet	Saponaria officinalis
	pitcher plant	Sarracenia purpurea
	hard-stem bulrush	Scirpus acutus
	wool grass	Scirpus cyperinus.
	common three-square	Scirpus pungens
	soft-stem bulrush	Scirpus validus
	nutrush	Scleria reticularis [r]
	skullcap	Scutellaria galericulata
	green foxtail	Setaria viridis
	false Soloman's seal	Smilacina racemosa
	nightshade	Solanum sp.
*	goldenrod	Solidago sp.
	bur-reed	Sparganium eurycarpum
	sphagum moss	Sphagnum sp.
	skunk cabbage	Symplocarpus foetidus [p]
	common dandelion	Taraxacum officinale
	New York fern	Thelypteris novaboracensis [p]
	marsh fern	Thelypteris thelypteroides [p]
	Virginia knotweed	Tovara virginina
	clover	Trifolium sp.
*	trillium	Trillium sp.

	cattails	Typha latifolia
	bladderwort	Utricularia sp.
*	common mullein	Verbascum thapsus
	cow vetch	Vicia cracca
*	spring vetch	Vicia satvia
	sweet violet	Viola blanda
	cocklebur	Xanthium chinense
	large yellow-eyed grass	Xyris smalliana
	wild rice	Zizania aquatica
	water starwort	Zosterella dubia

* Species identified on site during field visits by NPV Staff.
[e] NYS endangered species
[i] NYS invasive species (no legal status)
[p] NYS exploitably vulnerable protected plant

Wildlife

Site inspections were performed on December 11, 2016, June 9, 2016 and July 29, 2016 by NP&V staff, whose qualifications can be found in **Appendix F-1**. Relatively few wildlife species other than song birds were observed on site, although it is expected that the woodland and terrestrial cultural habitats on the property should support a number of wildlife species common to suburban habitats, particularly those species that are more tolerant of human activity. Species that avoid humans and/or those species that are sensitive to development are less likely to inhabit the site. The following paragraphs describe the wildlife observed or expected on site. Further detail regarding potential wildlife on site and adaptability to a change in habitat is provided in **Appendix F-3**.

Birds- Avian species which might be expected on the property include a variety of woodpeckers, wrens, titmice, nuthatches, thrushes, creepers, flycatchers, swallows, warblers, corvids, thrashers, orioles and blackbirds, doves, starling, grosbeaks, finches, towhees and sparrows. During the warmer months, a variety of warblers may also migrate into the area. Owls and raptors may use the site for hunting and limited numbers may breed in the surrounding areas. The subject site is not expected to be critical habitat for any avian species utilizing the site.

During the site visits, northern cardinals, blue jays, mourning doves and mocking birds were all seen or heard on site. In order to provide a more detailed representation of the avian species potentially present on site, the NYS Breeding Bird Atlas was reviewed to obtain data from the 2000-2005 Breeding Bird Survey for the census block encompassing the subject parcel (**Appendix F-4)**. This study surveyed the entire State by 25 km² census blocks over a five-year period (2000 to 2004) to determine the bird species which breed within the State. Most of the species listed by the NYSDEC breeding bird survey are likely to be found on site. No unique species or species of special concern are expected given the surrounding site uses. **Table 2-6** identifies the bird species either identified or expected to use the site.

TABLE 2-6
BIRD SPECIES

	Cooper's hawk	Accipiter cooperii [s]
	sharp-shinned hawk	Accipiter striatus [s]
	spotted sandpiper	Actitus macularia
	red-winged blackbird	Agelaius phoeniceus
	wood duck	Aix sponsa
	seaside sparrow	Ammodramus maritimus
	American widgeon	Anas americana
	green-winged teal	Anas crecca
	mallard	Anas platyrhynchos
	American black duck	Anas rubripes
	gadwall	Anas strepera
*	great blue heron	Ardea Herodias
	ruddy turnstone	Arenaria interpres
	short-eared owl	Asio flammeus
	long-eared owl	Asio otus
	lesser scaup	Aythya affinis
	ring-necked duck	Aythya collaris
	greater scaup	Aythya marila
	canvasback	Aythya valisineria
	cedar waxwing	Bombycilla cedrorum
	ruffed grouse	Bonasa umbellus
*	Canada goose	Branta Canadensis
	great-horned owl	Bubo virginianus
	red-tailed hawk	Buteo jamaicensis
	broad-winged hawk	Buteo platypterus
	green heron	Butorides striatus
	sanderling	Calidris alba
	least sandpiper	Calidris minutilla
	semipalmated sandpiper	Calidris pusilla
	whip-poor-will	Caprimulgus vociferous
*	Northern cardinal	Cardinalis cardinalis
	American goldfinch	Carduelis tristis
	house finch	Carpodacus mexicanus
*	great egret	Casmerodius albus
	veery	Catharus fuscescens
	hermit thrush	Catharus guttatus
	willet	Catoptrophorus semipalmatus
	brown creeper	Certhia familiaris
	chimney swift	Chaetura pelagica
	piping plover	Charadrius melodus
	semipalmated plover	Charadrius semipalmatus
	yellow-billed cuckoo	Coccyzus americanus
	black-billed cuckoo	Coccyzus erythropthalmus
*	northern flicker	Colaptus auratus
	rock dove	Columba livia
*	Eastern wood-peewee	Contopus virens

*	American crow	Corvus brachyrhynchos
	Fish crow	Corvus ossifragus
*	blue jay	Cyanocitta cristata
	mute swan	Cygnus olor
	black-throated blue warbler	Dendroica caerulescens
	chestnut-sided warbler	Dendroica pensylvanica
*	yellow warbler	Dendroica petechia
*	gray catbird	Dumetella carolinensis
	little-blue heron	Egretta caerulea
	Acadian flycatcher	Empidonax virescens
	merlin	Falco columbarius
	American kestrel	Falco sparverius
	American coot	Fulica americana
	common loon	Gavia immer
	red-throated loon	Gavia stellata
	common yellowthroat	Geothlypis trichas
	American oystercatcher	Haematopus palliatus
*	barn swallow	Hirundo rustica
	wood thrush	Hylocichla mustelina
	northern oriole	Icterus galbula
	Northern (dark-eyed) junco	Junco hyemalis
	herring gull	Larus argentatus
	ring-billed gull	Larus delawarensis
	great-black-backed gull	Larus marinus
	Bonaparte's gull	Larus philadelphia
*	laughing gull	Leucophaeus atricilla
	short-billed dowitcher	Limnodromus griseus
	hooded merganser	Lophodytes cucullatus
	belted kingfisher	Megaceryle alcyon
	red-bellied woodpecker	Melanerpes carolinus
	wild turkey	Meleagris gallopavo
	song sparrow	Melospiza melodia
	red-breasted merganser	Mergus serrator
*	Northern mockingbird	Mimus polyglottos
	black-and-white warbler	Mniotilta varia
	brown-headed cowbird	Molothrus ater
	great-crested flycatcher	Myiarchus crinitus
	yellow-crowned night-heron	Nycticorax violaceus
	Eastern screech owl	Otus asio
*	osprey	Pandion haliaetus
	black capped chickadee	Parus atricapillus
	tufted titmouse	Parus bicolor
	house sparrow	Passer domesticus
	Savannah sparrow	Passerculus sandwichensis
	fox sparrow	Passerella iliaca
	rose-breasted grosbeak	Pheucticus ludovicianus
	American woodcock	Philhela minor
	downy woodpecker	Picoides pubescens
	hairy woodpecker	Picoides villosus
	rufous-sided towhee	Pipilo erythrophthalmus

	Eastern towhee	Pipilo erythropthalmus
	scarlet tanager	Piranga olivacea
	black-bellied plover	Pluvialis squatarola
	horned grebe	Podiceps auritus
	pied-billed grebe	Podilymbus podiceps
	blue-grey gnatcatcher	Polioptila caerulea
	purple martin	Progne subis
*	common grackle	Quiscalus quiscula
	ruby-crowned kinglet	Regulus calendula
	golden-crowned kinglet	Regulus satrapa
	black skimmer	Rynchops niger
	Eastern phoebe	Sayornis phoebe
	ovenbird	Seiurus aurocapilla
	American redstart	Setophaga ruticilla
	white-breasted nuthatch	Sitta carolinensis
	yellow-bellied sapsucker	Sphyrapicus varius
	chipping sparrow	Spizella passerina
	rough-winged swallow	Stelgidopteryx ruficollis
	least tern	Sterna antillarum
	roseate tern	Sterna dougallii
	common tern	Sterna hirundo
*	European starling	Sturnus vulgaris
	tree swallow	Tachycineta bicolor
	Carolina wren	Thryothorus ludovicianus
	brown thrasher	Toxostoma rufum
	lesser yellowlegs	Triniga flavipes
	house wren	Troglodytes aedon
*	American Robin	Turdus migratorius
	Eastern kingbird	Tyrannus tyrannus
	blue-winged warbler	Vermivora pinus
	yellow throated vireo	Vireo flavifrons
	white-eyed vireo	Vireo griseus
	red-eyed vireo	Vireo olivaceus
*	mourning dove	Zenaida macroura
	white-throated sparrow	Zonotrichia albicollis

[s] special concern species
*species observed by NP&V staff during field visits.

Mammals - The habitats found on the proposed project site are expected to support a number of mammal species. Small rodents and insectivores such as mice, shrews and voles are expected to be the most abundant mammals, but the property and surrounding area should also support larger mammals. White-tailed deer and the eastern cottontail rabbit were observed on the subject site.

Table 2-7 is a list of the mammal species that are expected to occur on the property because of existing conditions on-site and in the surrounding area. This list is not meant to be all-inclusive but is intended to provide a list of the most common species.

TABLE 2-7
MAMMAL SPECIES

	short-tailed shrew	Blarina breuicauda
	Virginia opossum	Didelphis virginiana
	big-brown bat	Eptesicus fuscus
	southern-flying squirrel	Glaucimys volans
	silver-haired bat	Lasionycteris noctivagans
	red bat	Lasiurus borealis
	woodchuck	Marmota monax
	striped skunk	Mephitis mephitis
	meadow vole	Microtus pennsylvanicus
	pine vole	Microtus pinetorum
	house mouse	Mus musculus
	long-tailed weasel	Mustela frenata
	mink	Mustela vison
	Keen's bat	Myotis keenii
	little-brown bat	Myotis lucifugus
*	white-tailed deer	Odocoileus virginianus
	muskrat	Ondarta zibethicus
	white-footed mouse	Peromyscus leucopus
	Eastern pipistrelle	Pipistrellus subflavus
	racoon	Procyon lotor
	Norway rat	Rattus norvegicus
	Eastern mole	Scalopus aquaticus
*	Eastern gray squirrel	Sciurus carolinensis
	masked shrew	Sorex cinereus
*	Eastern cottontail	Sylvilagus floridanus
	Eastern chipmunk	Tamis striatus
	red fox	Vulpes vulpes
	meadow-jumping mouse	Zapus hudsonicus

* Species observed on site by NP&V staff during field visits.

Amphibians and Reptiles - The site may support a limited number of terrestrial and wetland species. A snapping turtle and multiple painted turtles were encountered during site visits. Two toads are common on Long Island in upland habitats. The spadefoot toad occurs in woods, shrublands and fields with dry, sandy loam soils, and breeds in temporary pools **(Behler and King, 1979)**. The Fowler's toad prefers sandy areas near marshes, irrigation ditches and temporary pools. These species are the most likely amphibians to be present on the site. Salamanders and frogs may also potentially utilize the pond on the property, although no salamanders were visually observed during the site visits; however, an American bullfrog was seen during a site visit. Surveys consisted of traversing the perimeter of the wetlands and water features as feasible. Species that were not observed during these surveys, but would be expected based on site habitat are included in the species list in order to fully account for potential impacts to observed and expected amphibians and reptiles.

Several species of reptiles might potentially be found on the property, including the eastern garter snake, and eastern milk snake (**Wright, 1957**). All of these species are terrestrial species found in a variety of habitats. The garter snake is relatively tolerant of human activity, but prefers moist soils and would be most likely to be present near the recharge basin to the northwest and in the vicinity of the on-site pond. The milk snake is found in soils of varying moisture content. These snakes are all colubrid snakes, which feed on whole animals such as worms, insects or small amphibians (**Behler and King, 1979**). The larger milk snake will also take small rodents and birds (**Behler and King, 1979**).

The only turtle species common to terrestrial habitats on Long Island (although listed in New York State as a species of special concern) is the eastern box turtle, which requires very little water (**Obst, undated**). The species is found in a variety of habitats, and prefers moist woodlands. The box turtle feeds primarily on slugs, earthworms, wild strawberries and mushrooms (**Behler and King, 1979**). The similar wood turtle utilizes both aquatic and terrestrial habitats, but is restricted to eastern Long Island (**Conant and Collins, 1991**). A snapping turtle as well as painted turtles were observed on the subject property during site visits.

Table 2-7 presents a list of reptile species that might occur on site given the existing habitats. This list is not intended to be all-inclusive but provides a detailed representation of what is or is likely to be found on site. In addition, further information regarding these species can be found in **Appendix F-3.**

TABLE 2-8
REPTILE AND AMPHIBIAN SPECIES

Amphibians	
common gray treefrog	*Hyla versicolor*
Eastern spadefoot toad	*Scaphiopus holbrooki [s]*
Fowler's toad	*Bufo woodhousei fowleri*
*American bullfrog	*Rana catesbeiana*
green frog	*Rana clamitans*
marbled salamander	*Ambystoma opacum [s]*
red-backed salamander	*Plethodon cinerus cinerus*
red-spotted newt	*Notophthalmus viridescens*
spotted salamander	*Ambystoma maculatum*
spring peeper	*Hyla crucifer*
wood frog	*Rana sylvatica*
Reptiles	
*common snapping turtle	*Chelydra serpentina*
Eastern box turtle	*Terrepene Carolina [s]*
Eastern garter snake	*Thamnophis sirtalis*
eastern milk snake	*Lampropettis d. triangulum*
Eastern ribbon snake	*Thamnophis s. sauritus*
Northern ringneck snake	*Diadophis punctatus*
Northern water snake	*Natrix sipedon sipedon*
*painted turtle	*Chrysemys picta*
stink pot	*Sternotherus odoratue*

[s] NYSDEC special concern species
* Species observed on site by NP&V staff

Rare and Endangered Species Potential

No rare, threatened or endangered plants were observed on site. The N.Y. Natural Heritage Program (ECL 9-1503) was contacted to determine if there is any record of rare plants, habitats or wildlife in the vicinity. The Natural Heritage Program has one record of known occurrences of rare or state-listed plants or significant natural communities on or in the vicinity of the subject site. High Salt Marsh, which is identified as a significant natural community or other significant habitats was identified as being located within the vicinity of the project site. The identified High Salt Marsh is Crab Meadow Marsh and is approximately 840 feet to the west of the project site. No High Salt Marsh was identified on site. Correspondence with the Natural Heritage Program is contained in **Appendix F-5**. No endangered species were encountered during NP&V's inspections of the property.

2.4.2 Anticipated Impacts

Vegetation

The impacts to the ecological resources of a site are generally a direct result of clearing of natural vegetation, increase in human activity and associated wildlife stressors, and the resulting loss and fragmentation of wildlife habitat. The majority of the development area is currently wooded, with the exception of approximately 13.99 acres of mowed area, 2.85 acres of impervious area and 0.47 acres of unvegetated area.

The changes in habitat quantities for both the overall property and the development area are listed in **Table 2-8** and **2-9**. As illustrated in **Table 2-8** the planned development intends to ultimately provide approximately 6.14% of Coastal Oak Hickory Forest, 5.13% of Successional Southern Hardwood Forest, 2.50% of Maritime Bluff, and 0.34% or 0.50 acres of Red maple-hardwood swamp within the project site. As a result, the site will continue to provide some natural habitat for wildlife, though the removal of the existing woodland vegetation on the property is expected to result in a change in the characteristics of site habitat. It is noted that the majority of the proposed development will occur in areas which were previously cleared for landscaping and now consist of Successional Southern Hardwood forest, which is of less ecological value as it is currently impacted by the predominance of invasive species found within this habitat.

Although specific plans for the development of the proposed townhomes have not been developed at this time, an estimate of coverage proposed in the Concept Plan was used for the purpose of quantifying habitat loss is provided in **Tables 2-8** and **2-9** below.

TABLE 2-9
HABITAT QUANTITIES
Existing and Proposed Conditions – Overall Site

Coverage Type	Existing Conditions		Proposed Project		Change (Acres)
	Coverage (Acres)	Percent	Coverage (Acres)	Percent	
Mowed	**93.38**	**64.26**	**99.28**	**68.32**	**5.89**
Mowed with Trees	9.88	6.80	8.75	6.02	-1.13
Greens (Fertilized)	2.37	1.63	2.39	1.64	0.02
Fairways (Fertilized)	23.90	16.45	23.95	16.48	0.05
Tees (Fertilized)	1.64	1.13	1.67	1.15	0.03
Shrub beds	0.41	0.28	0.11	0.08	-0.30
Other Landscaped (Mowed)	55.18	37.97	62.39	42.93	7.21
Natural	**31.85**	**21.92**	**18.87**	**12.99**	**-12.98**
Coastal Oak	9.31	6.41	8.93	6.15	-0.38
Successional Southern Hardwood	20.04	13.79	7.45	5.13	-12.59
Maritime Bluff	2.49	1.71	2.50	1.72	0.01
Wetlands	**0.50**	**0.34**	**0.5**	**0.34**	**0.00**
Ponds	**3.20**	**2.20**	**3.49**	**2.40**	**0.28**
Beach & Tidal Waters	**7.46**	**5.13**	**7.46**	**5.13**	**0.00**
Unvegetated	**1.77**	**1.22**	**1.32**	**0.91**	**-0.45**
Non-paved cartpaths	0.63	0.43	0.16	0.11	-0.47
Bunkers	1.15	0.79	1.16	0.80	0.01
Cartpaths/Roads/Parking Lots	**6.68**	**4.60**	**9.20**	**6.33**	**2.52**
Buildings	**0.48**	**0.33**	**5.21**	**3.59**	**4.73**
Total	145.32	100.00	145.32	100.00	0.00

Table 2-10
HABITAT QUANTITIES
Existing and Proposed Conditions – Development Area

Coverage Type	Existing Conditions		Proposed Project		Change (Acres)
	Coverage (Acres)	Percent	Coverage (Acres)	Percent	
Mowed	**14.00**	**42.74**	**0.00**	**0.00**	**-14.00**
Mowed with Trees	1.13	3.44	0.00	0.00	-1.13
Greens (Fertilized)	0.10	0.29	0.12	0.35	0.02
Fairways (Fertilized)	1.06	3.24	1.12	3.42	0.06
Tees (Fertilized)	0.00	0.00	0.03	0.11	0.03
Shrub beds	0.30	0.93	0.00	0.00	-0.30
Other Landscaped (Mowed)	11.41	34.84	18.62	56.86	7.21
Natural	**12.98**	**39.62**	**0.00**	**0.00**	**-12.98**
Coastal Oak	0.38	1.17	0.00	0.00	-0.38
Successional Southern Hardwood	12.59	38.45	0.00	0.00	-12.59
Maritime Bluff	0.00	0.00	0.00	0.00	0.00
Wetlands	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Ponds	**2.12**	**6.48**	**2.40**	**7.34**	**0.28**
Beach & Tidal Waters	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Unvegetated	**0.51**	**1.55**	**0.06**	**0.17**	**-0.45**
Non-paved cartpaths	0.47	1.43	0.00	0.00	-0.47
Bunkers	0.04	0.12	0.06	0.17	0.02
Cartpaths/Roads/Parking Lots	**2.85**	**8.69**	**5.37**	**16.39**	**2.52**
Buildings	**0.30**	**0.92**	**5.03**	**15.36**	**4.73**
Total	**32.75**	**100.00**	**32.75**	**100.00**	**0.00**

Wildlife

The majority of habitat within the development area is dominated by Successional Southern Hardwood forest. The property is not expected to act as a refuge for rare native flora or fauna, but does contain a small population of local birds and mammals, such as chipmunks and eastern cottontails. The proposed project will favor those wildlife species that prefer edge and suburban habitats and those that are tolerant of human activity. Most of the species expected on the property are at least somewhat tolerant of human activity, but others will be impacted by the proposed clearing operation and increase in human activity. It is also expected that particular species of wildlife (particularly avian species) will migrate to undisturbed areas adjacent or near the site as a result of development.

A total of 18.87 acres of natural vegetation are proposed to remain within the project site. Although the proposed project will provide less habitat than the existing natural area, the development areas are expected to provide some habitat for some species to remain that are

tolerant and/or dependent on human activity and are adapted to surviving in multiple habitat types.

In the short term, lands adjacent to the property will experience an increase in the abundance of some wildlife populations due to displacement of individuals by the construction phase of the proposed project. Mobile species and particularly large mammals such as fox and deer would be expected to find suitable habitat south of the site where larger areas of natural open space currently remain. Ultimately, competition with both conspecifics and other species already utilizing the resources of the surrounding lands would be expected to result in a net decrease in population size for most species. While a significant portion of the existing habitat will remain, site specific populations may decrease from the loss of interior woodland habitat/fragmentation of large contiguous which certain species prefer. It is anticipated that species that prefer edge habitat will be prevalent within the proposed development.

Rare and Endangered Species Potential

As previously stated, the NY Natural Heritage Program identified one record of known occurrences of rare or state-listed plants, significant natural communities or other significant habitats on or in the vicinity of the subject site. As described in **Section 2.4.1** above, this natural community does not occur on the subject site. As such, no impacts to rare, threatened or endangered plant species or significant natural communities are anticipated as a result of the proposed project.

Exploitably vulnerable species are protected primarily because they are indiscriminately collected, rather than due to rarity within the State. Exploitably vulnerable plants identified on site include American holly, northern bayberry, and cinnamon fern. The presence of these plants would not preclude development of the site, as a property owner is permitted to remove exploitably vulnerable plant species from a site.

No rare or endangered wildlife species are expected on the site given the habitats present. The marbled salamander, eastern box turtle and eastern spadefoot toad are the only species potentially expected on site which are listed as special concern species. Although there is documented concern about their welfare in New York State, these species receive no additional legal protection under ECL Section 11-0535. This category is presented primarily to enhance public awareness of these species that bear additional attention (NYSDEC, Endangered Species Unit).

2.4.3 Proposed Mitigation

- Native plant species that provide food and shelter to wildlife will be utilized in some of the landscaped areas.
- The loss of Successional Southern Hardwood forest and Coastal Oak Hickory habitat on the property will be partially mitigated by the proposed retention of 10.27 acres of Coastal Oak-Hickory forest within the subject site and 9.90 acres of Successional Southern Hardwood forest within the subject site.

- Disturbance will be minimized to the maximum extent practicable, including delineating tree-clearing limits at the site prior to construction in order to avoid inadvertent clearing.
- No known invasive plant species will be utilized, including those species specifically those species listed in Suffolk County Local Law 27-2009 and 6 NYCRR Part 575.
- The golf course is an existing, ongoing operation; however, the applicant is pursuing Audubon status for the golf course portion of the site.

SECTION 3.0

HUMAN ENVIRONMENTAL RESOURCES

3.0 HUMAN ENVIRONMENTAL RESOURCES

3.1 Land Use, Zoning and Plans

3.1.1 Existing Conditions

Land Use

The subject property is the current site of the Indian Hills Country Club that opened in 1965. The subject property consists of an irregularly-shaped property that presently contains a landscaped 18-hole golf course with a driving range and associated country club facilities. There are several small freshwater ponds throughout the golf course, woodland stands and the course borders an estuarine and marine wetland to the north (Long Island Sound).

The subject property is comprised of five tax lots; the largest of the five parcels (Section 14, Block 4, Lot 2) is approximately 100 acres and the smallest tax parcel (Section 15, Block 1, Lot 12) is 2.9 acres. The property is currently occupied by seven (7) structures: the main clubhouse, a pro shop, a halfway house, a barn utilized for storage, an equipment shed, a fertilizer and spray rig storage structure, and a maintenance garage with associated offices. All of the buildings are connected to separate sanitary systems with the exception of the storage barn, the equipment shed, and the fertilizer storage structure, which are not connected to sanitary systems. The clubhouse is connected to two (2) separate sanitary systems, one (1) for the kitchen and one (1) for the bathrooms.

The main clubhouse, which consists of a two-story building with a painted concrete and wood shingle exterior, was originally constructed in 1896 according to Bob Cornelius, the maintenance manager of the country club. Several additions were added to the original structure over the years to form its current configuration. This building contains locker rooms, a kitchen, dining areas, restrooms, an event hall, a card room, office space, and storage areas. Events services for wedding receptions, bridal and baby showers, communions, bar/bat-mitzvahs and other celebrations and business meetings are available for both members and non-members.

The pro shop consists of a two-story building with a wood shingle exterior. The building contains storage areas for member's golf bags and golf carts in the basement, a retail pro shop on the first floor, and office space on the second floor.

The halfway house consists of a very small, one-story concrete structure with an asphalt shingle roof. The building contains a small storage area, a small kitchen area, and a restroom.

The storage barn located south of the main clubhouse consists of a one-story structure with a vinyl-sided exterior. The structure is utilized for the storage of electric golf carts in addition to furniture. There is a large paved parking area between the storage barn and the clubhouse.

The maintenance buildings include an equipment shed, a fertilizer and spray rig storage structure, and a repair shop with associated offices; these buildings are located in the northeastern portion of the subject property, adjoined by a common paved parking area.

A photo log showing features that currently exist on and adjacent to the project site is provided in **Appendix G**. Photographs depict the existing land use of the subject site as well as the character of the site.

The subject property is located within a low density suburban residential neighborhood in the Hamlet of Fort Salonga, Town of Huntington, Suffolk County, NY. Land surrounding the site is mostly developed with single-family residential lots, zoned R-40 (minimum one-acre). Two lots are residential vacant land (Section 14, Block 4, Lots 10.5 & 11) or Suffolk County Parkland (east side of Fresh Pond Road; Section 14, Block 7, Lots 1.6 & 2). Land further to the east is Fresh Pond, located in both the Towns of Huntington and Smithtown and designated as Critical Environmental Area (Fresh Pond Greenbelt CEA, designated by Suffolk County in 1988). Land farther to the north and west is Town Parkland, Geisslers Beach Park and the Crab Meadow Wetlands and Public Golf Course. Land further to the southwest is Makamah County Nature Preserve.

The Crab Meadow Drainage Basin as depicted in the Town of Huntington Horizons 2030: Comprehensive Plan Update, Figure 3.1 Environmental Resources, encompasses the subject site. All of the municipal lands in the Crab Meadow area (Crab Meadow Beach, Jerome Ambro Memorial Wetlands Preserve, and Crab Meadow Golf Course) are under the jurisdiction of the Town Board of the Town of Huntington and are recognized as parkland in the Town Comprehensive Plan (1993) and carried as such on Section VIII of the Town Assessment Roll.

Figure 3-1 is an aerial photograph with labels indicating land use in the vicinity of the project site. This map provides an illustration of current recreational/golf land use at the subject site as well as the uses in the surrounding area.

Zoning

The Town of Huntington relies primarily on its duly adopted Zoning Code (Chapter 198, "Zoning") and its Official Zoning Map to manage growth, guide land development activities, promote land use compatibility and suitable patterns of development, provide housing and economic development opportunities, and protect the environment. The zoning pattern of the area is shown on the Zoning Map provided (**Figure 3-2**). Under the existing R-40 Residence zoning, approximately 103 individual single-family lots could be accommodated on the property.

The Town also has a Comprehensive Plan/Master Plan document: Horizons 2020: Huntington Comprehensive Plan Update. The Comprehensive Plan articulates a Vision of Huntington in the years beyond 2020 based on extensive citizen input during the planning process. It provides the means to realize the Vision through clear and consistent goals, policies, and strategies and through specific actions that the Town will take to positively and deliberately influence growth and change to achieve expressed citizens' values and aspirations for our community. The Land Use Element includes a Generalized Future Land Use Map for use in conjunction with the policies and strategies to guide Town decision-making on land use issues. Land Use Map was prepared to illustrate the desired general pattern of future land use in Huntington. The Generalized Future Land Use Map (Figure 6.3) identifies the desired general pattern of future

land use in Huntington for application of the policies and strategies contained in the Land Use Element and other elements of the Comprehensive Plan. It does not replace the Town's current Zoning Map, but rather provides a framework for identifying zoning changes needed to implement the plan policies and strategies. The Generalized Future Land Use Map **(Figure 3-3)** identifies the subject site for use as Parks, Recreation & Conservation Land. This category includes both public parks and conservation areas and lands used for outdoor recreation, which in some cases may not be permanently protected as open space. This designation reflects the plan recommendation to create a public open space/recreation zoning district and a potential second new district to apply to private recreational/institutional open space (see Environmental Resources and Open Space Policy A.10).

> **A.10.3** Establish a new zoning district or districts to reinforce the status and function of Huntington's open space/recreation resources including consider establishing additional zoning categories to address valuable open space lands held privately and by governmental agencies.

The Town Board has established precedent for open space protection through the R-OSC district, with the specific purpose of protecting an important golf course (Cold Spring Country Club) in the Town of Huntington. Specifically, Local Law Introductory Number 31-2011, involved the Zone Change Application #2011-ZM-387, known as the Residences at Oheka Castle, to change the zoning from R-80, R-40, R-20 and R-10 Residence Districts and C-6 General Business District to R-OSC Residence – Open Space Cluster District. The Board issued a Negative Declaration for said action to rezone the property on March 12, 2012. The project included a proposed 190 unit senior four-story condominium building to be located on 18.38 acres. This action was found to be consistent with the legislative intent of the R-OSC district and the zone change was approved.

The applicant submitted a Voluntary Draft Environmental Impact Statement VDEIS that was treated as an Expanded Environmental Assessment Form EEAF in accordance with 6 NYCRR Part 617 in connection with the application.

A Conservation Easement or Declaration of Covenants and Restrictions was filed on the Cold Spring Country Club property that will be used to transfer development rights onto the Residences at Oheka parcel to permanently protect the open space associated with the Cold Spring Country Club. The findings of the resolution are excerpted below as a relevant informational item as related to The Preserve at Indian Hills change of zone application to R-OSC.

> WHEREAS the Town Board determines that the requested zone change is harmonious with the spirit and intent of the Residence Open Space Cluster District inasmuch as the privately owned and maintained golf club Cold Spring Country Club hereinafter the club or CSCC will provide for a private recreational endeavor while the preservation of open space in general is maintained pursuant to a conservation easement and/or covenants and restrictions as contemplated by Town Code Sections 198-21.3(A)(1)and 198-21.3(B)(2) and
>
> WHEREAS the spirit and intent of the Residence Open Space Cluster District as to a private golf club is that access to said private club and its property be limited to a person or persons who are

legally permitted by the club to be on said property the subject property not open to the public except as permitted by CSCC and

WHEREAS the Town Board determines that the change in zoning classification of the private recreational facilities to Residence Open Space Cluster District will not preclude the continued use of the premises as a private golf club nor prohibit any changes additions or amendments to the golf course facilities.

The project site is zoned Residential "R-40" which is primarily for single-family residential development on lots of 43,560 SF or more. Adjacent land to the south, east, and west is also zoned R-40, although these sites are developed, open space areas (parks and preserves) are prevalent in this Crab Meadow Watershed.

The R-40 Residential zoning district is primarily a single-family residential zone; however, a few additional land uses are permitted as-of-right. The following is a list of permissible land uses in the Town's R-40 zoning district:

1. Single-family dwellings.
2. Farm, nursery, truck garden, country estate.
3. Churches, temples, parish houses, convents, monasteries.
4. Public schools.
5. Private elementary and secondary schools providing full-time day instruction and having a course of study approved by the New York State Department of Education, colleges and universities, provided that the plot shall comprise at least eight (8) acres and that the building and site development plans have been first submitted to and approved by the Planning Board as providing adequate parking, traffic control, setbacks and recreation areas for the proposed use. The Planning Board may make any reasonable modifications in such plans to promote safety, health and general welfare of the community, preserve the general character of the neighborhood and conserve property values, and no building permit shall be issued until such plans have been approved.
6. Library, museum or art gallery conducted to serve primarily the residents of the Town and operated by a municipal agency or by a nonprofit agency organized or chartered locally for the purpose.
7. Town park, playground, athletic field, beach, bathhouse, boathouse, marina or other Town recreational use.
8. Municipal parking field.
9. Fire station.
10. Municipal water supply reservoir, tank, standpipe, pumping station or filter bed, provided any tank or standpipe shall be set back from all lot lines a distance equal to the height of the structure.

<u>Land Use Plans</u>

Multiple land use plans are reviewed herein to establish the planning documents that would guide use of the subject site. Please include both land use planning and resource related documents in order to identify important and recognized resources of the site and area.

Horizons 2020: Huntington Comprehensive Plan Update (December 2008)

The proposed use of the project site would be guided by several action agenda items and goals identified in the Plan.

The Comprehensive Plan Update articulates a Vision of Huntington in the years beyond 2020 based on extensive citizen input during the planning process and provides the means to realize the Vision through clear and consistent goals, policies and strategies and through specific actions that the Town will take to positively and deliberately influence growth and change to achieve expressed citizens' values and aspirations for the community. The Vision of Huntington is divided into four themes:

1. Community Character
2. Quality of Life
3. Sustainable Community Structure
4. Responsive Town Government

It is the intention of the Town Board to implement land use policies set forth in the Huntington Comprehensive Plan with specific reference to the conservation and preservation of open space and the support of private recreational endeavors.

The following action agenda items from the Vision Statement are relevant to the proposed project:

1. We honor our rich heritage by protecting and restoring our historic buildings, districts and landmarks; and by interpreting Huntington's history for present and future generations.
2. We preserve and enhance the Town's unique aesthetic character and identify by setting high standards for quality, by protecting our neighborhoods and villages from incompatible influences, and by continually enhancing our scenic corridors, open space network, public access to the waterfront, and civic facilities and landmarks.
3. Quality housing, including a broader array of housing choices, is accessible to and affordable for households of different ages, lifestyles and economic means.
4. New development and redevelopment throughout Huntington is carefully managed to protect the character of neighborhoods, villages and other established land use patterns; preserve open space; and set high standards for aesthetic quality.
5. Sustainable water, sewer and stormwater infrastructure systems meet community needs while safeguarding environmental quality and the quality of our drinking water supply.

The Plan classifies the Town's remaining open space resources into five categories, one of which is recreational open space. The Plan states that the continued operation of day camps, golf courses and riding schools should be encouraged and they should be considered key priorities for acquisition by the Town should their continued use be threatened. The Plan contains several policy recommendations in the Environmental Resources and Open Space section that could relate to golf courses and critical recreational resources in Huntington, including the following:

1. Permanently preserve Huntington's unique environmental resources.
2. Permanently protect lands with highly valuable environmental resources through fee simple acquisition, easements or other conservation techniques.
3. Preserve open space within new developments.

4. Require a minimum open space set aside within new developments, together with standards to ensure that open space is meaningful and publicly accessible.
5. Encourage voluntary open space dedications through conservation subdivisions.
6. Investigate use of the Transfer of Development Rights (TDR) program enabled by Town Code to preserve open space.
7. Work with Huntington's private owners of substantial undeveloped property to explore preservation and recreation opportunities.
8. Maintain and promote Huntington's parks and recreational facilities.
9. Establish a new zoning district or districts to reinforce the status and function of Huntington's open space/recreation resources.
10. Develop strategies to meet needs for different types of parks and recreational facilities geographically distributed throughout the Town.

The proposed change of zone to R-OSC allows development of the townhomes while preserving the recreational and open space uses of the golf course. As a result, the proposed project will conform to the recommendations of the Comprehensive Plan Update.

Figure 3-3 provides the Generalized Future Land Use for the subject site, as identified in the Comprehensive Plan Update. The site is identified as appropriate for low-density residential development, which is defined as single-family residential with a minimum lot size of 40,000 SF. It is recognized that existing zoning has a minimum lot size of 1- acre. Consistent with this policy, the proposed project provides a yield of approximately one dwelling unit for every forty thousand (40,000) square feet of lot area.

Private Golf Course Moratorium Proposed Planning Options Report (January 2009)
The Report identified parameters that should guide future decision-making for private golf courses, including:

1. Golf is on the upswing with participation projected to rise statewide.
2. The private golf course represents the largest remaining class of underdeveloped open space in the Town.
3. Market pressures and high land valuation in Huntington are not conducive to establishing new golf courses on the few remaining large properties.
4. Existing residential development surrounds the private golf courses at similar or higher density zoning.
5. The loss of any of the private golf courses is likely to affect demand for the Town's two municipal courses.
6. Best environmental management of the private courses should be encouraged to maintain significant natural resources (such as wetlands, woodland cover and steep slopes), biodiversity and quality of recharge contributed to the underlying aquifer system.
7. There is no inherent incentive in the existing residential zoning categories in which the private courses lie to conserve the recreational use or resources.
8. Regional plans and studies recommend that golf courses be rezoned to the zoning classification with the lowest development density.

The Report recommends of the fifteen alternatives posed, there are three options that provide the strongest protections for open space while limiting the impacts on the current landowners. The

first is a *Planned Recreational Overlay District*; the second, a *Residential Open Space Cluster Ordinance* and a third was a *Golf Course Incentive District*.

The proposed project results in a change of zone as recommended in the report to facilitate continued use of private golf courses, a significant and sensitive resource in the Town of Huntington, enable addition of compatible amenities. Single-family residential use that engender outdoor recreational use and simplify the town review process for golf course enhancement. The proposed project and associated change of zone results in complementary residential use of the site, which allows preservation of the golf course. The proposed cluster project and resultant preservation of open space conforms to the intent of preserving private golf courses within the Town.

Environmental Open Space and Park Fund Program (EOSPA)
A 1998 *OASIS (Open Areas Information System) Draft Staff Study* provided a retrospect on what has happened to lands mapped on the 1974 Open Space Index (OSI) from January 1, 1975 to July 31, 1998; the Town's Protected Lands Inventory; and a Proposed 1998 Open Space Index Update. This 1998 study evaluated opportunities where lands that adjoin public parkland may be presented for dedications, such as Indian Hills Golf Course which adjoins the Town's Geissler's Beach. However, the subject site was not recommended for acquisition for open space preservation purposes in the Town of Huntington EOSPA Fund and Land Conservation Progress Report from 1998 program initiation to August 2008.

<u>Water and Resource Land Use Plans</u>

Crab Meadow Watershed Hydrology Study, June 2015, Prepared by GEI Consultants, Inc.
The purpose of this study was to perform a preliminary hydrology analysis that characterizes the watershed, describes its flow patterns, and identify potential flooding impacts to help identify the drivers and stressors to this unique ecosystem with the intent of protecting its vitality through implementation of a community-based Stewardship Plan.

The Crab Meadow Wetlands are designated by the New York State Department of State (NYSDOS) as a Significant Coastal Fish and Wildlife Habitat, since they represent one of the largest tracts (approximately 300 acres) of undeveloped salt marsh on Long Island's north shore. The Crab Meadow Wetlands are recognized by the Long Island Sound Study initiative as a Stewardship Site which seeks to preserve native communities, protect critical habitats for endangered and threatened species, and promote multiple uses balanced with long-term scientific research and education.

The preliminary model in the study, as intended, provides the Town of Huntington the framework to develop future analyses to improve the accuracy of results to include the following:

- Highway and roadway As-Builts from the Department of Transportation.
- Storm Sewer Network within the Watershed
- Dam Embankment, Spillways, Storage Reservoirs, Levees, and other flood control

- structures
- Site specific topographic survey data
- Updated LiDAR data
- Current and projected future land use
- Infiltration testing
- Storm Surge
- Climate Change

The study concludes [Limitation of Liability]:

> *This report presents the results of preliminary flood routing for the 2-, 10- and 100-year storm events in the Crab Meadow Watershed. The results are based on engineering judgment and best available data available at the time of the study. The results of this study should only be used to identify potential drainage patterns and hypothetical flooding impacts for various storm events. If any portion of the Crab Meadow Watershed were to experience flooding from a storm event, actual flooding limits, conditions, peak flows, peak velocities, duration and water surface elevations will vary from those presented in this study. Reuse of this study and FLO-2D model for any other purpose, in part or in whole, is at the sole risk of the user.*

This Plan is not complete or currently adopted by the Town Board. The Town's plan for 2016 is to complete the work with the consultant and community and finalize the study and stewardship plan initiated in 2014.

Crab Meadow Watershed Wildlife Environmental Education Manual
The Crab Meadow Watershed is an area of 680 acres located north of Route 25A in Northport, New York. The watershed includes Henry Ingraham Nature Preserve, Fuchs Pond Preserve, Makamah County Park, Crab Meadow Golf Course, Jerome A. Ambro Memorial Wetlands Preserve, Crab Meadow Beach and Kirschbaum Park. A majority of the water from the forests, ponds, marshes and beaches of the Crab Meadow Watershed drains into the Long Island Sound.

2015 (Revised) Suffolk County Comprehensive Water Resource Management Plan.
Suffolk County has long recognized the importance of managing and protecting its water resources and has developed and implemented drinking water and groundwater management regulations and programs for decades. Water resource management and protection are of utmost importance in Suffolk County, since residents rely upon groundwater as their sole source of drinking water supply. Because groundwater provides stream baseflow and discharges to surrounding coastal waters, the water quality of Suffolk County freshwater streams and marine waters is also directly affected by legislation enacted to protect groundwater and drinking water supplies.

This updated version now incorporates the principles of coastal resiliency, including controlling nutrient inputs to enhance the health of wetlands and eelgrass. The Executive Summary also has a broader ecological perspective on nutrient impacts, addressing harmful algal blooms and shellfish. This fully revised Plan includes updates on water quality-related issues and sea level rise. Working with stakeholders, the County has developing a more focused action plans. The

Department of Economic Development and Planning has been a major partner in updating the plan.

Suffolk County has identified priority high density (greater than 5 homes per acre) and medium density (1 to 5 homes per acre) residential subregions within the contributing areas with the following characteristics:

1. With a depth to groundwater of 10 feet or less; and/or
2. Contribute to an area that is listed as a 303(d) impaired water body

Smithtown Bay is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although it is assessed as an impaired water, it is categorized as an IR Category 4a water that is not listed due to the completion and implementation of the Long Island Nitrogen TMDL. This updated assessment also suggests it may be appropriate to include this waterbody on the next list of pathogens due to the frequency of beach closures (DEC/DOW, BWRM, January 2015).

LIS Comprehensive Conservation and Management Plan (CCMP)
In 1994, the states of Connecticut and New York and the United States Environmental Protection Agency approved the Comprehensive Conservation and Management Plan for Long Island Sound. Developed by the Long Island Sound Study, the Plan identifies the specific commitments and recommendations for actions to improve water quality, protect habitat and living resources, educate and involve the public, improve the long-term understanding of how to manage the Sound, monitor progress, and redirect management efforts. Using the Plan as a blueprint, the Long Island Sound Study has continued to refine and add detail to commitments and priorities, including with the 1996 Long Island Sound Agreement and the 2003 Long Island Sound Agreement.

Five areas were identified as critical to enhancing land planning and use to improve water quality, habitat protection, and public access throughout watershed. Recommendations were developed in each area.

- The impacts from existing development are significant, particularly in urbanized areas, and must be reduced to improve coastal water quality. These areas should be targeted for nonpoint source management, including public education, infrastructure upgrades, spill prevention and response, and flood and erosion control. Also, abandoned or underutilized sites should be a high priority for remediation and reuse.
- The impacts from new development are also significant and must be minimized to prevent further degradation of water quality. Progressive planning and management should ensure the application of best management practices, protect wetlands, minimize land disturbances, improve access, and maintain appropriate water- dependent uses.
- To improve land use decision making that incorporates effective water quality and habitat protection, better information, training, and technical assistance must be available. Training, technical assistance, and financing should be made available to local governments, as well as education for the public, professionals, and trade organizations. This will help develop consistent land use and natural resource information and management practices in the region.

- Conservation of natural resources and open space is vital to the long-term protection of Long Island Sound. Open space preservation and conservation practices must be aggressively pursued. This might be accomplished through a watershed-based planning approach that integrates protection of surface waters with programs and plans that guide growth and development.
- Public access is essential to public use and enjoyment of Long Island Sound, especially since improvements to water quality involve public costs. Public access improvements should be aggressively pursued throughout the watershed using a combination of traditional techniques, such as fee-simple acquisition, and innovative techniques, such as transfer of development rights and tax credits.

Of the 38 classified saline waters in Suffolk County including the Long Island Sound and those that discharge to the Long Island Sound, 19 are identified as impaired according to the NYSDEC's *All Impaired Waters List*. This includes a large portion of the Long Island Sound as well as all of the county's north shore harbors (Huntington Harbor, Centerport Harbor, Northport Harbor, Nissequogue River, Stony Brook Harbor, Port Jefferson Harbor, Mt. Sinai Harbor and Mattituck Creek).

Within the Suffolk County watershed area, nonpoint sources are the major contributors of nutrients and pathogens. Recommendations identified by each of the estuary programs focus on reducing nitrogen loading from sanitary wastewater and fertilization, implementation of best management practices (BMPS) to improve stormwater quality, and open space preservation to improve water quality and reduce impacts on the ecology of Suffolk County's coastal waters

The proposed project incorporates water quality and resource-based planning and management measures consistent with CCMP's watershed recommendations.

3.1.2 Anticipated Impacts

<u>Land Use</u>
The proposed 110 residential unit development substantially complies with the land use requirements of Section 198-21.3 of Town Code (i.e. R-OSC Open Space Cluster District) and the necessary services, infrastructure, and utilities to serve the development are available. The use is appropriate for this location based on its existing recreational use, surrounding land uses and zoning but has the potential to further enhance the diversity of the local housing stock, which is predominantly composed of conventional single-family residential neighborhoods. The transition from adjacent conventional residential and park uses, is appropriate and fully consistent with land planning practice and Town zoning. Since the subject property and abutting lands are zoned for residential purposes, significant incompatibility between uses is not anticipated.

The proposed project provides the minimum open space required (70%) in the R-OSC district, and more specifically includes 90% open space. The plan has been designed to limit clearing and grading and place development on the site in a manner that allows the golf course to continue to operate as a full 18-hole club. Clearing limits and jurisdictional wetland boundaries

are shown on plans included in **Attachment 2**. Permitted accessory buildings and uses are listed in the Town Code under § 198-21.3(C) and are subject to permits and approvals.

Most of the subject property and/or adjacent lands have screening or vegetated buffers. The installation of street trees and buffer plantings proposed around the perimeter of the property (see **Appendix B**, Architectural Rendering) as part of the proposed project, and the preservation of existing trees will help to maintain homeowner privacy and screen the proposed homes from the adjacent residential uses and roadways. Installation of decorative street lighting, the erection of fencing, and the high quality architecture of the proposed homes will further preserve and enhance scenic resources, while mitigating potential adverse conditions.

The proposed use is exactly what is envisioned through the use of the R-OSC district; the project will retain the existing golf course and this is facilitated by providing limited residential use on the site based on the underlying zoning. The proposed project retains the golf course which is the dominant land use character of the areas immediately surrounding the site. Residential use is placed in three (3) separate areas of the site with separate access to each area. This disperses the proposed use and allows areas of the property that are not used for golf to be utilized. Overall consistency with the R-OSC and the design as described herein ensure that no significant adverse land use impacts will occur as a result of the project.

Zoning

The proposed project has been designed in accordance with the standards and specifications of Chapters 198-21.3(E), "Height, Area and Bulk Regulations," of the Town of Huntington indicated in **Table 3-1** and discussed in greater detail following the table.

As can be seen by analysis of the Concept Sketch (**Attachment 2**) and the "Zoning Compliance" table (**Table 3-1**), the proposed project complies with the requirements of the Town Code.

As indicated in **Section 5.0,** Alternative 2: As-of-Right Subdivision assumes that the project site is redeveloped under its existing R-40 zoning with a 103 lot subdivision that conforms to all applicable zoning and planning requirements and standards, including the Steep Slope Ordinance and providing area for parkland dedication. However, yield is ultimately determined by the Planning Board as outlined in Section 4.9.3.2 of Chapter A202 of the Town's Subdivision Regulations and Site Plan Specifications.

> *Factors include, but are not limited to consideration of the Town's Steep Slope Ordinance; Height, Area and Bulk Requirements; street frontage; conforming street width and radius; parkland set-aside; wetlands, if present (only the regulated area beyond the state designated wetlands boundary); and historic significance of the site and surroundings. Special site features, such as state-designated wetland(s), shall be excluded from yield calculations subject to Planning Board determination.*

TABLE 3-1
ZONING AND DEVELOPMENT STANDARDS COMPLIANCE TABLE
(All Residential Uses in the R-OSC Zone)

Parameter	Requirement	Proposed Development
Gross Lot Area	Minimum 5 acres	≥ 145 acres
Open Space	Not less than seventy (70%) percent of the site shall be reserved as open space in perpetuity in the manner provided for in Town Code § 198-21.3(G).	≥70%
Area per Dwelling Unit	40,000 square feet	110 units or ≥ 40,000 square feet without parkland dedication
Maximum Bldg. Height	4 stories / 35 feet, unless modified by the Planning Board to allow up to an additional fifteen (15) feet. This modification may be granted if it can be demonstrated by the applicant, to the satisfaction of the Board, that the visual impacts from surrounding properties shall be minimal and the increased height shall result in conserving the natural and scenic qualities of open lands	2 stories / 35 feet
Front Yard Setback	Minimum 50 feet	Minimum of 50 feet
Rear Yard Setback	Minimum 50 feet	Minimum 50 feet
Side Yard Setback / Interior Lot	Combined total of 50 feet for two yards; 25 feet minimum for each yard	Combined total of 50 feet for two yards; 25 feet minimum for each yard
Side Yard Setback / Corner Lot	Minimum 50 feet on Street Side Yard; 25 feet width on interior side yard	Minimum 50 feet on Street Side Yard; 25 feet width on interior side yard
Building and Parking Lot Setback	A building and parking lot setback of at least fifty (50) feet in depth shall be provided, as measured from all exterior lot lines of the property under review. Any community building, recreational or related amenity developed for the exclusive use of residents of the cluster development must be set back at least fifty (50) feet from all exterior lot lines of the property under review.	At least 50 feet
Parking Spaces	Private club - 1 per 3 families or individual members; 3 per driving per hole plus 1 for each position on driving range	168 general parking spaces & 56 members only parking spaces; total of 224 parking spaces. The number of parking spaces will be further addressed by the ZBA as the time of application is made for the expansion/continuation of the conditionally permitted use for the country club.
Upland Buffer	An upland buffer of native vegetation of at least one hundred (100) feet in depth shall be provided adjacent to wetlands and surface waters, including creeks, streams, springs, lakes, and ponds. The buffer area shall not be fertilized.	Minimum of 100 feet, except as modified by the Planning Board to maximize open space conservation and preserve ecological features, topography, scenic views, and community character; pursuant to Town Code § 197-21.3(D)(3).

In addition, pursuant to Town Code § 197-21.3(G)(1&2), open space created as a result of a residential cluster development may be dedicated as parkland to the Town of Huntington or Suffolk County [et. al. emphasis added] and if not dedicated as parkland, the open space shall be protected by a conservation easement or covenants and restrictions approved by the Planning Board and in a form approved by the Town Attorney, and the ownership of the open space shall be transferred to one of the following organizations: (a) A public or private club that uses and maintains the recreational resource. Inasmuch as the proposed project meets Town Code § 197-21.3(B)(3)(a) and § 197-21.3(G)(1&2), the proposed project may be determined to have met the yield requirement of 40,000 square feet per residential unit as well as the parkland requirement, subject to Planning Board review and consideration.

Requested Planning Board modifications and expansion/continuation of ZBA conditionally permitted use for the country club are described below:

- Upland Buffer Setback: A Planning Board modification is required for the relaxation of the minimum 100 foot upland buffer to a minimum of 75 feet on the site, as permitted by § 197-21.3(D)(3).

- Conditional Permitted Use: A ZBA special use permit is required for continuing the existing conditionally permitted use for the expansion of the country club.

In regard to the upland buffer setback requirement, a modification is requested from the Planning Board for what is a permissible relaxation of buffer setbacks pursuant to § § 197-21.3(D)(3), "General Provisions," of the Town Code, which states that:

> Flexibility in physical design is warranted to maximize open space conservation and preserve ecological features, topography, scenic views, and community character. The Planning Board may, at its discretion, apply such special conditions or restrictions to its approval of a residential cluster development as it deems necessary to maintain harmony with neighboring uses and to promote the objectives and purpose of the comprehensive plan and the zoning and subdivision ordinances. This could include, but not be limited to specifying parking type (garage, driveway, parking lots), reduction in road width for private roads, use of alternative drainage methods, and supplementary landscaping requirements.

Relaxation of the upland buffer setback as indicated by the Code is fully permissible, subject to the discretion of the Planning Board and adverse impacts to land resources and community character are not anticipated for the following reasons:

- The plan is consistent with the Town's land use, open space and lot area and lot setback zoning requirements outlined in the Code.
- Relaxation of the buffer setback will not negatively affect the form and pattern of this new development as it will be applied across the site but instead will provide the flexibility needed to provide the best design.
- The development will have a relatively low density consistent with adjacent single-family residential developments to the south, east and west.

- The proposed homes will be high-end homes with exceptional architectural quality that will provide a level of visual quality that enhances the integrity of the built environment.
- The planting of street trees, protection of existing trees and tree clusters, retention of natural vegetation for buffering and screening, and ultimately fine landscaping of lots anticipated will promote aesthetic benefits, while screening any less desirable aspects of development from public view.

A Conditional Use Permit is required for certain land uses which may need special conditions to ensure compatibility with surrounding land uses. These uses are specified in Town Zoning Code §198-68.

A conditional use shall be authorized by a special use permit, and before such permit is issued, the appropriate Board shall find that the proposed use (§ 198-66):

(1) Will be properly located in regard to transportation, water supply, waste disposal, fire protection and other facilities.
(2) Will not create undue traffic congestion or traffic hazard.
(3) Will not adversely affect the value of property, character of the neighborhood or the pattern of development.
(4) Will encourage an appropriate use of land consistent with the needs of the Town.
(5) Will not impair the public health or safety and will be reasonably necessary for the public health or general welfare and interest.

The proposed project has been designed in a manner that is consistent with the intent of the R-OSC district. This zoning district was specifically designed to allow for protection and retention of golf courses in the Town of Huntington as golf courses are an important recreational and open space resource and contribute community character. The proposed project will implement this zone and retain the golf course, while providing senior housing that will complement the Town's housing stock and provide attractive alternative housing to the dominant single family development in the area. As a result, no significant adverse zoning impacts are anticipated, and the project is found to further the goals of the Town in terms of utilizing a zoning district that is specifically designed for the purpose that is advanced by the proposed project.

Land Use Plans

Horizons 2020: Huntington Comprehensive Plan Update (December 2008)
The proposed change of zone to R-OSC allows development of the townhomes while preserving the recreational and open space uses of the golf course. The project also implements key elements of the Plan in terms of providing quality design, offering alternative housing, supporting for the senior population, and enhancing and retaining recreational use. As a result, the proposed project will conform to the recommendations of the Comprehensive Plan Update.

Private Golf Course Moratorium Proposed Planning Options Report (January 2009)
The proposed project results in a change of zone as recommended in the report to facilitate continued use of private golf courses, a significant and sensitive resource in the Town of

Huntington, enable addition of compatible amenities. Single-family residential use that engender outdoor recreational use and simplify the town review process for golf course enhancement. The proposed project and associated change of zone results in complementary residential use of the site, which allows preservation of the golf course. The proposed cluster project and resultant preservation of open space conforms to the intent of preserving private golf courses within the Town.

Environmental Open Space and Park Fund Program (EOSPA)
The proposed project does not have any direct relation to this program; however, it is noted that the subject site was not recommended for acquisition. Nevertheless, the proposed project will result in the retention of the existing golf course, a goal which is consistent with open space protection the Town.

Water and Resource Land Use Plans

Crab Meadow Watershed Hydrology Study, June 2015, Prepared by GEI Consultants, Inc.
This Plan is not complete or currently adopted by the Town Board and does not provide any specific guidance in relation to the proposed development.

Crab Meadow Watershed Wildlife Environmental Education Manual
This manual does not have any direct bearing on the proposed use. Nevertheless, the golf course use will continue and will provide wildlife habitat and recreational opportunities associated with the ongoing operation.

2015 (Revised) Suffolk County Comprehensive Water Resource Management Plan.
Water resources are addressed in **Section 2.2** and Alternatives are addressed in Section 5.0 of this VDEIS. The proposed project will allow the golf course to continue, and will add a residential component to facilitate retention of the golf course. The project will include Innovative/Alternative Onsite Wastewater Treatment Systems and will continue to employ turf management practices to reduce nitrogen loading. It is noted that the proposed project will have less impact on groundwater resources than the use of the site under R-40 zoning without the golf course. R-40 use of the site is not consistent with goals of the Town to protect the golf course. The 2015 SCCWRMP does not specifically reference the subject site; however, the project will advance goals of this Plan by reducing nitrogen loading as compared to use under current zoning.

LIS Comprehensive Conservation and Management Plan (CCMP)
The proposed project incorporates water quality and resource-based planning and management measures consistent with CCMP's watershed recommendations.

3.1.3 Proposed Mitigation

- In zoning the subject property R-40, the Town deemed the site suitable for single-family residential development on lots of 1 acre or greater. It determined that such development would meet its land use goals and that this particular use, at its proposed density, would be compatible with the envisioned development and land use pattern of the area. A Planning Board

modification is being requested for upland buffer setbacks and a continuation of a ZBA conditional use is requested for the golf course. To mitigate the proposed setback reductions, the subdivision design includes the retention of natural buffers and the planting of extensive perimeter landscaping.

- The senior duplex townhome single family residential character of this development will provide greater variety and choice in the Town's housing stock when compared to the conventional residential developments to the south, east and west of the site, and offer a use that is suitably transitional and compatible with adjacent development.
- The proposed project will conform to the review criteria for the R-OSC zoning district, which includes:
  - Buildings are adequately grouped so at least seventy (70%) percent of the total area of the site is set aside as open space. To the greatest extent practicable, open space shall be designated as a single block and not divided into unconnected small parcels located in various parts of the development.
  - Pedestrians can easily access open space.
  - All development is situated to minimize the alteration or disturbance of natural features, natural vegetation, and topography.
  - Existing scenic views or vistas are permitted to remain unobstructed, especially from public streets.
  - Floodplains, wetlands, and steep slopes are protected from development.
  - The cluster development advances the spirit and intent of this legislation.
- The project would mitigate the unfulfilled need for a variety of housing options for the senior population in the Town, which is a goal of the Town Comprehensive Plan Update.
- The project will have a significant beneficial impact on the Northport UFSD by its generation of significant school taxes and, as there would be no school-age children present, would not contribute to any enrollment increase, thereby not increasing school district expenditures.
- Superior site design providing appropriate on-site recreational amenities; landscaping and interior setbacks and open space.
- The proposed development is designed with inherent land use mitigation, as it will provide setbacks and buffers to increase land use compatibility in transition between the Town House style development and single-family development directly west, east and south of the site.
- The project will provide an alternative to single-family home ownership in a quality housing development.
- The project is consistent with the spirit and intent, as well as key elements of, the Town Comprehensive Plan Update, which recognizes the importance of providing a mix of housing types in the Town.

3.2 Community Character

3.2.1 Existing Conditions

Visual Character

The existing character adjacent to the subject parcel is mixed, but includes numerous detached single-family residences with amenities such as swimming pools; Town (Geissler's Beach) and County (Fresh Pond) passive parks and roadways. **Appendix G** contains photographs depicting the general appearance of the subject property and local community from the perspectives of

observers on-site or driving along Breeze Hill and Fresh Pond Roads. Approximately 100 acres of the property is currently an active golf course and country club and the rest is not utilized.

Overall, the Site's visual character would change from that of a membership club only to a mix of residential and golf club. The proposed project would introduce residential development, with landscaping to buffer neighboring single-family residences south, west and east of the project site. The central portion of the site would remain a golf course, resulting in little impact to surrounding views.

The property contains a combination of gentle, moderate, and steeply sloping undulating topography, including several knolls on its north side. Passersby traveling on adjacent roadways do not have significant on-site views of the property, due to topography and existing vegetation. The site's interior has limited views as seen by the public from adjoining roadways and private properties due to vegetation and slopes and the large open distances that extends to the property boundaries.

Areas of development will be located on lower slopes in the northwest quadrant and slightly higher slopes in the southwest and southeast quadrants than the surrounding area. Sloping topography and vegetation will significantly limit views deep into the Project Site. Views of the proposed buildings will largely be obstructed by expanses of site vegetation along the property's perimeter. All views will be designed to maintain a buffer to surrounding land uses. Aside from residential development in the area, a relatively large tract of vacant lands, serving as passive recreation for the public, exists to the east of the site, across Fresh Pond Road on part of the County park (Photo #26).

Based on the photographs and above description, it may be concluded that the property in its present condition does not currently offer unique or significant visual resources to the community with the exception of its generally wooded nature.

There are currently a few street lights along the site's access driveway and in its parking areas.

The project site currently generates very little noise due its current use as a gold course. Property maintenance, however, have and do occasionally generate noise at the subject site. These activities are and have been performed during daylight hours and are not expected to considerably impact the area. Sensitive receptors in the area include adjacent residential development; however, due to the large size of the subject property, and the location of most current activities toward the center of the property, noise impacts are expected to be somewhat muted by the decay of sound waves over distance. Ambient and intermittent noise from traffic, grounds keeping, operation of generators and air conditioning units and outdoor human activities on adjacent residentially developed sites, comprise the primary noise generators in the area.

3.2.2 Anticipated Impacts

Visual Character

The proposed project will alter the visual character on and around the subject property by changing the use of the site from institutional recreational to residential open space recreational. Although the Project will increase the overall density of development on the site, it is the Applicant's goal to develop a premier luxury residential community on the property. Impacts to specific views include the following:

- Views from the Long Island Sound will potentially include partial visibility of the two-story residential development.
- Views from Breeze Hill Road will include visibility of the renovated clubhouse and of the new attractively designed and landscaped buildings.
- Views from the rear yards of homes on Hayes Hill Road, Green Knoll Court and Breeze Hill Road (includes the private road) will include partial visibility of the two-story residential development.

The proposed project will result in some change in the visual appearance of subject site from the perspective of adjacent property owners and passersby on Breeze Hill and Fresh Pond Roads and adjacent private streets. The proposed residences will be setback a minimum of 50 feet from adjacent land to the east, west and south. All homes will comply with R-OSC district's 35-foot building height standard and contain no more than 4 stories. Attached decks have been considered and are accounted for in clearing limits as shown in attached plans provided in **Attachment 2**. The new residential use is consistent with area zoning, the Town of Huntington 2020 Comprehensive Plan Update, the R-OSC District's permissible density standards, and is compatible and suitably transitional to existing adjacent land uses.

Removal of the existing trees will open views to the site from some off-site vantage points, especially during the fall and winter months when deciduous trees shed their leaves. Existing natural vegetation will be retained along the perimeter of the property to the extent possible; particularly, on the north western side of the property, where homes front along Hayes Hill Road, where the buffer is as deep as 100 feet, except for one residential building (Building #1). The existing 50-foot deep setback located along the perimeter of the property will maintain the existing vegetative screening. The proposed development will include an extensive landscape plan to provide privacy and buffer the proposed development to be submitted and reviewed with site plan application.

As part of the improvements, the Applicant proposes the installation of buffer plantings along the perimeter of the property in the southwest quadrant were natural vegetation will be removed. This buffer will provide immediate screening of the proposed residences from adjacent properties and additional cover and screening each year as they mature. Street trees will be planted along both sides of each of the proposed streets, and will be spaced, on average, 40 feet on center. Numerous trees and shrubs, including both evergreen and deciduous species, will be provided along the clubhouse access road and around the proposed stormwater ponds. Decorative street lighting will line one side of each of the streets and, like the street trees, will also be spaced at 40-foot intervals. Tree protection will be installed five feet from the outer drip line of trees proposed for retention in construction zones to remain to ensure that workers are aware that the trees are present and must be protected.

The angled alignment of the clubhouse access road relative to Breeze Hill Road and the "T" alignment of the access road from Fresh Pond Road will obstruct views/view corridors into the interior of the development. Extensive landscaping is proposed around the proposed clubhouse parking lot to provide screening of homes fronting along the turn-around of Green Knoll Court. Individual lots will be landscaped after homes are constructed to further enhance residential privacy, the physical beauty and character of the development and area, and to screen and buffer any potentially undesirable aspects of development (see **Appendix B**).

Chapter 143: Outdoor Lighting of the Town Code provides outdoor lighting regulations which include three provisions specific to residential development requirements (§143-13 of the Town Code):

> A. No luminaire shall be located or concentrated so as to produce glare or direct illumination across the boundary lines of the property nor shall any such light create a nuisance or hazard or detract from the use and enjoyment of adjacent property.
> B. Any relocation of a lighting fixture or assemblage, or enlargement, change, repair or alteration of existing exterior lighting, and any new installation shall be in conformance with the provisions of this Chapter. Residential outdoor lighting guidelines shall be available at the Department of Engineering Services.
> C. The following guidelines shall be made available by the Department of Engineering Services to residential property owners to facilitate compliance:
> (1) Diagrams of generally acceptable and unacceptable light fixtures.
> (2) Various wattage/lumen conversions.
> (3) General information to educate the public

The only lighting currently proposed by this residential subdivision is street lighting. Based on the size of the property, locations of the streets and street lights, the height of street light fixtures, the planting of street trees, and the retention of trees and vegetated buffers, impacts to adjacent properties from excessive illumination from street lights, are not anticipated. Outdoor lighting for future homes is expected to include typical porch and rear yard patio lighting. The proposed street lighting fixtures will be equipped with solid/opaque hoods to prevent light from being cast upwards and causing sky glow. As required by § 143-6, of Town Code, there will be no projection of lighting off site from the common lighting on the project site.

The ambient noise environment is characteristic of the surrounding land uses, including area roadways such as Breeze Hill and Fresh Pond Roads. The closest receptors include residential properties west, east and south of the subject property. It is expected that noise from vehicles on adjacent roadways will continue to be the dominant source of background noise at the site and in the surrounding area. The only significant sources of noise which may be audible to nearby residents related to the residential use of the property under the proposed development are on-site traffic from the development, property maintenance activities, use and other human activities associated with the proposed residential use of the property. Traffic on-site will be insignificant with vehicles traveling at low speeds due to the residential nature of the subdivision, and therefore, is not expected to result in a significant increase in ambient noise levels. Other post-development noise will be typical of a residential neighborhood and consistent with what currently exists in the area, thus no significant noise-related impacts are expected.

3.2.2 Proposed Mitigation

- The change in the visual character of the site, from an institutional recreational use to a residential open space cluster residential use will be mitigated by retention of buffers along the property, permanent retention of more than 70% open space, installation of screening trees along the disturbed perimeter, as well as the planting of street trees. As part of the site plan improvements, an extensive planting plan is proposed. This landscaping will provide perimeter buffers, as well as screen the proposed clubhouse parking area, access road and any retaining walls from adjacent properties.
- As demonstrated by the artist's rendering, particular attention will be given to the architectural design, building materials and landscaping, interior and exterior layout of the site and homes, sustainability and common area maintenance. Careful planning of the layout and design of the future homes will help to ensure the character of the proposed subdivision does not adversely impact the surrounding community.
- Landscaping would be installed in-between buildings and the roads to soften the visible impact and maintain a four season buffer.
- During construction, perimeter construction fencing including solid screening will be provided to help obscure views into the property during construction.
- The proposed street lighting fixtures are equipped with solid/opaque hoods to prevent light from being cast upwards and causing sky glow. As required by § 143-6, of Town Code, there will be no projection of lighting off site from the common lighting on the project site.

3.3 Community Services

3.3.1 Existing Conditions

<u>Taxes and Fiscal Conditions</u>
During the 2015-16 fiscal year, property owners within this part of the Town of Huntington are taxed at a rate of $264.082 per $100 of assessed valuation. These tax rates account for property taxes paid to Northport UFSD, Library District, Suffolk County, SCPD, various Town funds, Metropolitan Transportation Authority and other local taxing jurisdictions.

According to the Town of Huntington Assessor's Office, the four (4) tax parcels that comprise the subject property are assessed at $75,000 (100% of the market valuation). This translates into a current generation of $198,062 in property tax revenues. Of this, $130,679 or 66.0% of the total taxes generated by the site are distributed to the Elwood UFSD, and $8,954 or 4.5% of the taxes are allocated to the Library District. An additional $2,295 or 1.2% of the total tax revenues are distributed to Suffolk County, $29,492 (14.9%) to the SCPD, and $749 to the Out of County Tuition Fund (0.4%). Approximately 9.5% of the tax revenue is levied to the Town of Huntington, which includes the Town/Part Town funds, Highway Fund and Town-Wide Lighting District. These three line items combine to total over $18,000 in revenues. The Fire District levies $3,114, or 1.6% of the total tax revenue generated by the subject parcel. The balance of the current property tax revenues is apportioned to various other town and local taxing jurisdictions. **Table 3-2** provides a summary of the taxing jurisdictions, tax rates and tax revenue compiled for the entire site.

TABLE 3-2
TAX REVENUES, 2015-16 TAX YEAR

Taxing Jurisdiction	Current Tax Rate (per $100 Assessed Valuation)	Current Tax Revenue	Percent of Total Taxes
Northport School District	174.239	$130,679	66.0%
Northport Library District	11.939	$8,954	4.5%
Suffolk County	3.060	$2,295	1.2%
Suffolk County Police District	39.322	$29,492	14.9%
Out of County Tuition	0.999	$749	0.4%
Town/Part Town	13.112	$9,834	5.0%
Highway Tax	10.797	$8,098	4.1%
Town-Wide Lighting District	1.089	$817	0.4%
New York State Real Property Tax Law	4.743	$3,557	1.8%
New York State MTA Tax	0.169	$127	0.1%
Open Space Bonds II & III	0.461	$346	0.2%
Fire District - Protection District #1	4.152	$3,114	1.6%
TOTAL: ALL TAXING JURISDICTIONS	**264.082**	**$198,062**	**100.0%**

Source: Town of Huntington Property Tax Record; Analysis by Nelson, Pope & Voorhis, LLC.

Schools

The subject property is located within the Northport-East Northport Union Free School District (UFSD). **Figure 3-4** shows the location of the project site in reference to the school district.

The Northport-East Northport UFSD is comprised of nine (9) schools, which includes one (1) high school, Northport High School, two (2) middle schools, East Northport Middle School and Northport Middle School, and six (6) elementary schools: Bellerose Elementary School, Dickinson Avenue Elementary School, Fifth Avenue Elementary School, Norwood Avenue School, Ocean Avenue School, and Pulaski Road School. The district office is at William J. Bronsan School (previously known as Laurel Avenue School), named after the retired Superintendent of Schools William J. Bronsan.

"The Northport-East Northport UFDS showed an overall decline of 787 students or 12.2 percent, between 2004 and 2014. The elementary grade configuration showed decreases during the first half of the historical period, while gains were seen in the middle and high school grades. Decreases occurred in the elementary and middle grades during the second half of the projection period; increases continued at the high school level. Declines are projected in all grade configurations over the next ten years. The overall district enrollment is expected to decrease by 1,577 students or 27.7 percent, over the next ten years."[1] Under existing conditions, there are no school-aged children residing at the subject property.

[1] Northport-East Northport UFSD, Long Range Planning Study Update, Demographic, Enrollment and Facilities Analysis, 2015.

Police Protection

Figure 3-5 shows the location of the public safety services in reference to the project. The subject site lies within the Suffolk County Police Department (SCPD) Second Precinct. Precinct offices are located on 1071 Park Avenue, Huntington.

The current police protection demand of the project site is limited to ordinary patrol and response to nuisance calls.

Fire Protection

Figure 3-5 shows the locations of fire protection services for the subject site. Fire protection and ambulance service for the site are provided by the Northport Fire Department, whose headquarters are located at 204 Main Street in Northport and their substation is located at 22 Waterside Rd, Northport.

Water Supply

The overall project site lies within the service district of Suffolk County Water Authority. As shown in **Figure 3-6**, the three closest public supply wells, Wayne Court, Middleville Road and Waterside Road facilities lie 0.68, 0.95 and 1.0 miles distant from the project site, respectively. Wayne Court is screened in the Raritian Clay; Middlevile Road is a Magothy well and Waterside Well #1 is Glacial and Well #2 being the Magothy.

Assuming that all wastewater generated will originate from the public water supply, daily water consumption totals approximately 37,250 gallons gpd (excluding irrigation). In addition it should be noted that irrigation of the existing golf course is provided from an on-site irrigation well. Based on data provided by the Indian Hills Country Club and reported to NYSDEC for the years 2013-2015, water use from this well averaged 63,848 gallons per year.

Solid Waste Disposal

The Town of Huntington collects and manages municipal (i.e., non-hazardous) solid waste generated within the Town. However, the property owners utilize a private hauler for their solid waste.

Public Parks and Recreational Facilities

The subject site is a source of private recreation for users of the Indian Hills Country Club (IHCC). IHCC is available to the public for special occasions.

Suffolk County (Makamah County Nature Preserve and Fresh Pond) and Town parks [Geissler's Beach (fishing only) and Crab Meadow Beach and Golf Course] are located in relative proximity to the subject site.

Energy Services

PSEG and National Grid are the local providers of electricity and natural gas, respectively, in the vicinity of the site.

3.3.2 Anticipated Impacts

Taxes and Fiscal Conditions

Many of the Town and County's community services and facilities are supported in large part by the revenues generated through property taxes. The Town of Huntington and Suffolk County, as well as other local taxing jurisdictions will greatly benefit from an increase in such property tax revenues, resulting from the development and operation of the proposed project.

For the purpose of this analysis, it is necessary to determine the assessed valuation for the proposed project. The value was determined based upon estimated selling prices of approximately $800,000 per unit.[2]

Given the above-mentioned assumptions regarding selling prices, and when applied to the 110 units, the estimated market valuation for taxing purposes is $88.0 million. This was then applied to the Town of Huntington's current residential assessment ratio (RAR) of 0.73% and an equalization rate of 100%. This results in a projected assessed valuation of $642,400, upon full build-out and occupancy. This is seen in **Table 3-3**.

TABLE 3-3
ESTIMATED ASSESSED VALUATION

Type of Unit	Number of Units	Proposed Selling Price	Assessed Valuation
Three (3)-bedroom 2,200 SF Townhouse	110	$800,000	$88,000,000
Residential Assessment Ratio	--	--	0.73
Estimated Market Valuation	--	--	$642,400
Equalization Rate			100.00%
Projected Assessment			**$642,400**

Source: Data provided by applicant; Analysis by Nelson, Pope & Voorhis, LLC.

Current tax and equalization rates can be applied to the assessed valuation in order to project the impact that the proposed will have on the local tax base. **Table 3-2** shows the current tax rates/revenue, as well as the revenues that are projected to be levied from full build-out of the proposed project, and the total revenues – which includes the current revenue generated through the golf course, combined with the revenue projected to be generated from the 110 townhomes. The information provided in the table was derived from the current assessment factors and tax rates provided by the Town of Huntington Receiver of Taxes, the Town of Huntington Assessor's Office, as well as the total projected assessed valuation for the development upon full build-out. It is important to note that all analyses are based on current tax dollars, and the revenue allotted among taxing jurisdictions will vary from year to year, depending on the annual tax rates, assessed valuation and equalization rates. Further, the final assessment and levy will be determined by the sole assessor at the time of occupancy. Projections included herein are as accurate as possible using fiscal impact methodologies, for the purpose of the planning and land use approval process.

[2] Selling prices were provided by the applicant in June 2016. It is important to note that all costs are estimates based upon market conditions as of the date of submission of this analysis.

The development of the 110 townhomes will significantly increase taxes generated by the site, resulting in a substantial increase in revenues distributed to each taxing jurisdiction. At full build-out, this residential component is projected to generate nearly $1.7 million in annual taxes. When combined with the existing taxes generated by the golf course, total tax revenue is projected to total over $1.89 million per year.

Upon full build-out of the proposed project and inclusive of the taxes generated by the existing golf course, it is projected that the project will levy over $1.2 million to the Northport School District, representing 66.0% of the total tax generated by the site. Likewise, the proposed project will levy $85,650 to the Library District, comprising 4.5% of the tax levy. Approximately $21,952 or 1.2% of the total tax revenues is projected to be distributed to Suffolk County, $282,096 (14.9%) to the SCPD, and $7,167 to the Out of County Tuition Fund (0.4%). Approximately 9.5% of the tax revenue is projected to be levied to the Town of Huntington, which includes the Town/Part Town funds, Highway Fund and Town-Wide Lighting District. These three (3) line items combine to total over $179,000 in revenues. The Fire District is anticipated to generate a total of approximately $29,786, or 1.6% of the total tax revenue generated by the subject parcel. The balance of the projected property tax revenues is apportioned to various other town and local taxing jurisdictions, as shown in **Table 3-4**.

TABLE 3-4
PROPOSED TAX REVENUES

Taxing Jurisdiction	Current Tax Revenue	Projected Tax Revenue: 110 Townhomes	Projected Tax Revenue: Total
Northport School District	$130,679	$1,119,311	$1,249,991
Northport Library District	$8,954	$76,696	$85,650
Suffolk County	$2,295	$19,657	$21,952
Suffolk County Police District	$29,492	$252,605	$282,096
Out of County Tuition	$749	$6,418	$7,167
Town/Part Town	$9,834	$84,231	$94,065
Highway Tax	$8,098	$69,360	$77,458
Town-Wide Lighting District	$817	$6,996	$7,812
New York State Real Property Tax Law	$3,557	$30,469	$34,026
New York State MTA Tax	$127	$1,086	$1,212
Open Space Bonds II & III	$346	$2,961	$3,307
Fire District - Protection District #1	$3,114	$26,672	$29,786
TOTAL: ALL TAXING JURISDICTIONS	**$198,062**	**$1,696,463**	**$1,894,524**

Source: Town of Huntington Property Tax Record; Analysis by Nelson, Pope & Voorhis, LLC.

Schools

The impact of any project upon the local school district in which it is located depends on the number of school-age children that will be generated, offset by increased tax revenues and the ability of the school district to provide educational services for these children. The ability of a school district to handle increased demand for educational services depends primarily upon the adequacy of long-term planning within the district, in combination with increased tax revenue generation to strengthen the tax base of the community. Since the proposed project is age-restricted to residents 55 years and older, it is not anticipated that it will generate any school-aged children. As seen in **Table 3.4**, it is estimated that the school district will levy over $1.2 million in taxes from the proposed project, without the district incurring costs associated with an increased enrollment. This net revenue could ease the district's need to tap into additional fund balances, reduce their financial burden, and could also help alleviate an increased burden on other taxpayers throughout the district.

Economic Impacts

For the purpose of this analysis, it is anticipated that construction of the proposed project will commence in the Fall of 2017, and will be complete after approximately two (2) years, culminating in the Fall of 2019.[3]

It is projected that the construction and operations of the proposed project will contribute positively to the local economy. During the construction period, opportunities for employment will offer direct, indirect and induced benefits among businesses and households located throughout the region. During the operation of the development, long term jobs will also offer direct, indirect and induced benefits to Northport, the Town of Huntington, Suffolk County and the region as a whole. The new jobs created during both construction and operation of the development will help to increase business and household income in the community. In turn, as spending increases, this creates additional jobs and further increases business and household income throughout Suffolk County.

A detailed analysis of direct, indirect and induced impacts[4] generated during the construction period is outlined below. It is important to note that each of these impacts are temporary and are projected to occur only while the proposed project is being constructed. Economic impacts generated during operations; however, are permanent and on-going and they are projected on an annual basis, assuming continued stabilized operations. A detailed analysis of direct, indirect and induced impacts during annual operations is described below.

[3] Construction schedule provided by applicant in July 2016.

[4] A direct impact arises from the first round of buying and selling. These direct impacts can be used to identify additional rounds of buying and selling for other sectors of the economy and to identify the impact of spending by local households. An indirect impact refers to the increase in sales of other industry sectors, which include further round-by-round sales. An induced impact accounts for the changes in output and labor income by those employed within the region, resulting from direct and indirect impacts. The total impact is the sum of the direct, indirect and induced impacts.

Economic Impacts of Construction

During the construction period, *output* refers to the investment, or total costs associated with the construction of the proposed project. The construction period is projected to represent a total of approximately $47.5 million in investment (construction costs).[5]

The $47.5 million[6] in direct output is projected to generate an indirect impact of over $16.8 million, and an induced impact of over $21.3 million, bringing the total economic impact on output to over $85.6 million during the construction period.[7]

During the construction period, direct *employment* refers to the number of short-term jobs necessary to build the proposed project. It is projected that the construction period will necessitate 170.0 full time equivalent (FTE) employees. It is assumed that the same basic construction crew will be utilized from the commencement until the culmination of construction, lasting two (2) years for the purpose of this analysis.

Direct employment creates additional opportunities for job creation throughout other sectors of the economy through expenditures derived from labor income and output. As such, the 170.0 FTE jobs created during the construction period will have an indirect impact of 131.5 FTE employees and an induced impact of 147.6 FTE employees in other industry sectors, bringing the total impact of construction to 449.0 FTE jobs during the construction period.[8] This job creation – direct, as well as indirect and induced – is most crucial during Long Island's current economic state, and presents significant opportunities for the thousands of persons who are unemployed throughout the region.

During the construction period, direct *labor income* refers to the earnings, wages, or salary paid to each of the construction workers. Labor income typically comprises approximately 50% of the total cost of residential construction.[9] Assuming the payment of the area standard wage, each of the construction workers will earn the projected average annual wage of $69,710.[10] Assuming that the construction period lasts two (2) years in duration, this represents over $23.7 million in

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[5] Construction costs provided by applicant in July 2016. It is important to note that all costs are estimates based upon market conditions as of the date of submission of this analysis.

[6] For the purpose of this analysis, this figure and all other figures in this section reflect 2017 dollars, the year in which construction is assumed to commence.

[7] According to IMPLAN, a multiplier of 1.778737 represents the total dollar change in output that occurs in all industries for each additional dollar of output delivered to final demand through the "Construction of new single-family residential structures" (IMPLAN Sector 59).

[8] According to IMPLAN, a multiplier of 12.743785 represents the total change in the number of jobs that occurs in all industries for each additional one million dollars of output delivered to final demand through the "Construction of new single-family residential structures" (IMPLAN Sector 59).

[9] Construction labor and materials estimates per architectural design group Hawkins, Webb, Jaeger, PLLC.

[10] New York State Department of Labor's Occupational Employment Statistics Survey reports an average wage of $67,680 among those employed within the construction and extraction occupations in the Long Island labor market as of the first quarter of 2016. An annual inflation rate of three percent (3%) was applied to this wage to reflect the projected wages at the start of construction, anticipated to occur in 2017 for the purpose of this analysis.

collective earnings among the 170.0 FTE construction employees. This labor income is projected to have an indirect impact of over $6.2 million and an induced impact of over $7.3 million, bringing the total economic impact of the construction to over $37.3 million in labor income.[11]

A summary of the derivation of the collective economic benefits during the construction period is provided in **Table 3.5**.

TABLE 3-5
ECONOMIC IMPACTS OF CONSTRUCTION

Impact Type	Output (Revenue)	Employment (Number of Jobs)	Labor Income (Wages)
Direct Impact	$47,520,001	170.0	$23,760,001
Indirect Impact	$16,803,667	131.5	$6,254,327
Induced Impact	$21,315,431	147.6	$7,327,659
Total Impact	$85,639,100	449.0	$37,341,987

Source: Direct impact of output (construction costs) provided by applicant; Analysis by Nelson, Pope & Voorhis, LLC, via IMPLAN software.

Economic Impacts of a Stabilized Year of Operations

For the purpose of this analysis, it is assumed that the proposed project will begin the operational phase of development upon the completion of the construction period, anticipated to occur by the Fall of 2019. For the purpose of this analysis, a stabilized year of operations is assumed to occur in 2020.

During operations, direct *output* refers to the total revenues derived from the annual operation of the proposed project. For the purpose of this analysis, this includes monthly homeowner's association fees of $450 per month, per unit. In total, this comprises approximately $594,000 per year in annual operational revenues.[12]

The direct operational revenues of $583,000 are projected to generate an indirect impact of over $113,000 and an induced impact of over $32,000 per year.[13] This additional output is generated through round-by-round sales made at various merchants in other sectors of the regional economy. These include local retailers, service providers, banks, grocers, restaurants, financial institutions, insurance companies, health and legal services providers, and other establishments in the region. The sum of the direct, indirect and induced impacts results in a total economic impact on output of over $742,000 during annual operations.[14]

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[11] According to IMPLAN, a multiplier of 0.728090 represents the total dollar change in labor income of households employed by all industries for each additional dollar of output delivered to final demand through the "Construction of new single-family residential structures" (IMPLAN Sector 59).

[12] All project-based revenues provided by applicant in July 2016.

[13] For the purpose of this analysis, this figure and all other figures in this section reflect 2020 dollars, the year in which a stabilized year of operations is anticipated to commence.

[14] According to IMPLAN, a multiplier of 1.656616 represents the total dollar change in output that

During operations, direct *labor income* refers to annual wages, earnings or salary that is paid to the proposed project's employees. The annual operations of 110 townhomes are not anticipated to generate any new full-time equivalent (FTE) positions, and therefore no direct labor income. However, and since the spin-off economic impacts of labor income are actually a result of operational revenue, the annual operations of the 110 townhomes will still benefit the local economy in terms of labor income. It is projected that the proposed project will result in an indirect impact of $46,034 and an induced impact of $11,249, bringing the total economic impact of labor income to over $57,000 during annual operations.[15]

A summary of the derivation of the collective economic benefits during a stabilized year of operations is provided in **Table 3-6**.

TABLE 3-6
ECONOMIC IMPACTS OF A STABILIZED YEAR OF OPERATIONS

Impact Type	Output (Revenue)	Employment (Number of Jobs)	Labor Income (Wages)
Direct Impact	$594,000	0.0	$0
Indirect Impact	$115,125	0.8	$46,034
Induced Impact	$32,960	0.2	$11,249
Total Impact	$742,085	1.0	$57,283

Source: Direct impact of output (annual revenues), employment and labor income provided by applicant; Analysis by Nelson, Pope & Voorhis, LLC, via IMPLAN software.

Police Protection

It is not anticipated that the proposed project would have a significant adverse impact on the patrol responsibilities of the SCPD for security/safety purposes. While the potential need for police services to the site would be increased by the addition of residences, this increase would not in itself be a significant added burden on patrol activities, as this use does not generate much potential need for response. Correspondence from the SCPD dated August 2, 2016 (see **Appendix H**) indicates that the department will adapt as necessary to protect and serve the community.

Fire Protection and Ambulance Services

Similar to police protection, the proposed project would not have a significant adverse impact on the Northport Fire Department (NFD). The project would incrementally increase the potential need for fire protective services, though this increased potential need would not in itself be a significant added burden on the department. This is due to the projects adherence to the NYS Fire Code in construction, and the anticipated use of fire-resistant building materials and smoke/fire alarms and detectors. Correspondence from the NFD, email undated (see **Appendix H**) did not indicate any issues for serving the proposed project

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occurs in all industries for each additional dollar of output delivered to final demand by "Labor and civic organizations" (IMPLAN Sector 516) in Suffolk County, New York.

[15] According to IMPLAN, a multiplier of 0.808972 represents the total dollar change in labor income of households employed by all industries for each additional dollar of output delivered to final demand by "Labor and civic organizations" (IMPLAN Sector 516) in Suffolk County, New York.

Water Supply

The proposed project will increase the overall consumption of water. It is anticipated that the proposed project will use approximately 37,250 gallons of water per day resulting in an overall water consumption of the site of approximately 101,098 gpd (including golf course irrigation). Golf course irrigation currently exists and will continue to be sourced from an on-site golf course irrigation well.

Correspondence from the Suffolk County Water Authority (letters dated September 7 & 9, 2016, see **Appendix H**) indicate that existing water mains are available to service the subject site from Breeze Hill Road, Mystic Lane and Fresh Pond Road.

Solid Waste Disposal

The proposed project will generate a greater amount of solid waste than the current use, all of which will be collected via private carters. Approximately 849.2 pounds of solid waste per day is anticipated based on 3.5 pounds per day per resident and 0.013 lbs/SF/day for the clubhouse.

Only dwellings with a class of property between 200-299 that are capable of receiving curbside refuse recycling or yard waste collection can be included in the Town of Huntington Residential Refuse District, and therefore served by the Town or an authorized sub-contractor. All other residential dwellings (including the proposed residences at The Preserve at Indian Hills) must contract directly with a private waste removal company.

Public Parks and Recreational Facilities

A variety of recreation facilities will be offered for residents of the townhome development. Furthermore, the proposed change of zone to the R-OSC district will allow preservation of the golf course. It is not anticipated that there will be a burden on public parks or recreational facilities as a result of the increase in residents to the site.

Energy Services

It is expected that there will be no significant adverse impacts to either PSEG or National Grid as a result of the project's increased consumption of electricity or natural gas, respectively. New construction will utilize appropriate and necessary energy-conserving materials and mechanical systems, minimizing the increased consumptions of these energy forms. In addition, these utilities are chartered to serve development within their service areas, and the area is already well-served with electricity and natural gas. It is expected that the project will utilize energy- and resource-conserving features, materials and systems and may incorporate systems and features associated with the LEED system. These will include modern, energy-efficient building materials (e.g., insulation, windows, weather stripping, door seals, etc.) and mechanical systems, (e.g., air conditioners, heating systems, HVAC systems, water heaters, heat pumps, etc.).

3.3.3 Proposed Mitigation

- The proposed project will generate significant increases in tax revenues and allocations to each of the pertinent community services would offset the increased costs to the pertinent community services to provide services.
- While no age restriction is proposed for the townhome units, the units are expected to attract mainly "empty-nesters" rather than families with children. Significantly fewer school age children will be generated by the proposed project compared with as-of-right single family residential development.
- The proposed project will generate significantly greater taxes to the Northport-East Northport Union Free School District than the cost to educate the estimated 31 school age children likely to attend public schools.
- Smoke and fire detectors will be installed in the proposed homes and current construction standards will be adhered to as mandated by the NYS Building Code.
- Water-conserving plumbing fixtures and mechanical systems will be used where appropriate in order to minimize water consumption.
- While the proposed project will result in a significant increase in solid waste generated on-site, this waste is not expected to contain significant amounts of potentially toxic or hazardous materials (i.e. pesticide or fungicide residues in barrels, etc.). All solid wastes generated will be removed from the site and disposed of properly. As a result, no mitigation measures are necessary or proposed.
- Energy-efficient design and current construction methods will be utilized and buildings will be constructed consistent with NYS Building Code.

3.4 Transportation

3.4.1 Existing Conditions

A Traffic Impact Study (TIS) has been prepared for the project by Nelson & Pope. The TIS, dated September 2016, is provided in **Appendix I.** The study evaluates the potential traffic impacts associated with the proposed application for the addition of 110 senior housing units. This report summarizes the results of a detailed investigation of the traffic impacts associated with the proposed senior housing development by reviewing the area's existing roadway characteristics and traffic conditions, estimating the vehicular volume and pattern that the proposed project will generate during peak hours, and analyzing the effect of the additional volume on the surrounding roadway network. TIS Figure 1 shows the overall study area and Figure 2 shows the study intersections.

In executing the scope of work, the following steps were undertaken.

- A detailed field inspection was conducted to obtain an inventory of existing roadway geometry, location/geometry of existing driveways and intersections along with signing, signal timings, phasing and cycle lengths.

- Turning movement traffic counts were conducted during the weekday morning (7:00 AM to 9:00AM), weekday evening (4:00 PM to 6:00 PM) and Saturday midday (11:00 AM to 2:00 PM) peak periods at the following intersections:
    - Fort Salonga Road (NYS 25A) at Makamah Road
    - Fort Salonga Road (NYS 25A) at Fresh Pond Road/Bread and Cheese Hollow Road
    - Makamah Road and Breeze Hill Road
    - Makamah Road and Makamah Beach Road/Mystic Lane
    - Fresh Pond Road and Breeze Hill Road
    - Breeze Hill Road and Indian Hills Country Club Access
- The most recent 3-years of accident data for the study intersections and roadways in the vicinity of the site was obtained from NYSDOT. The data was tabulated and summarized.
- The turning movement counts collected at each intersection was tabulated for each time period. Peak hours were identified and peak hour factors calculated for each approach.
- An Estimated Time of Completion (ETC) year of 2018 (2 years) is anticipated for this project. Therefore, a horizon year of 2018 was utilized for No Build and Build conditions to determine the impacts that may be created by the construction of this project.
- An annual growth factor of 1.0% obtained from the NYSDOT LITP2000 Study for the Town of Huntington was applied to the existing traffic volumes to estimate the increase in background traffic that would occur in 2018. These volumes are referred to as the Ambient No Build Volumes.
- The Towns of Huntington and Smithtown were contacted to obtain information on other planned projects in the nearby area that may affect the study intersections. At the time this study was conducted there were no significant planned projects in the vicinity of the proposed project provided by either municipality.
- Estimates of traffic that would be generated by the proposed senior housing development were prepared utilizing trip generation data published by the Institute of Transportation Engineers (ITE) publication, *Trip Generation, Ninth Edition*. The site-generated traffic volumes were assigned to the adjacent street system based upon the anticipated directional trip distribution forecasted by Nelson & Pope.
- The 2018 Build Condition volumes for the proposed senior residential development were developed by adding the site generated traffic volumes to the 2018 No Build Condition volumes.
- Capacity analyses were performed at the study intersections for the Existing Condition, No Build Condition and Build Condition for weekday AM, PM and Saturday midday peak hours.
- The results of the analyses for the 2018 No Build Conditions and 2018 Build Conditions were compared to identify any significant impact associated with the proposed senior housing development.

3.4.2 Anticipated Impacts

In order to identify the potential impacts the proposed senior housing development may have on the adjacent street system, it is necessary to estimate the magnitude of traffic volume generated during the peak hours and to estimate the directional distribution of the site traffic when entering and exiting the subject property. The trip generation estimates for the proposed development were prepared utilizing data within the Institute of Transportation Engineers' (ITE) publication, *Trip Generation, Ninth Edition*. This publication sets forth trip generation data obtained by traffic counts conducted at sites throughout the country. The Land Use Code within the ITE trip generation manual corresponding to the proposed use is Land Use Code # 251, Senior Housing Detached. **Table 3-7** provided below summarizes the trip generation estimates for the proposed development. Appendix B of the TIS contains the trip generation worksheets.

TABLE 3-7
TRIP GENERATION

Time Period	Distribution	Senior Housing 48 Units (ITE LUC 251) NW Quadrant	Senior Housing 16 Units (ITE LUC 251) NE Quadrant	Senior Housing 44 Units (ITE LUC 251) SW Quadrant	**TOTAL** (110 Units)
Weekday AM Peak Hour	Enter	13	12	13	38
	Exit	25	21	25	71
	Total	**38**	**33**	**38**	**109**
Weekday PM Peak Hour	Enter	16	7	15	38
	Exit	10	4	10	24
	Total	**26**	**11**	**25**	**62**
Saturday Midday Peak Hour	Enter	13	5	12	30
	Exit	13	6	13	32
	Total	**26**	**11**	**25**	**62**

Source: Trip Generation, 9th Edition, published by ITE

As can be seen from Table 6 above, the three locations of proposed senior housing development are projected to generate 109 trips (38 entering and 71 exiting) during the weekday AM peak hour, 62 trips (38 entering and 24 exiting) during the weekday PM peak hour and 62 trips (30 entering and 32 exiting) during the Saturday midday peak hour.

The volume of site traffic anticipated to be generated by the proposed senior housing development during peak hours was distributed and assigned to each intersection movement based on existing roadway volumes and travel patterns. The nature of the proposed land use and its associated travel patterns were considered as well. Due to the fact that the project will be developed in three different quadrants, a percent distribution was prepared for each. **Tables 3-8** through **3-13** below, summarized the analysis results for the 2018 No Build and Build conditions. The six classes of LOS, ranging from LOS A (best) to F (worst), are defined in Appendix C of the TIS.

TABLE 3-8
LEVEL OF SERVICE SUMMARY (SIGNALIZED) – AM PEAK

			No Build		Build	
Signalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**
Fort Salonga Road (NYS 25A) at Bread and Cheese Hollow Rd/ Fresh Pond Rd	EB	L	6.6	A	7.1	A
		T	10.5	B	10.8	B
		R	3.7	A	4.0	A
	WB	L	7.8	A	8.1	A
		TR	10.4	B	10.9	B
	NB	LTR	24.1	C	25.5	C
	SB	LT	18.9	B	20.7	C
		R	6.4	A	7.8	A
	Intersection		11.4	B	12.2	B

Notes: LOS = Level of Service, Delay = seconds/vehicle,

TABLE 3-9
LEVEL OF SERVICE SUMMARY (UNSIGNALIZED) – AM PEAK

			No Build		Build	
Unsignalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**
Fort Salonga Road (NYS 25A) at Makamah Rd	EB	LT	0.7	A	1.0	A
	SB	LR	18.9	C	30.0	D
Makamah Rd at Breeze Hill Rd	WB	LR	8.9	A	9.3	A
	SB	LT	3.3	A	2.2	A
Makamah Rd at Makamah Beach Rd/Mystic Ln	EB	LTR	8.7	A	8.7	A
	WB	LTR	9.4	A	9.6	A
	NB	LTR	1.6	A	1.2	A
	SB	LTR	0.0	A	0.0	A
Fresh Pond Rd at Breeze Hill Rd	EB	LTR	9.3	A	9.5	A
	WB	LTR	9.6	A	10.5	B
	NB	LTR	2.3	A	2.8	A
	SB	LTR	0.0	A	0.0	A
Breeze Hill Rd at Country Club Access	WB	LR	1.4	A	0.9	A
	NB	LT	8.8	A	9.0	A
Fresh Pond Rd at Northeast Site Access	EB	LR	-	-	8.6	A
	NB	LT	-	-	2.3	A
Breeze Hill Rd at Southwest Site Access	WB	LT	-	-	2.2	A
	NB	LR	-	-	8.7	A

Notes: LOS = Level of Service, Delay = seconds/vehicle

TABLE 3-10
LEVEL OF SERVICE SUMMARY (SIGNALIZED) – PM PEAK

			No Build		Build	
Signalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**
Fort Salonga Road (NYS 25A) at Bread and Cheese Hollow Rd/ Fresh Pond Rd	EB	L	7.5	A	8.0	A
		T	14.1	B	15.1	B
		R	5.1	A	5.3	A
	WB	L	10.1	B	10.8	B
		TR	13.1	B	14.2	B
	NB	LTR	28.8	C	29.4	C
	SB	LT	21.1	C	21.7	C
		R	8.2	A	8.0	A
	Intersection		14.6	B	15.6	B

Notes: LOS = Level of Service, Delay = seconds/vehicle

TABLE 3-11
LEVEL OF SERVICE SUMMARY (UNSIGNALIZED) – PM PEAK

			No Build		Build	
Unsignalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**
Fort Salonga Road (NYS 25A) at Makamah Rd	EB	LT	1.5	A	2.0	A
	SB	LR	27.1	D	37.5	E
Makamah Rd at Breeze Hill Rd	WB	LR	8.8	A	9.1	A
	SB	LT	3.3	A	2.4	A
Makamah Rd at Makamah Beach Rd/Mystic Ln	EB	LTR	8.5	A	8.5	A
	WB	LTR	9.4	A	9.4	A
	NB	LTR	3.3	A	2.2	A
	SB	LTR	2.2	A	2.2	A
Fresh Pond Rd at Breeze Hill Rd	EB	LTR	8.6	A	8.7	A
	WB	LTR	9.5	A	9.9	A
	NB	LTR	3.4	A	3.7	A
	SB	LTR	0.0	A	0.0	A
Breeze Hill Rd at Country Club Access	WB	LR	0.0	A	0.0	A
	NB	LT	0.0	A	0.0	A
Fresh Pond Rd at Northeast Site Access	EB	LR	-	-	8.5	A
	NB	LT	-	-	1.4	A
Breeze Hill Rd at Southwest Site Access	WB	LT	-	-	1.7	A
	NB	LR	-	-	8.7	A

Notes: LOS = Level of Service, Delay = seconds/vehicle

TABLE 3-22
LEVEL OF SERVICE SUMMARY (SIGNALIZED) – SATURDAY PEAK

			No Build		Build	
Signalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**
Fort Salonga Road (NYS 25A) at Bread and Cheese Hollow Rd/ Fresh Pond Rd	EB	L	9.6	A	10.0	B
		T	15.8	B	16.3	B
		R	5.9	A	6.1	A
	WB	L	12.3	B	12.8	B
		TR	15.3	B	16.0	B
	NB	LTR	30.1	C	31.1	C
	SB	LT	19.7	B	20.6	C
		R	7.0	A	6.9	A
	Intersection		16.5	B	17.1	B

Notes: LOS = Level of Service, Delay = seconds/vehicle

TABLE 3-13
LEVEL OF SERVICE SUMMARY (UNSIGNALIZED) – SATURDAY PEAK

			No Build		Build	
Unsignalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**
Fort Salonga Road (NYS 25A) at Makamah Rd	EB	LT	1.6	A	2.0	A
	SB	LR	36.4	E	58.0	F
Makamah Rd at Breeze Hill Rd	WB	LR	9.2	A	9.5	A
	SB	LT	2.8	A	2.3	A
Makamah Rd at Makamah Beach Rd/Mystic Ln	EB	LTR	8.8	A	8.9	A
	WB	LTR	9.4	A	9.6	A
	NB	LTR	3.4	A	2.6	A
	SB	LTR	0.0	A	0.0	A
Fresh Pond Rd at Breeze Hill Rd	EB	LTR	9.2	A	9.3	A
	WB	LTR	10.2	B	10.7	B
	NB	LTR	3.2	A	3.4	A
	SB	LTR	1.0	A	0.8	A
Breeze Hill Rd at Country Club Access	WB	LR	0.7	A	0.5	A
	NB	LT	8.9	A	8.8	A
Fresh Pond Rd at Northeast Site Access	EB	LR	-	-	8.5	A
	NB	LT	-	-	3.0	A
Breeze Hill Rd at Southwest Site Access	WB	LT	-	-	0.9	A
	NB	LR	-	-	8.8	A

Notes: LOS = Level of Service, Delay = seconds/vehicle

Fort Salonga Road (NYS 25A) and Bread and Cheese Hollow Road/Fresh Pond Road

In the No Build Condition, the signalized intersection of Fort Salonga Road (NYS 25A) and Bread and Cheese Hollow Road/Fresh Pond Road is, from an overall perspective, projected to operate at overall LOS B during all peak periods. With the construction of the proposed project,

the intersection will continue to operate at No Build conditions during the analyzed peak periods with minimal increase in delay. Therefore, no significant impacts are created and no mitigation measures are proposed at this intersection.

Fort Salonga Road (NYS 25A) and Makamah Road
In the No Build Condition, the eastbound left-turn movement at this unsignalized intersection is projected to operate at LOS A during all peak periods. The southbound stop controlled approach (Makamah Road) of this unsignalized intersection is projected to operate at LOS C, D and E during the AM, PM and Saturday peak hours, respectively. With the construction of the proposed project, the eastbound left-turn movement will continue to operate at No Build conditions during the analyzed peak periods with minimal increase in delay. Under the Build condition, the stop controlled southbound approach is anticipated to have a degradation in LOS. During the AM peak hour LOS will change from C to D, the PM peak hour will experience a change from D to E and Saturday will experience a change from E to F.

The analyses results for this unsignalized intersection may not be representative of actual field conditions. It should also be noted that the critical gap acceptance calculated by the Synchro Software (Software utilized to conduct capacity analyses) is higher than many of the available gaps on the major roadway (Fort Salonga Road). This may be the reason why the capacity analyses displays high delay on the southbound approach of Makamah Road. However, motorists were observed in the field exiting this roadway during short gaps. Therefore, the side street approach is actually operating at better levels of service when compared to the calculated levels of service by the Synchro Software.

Makamah Road at Breeze Hill Road
In the No Build Condition, the westbound stop controlled approach of this unsignalized intersection is projected to operate at LOS A during all peak periods. The southbound left-turn movement is projected to operate at LOS A during all peak periods. With the construction of the proposed project, the intersection will continue to operate at No Build conditions during the analyzed peak periods with minimal increase in delay. Therefore, no significant impacts are created and no mitigation measures are proposed at this intersection.

Due to the proximity of this intersection to the Site Access for the Southwest Quadrant of the proposed development, located approximately 65 feet to the east, we are proposing to modify its configuration to improve safety. The main concerns are the free-flow nature of the northbound approach combined with the large radius on the southeast corner which would permit vehicles travelling northbound to make a right-turn while maintaining higher than desired speeds. This could create a conflict with vehicles exiting the site access which would not be able to see northbound turning vehicles from Makamah Road.

The applicant proposes to make this intersection all-way stop controlled which will lower operating speeds through the intersection. The applicant also proposes to decrease the radius of the southwest corner which will lower turning speeds and provide more separation between the site access driveway. After the implementation of the proposed changes, all approaches this intersection are projected to operate at LOS A.

Makamah Road at Makamah Beach Road/Mystic Lane
In the No Build Condition, the eastbound and westbound stop controlled approaches of this unsignalized intersection are projected to operate at LOS A during all peak periods. The northbound and southbound approaches are anticipated to operate at LOS A during all peak periods. With the construction of the proposed project, the intersection will continue to operate at No Build conditions during the analyzed peak periods with minimal increase in delay. Therefore, no significant impacts are created and no mitigation measures are proposed at this intersection.

Fresh Pond Road and Breeze Hill Road
In the No Build Condition, the eastbound stop controlled approach of this unsignalized intersection is projected to operate at LOS A during all peak periods. The westbound stop controlled approach is projected to operate at LOS A, A and B during the AM, PM and Saturday peak hours, respectively. The northbound and southbound approaches are projected to operate at LOS A during all peak periods. With the construction of the proposed project, the intersection will continue to operate at No Build conditions during the analyzed peak periods with minimal increase in delay, except for the westbound approach during the AM peak hour, which will experience a change in LOS from A to B with an increase in delay of 0.9 seconds. This slight increase in delay is not a significant impact and no mitigation measures are proposed at this intersection.

Breeze Hill Road and Indian Hills Country Club Access
In the No Build Condition, the westbound left-turn movement of this unsignalized intersection is projected to operate at LOS A during all peak periods. The northbound approach is projected to operate at LOS A during all peak periods. With the construction of the proposed project, the intersection will continue to operate at No Build conditions during the analyzed peak periods with minimal increase in delay. Therefore, no significant impacts are created and no mitigation measures are proposed at this intersection.

Fresh Pond Road and Northeast Quadrant Site Access
In the Build Condition, the eastbound stop controlled approach (Site Access) of this unsignalized intersection is projected to operate at LOS A during all peak periods. The northbound left-turn movement is also projected to operate at LOS A during all peak hours.

Breeze Hill Road at Southwest Quadrant Site Access
In the Build Condition, the northbound stop controlled approach (Site Access) of this unsignalized intersection is projected to operate at LOS A during all peak periods. The westbound left-turn movement is also projected to operate at LOS A during all peak hours.

3.4.3 Proposed Mitigation

- All the intersections studied are projected to continue operating at No Build LOS during the weekday AM, PM and Saturday midday peak hours with the construction of the proposed senior housing development with minimal increase in delay with the exception of Fort Salonga Road (NYS 25A) at Makamah Road.
- Due to the proximity of the intersection of Makamah Road at Breeze Hill Road to the Site Access for the Southwest Quadrant of the proposed development, located approximately 65 feet to the east on Breeze Hill Road, the Applicant will modify its configuration to improve safety. The main concerns are the free-flow nature of the northbound approach combined with the large radius on the southeast corner which would permit vehicles travelling northbound to make a right-turn while maintaining higher than desired speeds. This could create a conflict with vehicles exiting the site access which would not be able to see northbound turning vehicles from Makamah Road.
- The Applicant is proposing to make this intersection all-way stop controlled which will lower operating speeds through the intersection. We are also proposing to decrease the radius of the southwest corner which will lower turning speeds and provide more separation between the site access driveway. After the implementation of the proposed changes, all approaches this intersection are projected to operate at LOS A.
- Other than the modification described above, and based on the results of the Traffic Impact Study as detailed in the body of this report, it is the professional opinion of Nelson & Pope that, constructing the proposed senior housing development on the Indian Hills Country Club property will not result in any adverse traffic impacts in the study area.

3.5 Cultural and Historic Resources

3.5.1 Existing Conditions

A Phase I and II archaeological survey for the proposed improvements at the subject site was conducted by TRACKER Archaeology, Inc. of Monroe, New York, dated October 2015 to determine the prehistoric and historic potential of the property for the recovery of archaeological remains (see **Appendix J)**.

The purpose of the Phase I archaeological survey is to establish the presence or absence of archaeological sites. If the site is to be impacted by proposed construction or other activities, Phase II intensive testing of any archaeological site is them specified by the regulations of the New York State Historic Preservation Office and the National Advisory Council on Historic preservation. Phase II investigation methods should interpret the archaeological sites and determine if it is eligible for the nomination to State or National Registers of Historic Places. Phase II investigations would supply information needed to make this determination and would include:

1) Site integrity, including the depth and extent of undisturbed soil horizons and the presence or absence of cultural features, and the degree of natural and/or human disturbances to those features.
2) Cultural components/affiliations and time range present.

3) Vertical and horizontal distribution of archaeological remains (spatial boundaries and stratigraphic levels).
4) Site interpretation, including any uniqueness/significance, in a local or regional context, must be demonstrated.

This was accomplished by a review of the original and current environmental data, archaeological site files, other archival literature, maps, and documents. A prehistoric site file search was conducted utilizing the resources of the New York State Historic Preservation Office - Field Services Bureau in Waterford, New York. Various historical and archaeological web sites were reviewed for any pertinent information. A Phase IB survey was conducted to recover physical evidence for the presence or absence of archaeological sites on the property. This was accomplished through subsurface testing and ground surface reconnaissance. A prehistoric site was encountered in the NW area, consisting of 7 positive ST's with 1 artifact per ST. The Phase II study was conducted in September 2015. Based upon these results the project site has no research value that would make it eligible for the historic registers. Therefore no further work is recommended and no mitigation required.

3.5.2 Anticipated Impacts

Based upon topographic characteristics, distance to other known prehistoric sites and an Indian trail, the property was assessed as having a higher than average potential for encountering prehistoric sites. Based upon topographic characteristics, distance to historic map documented structures, historic sites, historic roads, and an Indian trail, the property was assessed as having a higher than average potential for encountering historic sites. The field testing included the excavation of shovel tests at 15 meter intervals across the project area. No prehistoric or historic artifacts or features were encountered on the golf drive range (SW section) or the maintenance area (NE section). A Native American site was encountered on the northwest section consisting of 7 artifacts of quartz and black/olive green glass, flakes and small tools in 7 positive ST's.

No further work was recommended at the golf drive range (SW section) or the maintenance area (NE section). However a Phase II intensive testing was recommended and implemented on the North-West Section of the project area (near the bluff overlooking the Long Island Sound). Based upon these results the project site has no research value that would make it eligible for the historic registers. Therefore no further work is recommended and no mitigation required.

3.5.3 Proposed Mitigation

- The Summary and Conclusions of the Phase I and II indicated the following: Based upon these results the project site has no research value that would make it eligible for the historic registers. Therefore no further work is recommended and no mitigation required.

SECTION 4.0

OTHER REQUIRED SECTIONS

4.0 OTHER REQUIRED SECTIONS

4.1 Cumulative Impacts

This subsection analyzes the impacts of other projects in the area whose impacts, in conjunction with those of the proposed project, may result in impacts that are greater than the individual impacts from each project. The Town of Huntington and the Town of Smithtown were contacted to obtain information on any planned projects in the area. At the time this study was conducted, it was determined that there were no significant planned projects in the vicinity of the proposed project.

There has been a proposed subdivision on the Town Planning Board Agenda for many years known as Roberg Estates, located approximately one (1) mile southwest of the subject site on the north side Norwood Road, 215 feet east of Sound Court in Northport. At their September 28, 2016 meeting the Planning Board's approved an extension of filing time for the 8th time to February 24, 2017. This project was determined to be too distant from the subject site to have a significant combined effect in consideration of the proposed project.

A 3.75-acre tract at 1064 Fort Salonga Road, southeast of the intersection of Makamah Road, Fort Salonga, commonly referred to as the Tanenbaum property had been proposed for a subdivision. However, it was nominated by neighbors for open space acquisition and in August of 2016, the Town took title of the property to be maintained as a passive park with trails. According to the Town web site, the cost for acquisition was $897,500.

Therefore, no cumulative impacts related to traffic or other resources is expected to occur with the proposed project. All the intersections studied are projected to continue operating at No Build LOS during the weekday AM, PM and Saturday midday peak hours with the construction of the proposed senior housing development with minimal increase in delay with the exception of Fort Salonga Road (NYS 25A) at Makamah Road.

The visual character of the project site and environs is suburban-residential-recreational developed land and passive parkland. Overall, the Project Site's visual character would change from that of a membership only golf club to a mix of residential and club. The proposed project involves a change of zone from the site's current R-40 residential zoning to R-OSC, Residence-Open Space Cluster District zoning in order to implement land use policies set forth in Town Code specific to the conservation and preservation of open space and the support of private recreational endeavors. The proposed project would locate 110 premium residential units [108 duplex senior townhomes to be located in 54 structures and two (2) detached senior single family units] in clustered areas of the site for preserving open space. The type of housing offered will help to diversify the housing in the area. Single-family townhome residential development is a prevalent type of housing in the Town of Huntington; however, it is not noted in the immediate area. The proposed project will add to the housing diversity of the area. The central portion of the site would remain a golf course, resulting in little overall impact to views. The addition of single-family townhomes that conforms to the intent of R–OSC zoning, land use and character of the community, and which incorporates site specific design measures for mitigating impacts,

protection of wetlands, retention of 90% open space, erosion controls, connection to public water, fully conforming advanced sanitary systems as well as appropriately scaled building envelopes and resultant homes, may be considered an appropriate addition to the neighborhood.

4.2 Adverse Impacts That Cannot Be Avoided

Implementation of the proposed project may result in potential short and/or long term impacts. Short term impacts may include minor erosion of exposed on-site soils and increased traffic, dust, and noise due to construction activities. These activities are discussed further in **Section 4.6** below. Mitigation measures previously discussed in this VDEIS would reduce many of these impacts to a point where they are minor and acceptable in nature.

Long-term impacts that cannot be fully mitigated include modification of site topography and vegetation; altered drainage patterns and increased energy and water consumption. However, required erosion controls will stabilize soils; replanting will mitigate changes in habitat and visual resources; the collection, treatment and recharge systems will contain all storm and wastewater and water and energy capacity is available. Further, it is noted that these impacts would also occur, and likely to a greater extent, if the project site were developed under current zoning.

4.3 Irreversible and Irretrievable Commitment of Resources

The proposed 110-unit residential cluster-open space recreational development would preclude other uses of the property. Certain resources related to the construction aspects of the development (including the future build-out of the residential units) would be committed. These resources include, but are not limited to, concrete, asphalt, lumber and topsoil. Mechanical equipment resources would be committed to assist personnel in the construction at the subject property. The operation of construction equipment will require electricity, water resources and fossil fuels. Furthermore, the construction phase of the proposed project would require the commitment of manpower resources, as well as time.

4.4 Growth-Inducing Aspects

Growth-inducing aspects are generally described as the long-term secondary effects of the proposed action. The creation of 110 single-family residential town homes is not expected to create a significant increase in the demand for additional commercial or institutional resources within the Town of Huntington or the surrounding area. Although a minor increase in local population would result, the project will significantly increase taxes generated by the site, resulting in a substantial rise in revenues distributed to each taxing jurisdiction. At full build-out, the project is projected to generate approximately $1.7 million in annual taxes. When combined with the existing taxes generated by the golf course, total tax revenue is projected to total over $1.89 million per year.

The proposed project will utilize individual on-site advanced sanitary systems to accommodate sanitary waste generated by the future residences, such that the proposed action would not require or result in the expansion of any existing, or creation of any new sewer district.

With regard to traffic growth, no off-site roadway expansion will be required. Thus, the proposed action will not create the need for any changes to the roadway infrastructure in the vicinity of the site. Since new roadway infrastructure will not be required, growth inducement is not expected to result. Since the proposed project is age-restricted to residents 55 years and older, it is not anticipated that it will generate any school-aged children. It is estimated that the school district will levy over $1.2 million in taxes from the proposed project, without the district incurring costs associated with an increased enrollment. This net revenue could ease the district's need to tap into additional fund balances, reduce their financial burden, and could also help alleviate an increased burden on other taxpayers throughout the district. Therefore, no expansion of public educational facilities would be expected.

It is not anticipated that the proposed project would have a significant adverse impact on the patrol responsibilities of the SCPD for security/safety purposes. While the potential need for police services to the site would be increased by the addition of residences, this increase would not in itself be a significant added burden on patrol activities, as this use does not generate much potential need for response.

Similar to police protection, the proposed project would not have a significant adverse impact on the Northport Fire Department (NFD). The project would incrementally increase the potential need for fire protective services, though this increased potential need would not in itself be a significant added burden on the department. This is due to the projects adherence to the NYS Fire Code in construction, and the anticipated use of fire-resistant building materials and smoke/fire alarms and detectors.

Based upon the above analysis, the proposed action is not expected to result in significant growth- inducing impacts in the Town of Huntington.

4.5 Use and Conservation of Energy

The proposed action would create 110 town homes that would represent a moderate incremental increase in demand for energy resources. It is expected that electric supplies would be provided by PSEG Long Island and home heating by natural gas supplies from National Grid, resulting in the consumption of energy resources. It is expected that the incorporation of energy-efficient elements into the construction of the individual residences would be as proposed in the future, and, at minimum, in accordance with the energy efficiency requirements set forth in New York State Building Code. It is expected that adequate energy supplies would be available to the subject property, and that no significant adverse energy-related impacts would result from implementation of the proposed action.

4.6 Construction-Related Impacts

Construction impacts are short-term, intermittent in nature, and largely contained on site, and would cease when construction was completed.

Clearing and grading of the property could pose the potential for soil erosion and dust. Nine (9) of the twelve (12) of the soil types present on the property pose "severe" limitations for development due to steep slopes, high water table, slow permeability and a sandy surface layer. It should be noted that the area of the property proposed for development is currently occupied by the existing golf course and amenities and has been previously graded and stabilized for this use. Any potential impacts that may occur with respect to steep slopes will be reduced by observation of sound grading principals and maintaining slopes with a suitable angle of reposeAn extensive erosion control plan, including silt fences, hay bales and erosion control ground cover, would minimize erosion, dust and runoff during construction. The proposed erosion control measures are provided in **Section 1.4**.

Site remediation activities will be performed to address the issues discovered during the Limited Phase II ESA (see **Appendix D-2**). Removed soils will be transported by a licensed waste hauler to an appropriate facility for disposal. All remediation activities will be coordinated with the SCDHS to ensure that appropriate methods and procedures are utilized to insure that all impacted materials are removed in compliance with their requirements and standards. Given this oversight, no significant adverse impacts are anticipated with respect to soils due to past site uses or existing contamination conditions

Solid Waste would be generated during construction. Wastes that are not being reused or recycled would be handled in accordance with all local, state and federal regulations. Noise and vibration would be generate during construction from construction and worker traffic, heavy equipment operation and delivery vehicles. Construction hours will be limited in accordance with Town zoning and applicable requirements.

SECTION 5.0

ALTERNATIVES CONSIDERED

5.0 ALTERNATIVES

SEQRA requires the consideration of alternatives to the proposed project. Alternatives should represent reasonable and feasible land use, technology and other options to the proposed project that would achieve the applicant's objectives and remain within the applicant's capabilities. The purpose of this analysis is to determine the merits of the proposed project as compared to those of other possible uses, sites and technologies that would also achieve the applicant's objectives and potentially reduce environmental impacts. The discussion and analysis of the alternatives should be conducted at a level of detail sufficient to allow for this informed comparison, to be conducted by the decision-making agencies. Alternative 1 is the "No Action" alternative, which is required by SEQRA and is intended to represent site conditions if the proposed project is not implemented. For the subject application, the following alternatives were evaluated:

- **Alternative 1: No Action** - assumes that the land use, zoning and condition of the site as it currently exists remain unchanged; no site development occurs.
- **Alternative 2: As-of-Right Subdivision** - assumes that the project site is redeveloped under its existing R-40 zoning with a 103-lot subdivision that conforms to all applicable zoning and planning requirements and standards. The map on which this analysis is based (**Town Zoning [R-40 Res] Yield Map)** is contained in a pouch at the back of this document.

Table 5-1 compares the site and development characteristics and impacts of the proposed project and those of the two alternatives considered herein.

5.1 Alternative 1: No Action

5.1.1 Description of Alternative 1

This alternative anticipates that the proposed project is not implemented, so that the zoning of the site remains R-40, and the existing condition, use and activities on the property remain unchanged. It should be noted that, under this scenario, the subject site would retain the potential for re-development, in accordance with its R-40 zoning.

5.1.2 Comparison of Impacts vs. the Proposed Project, Alternative 1

The purpose of the "No Action" alternative is to set the baseline of the existing conditions that characterize the project site, against which the corresponding conditions of the other alternative scenarios can be compared to determine the impacts associated with those other potential uses of the site. Strictly speaking, then, there would be no impacts associated with the No Action alternative, only a set of conditions and characteristics that are described, discussed and analyzed in detail in Sections 2.0 and 3.0 of this document.

TABLE 5-1
SITE AND PROJECT CHARACTERISTICS
Proposed Project and Alternatives 1 & 2

Parameter	Proposed Project	Alternative 1: No Action	Alternative 2: As-of-Right Subdivision
Use	Residential & Recreation (golf course)	Recreation (golf course)	Residential & Parkland
Yield	110 senior units & golf course	Golf course (145.32 acres)	103 lot subdivision (124.60 acres) & Parkland (20.72 acres)
Zoning	R-OSC	R-40	R-40
Wastewater Treatment System	Enhanced Septic	Septic	Septic
Coverages (acres)**:**	---	---	---
Buildings/Impervious	14.41	7.16	16.68
Unvegetated	1.32	1.77	0
Ponds & Recharge Basins	3.49	3.20	11.16
Wetlands	0.50	0.50	0.50
Beach & Tidal Waters	7.46	7.46	7.46
Bluff	2.50	2.50	2.50
Natural	16.36	29.35	83.38 (1)
Landscaped	99.28	93.38	23.64
Fertilized Landscaping	*28.02*	*27.91*	*23.64*
Non-fertilized Landscaping	*71.26*	*65.47*	*0*
Trip Generation (vph)**:**	---	---	---
Weekday AM Peak Hour	109/146 (2)	37	82
Weekday PM Peak Hour	62/115 (2)	53	108
Saturday Midday Peak Hour	62/145 (2)	83	100
Water Resources:	---	---	---
Domestic Use/Wastewater (gpd)	37,250	3,300	30,900
Total Water Use (gpd)	101,098 (3)	67,148 (3)	59,037 (4)
Recharge Volume (MGY) (5)	80.40	63.82	79.13
Nitrate Concentration (mg/l) (5)	2.65	1.92	4.03
Miscellaneous:	---	---	---
Total Residents (capita) (6)	165	0	456
Tax Revenues ($/year)	1,894,524	198,062	1,985,633
School Tax Revenues ($/year)	1,249,991	130,679	1,310,103
School-Age Children (capita)	0 (7)	0	156 (8)
Solid Waste (lbs/day) (9)	843	265	2,280

(1) Includes prior golf course landscaping left in residential lots to undergo natural succession.
(2) As: trips generated by senior residences/trips generated by senior residences plus golf course trips.
(3) Based on actual usage for golf course irrigation, as reported to NYSDEC: 63,848 gpd plus projected domestic use.
(4) Includes landscape irrigation of 16 inches/year, or 28,137 gpd averaged over the entire year.
(5) Based on SONIR model estimate provided in **Appendices E-2, E-3 & E-4**.
(6) Assuming 1.5 capita/senior unit and 4.43 capita/unit for subdivision units.
(7) Since the proposed project is age-restricted, it is not anticipated that it will generate any school-aged children.
(8) Assuming 1.51 school-age children/unit.
(9) Assuming 3.5 lbs/day/capita/senior unit, 0.013 lbs/SF/day for clubhouse, and 5 lbs/day/capita for subdivision units.

Geological Resources
The No Action alternative would not change the acreages of the existing land cover types currently found on the site. Therefore, as no construction would occur, there would be no impacts to the site's topographic or soil resources from excavation, clearing or grading.

Water Resources
The hydrology of the site would remain the same, so that the existing volume of water would be recharged annually on the site, and the amount of nitrogen entering the groundwater regime would not change, so that the concentration of nitrogen in recharge generated on the site would also not change from the existing value.

Ecological Resources
In this scenario, no impacts to the acreages or conditions of the habitat areas on the site would occur, so there would be no impacts to vegetation or the wildlife species that that vegetation supports.

Land Use, Zoning & Plans
As the existing land use and zoning of the site would not change in this scenario, the patterns of land use and zoning in the vicinity would not change. The sites' existing level of conformance to the recommendations of the various applicable land use plans would likewise not be affected.

Community Character
The character of the site, as defined by its visual appearances and noise and lighting characteristics, would remain unchanged under the No Action scenario, so that no changes to the existing impacts on these resources would occur.

Community Services
In regard to community services, the site's condition would continue to warrant oversight on the part of the SCPD and the Northport Fire Department. As the golf course operation would continue unchanged in the No Action scenario, its existing use of an on-site well to provide irrigation water would not change. For domestic water supply, the existing demand on the SCWA would continue unchanged. As there are no residents on the property, there would continue to be no impact on enrollment of the Northport-East Northport UFSD. Finally, as there would be no changes in the current activities at, or the facilities on the project site, there would be no impacts on the current levels of solid waste generation, removal or disposal, or energy consumption.

Transportation Resources
The existing trip generation rates and directional distributions associated with the golf course would not change in this scenario, so that none of the existing LOSs at local intersections would be changed, and no changes in the levels of usage on local roadways would occur.

Cultural Resources
Investigation has determined that the property has no known or suspected cultural resources (whether prehistoric or historic; see **Section 3.5.1**); as a result, no impacts to such resources

could or would currently occur. As the No Action scenario would not change the condition of the site, it neither could nor would result in any impacts to cultural resources.

5.2 Alternative 2: As-of-Right Subdivision

5.2.1 Description of Alternative 2

This alternative assumes that the proposed project is not implemented, and that re-development of the site occurs based on its existing R-40 zoning. Such an assumption produces (see **Attachment 1**; Town Zoning [R-40] Yield Map, *in a pouch at the back of this document*) a subdivision of 103 lots, with a substantial Parkland dedication of the entire northern portion of the property, encompassing the shoreline/beach/bluff area.

There would be four vehicle access points to the portion of the site north of Breeze Hill Road, and one vehicle access into the portion of the site south of Breeze Hill Road. For the former, Thornton Drive would be extended through the site to terminate at Breeze Hill Road, and Mystic Lane would be extended through the site to connect to Revere Lane. For the latter portion of the site, a new access would come off Breeze Hill Road, and terminate with the site in a cul de sac.

The lots would vary in size, from 1.00 acres to 1.87 acres in area, with an average lot size of 1.06 acres (46,224 SF). There would be two recharge basins, totaling 7.96 acres, to handle road runoff. As noted above the entire northern portion of the property, 20.72 acres, would be a designated Parkland, encompassing the shoreline, beach and bluff area.

For calculation purposes, each lot is assumed to have a patio of 300 SF, a 15-foot wide driveway (50 feet in length, matching the building setback of the R-40 zone), and a 2-1/2 story, 5-bedroom house having a 3,000 SF footprint. These values imply a total of 456 residents, of which 156 would be school-age children, all of whom would, conservatively, enroll in the Northport-East Northport UFSD.

In order to ascertain the amount of natural surfaces on the site in Alternative 2, the coverages for the known quantities (e.g., building footprint, roads, patios, driveways, ponds and recharge basins, wetlands, beach/tidal waters and bluffs) are subtracted from the Total Site acreage. Then, assuming that an average of 10,000 SF of each lot would be maintained landscaping (23.65 acres), the remainder would represent the acreage within the lots in either natural surfaces from the site in its current use, or those now-vegetated portions of the golf course that would remain undisturbed to undergo natural succession. As per the values in **Table 5-1**, this latter value is 83.38 acres.

In conformance with SCSC Article 6, all wastewater generated in the homes would be treated and recharged on-site, in septic systems located on each lot. Also per Article 6, each home is expected to generate 300 gpd of sanitary wastewater, so consumption of water is also assumed to be 300 gpd, or a total of 30,900 gpd for the residences. Assuming that the landscaped area on each lot is irrigated at a rate of 16 inches annually, the total irrigation demand is 28,137 gpd, for

a total water consumption of 59,037 gpd. All water on the site would be supplied by the SCWA; the existing golf course irrigation well would be closed and abandoned.

5.2.2 Comparison of Impacts vs. the Proposed Project, Alternative 2

Geological Resources

Like the proposed project, Alternative 2 would change the acreages of the land cover types currently found on the site, particularly increasing the amount of impervious coverage, at the expense of vegetated surfaces. More specifically, Alternative 2 would increase impervious surfaces to 16.68 acres, where the proposed project would increase this coverage to 14.41 acres. Therefore, Alternative 2 would produce greater impacts to the site's topographic and soil resources from clearing, grading and excavations for building foundations, roads, utility supply lines and individual home service connections than the proposed project. Generally, Alternative 2 would result in roughly similar acreages of vegetated surfaces as the proposed project, though some of these vegetated surfaces would be in the form of recharge basins, where the proposed project would not include such features.

Alternative 2 would retain the same acreages and configurations of ponds, wetlands, bluffs, and beach/tidal water areas as the proposed project.

Like the No Action alternative, the recommended soil remediation measures presented in the Limited Phase II ESA and described in **Section 2.2.1** would be undertaken.

Water Resources

As noted above, each of the 103 lots in this scenario would be built with a simple septic tank/leaching pool system to treat and recharge all wastewater generated in the home on that lot. Thus, as the proposed project includes installation of enhanced sanitary treatment systems, the impacts of Alternative 2 on groundwater quality would be greater than that of the proposed project.

In comparison to the proposed project, Alternative 2 would recharge slightly less water to the groundwater table. That is, Alternative 2 would use less water for domestic purposes than the proposed project and would use less water for irrigation than the proposed project, but the greater amount of impervious surfaces in Alternative 2 would contribute a greater amount of recharge than the proposed project. With respect to the concentration of nitrogen in this recharge volume, the simple septic systems of Alternative 2 would contribute a higher amount of nitrogen in treated wastewater than the enhanced wastewater systems of the proposed project. Generally, a simple septic system does not operate as efficiently in removing nitrogen from wastewater as an enhanced septic system of the type proposed. As a result, this alterative would have a great impact on water resources as compared to the proposed project.

Ecological Resources

The data in **Table 5-1** indicates that there would be more clearing of now-vegetated surfaces associated with Alternative 2 than for the proposed project. This is due to the greater acreages for paved roadways, homesites, patios and driveways in Alternative 2 than in the proposed

project. Additionally, Alternative 2 includes two new recharge basins (totaling 7.96 acres), which are not included in the drainage system design of the proposed project.

Generally, the acreage of non-maintained vegetation is a major (though not the only) factor related to the potential value of such surfaces as habitat for wildlife, so that the less impact on such areas the less would be the potential adverse impact on habitat and the on the wildlife that depends on that habitat. The data in **Table 5-1** shows that the golf course in the proposed project would include an estimated 99.28 acres of maintained landscaped surfaces, whereas Alternative 2 would have only 23.64 aces of maintained landscaping. Conversely, the proposed project would have 16.36 acres of non-maintained vegetated surfaces, while Alternative 2 would have 83.38 acres of combined retained forest and prior golf course landscaped surfaces within the new residential lots, to be left undisturbed and allowed to undergo natural succession.

This alternative would result in widespread development of the site, use of existing natural areas, and given the subdivision would not maximize the retention of contiguous open space. This alternative would also introduce domestic pets that would interfere with wildlife activity on the site. It is expected that on balance, Alternative 2 will have a greater impact on ecological resources than the proposed project.

<u>Land Use, Zoning and Plans</u>
Both the proposed project and Alternative 2 would change the land use classification of the site; the proposed project would add "Senior Residence" to the existing "Recreation" category, whereas Alternative 2 would remove "Recreation" altogether, and change the land use of the site to "Residence." As the pattern of land uses in the vicinity is dominated by the "Residence" category, Alternative 2 would not have an adverse impact from the standpoint of use. However, this alternative would remove the existing golf course which is a dominant aspect of the land use character of the area. Consequently, from a land use standpoint, removal of the golf course and replacement with a single family residential development would have an impact on land use character. The proposed project will retain the golf course and introduce duplex senior housing units that are similar in size to a single large residence and therefore will mitigate impacts associated with the additional residential use. The proposed duplex units are necessary to allow the golf course to be retained and provide consistency with the legislative intent of the R-OSC district.

Like the proposed project, Alternative 2 would result in re-development of project site. However, the nature of that re-development would be such that the general intensity of site use and activities associated with that re-development would be somewhat greater for Alternative 2 than for the proposed project, in that:

1. Alternative 2 would physically impact a greater acreage of the site, to be distributed over the entire site, than would be the case for the proposed project;
2. Alternative 2 would remove an existing land use from the site entirely (the Indian Hills golf course, a recreational land use), rather than retaining and improving upon it, as in the proposed project;
3. Alternative 2 would provide a significantly greater number of site residents than the proposed project;

4. Alternative 2 would produce a substantial number of school-age children (which would not occur under the proposed project); and
5. Alternative 2 involves residences that would produce residents having a full range of ages, whereas the proposed project would produce only senior (55 years and above) residents.

In consideration of the above factors, it may be concluded that the impacts on the land use characteristics of the site and vicinity would be greater if Alternative 2 were implemented, as compared to those expected if the propose project were built.

Unlike the proposed project, there would be no change in the zoning of the project site in Alternative 2, so that the zoning pattern in the area would not be impacted.

Unlike the proposed project, Alternative 2 would not conform to the Parks, Recreation & Conservation Land use of the site as recommended in the Town Comprehensive Plan Update. Similarly, Alternative 2 would not address the plan's action item agenda goals of providing for a range of housing types for underserved portions of the Town's residents (such as senior citizens), nor would it provide sustainable water resource infrastructure (e.g., the enhanced wastewater treatment systems of the proposed project). Alternative 2 would, however, provide for a substantial open space resource, in the form of a 20.72-acre Parkland, along the site's northern border, abutting Long Island Sound.

Community Character

As defined by visual appearance, general level and intensity of activity on the site, and noise and lighting characteristics, implementing Alternative 2 would impact the character of the site and neighborhood to a greater degree than would be the case for the proposed project. Specifically, there would be a substantially higher number of occupants on the site in Alternative 2 than for the proposed project and including school-age children (who would tend to be noisier than the senior residents of the proposed project). The detached single-family homes of Alternative 2 generate more vehicle trips per unit than the senior units of the proposed project, so that there would be greater impacts to community character from traffic-generation than the proposed project. Finally, the greater amount of road length, driveways and patios would tend to result in greater amounts of lighting (to be dispersed throughout the site) than the proposed project, again with greater adverse impacts on the character of the site and upon the neighborhood.

Community Services

Table 5-1 shows that, like the proposed project, Alternative 2 would substantially increase the amount of taxes generated by the site as compared to its existing condition; Alternative 2 would generate somewhat more tax dollars than the proposed project. For the Northport-East Northport UFSD in particular, the increase in taxes would also be greater than for the proposed project.

Based on the types and amounts of development, it is expected that Alternative 2 would demand more community services than the proposed project, particularly in relation to school services.

Alternative 2 would include roads that would be offered for dedication to the Town for maintenance, whereas those of the proposed project would remain in private ownership, to be maintained privately. As a result, Alternative 2 would a greater adverse impact on the road

maintenance services of the Town, by incrementally increasing the amount of roadway that would be maintained.

With regard to usage of public parks and local recreation facilities, the nature of Alternative 2 is such that its residents would be more likely to use such sites than those of the proposed project (which is designed around a golf course available to the site's residents). This would have an adverse impact on the ability of such facilities to serve its patrons in comparison to the proposed project.

The 103 residences in this scenario would generate an estimated 456 residents, of which about 156 would be school-age children, who would be expected to attend the Northport-East Northport UFSD. These would represent an adverse impact on enrollment of the district (as the schools these students would attend may not have sufficient available classroom space to accommodate them), as well as an adverse impact on the district's expenditures, as the school district taxes generated by the project may not fully offset the increased expenditures necessitated by these additional students. This could require the district to increase its tax rate in order to generate sufficient funds to pay the difference. Such impacts would not occur for the proposed project, a senior residential project that would preclude school-age children as residents. Thus, for the proposed project, all of the school district taxes generated would be available to the Northport-East Northport UFSD with no offsetting increase in expenditures.

Finally, the substantially larger number of site residents in Alternative 2 would generate a substantially larger amount of solid wastes than the proposed project, with a correspondingly greater impact on the solid waste removal and disposal services and facilities of the Town.

Transportation Resources

Both Alternative 2 and the proposed project would increase the number of vehicle trips generated on the project site from the existing number of trips. This is supported by the data in **Table 5-1**. However, the vehicle trips generated by Alternative 2 would be less than those for the proposed project at all peak hours. This would lead to a conclusion that the impacts of these trips on the local roads and intersections would be less for Alternative 2 than for the proposed project. Additionally, Alternative 2 would include a number of new roadways and connections to existing roadways abutting the site, so that Alternative 2 would create three more potential routes for inbound and outbound trips to reach or depart from the site than the proposed project. This means that drivers in Alternative 2 would have more options as to which route to take as compared to the proposed project; the vehicle trips would be more widely distributed under Alternative 2 than the proposed project. This would tend to reduce the potential use of (and, therefore, impacts on) any one particular local road, and therefore the potential impact at any one particular intersection as compared to the proposed project.

As a result of the reduced trip generation and increase in the number of access routes to the site, it is expected that the potential impacts on the local roadways and at the local intersections would be less for Alternative 2 than for the proposed project. However, the proposed project was analyzed in a TIS and impacts were not found to be significant. As a result, the proposed project and Alternative 2 are not substantially different in terms of traffic.

Cultural Resources

The Summary and Conclusions of the Phase I and II indicated the following: Based upon these results the project site has no research value that would make it eligible for the historic registers. Therefore no further work is recommended and no mitigation required. This was based on the proposed project development areas. If Alternative 2 is pursued, additional subsurface testing would

However, it is expected that, if such resources are discerned, they would be properly excavated, removed from the site and curate din an approved manner at a regulated facility. Subsequently, that portion of the project site would be eligible for re-development. Thus, there would be no difference in the potential impact on cultural resources between Alternative 2 and the proposed project.

5.3 Summary and Conclusion

The above general discussions indicate that some of the impacts (both adverse and beneficial) anticipated from the proposed project would be greater than those of Alternative 2, and other impacts would be less than those of Alternative 2. On balance, Alternative 2 will have a greater adverse impact on geology/soils (greater disturbance), water resources (nitrogen load), ecology (greater intensity and spatial use of land and domestic impacts), land use/zoning (removal of recreational use), land use plans (does not advance goals of the plan), community character (loss of the golf course), community services (greater burden and less net tax revenue to school district). For transportation and archaeology, the potential impacts are not substantially different for Alternative 2 as compared to the proposed project.

Alternative 2 is not in keeping with the goals and objectives of the applicant, which is to provide a year-round senior residential community centered on a revitalized, high-quality private golf course that minimizes impact on the site and surrounding community, particularly with regard to water quality, eliminates the potential to generate schoolchildren for the Northport-East Northport UFSD, increases tax revenue, and conforms to the Town Comprehensive Plan Update. Alternative 2 would not achieve the goals of the project sponsor, and as a result, it deviates from the applicants' goals and objectives. Alternative 2 would have a greater impact on the environment than the proposed project, and would not implement the Town's comprehensive planning goals to retain golf recreational use in the Town though use of the R-OSC district zone which was enacted for this specific purpose. As a result, there is no compelling reason to pursue Alternative 2.

SECTION 6.0

REFERENCES

6.0 REFERENCES

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FIGURES

NELSON, POPE & VOORHIS, LLC
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FIGURE 1-1
LOCATION MAP

Source: ESRI Web Mapping Service
Scale: 1 inch = 500 feet

N

The Preserve at Indian Hills Northport

Voluntary Draft EIS

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FIGURE 1-2
AERIAL PHOTOGRAPH

Source: NYSGIS Orthoimagery Program, 2013
Scale: 1 inch = 600 feet

N

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Voluntary Draft EIS

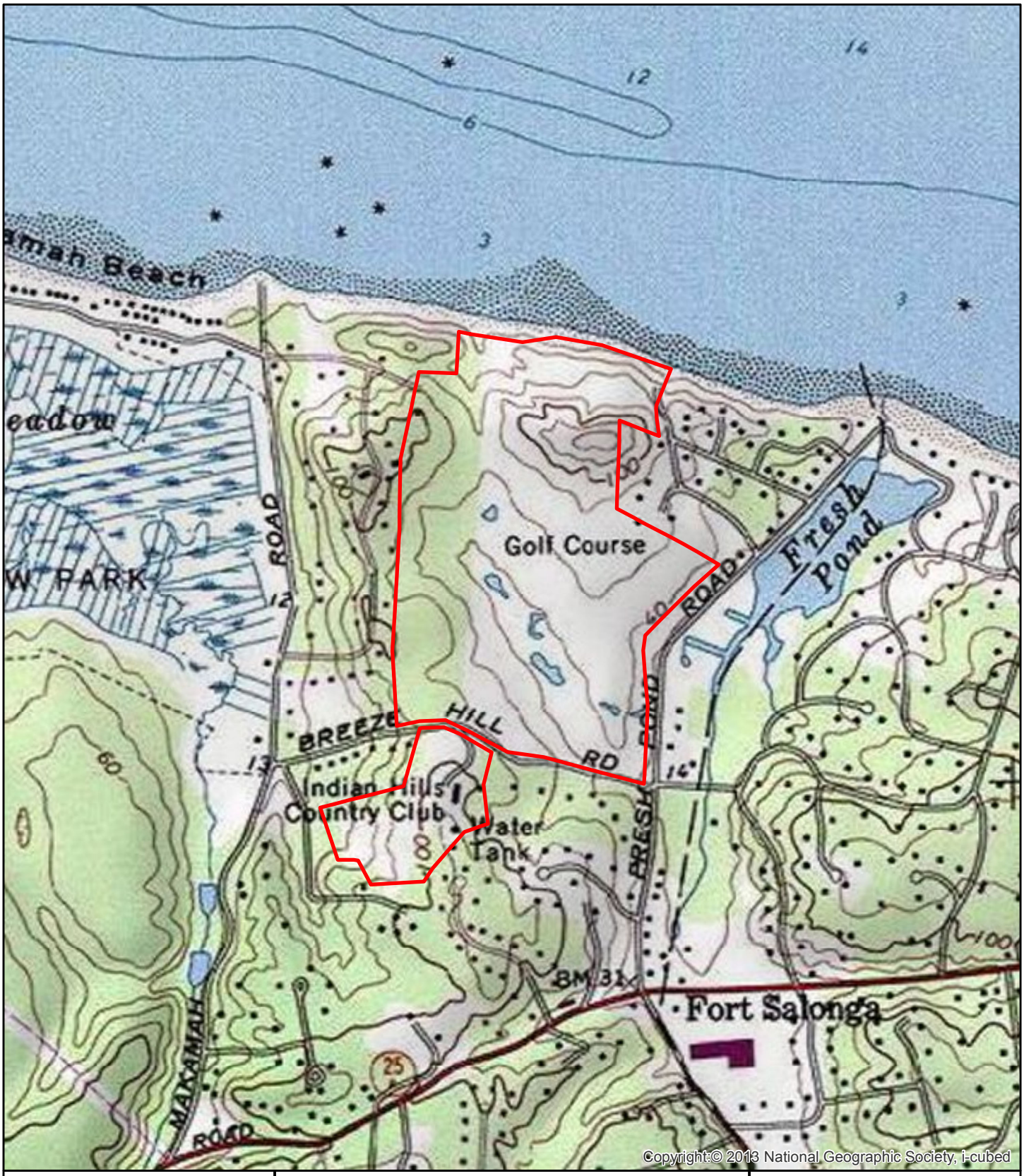

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FIGURE 2-1
TOPOGRAPHIC MAP

Source: USGS Topographic Maps, USGS Northport Quadrangle
Scale: 1 inch = 1,000 feet

N

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Soil	Acres	Name
Bc	2.9	Beaches
Bd	2.6	Berryland mucky sand
CpE	42.1	Carver and Plymouth sands, 15 to 35 percent slopes
CuB	6.4	Cut and fill land, gently sloping
CuC	21.2	Cut and fill land, sloping
Es	4.1	Escarpments
HaB	0.1	Haven loam, 2 to 6 percent slopes
PlB	9.5	Plymouth loamy sand, 3 to 8 percent slopes
Ra	12.4	Raynham loam
RdC	2	Riverhead sandy loam, 8 to 15 percent slopes
SdB	16.4	Scio silt loam, sandy substratum, 2 to 6 percent slopes
Su	15.2	Sudbury sandy loam
W	0.9	Water
Wd	8.4	Walpole sandy loam, coastal lowland, 0 to 3 percent slopes
total:	144.2	

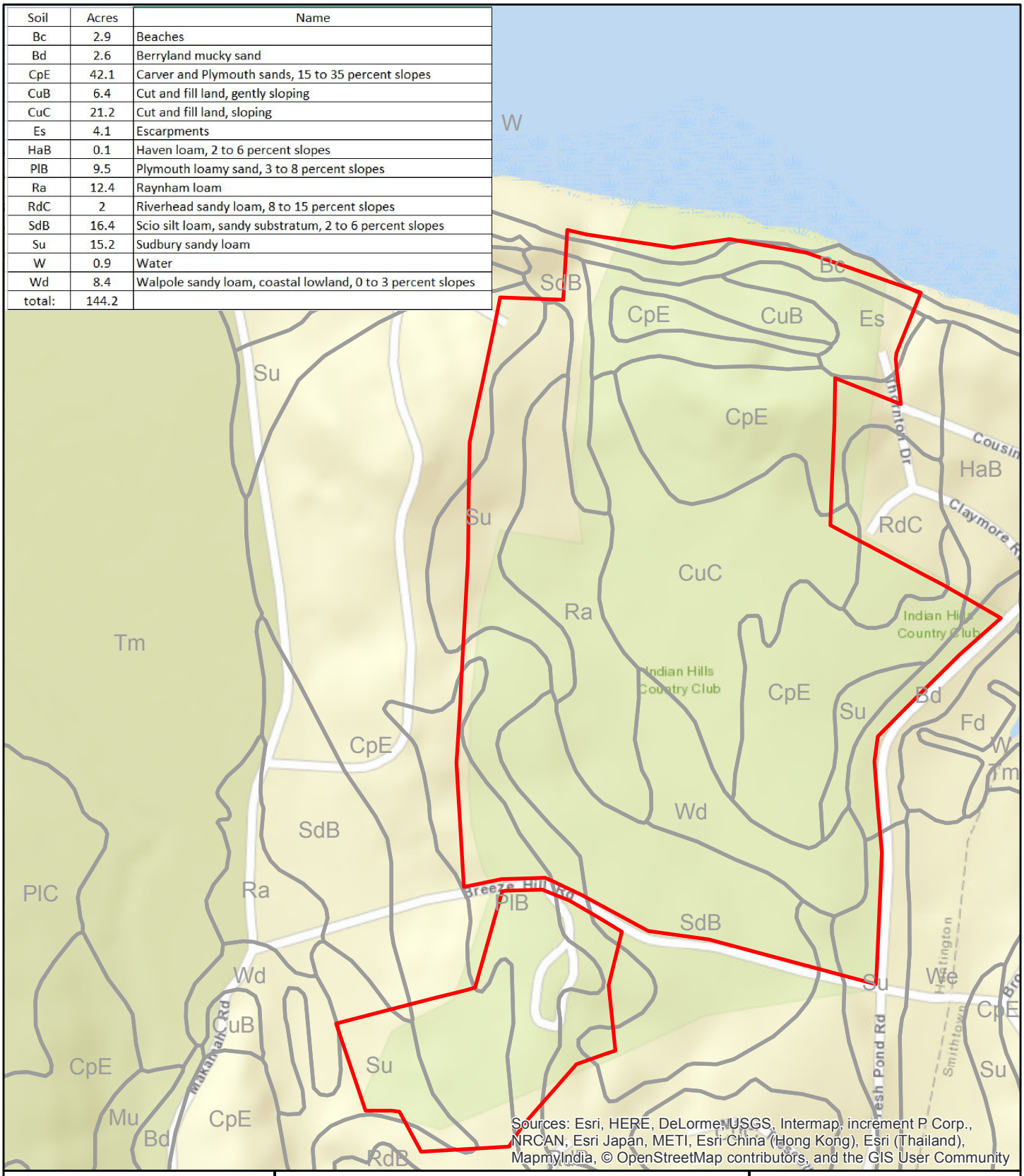

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FIGURE 2-2
SOIL MAP

Source: ESRI Web Mapping Service, NRCS Soils Suffolk County, NY
Scale: 1 inch = 600 feet

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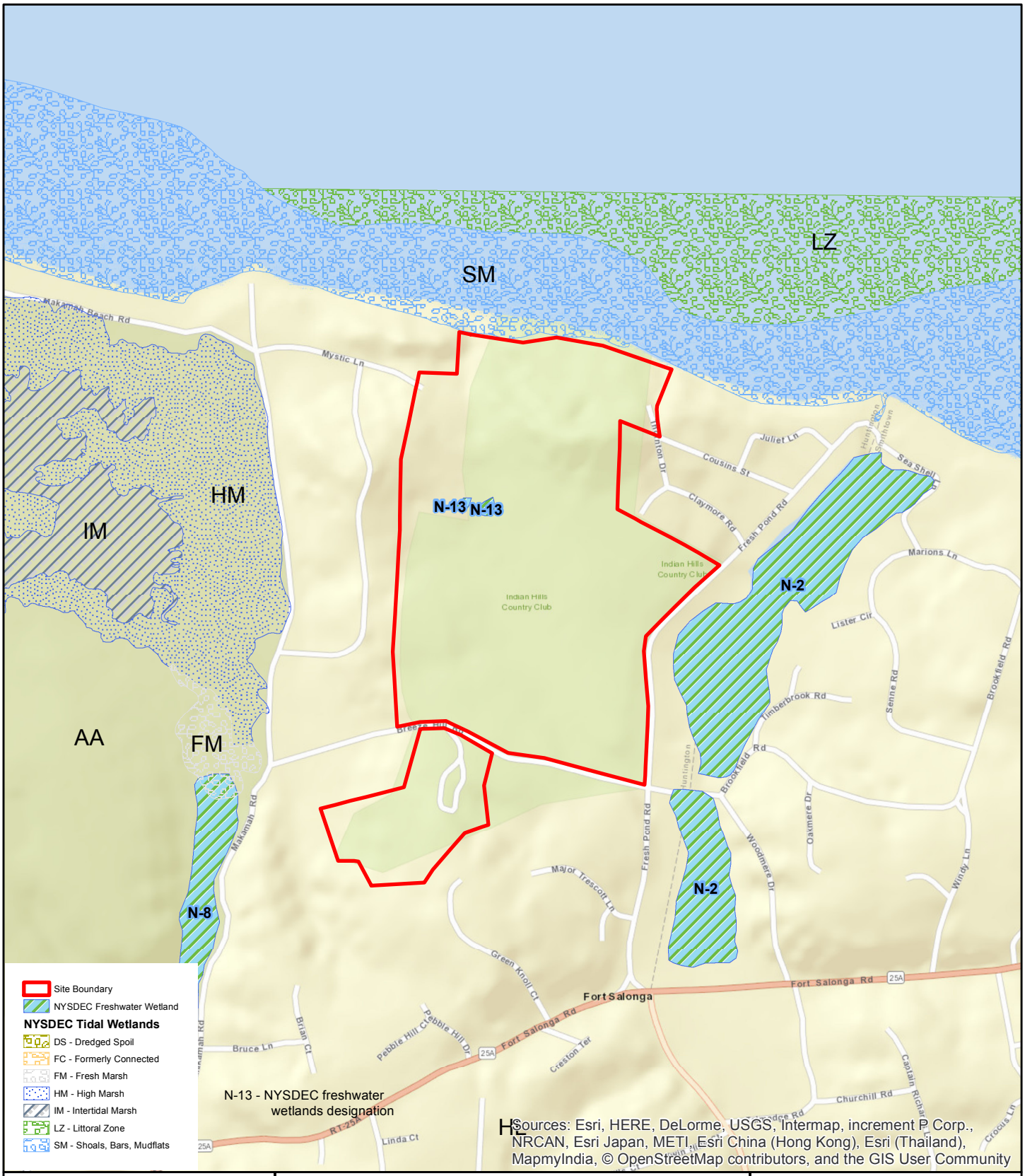

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FIGURE 2-3
NYSDEC
WETLANDS MAP

Source: ESRI Web Mapping Service, NYSDEC Freshwater & Tidal Wetlands Maps
Scale: 1 inch = 1,000 feet

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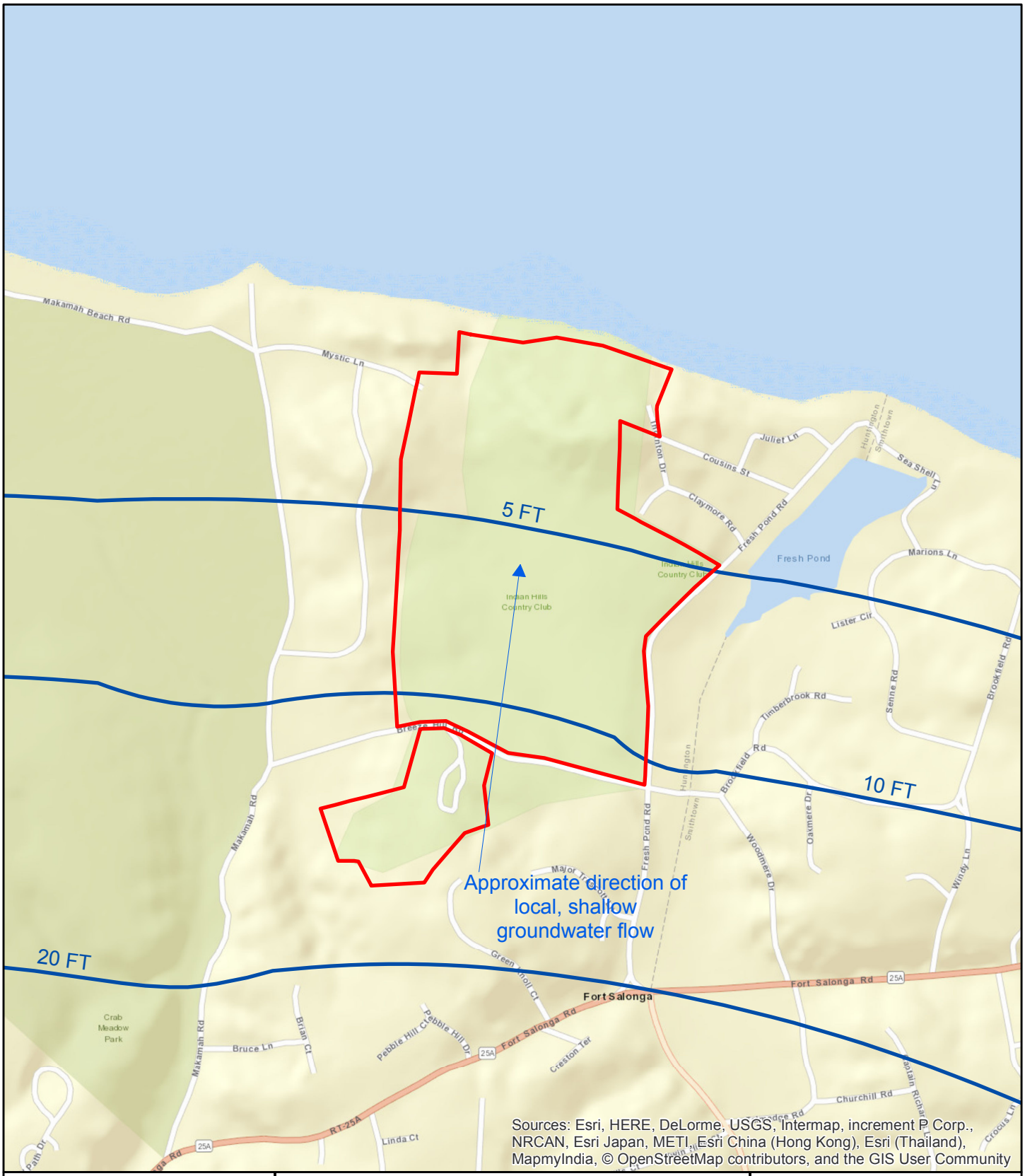

Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

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FIGURE 2-4
WATER TABLE CONTOUR MAP

Source: ESRI Web Mapping Service, USGS Scientific Investigations Map 3326, 2013 data
Scale: 1 inch = 1,000 feet

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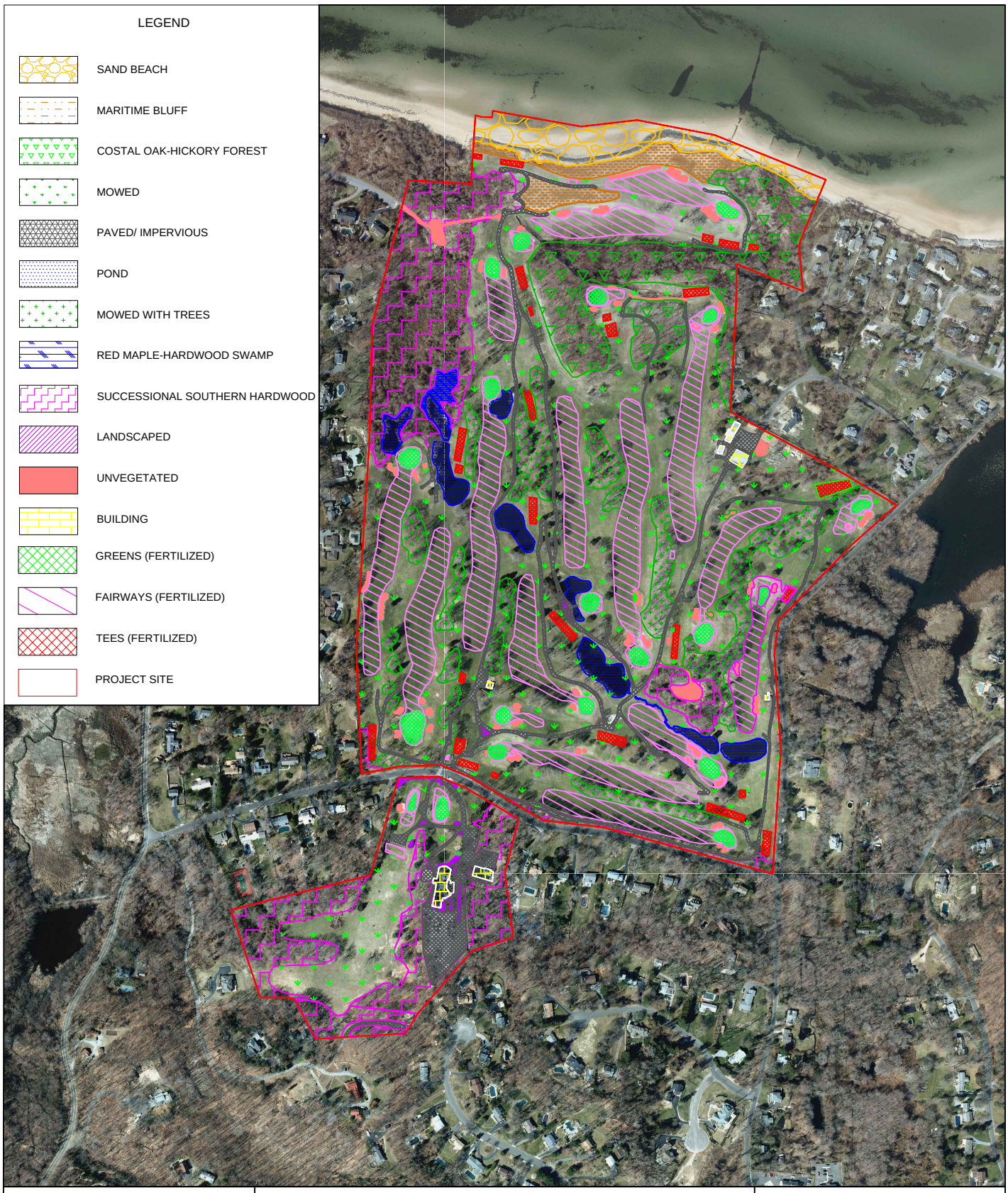

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FIGURE 2-5
HABITAT MAP

Source: NYS Orthoimagery Program 2013
Scale: 1" = 600'

NORTH

The Preserve at
Indian Hills
Northport

Voluntary **Draft** EIS

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FIGURE 3-1
LAND USE MAP

Source: NYS Orthophotos, 2013
Scale: 1 inch = 550 feet

N

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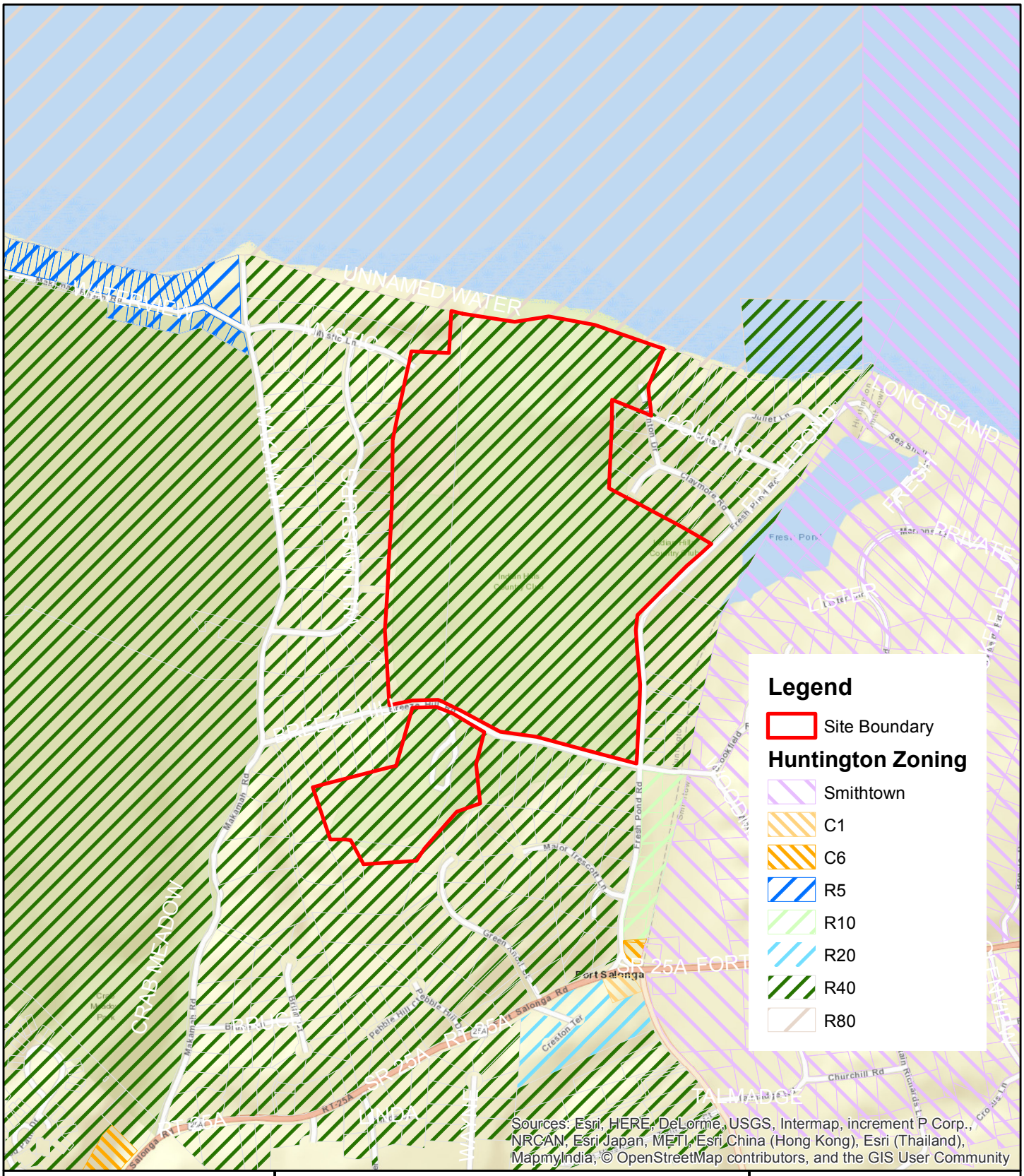

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FIGURE 3-2
ZONING MAP

Source: Huntington Zoning, retrieved Oct 2016, http://geo.huntingtonny.gov/helix/
Scale: 1 inch = 1,000 feet

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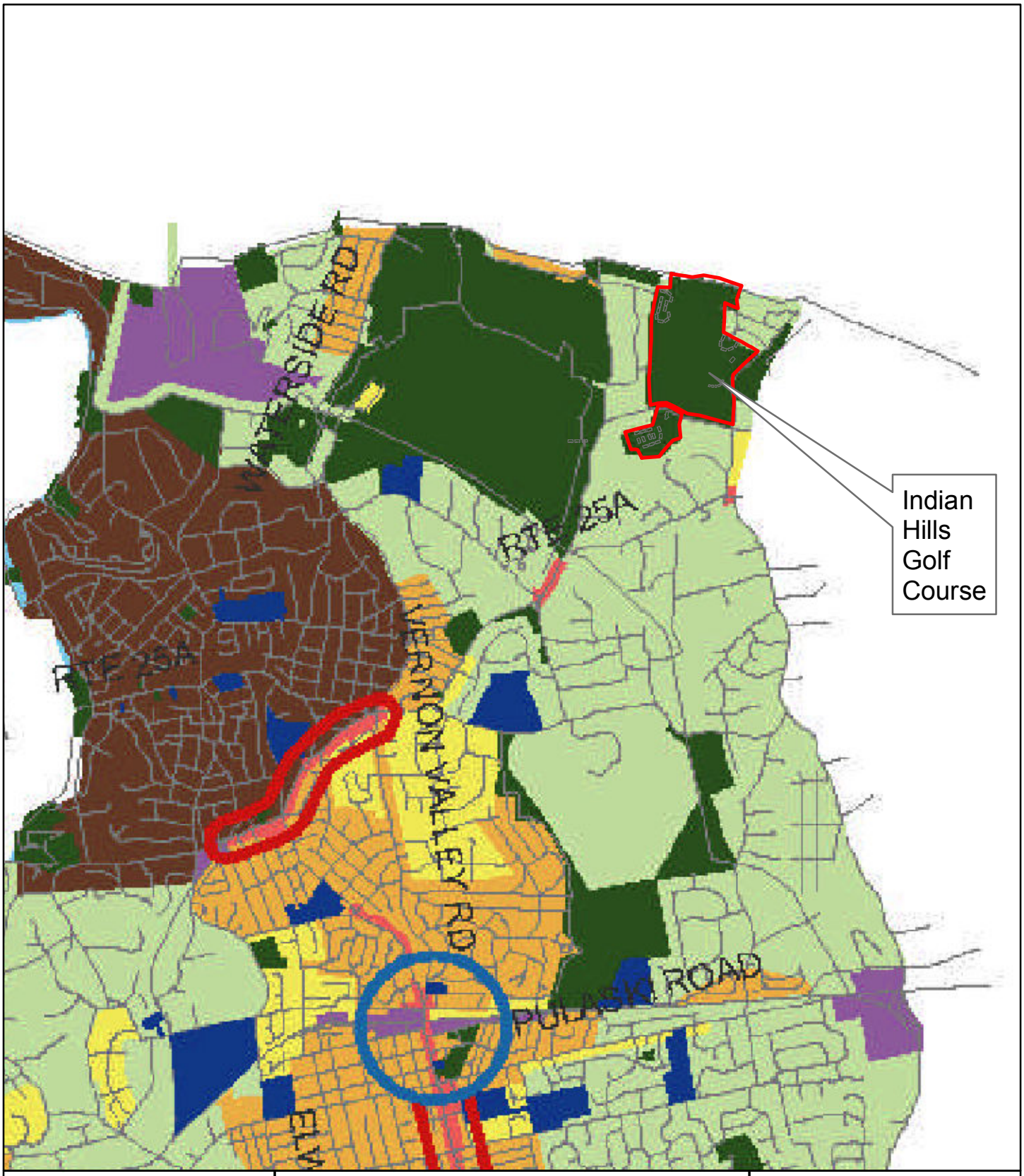

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FIGURE 3-3
GENERALIZED FUTURE LAND USE MAP

Source: ESRI Web Mapping Service; Horizons 2020: Huntington Comprehensive Plan Update
Scale: 1 inch = 3,000 feet

N

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FIGURE 3-4
COMMUNITY SERVICES
SCHOOLS

Source: ESRI Web Mapping Service;
Suffolk County data
Scale: 1 inch = 0.189394 miles

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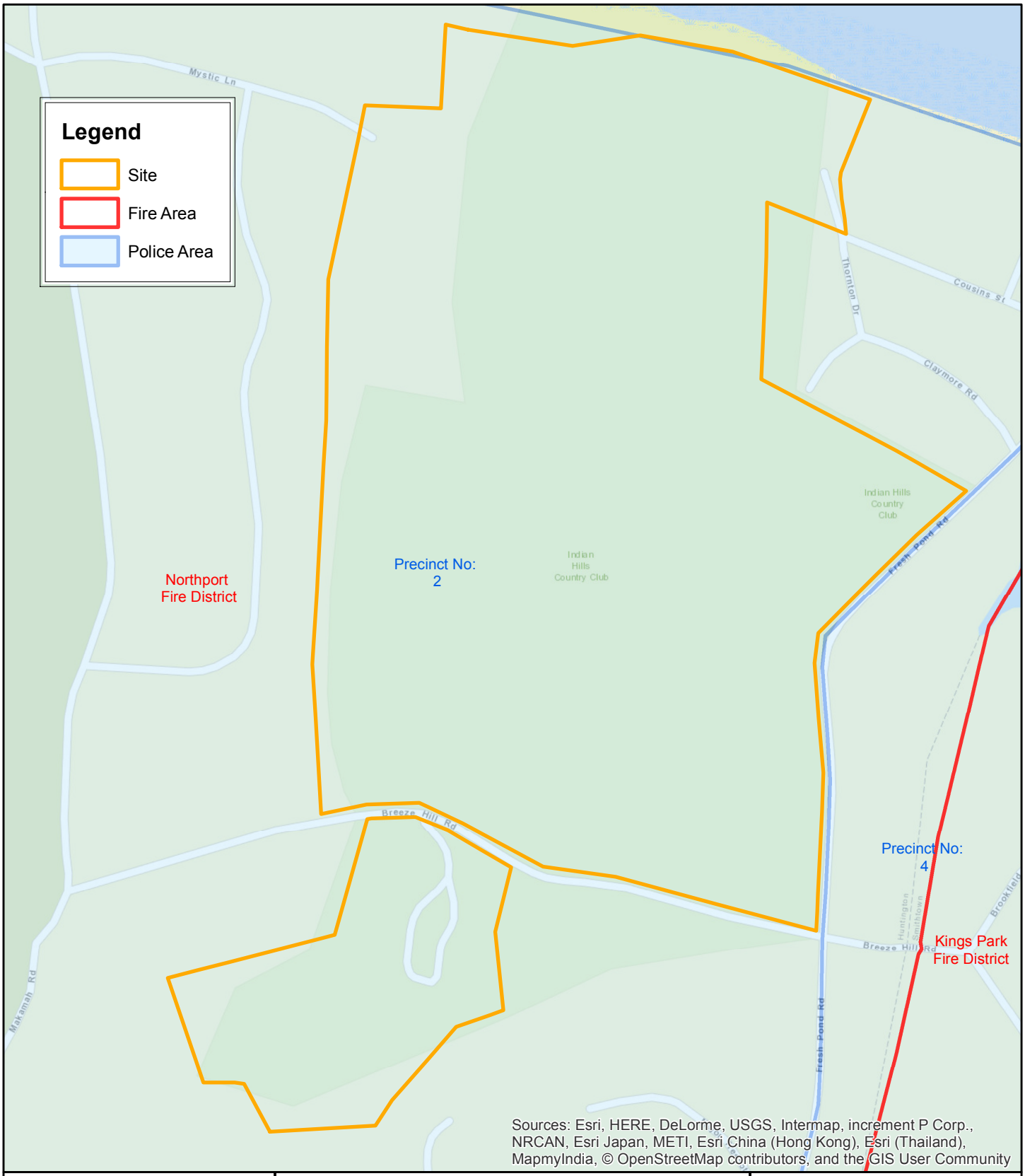

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FIGURE 3-5
COMMUNITY SERVICES
SAFETY

Source: ESRI Web Mapping Service;
Suffolk County data
Scale: 1 inch = 500 feet

N

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FIGURE 3-6
WATER SUPPLY MAP

Source: ESRI Web Mapping Service,Suffolk SWAP dataset
Scale: 1 inch = 2,000 feet

N

The Preserve at Indian Hills Northport

Voluntary Draft EIS

APPENDICES

APPENDIX A

CHANGE OF ZONE APPLICATION & PART I ENVIRONMENTAL ASSESSMENT FORM (EAF)

McCARTHY & REYNOLDS P.C.
Attorneys and Counselors at Law

SEVEN EAST CARVER STREET
HUNTINGTON, NEW YORK 11743
PHONE: (631) 351-4000
FAX: (631) 351-4024
www.mcreylaw.com

MICHAEL L. McCARTHY*
LEE A. REYNOLDS
KELLY A. DANTUONO

January 13, 2016

Via Hand Delivery
Office of the Town Clerk
Town of Huntington
100 Main Street
Huntington, New York 11743
Attention: Honorable Jo-Ann Raia, Town Clerk

Re: The Preserve at Indian Hills, LLC with Town of Huntington
Application for Change of Zone
Premises: 0400-14-1, 2, 0400-15-11, 12
File No. 8230

Dear Jo-Ann:

My office represents The Preserve at Indian Hills, LLC, the applicant for the above referenced matter. Please find transmitted herewith an application for change of zoning classification.

My client is in contract to acquire the Indian Hills Country Club property, bounded on the north by the Long Island sound, and located north of NYS 25A, in the hamlet of Fort Salonga. The subject property is comprised of four separate and distinct tax maps of parcels, with cumulative area of approximately 144 acres. The Preserve at Indian Hills seeks a rezoning of the subject property from its present R -40 One acre Residence District, to the Town of Huntington's R-OSC Open Space Cluster District. In that regard, please find the following items:

1. My clients check in the amount of $29,300.00, representing the application fee.

2. *Original* and nine (9) copies of the application for change of zone, with Rider attached.

3. *Original* and three (3) copies of the Disclosure Affidavits.

McCARTHY & REYNOLDS P.C.
Attorneys and Counselors at Law

4. *Original* and two (2) copies of a Full Environmental Assessment form, dated January 6, 2016.

5. Four (4) copies of Deeds for the premises dated October 30, 1992.

6. Eighteen (18) copies of the survey of the premises, as prepared by O'Connor-Petito, L.L.C, dated December 21, 2015.

7. Eighteen (18) copies of the Conceptual Site Plan as prepared by Nelson & Pope.

8. Eighteen (18) copies of color architecture renderings of the proposed residential units.

9. Eighteen (18) copies of Land Use and Zoning Maps as prepared by Nelson and Pope.

10. Four (4) copies of Covenant and Restrictions dated November 15, 2003.

I would appreciate if you would accept these items for processing. Should you require any additional or further information or documentation to process this application or should you have any questions, comments or concerns as it relates to the contents of the enclosed, please do not hesitate to contact me.

Very truly yours,

MICHAEL L. McCARTHY

MLM/vm

Cc: The Preserve at Indian Hills
Nelson & Pope

\\MLM-LAW-FS1\Data\MLM PC Files\Tsunis, Jim\Indian Hills CC, LLC (8230)\with Town of Huntington\Zone Change\LtrtoTownClerkw.Application 1-8-15.doc

HOLD DOCUMENT UP TO THE LIGHT TO VIEW TRUE WATERMARK

OFFICIAL CHECK

HOLD DOCUMENT UP TO THE LIGHT TO VIEW TRUE WATERMARK

BankUnited

62-20/311

400953604

REMITTER: INDIAN HILLS CC, LLC

BR: 0852
ORIGINATOR: 8766
DATE: 1/7/2016

Pay to the order of TOWN OF HUNTINGTON

$ 29,300.00

Security Features Details on Back.

EXACTLY ***Twenty Nine Thousand Three Hundred Dollars and No Cents***

Citibank, N.A.
One Penn's Way
New Castle DE 19720

⑈0400953604⑈ ⑆031100209⑆ 38796518⑈

ZONE CHANGE APPLICATION

COVENANT MODIFICATIONS & CLARIFICATIONS APPLICATION

TOWN OF HUNTINGTON

Application Name: The Preserve at Indian Hills, LLC

Suffolk County Tax Map Numbers: 0400-14-1 and 2, 0400-15-11 and 12

Location of Site: 21 Breeze Hill Road, Northport, New Yorrk 11768, between Makamah Road and Fresh Pond Road.

Current Zoning: R-40 Residence District

Proposed Zoning: R-OSC Open Space Cluster
(if applicable)

Proposed Land Use: See rider attached hereto.

Property Size: 144 acres

	APPLICANT	PROPERTY OWNER
Name(s)	The Preserve at Indian Hills, LLC	IHCC, Inc.
Address	1 Rabro Drive, Suite 100 Hauppauge, New York 11788	21 Breeze Hill Road Northport, New York 11768
Phone		
E-Mail		
Fax		

The applicant's interest in this property is (circle all that apply):

owner ✓contract vendee lessee other (describe below)

	ATTORNEY	PLAN PREPARER
Name(s)	Michael L. McCarthy	
	McCarthy & Reynolds P.C.	
Address	Seven East Carver Street	
	Huntington, New York 11743	
Phone	631-351-4000	
E-mail	MMccarthy@mcreylaw.com	
Fax	631-351-4024	

The primary contact person for all communications from the Town shall be (circle one):

applicant ✓attorney plan preparer other (describe below)

_____

The property has existing deed restrictions, easements, or covenants and restrictions: ✓YES NO
These documents must be submitted with the application.

PLEASE READ THE FOUR-PAGE APPLICATION INSTRUCTIONS. INCOMPLETE APPLICATIONS WILL NOT BE ACCEPTED FOR FILING.

ZONE CHANGE APPLICATIONS, COVENANT MODIFICATION REQUESTS, AND COVENANT CLARIFICATION REQUESTS ARE GOVERNED BY THE HUNTINGTON TOWN CODE, CHAPTER 198 (ZONING), ARTICLE XIX (ZONING CHAPTER AND MAP AMENDMENTS). ADDITIONAL INFORMATION MAY BE FOUND THERE.

TOWN USE ONLY

Date Received: _____ Receipt # _____ Fee $_____

Application #: _____ - ZM - _____ Received by: _____

I have answered the foregoing questions and supplied the information requested to the best of my knowledge. I am authorized to sign this application as the property owner or on behalf of the property owner. I hereby request that the Huntington Town Board either (check all that apply):

✓ amend the Zoning Ordinance and the Zoning Map of the Town of Huntington by placing the property that is the subject of this application into the requested zoning classification

____ modify the covenants and restrictions that they required to be placed on this property

____ clarify the covenants and restrictions that they required to be placed on this property

Signature of Applicant

INDIVIDUAL ACKNOWLEDGEMENT

STATE OF NEW YORK }
COUNTY OF SUFFOLK } SS..

On the _____ day of _____, 20____,

before me personally came _____, to me known and known to me to be the individual described in and who executed the foregoing application, and acknowledged to me that he/she executed the same.

Notary Public

CORPORATE ACKNOWLEDGEMENT

STATE OF NEW YORK }
COUNTY OF SUFFOLK } SS..

On the 8 day of January, 2016,

before me personally came Demetrius A. Tsunis, who is a/the managing member of the corporation filing this application, and who is authorized to execute the application on its behalf.

Notary Public

MICHAEL L MCCARTHY
Notary Public, State of New York
No. 02MC6288523
Qualified in Suffolk County
Commission Expires September 09, 2017

Rider to Application for Zone Change
Applicant: The Preserve at Indian Hills, LLC
Property Owner: IHCC, Inc.
SCTM No.: 0400-14.00-04.00-001.00 and 002.00 and 0400-15.00-01.00-011.00 and 012.00

The Preserve at Indian Hills, LLC is the contract vendee of the property known locally as the Indian Hills Country Club. The Indian Hills Country Club is a private, member only golf course, bounded on the north by the Long Island sound, and located north of NYS 25A, in the hamlet of Fort Salonga, New York. The subject property is comprised of four separate and distinct tax maps of parcels, with cumulative area of approximately 144 acres. The property is owned by IHCC, Inc.

The Preserve at Indian Hills seeks a rezoning of the subject property from its present R -40 One acre Residence District, to the Town of Huntington's R-OSC Open Space Cluster District. The golf course will be substantially maintained in its present configuration, with clusters of town homes and cottages, as reflected on the development plan prepared by Nelson & Pope.

The project will be known as The Preserve at Indian Hills, LLC. As designed, and reflected upon the plan, town homes would be dispersed in essentially three separate and distinct clusters, surrounding the property. The overall goal is to keep the property as recreational open space, in perpetuity, while realizing the development potential. The plan honors the layout of the existing golf course, Preserve same in its present configuration, and provides amenities to the community.

Accompanying this application for rezoning is it conceptual site plan prepared by Nelson & Pope. In addition, the applicant has prepared Voluntary Environmental Impact Statement designed to address all material and relevant environmental concerns. This EIS considers the positive attributes of preserving the property as recreational open space in perpetuity, while also addressing aesthetic concerns, traffic patterns, impacts upon flora and fauna, etc.

Changing the zoning classification to the R-OSC Open Space Cluster District meets the Legislative objective in the enactment of the R-OSC ordinance. This allows the property owner to realize the development potential, while preserving the property as open space in perpetuity.

The Preserve at Indian Hills, LLC, Applicant

By: Demetrius A. Tsunis, Managing Member

IHCC, INC.

By: Yuping Pan

IHCC, INC.

By: Richard Chu

Dated: Huntington, NY
December 30, 2015

State of New York)

) ss.:

County of Suffolk)

On the 8th day of January in the year 2016, before me, the undersigned, personally appeared **Demetrius A. Tsunis**, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies) and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Signature and Office of individual taking proof

MICHAEL L MCCARTHY
Notary Public, State of New York
No. 02MC6288523
Qualified in Suffolk County
Commission Expires September 09, 2017

State of New York)

) ss.:

County of Suffolk)

On the 29 day of December in the year 2015, before me, the undersigned, personally appeared **Yuping Pan**, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies) and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Signature and Office of individual taking proof

IAN L. SCHLANGER
Notary Public, State of New York
No. 02SC6150797
Qualified in Rockland County
Commission Expires August 7, 2018

State of New York)

) ss.:

County of Suffolk)

On the 30 day of December in the year 2015, before me, the undersigned, personally appeared **Richard Chu**, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies) and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

SHARI IHASZ
NOTARY PUBLIC-STATE OF NEW YORK
No. 01IH6169098
Qualified in Suffolk County
My Commission Expires June 18, 2019

Signature and Office of individual taking proof

DISCLOSURE AFFIDAVIT

STATE OF NEW YORK)
) ss.:
COUNTY OF SUFFOLK)

Demetrius A. Tsunis BEING BY ME DULY SWORN, DEPOSES AND SAYS:

It is my understanding that the Huntington Town Board has determined, as a matter of public policy, that there shall be full, frank and complete disclosure of the identity of all persons having any interest, direct or indirect, in all such applications to insure that no question of conflict of interest or favoritism may arise.

1. I have an interest by right, title or legal share in an application that is before the Huntington Town Board for a zone change entitled; The Preserve at Indian Hills, LLC.

2. I reside at: c/o 1 Rabro Drive, Suite 100, Hauppauge, New York 11788.

3. The nature of my interest in the aforesaid application is as follows: (owner, contract vendee, lessee, mortgage holder, etc.): Managing Member of limited liability contract vendee and applicant.

4. To the best of my knowledge, information and belief, there are no other persons, firms or corporations interested in this application, except as hereinafter set forth: (include all officers of corporations)

-None-

Demetrius A. Tsunis

Sworn to before me this

8th, day of January, 2016

MICHAEL J. MCCARTHY
Notary Public, State of New York
No. 02MC6288523
Qualified in Suffolk County
Commission Expires September 09, 2017

DISCLOSURE AFFIDAVIT

STATE OF NEW YORK)
) ss.:
COUNTY OF SUFFOLK)

Yuping Pan BEING BY ME DULY SWORN, DEPOSES AND SAYS:

It is my understanding that the Huntington Town Board has determined, as a matter of public policy, that there shall be full, frank and complete disclosure of the identity of all persons having any interest, direct or indirect, in all such applications to insure that no question of conflict of interest or favoritism may arise.

1. I have an interest by right, title or legal share in an application that is before the Huntington Town Board for a zone change entitled; The Preserve at Indian Hills, LLC.

2. I reside at: c/o IHCC, Inc. 21 Breeze Hill Road, Northport, New York 11768.

3. The nature of my interest in the aforesaid application is as follows: (owner, contract vendee, lessee, mortgage holder, etc.): Shareholder of corporate owner.

4. To the best of my knowledge, information and belief, there are no other persons, firms or corporations interested in this application, except as hereinafter set forth: (include all officers of corporations) See Schedule attached hereto.

Yuping Pan

Sworn to before me this

29 day of December, 2015

Notary Public

IAN L. SCHLANGER
Notary Public, State of New York
No. 02SC6150797
Qualified in Rockland County
Commission Expires August 7, 2018

Last Name	First Name	Street	City	State	Zip
Pan	Yu Ping	10 Buttonwood Dr	Dix Hills	NY	11746
Chu	Tracy	1600 Broadway	New York	NY	10019
SR YU	Teddy	18 Lockhern Drive	Livingston	NJ	7039
Tung	Chao Lin	Springfield Gardens	New York	NY	11413
Chu	Lawrence	16 Station Road	Great Neck	NY	11023
Ching	Jenif	17 Alpine Way	Livingston	NJ	7608
Chen	Jenny	30828 Marne Drive	Rancho Palos Verdes	CA	90301
Chuen Lee	John Shu	708 South Hindry Ave	Inglewood	Ca	90301
Ma	Emily R	7 Brighton Rd	Manhasset	NY	11030
Wu	Steve	138-35 Elder Ave #18J	Flushing	NY	11355
Li	Teddy	12 Bristol Drive	Manhasset	NY	11030
Yang	Y F	303 East 57th Apt29D	New York	NY	10022
Lau	Yatang-Wai Lin	12 Pine Trees Drive	Kings Point	NY	11024

Schedule

DISCLOSURE AFFIDAVIT

STATE OF NEW YORK)
) ss.:
COUNTY OF SUFFOLK)

Richard Chu BEING BY ME DULY SWORN, DEPOSES AND SAYS:

It is my understanding that the Huntington Town Board has determined, as a matter of public policy, that there shall be full, frank and complete disclosure of the identity of all persons having any interest, direct or indirect, in all such applications to insure that no question of conflict of interest or favoritism may arise.

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2. I reside at: c/o IHCC, Inc. 21 Breeze Hill Road, Northport, New York 11768.

3. The nature of my interest in the aforesaid application is as follows: (owner, contract vendee, lessee, mortgage holder, etc.): Shareholder of corporate owner.

4. To the best of my knowledge, information and belief, there are no other persons, firms or corporations interested in this application, except as hereinafter set forth: (include all officers of corporations)
See Schedule attached hereto.

Richard Chu

Sworn to before me this

30 day of December, 2015

Notary Public

SHARI IHASZ
NOTARY PUBLIC-STATE OF NEW YORK
No. 01IH6169098
Qualified in Suffolk County
My Commission Expires June 18, 2019

Full Environmental Assessment Form
Part 1 - Project and Setting

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the project sponsor to verify that the information contained in Part 1 is accurate and complete.

A. Project and Sponsor Information.

Name of Action or Project: The Preserve at Indian Hills		
Project Location (describe, and attach a general location map): 21 Breeze Hill Road, Northport, New York; SCTM #0400-14-04-1,2 and #0400-15-01-11,12 (see location map in attached EAF Mapper Summary Report).		
Brief Description of Proposed Action (include purpose or need): The proposed action involves the rezoning of a 143.91 acre golf course property from R-40 (minimum one acre) Residence District to R-OSC Open Space Cluster District comprising four (4) tax parcels located on the north and south sides of Breeze Hill Road, west of Fresh Pond Road in the hamlet of Fort Salonga, Town of Huntington, Suffolk County, New York. A conceptual plan submitted with the rezoning application indicates potential subdivision of the 143.91-acre parcel and site plan review/approval at the requested R-OSC zoning in order to construct 113 residential units. The golf course will be substantially maintained in its present configuration, including its many ponds to provide for the conservation and preservation of open space and the support of private recreational use in conformance with R-OSC zoning. The proposed residential development will include 108 town homes to be located in 27 structures and 5 member cottages. The residences will generally be sited in areas where there is existing access and clustered for preserving open space as a single contiguous block. Access would be from Breeze Hill Road for 44 town homes, Thornton Drive for 16 town homes and five cottages and Mystic Lane for 48 town homes. A maintenance area will be provided with its own access driveway to Fresh Pond Road. Each of the proposed dwellings will be served by public water and individual on-site sanitary systems.		
Name of Applicant/Sponsor: The Preserve at Indian Hills, LLC	Telephone: Not Applicable E-Mail: Not Applicable	
Address: 1 Rabro Drive, Suite 100		
City/PO: Hauppauge	State: NY	Zip Code: 11788
Project Contact (if not same as sponsor; give name and title/role): Michael L. McCarthy, Esq. (Attorney)	Telephone: 631-351-4000 E-Mail: MMcCarthy@mcreylaw.com	
Address: McCarthy & Reynolds, P.C.; 7 East Carver Street		
City/PO: Huntington	State: NY	Zip Code: 11743
Property Owner (if not same as sponsor): I.H.C.C., Inc.	Telephone: 631-261-5700 E-Mail:	
Address: 21 Breeze Hill Road		
City/PO: Northport	State: NY	Zip Code: 11768

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Council, Town Board, or Village Board of Trustees ☑Yes☐No	Huntington Town Board - Zone Change Approval	January 2016
b. City, Town or Village Planning Board or Commission ☑Yes☐No	Town of Huntington Planning Board - Subdivision & Site Plan Approval	Pending Zone Change Approval
c. City Council, Town or Village Zoning Board of Appeals ☐Yes☑No		
d. Other local agencies ☑Yes☐No	Huntington Building Dept.&Highway Office Permits Suffolk County Water Authority Connect Approval	Pending Site Plan Approval Pending Site Plan Approval
e. County agencies ☑Yes☐No	SC Dept. of Health Services (Water and Sanitary) SC Planning Commission Referral	Pending Zone Change Approval January 2016
f. Regional agencies ☐Yes☑No		
g. State agencies ☑Yes☐No	NYSDEC General Stormwater Construction Tidal and Freshwater Wetland Permits/Non-Jurisdi	Pending Zone Change Approval Pending Zone Change Approval
h. Federal agencies ☐Yes☑No		

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☑Yes☐No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes☑No

iii. Is the project site within a Coastal Erosion Hazard Area? ☑Yes☐No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? Continued operation of golf courses are encouraged. ☑Yes☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☑Yes☐No

If Yes, identify the plan(s):

NYS Heritage Areas:LI North Shore Heritage Area

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes☑No

If Yes, identify the plan(s):

However, the subject site is identified in the Town of Huntington Horizons 2020 Comprehensive Plan Update as existing recreational open space.

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
R-40 Residence District

b. Is the use permitted or allowed by a special or conditional use permit? ☐ Yes ☑ No

c. Is a zoning change requested as part of the proposed action? ☑ Yes ☐ No
If Yes,
i. What is the proposed new zoning for the site? R-OSC Open Space Cluster District

C.4. Existing community services.

a. In what school district is the project site located? Northport

b. What police or other public protection forces serve the project site?
Suffolk County Police Department

c. Which fire protection and emergency medical services serve the project site?
Northport Fire District

d. What parks serve the project site?
Town of Huntington Geisslers Beach Park and Makamah County Nature Preserve

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? Residential - Recreational

b. a. Total acreage of the site of the proposed action? 143.91 acres
b. Total acreage to be physically disturbed? 31.5 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 143.91 acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes, Actual subdivision and site plan design will be addressed when future applications are submitted.
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will proposed action be constructed in multiple phases? ☐ Yes ☑ No
i. If No, anticipated period of construction: 18 months
ii. If Yes:
- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year
- Anticipated completion date of final phase _____ month _____ year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: _____

f. Does the project include new residential uses? ☑ Yes ☐ No

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase	113			
At completion of all phases	113			

g. Does the proposed action include new non-residential construction (including expansions)? ☑ Yes ☐ No

If Yes,

i. Total number of structures 2

ii. Dimensions (in feet) of largest proposed structure: 35 height; 175 width; and 160 length

iii. Approximate extent of building space to be heated or cooled: 24,750 square feet

For clubhouse

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐ Yes ☑ No

If Yes,

i. Purpose of the impoundment: _____

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐ Other specify: _____

iii. If other than water, identify the type of impounded/contained liquids and their source. _____

iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres

v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete): _____

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) ☐ Yes ☑ No

If Yes:

i. What is the purpose of the excavation or dredging? _____

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards): _____
- Over what duration of time? _____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them. _____

iv. Will there be onsite dewatering or processing of excavated materials? ☐ Yes ☐ No

If yes, describe. _____

v. What is the total area to be dredged or excavated? _____ acres

vi. What is the maximum area to be worked at any one time? _____ acres

vii. What would be the maximum depth of excavation or dredging? _____ feet

viii. Will the excavation require blasting? ☐ Yes ☐ No

ix. Summarize site reclamation goals and plan: _____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐ Yes ☑ No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): _____

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

iii. Will proposed action cause or result in disturbance to bottom sediments? ☐Yes☐No
If Yes, describe:

iv. Will proposed action cause or result in the destruction or removal of aquatic vegetation? ☐Yes☐No
If Yes:

- acres of aquatic vegetation proposed to be removed:
- expected acreage of aquatic vegetation remaining after project completion:
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access):
- proposed method of plant removal:
- if chemical/herbicide treatment will be used, specify product(s):

v. Describe any proposed reclamation/mitigation following disturbance:

c. Will the proposed action use, or create a new demand for water? ☑Yes☐No
If Yes: includes residential, clubhouse, maintenance bldg. & irrigation for new landscaping.

i. Total anticipated water usage/demand per day: 31,075 gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☑Yes☐No
If Yes:

- Name of district or service area: Suffolk County Water Authority
- Does the existing public water supply have capacity to serve the proposal? ☑Yes☐No
- Is the project site in the existing district? ☑Yes☐No
- Is expansion of the district needed? ☐Yes☑No
- Do existing lines serve the project site? ☑Yes☐No

iii. Will line extension within an existing district be necessary to supply the project? ☑Yes☐No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project:
  Extension of existing water mains will be required from Breeze Hill Rd, Mystic Lane and Thornton Drive.
- Source(s) of supply for the district: SCWA Distribution Area 9.

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐Yes☑No
If, Yes:

- Applicant/sponsor for new district:
- Date application submitted or anticipated:
- Proposed source(s) of supply for new district:

v. If a public water supply will not be used, describe plans to provide water supply for the project:

vi. If water supply will be from wells (public or private), maximum pumping capacity: 1,380 gallons/minute.

d. Will the proposed action generate liquid wastes? ☐Yes☐No
If Yes:

i. Total anticipated liquid waste generation per day: 27,575 gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):
The 108 townhomes and 5 cottages are expected to generate 25,425 gallons per day (gpd) based upon 225 gpd/unit. The clubhouse with 50 seat member dining is expected to generate 1950 gpd. Maintenance Bldg = 200 gpd. Sanitary wastewater is to be treated in subsurface sewage disposal systems.

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐Yes☑No
If Yes:

- Name of wastewater treatment plant to be used:
- Name of district:
- Does the existing wastewater treatment plant have capacity to serve the project? ☐Yes☐No
- Is the project site in the existing district? ☐Yes☐No
- Is expansion of the district needed? ☐Yes☐No

- Do existing sewer lines serve the project site? ☐Yes☐No
- Will line extension within an existing district be necessary to serve the project? ☐Yes☐No

  If Yes:
  - Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes☑No

If Yes:
- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge, or describe subsurface disposal plans):

Wastewater will be treated by subsurface sanitary systems constructed in conformance with Suffolk County Dept. of Health Service regulations.

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

Not Applicable

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑Yes☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 11 acres (impervious surface)

_____ Square feet or 143.9 acres (parcel size)

ii. Describe types of new point sources. Runoff from new impervious surfaces (roofs, parking areas and driveways) will be recharged to the subsurfcae via piping and drainage structures.

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

Runoff will be directed to on-site stormwater recharge structures.

- If to surface waters, identify receiving water bodies or wetlands: _____
- Will stormwater runoff flow to adjacent properties? ☐Yes☑No

iv. Does proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☑Yes☐No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☑Yes☐No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

Construction vehicles or other non-permanent equipment.

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes☐No

ii. In addition to emissions as calculated in the application, the project will generate:
- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

_____

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐Weekend ☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of semi-trailer truck trips/day: _____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

_____

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☐Yes ☐No

Not Applicable

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

_____

iii. Will the proposed action require a new, or an upgrade to, an existing substation? ☐Yes ☐No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 7:00 a.m. - 5:00 p.m.
- Saturday: _____
- Sunday: _____
- Holidays: _____

ii. During Operations:

- Monday - Friday: 24 hours / day
- Saturday: 24 hours / day
- Sunday: 24 hours / day
- Holidays: 24 hours / day

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

Temporary noise from construction equipment during the day 7a.m. to 5p.m.

ii. Will proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☑ No

Describe: _____

n.. Will the proposed action have outdoor lighting? ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

Building or ground mounted safety lighting shall use fully shielded luminaires with the light source directed down and away and screened by retained buffer from the nearest occupied structures from causing light pollution and glare pursuant to Town Code § 143 Outdoor Lighting and § 198-21.3(E) setbacks.

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☑ No

Describe: _____

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally describe proposed storage facilities: _____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? Not Applicable ☐ Yes ☐ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? Not Applicable ☐ Yes ☐ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: _____ tons per _____ (unit of time)
- Operation : _____ tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: _____
- Operation: _____

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: _____
- Operation: Solid waste will be stored within each individual residential building with scheduled collections. Final disposal to be provided by a private waste collection service to regulated facility.

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐Yes ☑No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐Yes☐No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility: _____

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☐ Commercial ☑ Residential (suburban) ☐ Rural (non-farm)
☑ Forest ☐ Agriculture ☑ Aquatic ☑ Other (specify): Parkland - Recreational

ii. If mix of uses, generally describe: _____

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	5.93	11.00	5.07+
• Forested includes grouped trees along fairways	50.0	39.19	10.81-
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	0.0	0.0	0.0
• Agricultural (includes active orchards, field, greenhouse etc.)	0.0	0.0	0.0
• Surface water features (lakes, ponds, streams, rivers, FW wetlands, etc.)	2.76	2.76	0.0
• Wetlands (~~freshwater or~~ tidal)	2.39	2.39	0.0
• Non-vegetated (bare rock, earth or fill)	0.0	0.0	0.0
• Other Describe: Fairways,Driving Range / Escarpment	80.93 / 1.9	74.77 / 1.9	6.16- / 0.0
Residential Landscaping	0.0	11.9	11.9+

c. Is the project site presently used by members of the community for public recreation? ☑ Yes ☐ No

i. If Yes: explain: Existing golf course used for recreation; no substantive change proposed to golf course operation

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐ Yes ☑ No

If Yes,

i. Identify Facilities: _____

e. Does the project site contain an existing dam? ☐ Yes ☑ No

If Yes:

i. Dimensions of the dam and impoundment:

- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____

iii. Provide date and summarize results of last inspection: _____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Has the facility been formally closed? ☐ Yes ☐ No

- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility: _____

iii. Describe any development constraints due to the prior solid waste activities: _____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred: _____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☑ Yes ☐ No

If Yes:

i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐ Yes ☐ No

☑ Yes – Spills Incidents database — Provide DEC ID number(s): 8602746, 8602804, 8805704, 9311366 &

☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): 9315196

☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: Not Applicable

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐ Yes ☑ No

If yes, provide DEC ID number(s): _____

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s): _____

NP&V has performed a Phase I Environmental Site Assessment, dated 2/4/14 in conformance with the scope and limitations of ASTM Practice E 1527-13 and USEPA AAI standards. No historic recognized environmental conditions were noted on the subject property based on the site reconnaissance, interviews and regulatory agency records review. All five (5) spill incidents noted above have been closed by NYSDEC.

v. Is the project site subject to an institutional control limiting property uses? ☐Yes ☑No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐Yes ☑No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? 600 feet

b. Are there bedrock outcroppings on the project site? ☐Yes ☑No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____ %

c. Predominant soil type(s) present on project site:

CpE	29.2 %
CuC	14.7 %
SdB	11.4 %

d. What is the average depth to the water table on the project site? Average: 25-98 feet

e. Drainage status of project site soils:
☑ Well Drained: 61.3 % of site
☑ Moderately Well Drained: 21.9 % of site
☑ Poorly Drained 16.8 % of site

f. Approximate proportion of proposed action site with slopes:
☑ 0-10%: 45.4 % of site
☑ 10-15%: 22.6 % of site
☑ 15% or greater: 32 % of site

g. Are there any unique geologic features on the project site? ☐Yes ☑No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☑Yes ☐No

ii. Do any wetlands or other waterbodies adjoin the project site? ☑Yes ☐No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑Yes ☐No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name Long Island Sound Approximate Size 1,320 square miles
- Wetland No. (if regulated by DEC) N-13

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐Yes ☑No

If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐Yes ☑No

j. Is the project site in the 100 year Floodplain? ☑Yes ☐No

k. Is the project site in the 500 year Floodplain? ☑Yes ☐No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☑Yes ☐No
If Yes:
i. Name of aquifer: Sole Source Aquifer Names:Nassau-Suffolk SSA

m. Identify the predominant wildlife species that occupy or use the project site:
Squirrels, raccoons, chipmunks, rabbits, other small anumals
Woodland and shorebirds

n. Does the project site contain a designated significant natural community? ☑ Yes ☐ No
If Yes:
i. Describe the habitat/community (composition, function, and basis for designation): High Salt Marsh
ii. Source(s) of description or evaluation: EAF Mapper
iii. Extent of community/habitat:
- Currently: 266.99 acres
- Following completion of project as proposed: 266.99 acres
- Gain or loss (indicate + or -): 0 acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☑ Yes ☐ No

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐ Yes ☑ No

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☑ Yes ☐ No
If yes, give a brief description of how the proposed action may affect that use:
Long Island Sound is used for fishing. No impact to the Sound's resources are anticipated to result from the proposed action.

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☑ No
If Yes, provide county plus district name/number:

b. Are agricultural lands consisting of highly productive soils present? ☑ Yes ☐ No
i. If Yes: acreage(s) on project site? 64.9
ii. Source(s) of soil rating(s): US Dept. of Agriculture Natural Resources Conservation Service Soil Surveys

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☑ No
If Yes:
i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature
ii. Provide brief description of landmark, including values behind designation and approximate size/extent:

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☑ Yes ☐ No
If Yes:
i. CEA name: Fresh Pond Greenbelt
ii. Basis for designation: Benefit to human health & protect drinking water
iii. Designating agency and date: Date:2-10-88, Agency:Suffolk County

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on, or has been nominated by the NYS Board of Historic Preservation for inclusion on, the State or National Register of Historic Places? ☐Yes ☑No

If Yes:

i. Nature of historic/archaeological resource: ☐Archaeological Site ☐Historic Building or District

ii. Name: _____

iii. Brief description of attributes on which listing is based:

_____

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☑Yes ☐No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐Yes ☑No

See note below

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☐Yes ☑No

If Yes:

i. Identify resource: _____

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): _____

iii. Distance between project and resource: _____ miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐Yes ☑No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐Yes ☐No

The NYS Cultural Resource Information tool indicates a Stage I Archaeological Sensitivity Evaluation and Survey for the subdivision, Norma Lee Estates #00SR50950 extending into the southeast corner of the project site. Stage IA/IB completed with no impact expected.

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

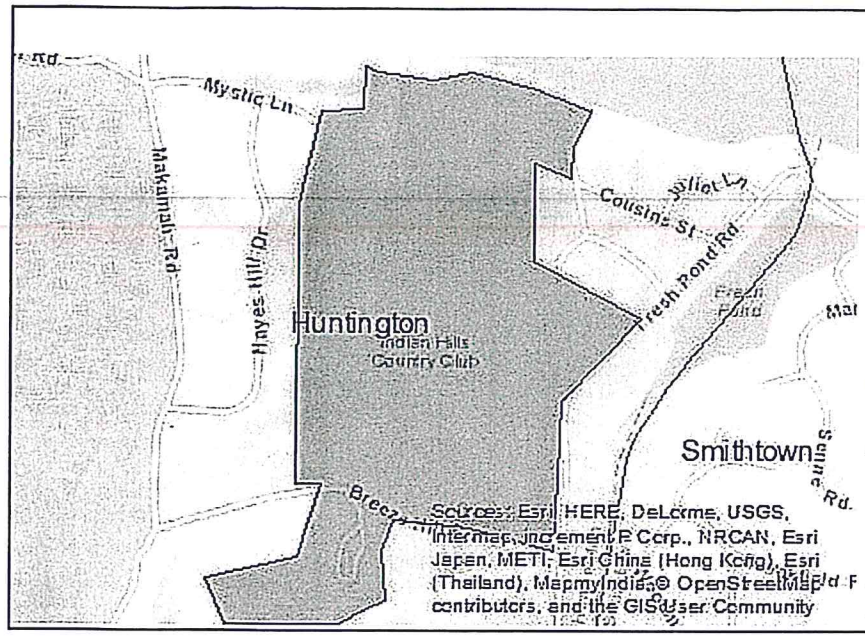
Applicant/Sponsor Name Scott Robin, Nelson, Pope & Voorhis, LLC Date January 5, 2016

Signature _____ Title Environmental Planner

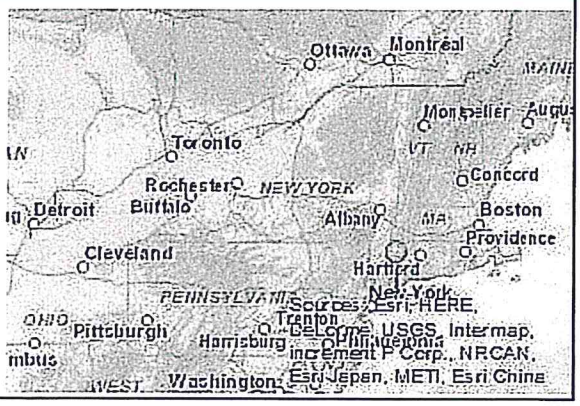
PRINT FORM

EAF Mapper Summary Report

Thursday, December 03, 2015 12:36 PM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



B.i.i [Coastal or Waterfront Area]	Yes
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Yes - Digital mapping data are not available for all Special Planning Districts. Refer to EAF Workbook.
C.2.b. [Special Planning District - Name]	NYS Heritage Areas:LI North Shore Heritage Area
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters, Tidal Wetlands, NYS Wetland
E.2.h.iv [Surface Water Features - Wetlands Size]	NYS Wetland (in acres):0.9
E.2.h.iv [Surface Water Features - DEC Wetlands Number]	N-13
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	Yes

E.2.k. [500 Year Floodplain]	Yes
E.2.l. [Aquifers]	Yes
E.2.l. [Aquifer Names]	Sole Source Aquifer Names:Nassau-Suffolk SSA
E.2.n. [Natural Communities]	Yes
E.2.n.i [Natural Communities - Name]	High Salt Marsh
E.2.n.i [Natural Communities - Acres]	266.99
E.2.o. [Endangered or Threatened Species]	Yes
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	Yes
E.3.d [Critical Environmental Area - Name]	Fresh Pond Greenbelt
E.3.d.ii [Critical Environmental Area - Reason]	Benefit to human health & protect drinking water
E.3.d.iii [Critical Environmental Area – Date and Agency]	Date:2-10-88, Agency:Suffolk County
E.3.e. [National Register of Historic Places]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

11568P373

10260

THIS INDENTURE, made the 30th day of October, 1992 between INDIAN HILLS GOLF CORPORATION, a Delaware corporation having an address at P.O. Box 1058, Breckenridge, CO 80424, party of the first part, and IHCC, INC., a New York corporation having an address at 149-35 177th Street, Jamaica, NY 11434, party of the second part.

WITNESSETH, that the party of the first part, in consideration of Ten Dollars and other valuable consideration paid by the party of the second part, does hereby grant and release unto the party of the second part, the heirs or successors and assigns of the party of the second part forever,

PARCEL I:

ALL that certain plot, piece or parcel of land, situated, lying and being at Fort Salonga, in the Town of Huntington, County of Suffolk and State of New York, bounded and described as follows:

BEGINNING at the corner formed by the intersection of the northerly side of Breeze Hill Road and the westerly side of Fresh Pond Road; RUNNING THENCE westerly and along the northerly side of Breeze Hill Road the following six (6) courses and distances:

1. North 74 degrees 37 minutes 20 seconds west 769.35 feet;
2. North 83 degrees 31 minutes 20 seconds west 272 feet;
3. North 59 degrees 10 minutes 20 seconds west 367.95 feet;
4. North 67 degrees 37 minutes 00 seconds west 143.97 feet;
5. South 88 degrees 34 minutes 20 seconds west 177.18 feet;
6. South 79 degrees 10 minutes 10 seconds west 175.57 feet to a monument and the easterly line of land as shown on "Map of Indian Hills Estates Section 2-A" (filed in the Suffolk County Clerk's Office on November 26, 1969 as Map No. 5401);

THENCE along the easterly line of the last mentioned subdivision and along the easterly line of "Map of Indian Hills Estates Section 2-B" (filed in the Suffolk County Clerk's Office on November 26, 1969 as Map No. 5402) the following six (6) courses and distances:

1. North 02 degrees 30 minutes 10 seconds west 551.28 feet;
2. North 03 degrees 36 minutes 50 seconds east 925.00 feet;
3. North 01 degree 19 minutes 20 seconds east 500.40 feet;
4. North 14 degrees 04 minutes 30 seconds east 660.99 feet;
5. South 86 degrees 23 minutes 10 seconds east 275.00 feet;
6. North 03 degrees 36 minutes 50 seconds east 304.06 feet to the mean high water line of Long Island Sound as of July, 1954;

10260

$39.00 STAMPS

1/6/98

THENCE along said mean high water line of Long Island Sound the following seven (7) courses and distances:

1. South 75 degrees 06 minutes 35 seconds east 29.43 feet;
2. South 88 degrees 29 minutes 30 seconds east 46.17 feet;
3. North 03 degrees 36 minutes 50 seconds east 28.78 feet;
4. South 79 degrees 59 minutes 00 seconds east 396.12 feet;
5. North 83 degrees 30 minutes 50 seconds east 248.43 feet;
6. South 79 degrees 03 minutes 40 seconds east 348.27 feet;
7. South 68 degrees 09 minutes 10 seconds east 527.18 feet to land now or formerly of Cozart;

THENCE along the last mentioned land the following three (3) courses and distances:

1. South 22 degrees 34 minutes 20 seconds west 293.12 feet;
2. South 09 degrees 36 minutes 20 seconds west 26.54 feet;
3. South 04 degrees 38 minutes 40 seconds east 196.71 feet; actual (South 40 degrees 38 minutes 40 seconds east 196.71 feet deed) to land as shown on "Map of Claymore" (filed in the Suffolk County Clerk's Office on August 6, 1941 as Map No. 1334);

THENCE along the last mentioned subdivision the following six (6) courses and distances:

1. North 67 degrees 32 minutes 10 seconds west 314.04 feet;
2. South 01 degrees 31 minutes 20 seconds west 200.35 feet;
3. South 03 degrees 05 minutes 40 seconds west 451.69 feet;
4. South 61 degrees 26 minutes 00 seconds east 561.40 feet;
5. South 59 degrees 41 minutes 20 seconds east 85.18 feet;
6. South 59 degrees 10 minutes 40 seconds east 212.40 feet to a monument on the westerly side of Fresh Pond Road;

THENCE southerly and along the westerly side of Fresh Pond Road the following five (5) courses and distances:

1. South 48 degrees 26 minutes 00 seconds west 269.14 feet;
2. South 43 degrees 57 minutes 20 seconds west 487.96 feet;
3. South 07 degrees 09 minutes 00 seconds west 116.04 feet;
4. South 03 degrees 54 minutes 20 seconds east 421.12 feet;
5. South 03 degrees 46 minutes 50 seconds west 550.65 feet to the northerly side of Breeze Hill Road at the point or place of BEGINNING.

PARCEL II:

ALL that certain plot, piece or parcel of land, situate, lying and being at Fort Salonga, in the Town of Huntington, County of Suffolk and State of New York, being more particularly bounded and described as follows:

BEGINNING at a monument on the southerly side of Breeze Hill Road distant 888.35 feet easterly as measured along the southerly side of Breeze Hill Road from a point where the easterly line of lands formerly of A.S. Gardiner and land now or formerly of Davis intersect the southerly side of Breeze Hill Road; said point of beginning also being where the easterly line of land as shown on "Map of Milan Acres" (filed in the Suffolk County Clerk's Office on March 19, 1969 as Map No. 5272) intersects the southerly side of Breeze Hill Road;

RUNNING THENCE along the southerly side of Breeze Hill Road the following four (4) courses and distances:

1. North 79 degrees 10 minutes 10 seconds east 16.00 feet;
2. North 88 degrees 34 minutes 20 seconds east 162.53 feet;
3. South 67 degrees 37 minutes 00 seconds east 129.74 feet;
4. South 59 degrees 10 minutes 20 seconds east 269.88 feet to the westerly line of land as shown on "Map of Putter Estates" (filed in the Suffolk County Clerk's Office on October 10, 1970 as Map No. 5508);

THENCE along the last mentioned subdivision the following two (2) courses and distances:

1. South 14 degrees 21 minutes 20 seconds west 244.04 feet actual (244.38 deed);
2. South 07 degrees 23 minutes 30 seconds east 286.26 feet to the northwesterly line of land as shown on "Map of Fairway Acres, Section 1" (filed in the Suffolk County Clerk's Office on November 20, 1970 as map No. 5543);

THENCE along the last mentioned subdivision the following two (2) courses and distances:

1. South 71 degrees 48 minutes 30 seconds west 190.00 feet;
2. South 41 degrees 02 minutes 05 seconds west 365.00 feet to a monument and land now or formerly of Roberg;

THENCE along the last mentioned land and along now or formerly of Kronen the following three (3) courses and distances:

1. North 83 degrees 56 minutes 00 seconds west 251.54 feet;
2. North 82 degrees 44 minutes 20 seconds west 331.87 feet;
3. North 89 degrees 35 minutes 40 seconds west 115.47 feet; to a monument and land now or formerly of Davis;

THENCE North 18 degrees 33 minutes 45 seconds west along the last mentioned land 406.74 feet to a monument and land as shown on "Map of Milan Acres" (filed in the Suffolk County Clerk's Office on March 19, 1969 as Map No. 5272);

THENCE along the last mentioned land the following two (2) courses and distances:

1. North 75 degrees 56 minutes 15 seconds east 635.00 feet;
2. North 16 degrees 00 minutes 10 seconds east 443.53 feet; to a monument on the southerly side of Breeze Hill Road at the point or place of BEGINNING.

BOTH OF SAID PARCELS BEING AND INTENDED TO BE the same premises conveyed to the party of the first part by deed dated September 5, 1990 which deed was recorded in the Suffolk County Clerk's Office on September 10, 1990 in Liber 11134 at page 87.

TOGETHER WITH all right, title and interest, if any, of the party of the first part in and to any streets and roads abutting the above described premises; TOGETHER with the appurtenances and all the estate and rights of the party in and to said premises.

TO HAVE AND TO HOLD the premises herein granted unto the party of the second part, the heirs or successors and assigns of the party of the second part forever.

AND the party of the first part covenants that the party of the first part has not done or suffered anything whereby the said premises have been encumbered in any way whatever, except as aforesaid.

AND the party of the first part, in compliance with Section 13 of the Lien Law, covenants that the party of the first part will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement and will apply the same first to the payment of the cost of the improvement before using any part of the total of the same for any other purpose.

The word "party" shall be construed as if it read "parties" whenever the sense of this indenture so requires.

IN WITNESS WHEREOF, the party of the first part has duly executed this deed the day and year first above written.

IN THE PRESENCE OF: INDIAN HILLS GOLF CORPORATION

By: _____
(Vice) President

11568 0377

STATE OF NEW YORK)

COUNTY OF NEW YORK)

On the 30th day of October, 1992, before me personally came Hon Nichirag to me known, who, being by me duly sworn, did depose and say that he resides at 10 Vail Lies Breckenridge, Colorado 80424. that he is the (Vice) President of Indian Hills Golf Corporation, the corporation described in and which executed the foregoing instrument, and that he signed his name thereto by order of the board of directors of said corporation.

2147

ERIC P. TERWILLINGER
Notary Public, State of New York
No. 4992577
Qualified in Rockland County
Commission Expires July 6, 19 93

First American Title Insurance Company

DIST. 0400
SEC. 014.00
BLK. 0400
LOT 001.000
002.000

DIST. 0400
SEC. 015.00
BLK 01.00
LOT 011.000
012.000

NOV 6 4 27 PM '92
FOR RECORDING
SUFFOLK COUNTY

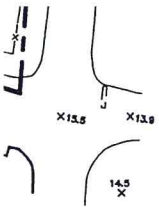
RECORD AND RETURN TO:

W. GERARD ASHER
ATTORNEY AT LAW
444 NEW YORK AVENUE
HUNTINGTON, NY 11743

1ST AMERICAN CO.
141 S 1727

COUNTY: SUFFOLK

1096/SHS/mus



LEGEND

	WOOD & WIRE FENCE
	STOCKADE FENCE
	CHAIN LINK FENCE
	WATER METER
	HYDRANT
	WATER VALVE
	BURIED WATER VALVE
	MANHOLE/VALVE
	UTILITY POLE
	OVERHEAD WIRES
	GAS VALVE
	GENERIC UTILITY VALVE
	TREE
	TREE LINE
	CONTOUR MINOR
	CONTOUR MAJOR
× 92.8	SPOT ELEVATION
	MAILBOX

SURVEY OF PROPERTY
INDIAN HILLS GOLF COURSE

SITUATED IN

FORT SALONGA

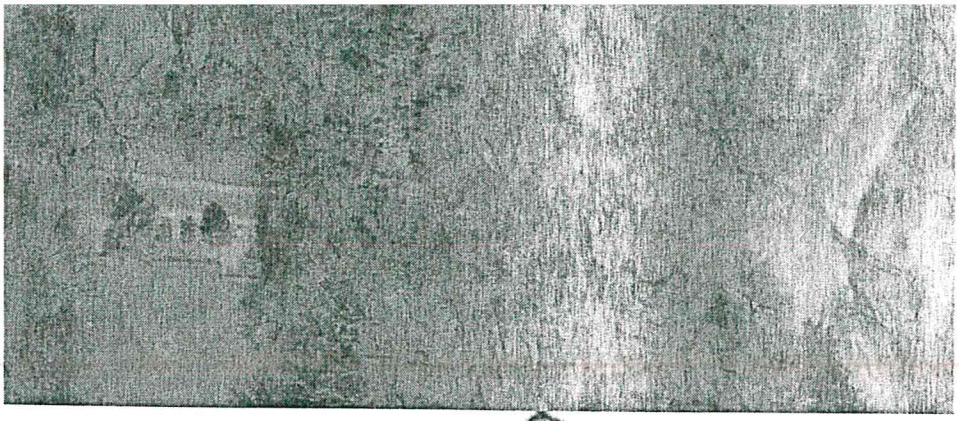
TOWN OF HUNTINGTON, SUFFOLK COUNTY, NEW YORK

'Connor - Petito, L.L.C.

d Surveying
Engineering

27 Forest Avenue
Locust Valley, NY 11560
(516) 676-3260

6/11/12	REVISED:UPDATE 12/21/15 REVISED:CERTS 1/5/16	SCALE: 1"=100'	SHEET: 1 OF 1

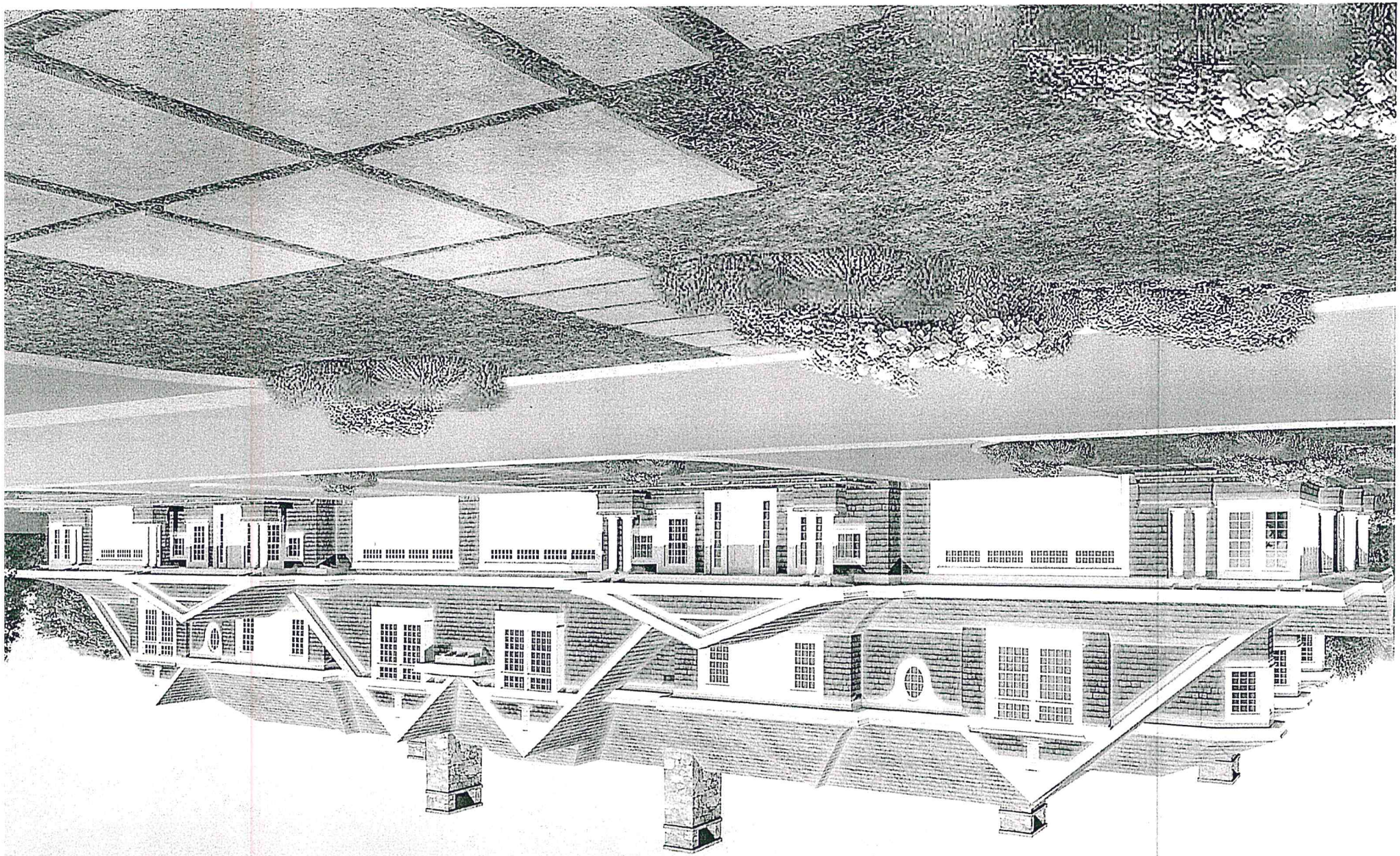


REVISIONS:	-
	BY:

CONCEPT SKETCH
FOR
THE PRESERVE AT INDIAN HILLS
SITUATED AT
NORTHPORT
TOWN OF HUNTINGTON, SUFFOLK COUNTY, NEW YORK
S.C.T.M.: DISTRICT: 0400, SECT. 014, BLK. 04, LOTS 1, 2
DISTRICT 0400, SECT. 015, BLK. 01, LOTS 11, 12

PROJECT NO.:	86047
DRAWN BY:	GEO
CHECKED BY:	RC
DATE:	1-13-16
SCALE:	1"=100'
FILE NO.:	400-014-
CADD:	84067SS
DRAWING NO.	

NELSON & POPE
ENGINEERS & SURVEYORS
572 WALT WHITMAN ROAD, MELVILLE, N.Y. 11747



DATE:	REVISIONS:

500' LAND USE AND ZONING MAP

FOR

INDIAN HILLS GOLF COURSE

SITUATED AT

NORTHPORT

TOWN OF HUNTINGTON, SUFFOLK COUNTY, NEW YORK

S.C.T.M.: DISTRICT: 0400, SECT. 014, BLK. 04, LOTS 1, 2

DISTRICT 0400, SECT. 015, BLK. 01, LOTS 11, 12

NELSON & POPE

ENGINEERS & SURVEYORS

572 WALT WHITMAN ROAD, MELVILLE, N.Y. 11747

PHONE (631) 427-5665 FAX (631) 427-5620

WWW.NELSONPOPE.COM

PROJECT NO.:	
DRAWN BY:	
CHECKED BY:	
DATE:	
SCALE:	
FILE NO.:	
CADD:	84067\DW
SHEET NO.:	

12290 08130

DECLARATION OF COVENANTS AND RESTRICTIONS

THIS DECLARATION made this 15th day of November, 2003, by IHCC, INC., 21 Breeze Hill Road, Northport, New York 11768, hereinafter referred to as the IHCC, as the owner of the premises described in Schedule "A" annexed hereto (hereinafter referred to as the PREMISES) desires to restrict the use and enjoyment of said PREMISES and to conform to the terms of a certain Agreement and Release entered into with the Town of Huntington in April 2003, and has for such purposes determined to impose on said PREMISES covenants and restrictions and does hereby declare that said PREMISES shall be held and shall be conveyed subject to the following covenants and restrictions:

District 0400 Section 14 Block 4 Lot(s) 1 and 2 and District 0400 Section 15 Block 1 Lot(s) 11 and 12

1. IHCC has entered into a certain Agreement and Release with the Town of Huntington (hereinafter referred to as the TOWN), as executed by IHCC on April 10, 2003 and by the TOWN on April 14, 2003 (hereinafter referred to as the AGREEMENT).

2. Pursuant to the terms of said AGREEMENT IHCC agrees that:

(i) No new or additional clubhouse, dining facility, catering facility or restaurant shall be built, constructed or placed on tax lots 400-14-4-1 and/or 400-14-4-2 north of Breeze Hill Road in the Town of Huntington, State of New York by and IHCC or its successor, assignee or transferee.

(ii) IHCC or its successor, assignee or transferee shall not move or relocate its clubhouse, dining facility or catering facility or restaurant to tax lots 400-14-4-1 and/or 400-14-4-2 north of Breeze Hill Road in the Town of Huntington, State of New York.

(iii) IHCC will be restricted to any renovation, rebuilding or construction of a clubhouse to tax lots 400-15-1-11 and/or 400-15-1-12.

(iv) The Town and IHCC agree, and IHCC consents and acknowledges that it may expand, renovate or raze and reconstruct a new clubhouse only in substantially the same site and location of the present clubhouse. To the extent practical, if new clubhouse to be located adjacent to existing and toward Breeze Hill Road, TOWN will coordinate to permit existing structure as is to remain in use pending completion of new structure, with existing to be razed prior to issuance of CO and prior to occupancy of new clubhouse and prior to any use there of. Such expansion, renovation or rebuilding shall be restricted as follows:

a) The exterior of any such structure shall be built in accord with architectural and streetscape existing in the area ("traditional" style and compatible with a colonial look).

b) Any expansion, renovation, new building or rebuilding shall be limited to an increase of 30% of the building's footprint as it exists on March 24, 2003. **However, in the event that IHCC shall demolish the existing pro shop building with cart storage under and/or existing cart barn, then, and in any such event the footprint of such building(s) removed may be added to the limit of the size of the building otherwise set forth aforesaid. The existing pro shop building with cart storage under and existing cart barn are identified on the Partial Plot Plan of Nelson & Pope, attached hereto as Schedule "B".**

c) Any expansion, renovation or rebuilding or new building shall not have a height higher then the present building height at its peak, excluding antennae or weather vanes or similar apparatus.

d) IHCC will obtain all necessary permits from the TOWN prior to any such expansion, razing, reconstruction or renovation of the clubhouse. Prior to any such expansion, renovation, reconstruction or razing, IHCC will apply for any variances or special use it may need.

3. All of the covenants and restrictions contained herein shall be construed to be in addition to and not in derogation or limitation upon any provisions of local, state and federal laws, ordinances, and/or regulations in effect at the time of the execution of this declaration, or at the time such laws, ordinances, and/or regulations may thereafter be revised, amended, or promulgated.

4. The aforementioned covenants and restrictions shall be enforceable by the TOWN or any agency designated by the TOWN, by injunctive relief or by any other remedy in equity or at law. The failure of said agencies or the TOWN to enforce the same shall not be deemed to affect the validity of this declaration nor to impose any liability whatsoever upon the TOWN or any officer or employee thereof.

5. These covenants and restrictions shall run with the land and shall be binding upon IHCC, its heirs, executors, administrators, successors and assigns, and upon all persons or entities claiming under them, and may be terminated, revoked or amended by the owner of the premises only with the written consent of the TOWN, after a public hearing regarding any such request, and shall become effective upon filing with the Suffolk County Clerk. IHCC agrees that in the event of a public hearing as aforesaid that it shall mail a copy of the notice of such public hearing to neighboring property owners with 500 feet of IHCC premises, said notice to be mailed not

less than ten (10) days prior to the date of public hearing. IHCC shall file an affidavit of mailing with the Town Clerk prior to the call of the calendar for said public hearing.

6. If any section, subsection, paragraph, clause, phrase or provision of these covenants and restrictions shall, by a court of competent jurisdiction, be adjudged illegal, unlawful, invalid, or held to be unconstitutional, the same shall not affect the validity of these covenants and restrictions as a whole, or any other part or provision hereof other than the part so adjudged to be illegal, unlawful, invalid, or unconstitutional.

IN WITNESS WHEREOF, IHCC as Declarant has placed its hand and seal hereon on the day and year first above written.

IHCC, INC.

By: _____

ANNIE PAN, Vice President

/sdo (revised 10/16/03)
File #5728 O:/Covenants & Restriction/IndianHills C&R.ToH.wpd

ACKNOWLEDGMENT

State of New York)
) ss.:
County of Suffolk)

On ~~October~~ November 15, 2003, before me, the undersigned, personally appeared ANNIE PAN, personally known to me or proved to me on the basis of satisfactory evidence to be the individual (s) whose name (s) is (are) subscribed to the within instrument and acknowledged to me that she executed the same in her capacity, and that by her signatures (s) on the instrument, the individual (s), or the person upon behalf of which the individual (s) acted, executed the instrument.

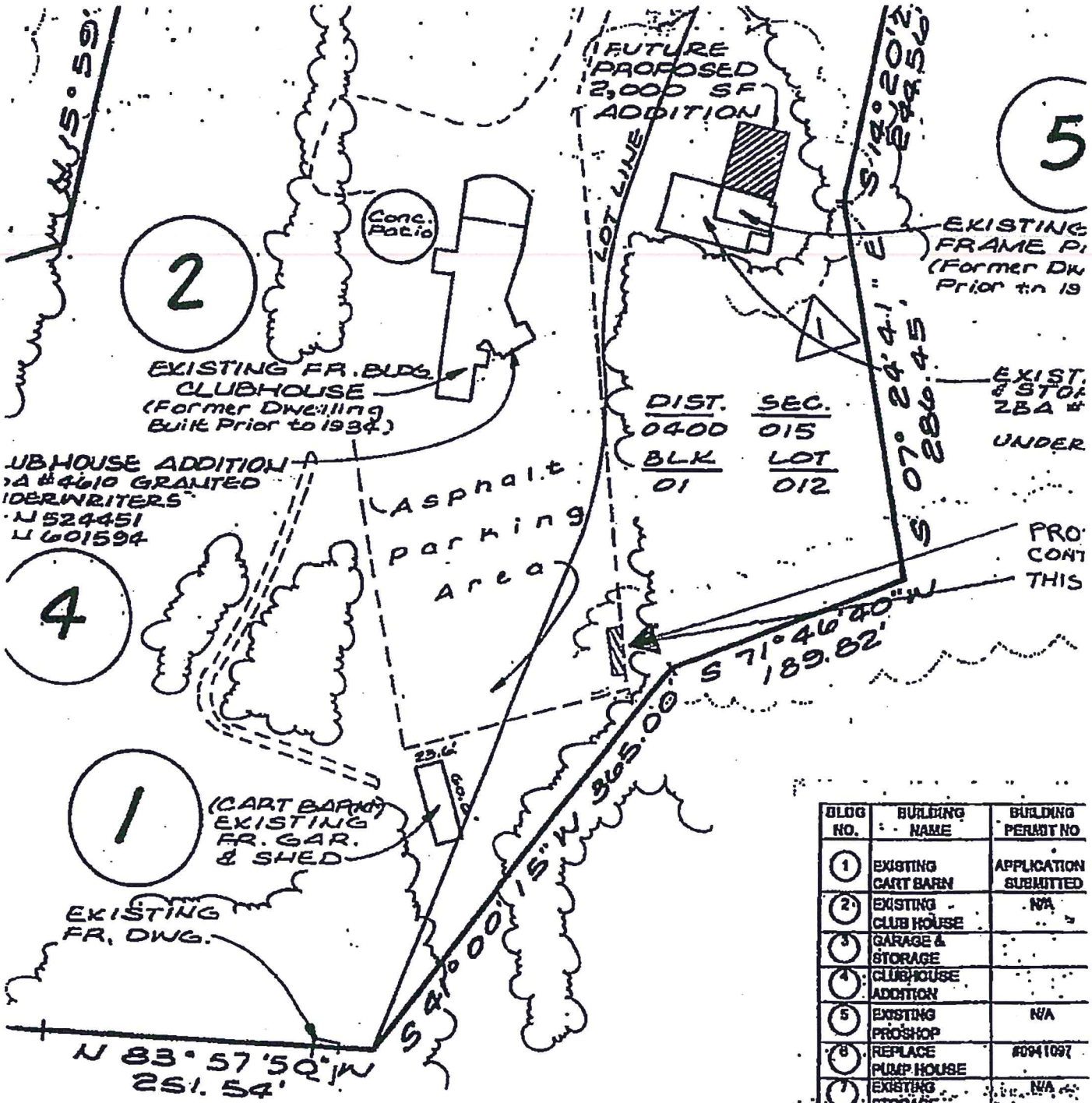
Notary Public

EDWARD Y. MA
Notary Public, State of New York
No. 02MA4984931
Qualified in Nassau County
Commission Expires August 5, 2025

SCHEDULE A

DESCRIPTION OF PROPERTY

(Attached)



BLDG NO.	BUILDING NAME	BUILDING PERMIT NO
1	EXISTING CART BARN	APPLICATION SUBMITTED
2	EXISTING CLUB HOUSE	N/A
3	GARAGE & STORAGE	
4	CLUBHOUSE ADDITION	
5	EXISTING PROSHOP	N/A
6	REPLACE PUMP HOUSE	#0941097
7	EXISTING STORAGE CONTAINERS	N/A
8	CORRUGATED ALUMINUM STORAGE SHED	APPLICATION SUBMITTED
9	EXIST COV. STORAGE BINS	# 941098
10	EXIST. MAS. BLDG W/	N/A
11	PROPOSED STORAGE BUILDING	APPLICATION SUBMITTED
12	EXISTING HALFWAY HOUSE	APPLICATION SUBMITTED
13	EXISTING	APPLICATION

PARTIAL
PLOT PLAN
OF NELSON & POPE

SCHEDULE "B"

1 2

Number of pages 13

TORRENS

Serial # _____

Certificate # _____

Prior Ctf. # _____

RECORDED
2003 Dec 16 11:22:23 AM
Edward P.Romaine
CLERK OF
SUFFOLK COUNTY
L D00012290
P 130

2

Deed / Mortgage Instrument	Deed / Mortgage Tax Stamp	Recording / Filing Stamps

3 FEES

Page / Filing Fee	39	Mortgage Amt.	
Handling	5. 00	1. Basic Tax	
TP-584		2. Additional Tax	
Notation		Sub Total	
EA-52 17 (County)	Sub Total 44-	Spec./Assit. or Spec. /Add.	
EA-5217 (State)		TOT. MTG. TAX	
R.P.T.S.A. PA	90 00	Dual Town ____ Dual County ____	
Comm. of Ed.	5. 00	Held for Appointment	
Affidavit		Transfer Tax	
Certified Copy	8.45	Mansion Tax	
Reg. Copy	Sub Total 118.45	The property covered by this mortgage is or will be improved by a one or two family dwelling only. YES _____ or NO _____	
Other	15- Grand Total 162.45 K	If NO, see appropriate tax clause on page # _____ of this instrument.	

SUFFOLK COUNTY SEAL NEW YORK

4	District	Section	Block	Lot
	0400	014.00	04.00	001.000 and 002.000

Real Property Tax Service Agency Verification

0400 01400 0400 001000 nd
0400 01400 0400 002000
0400 01500 0100 011000
0400 01500 0100 012000

PTS RKWO A 10-DEC-03

5 Community Preservation Fund

Consideration Amount $ _____

CPF Tax Due $ _____

Improved _____

Vacant Land _____

TD _____

TD _____

TD _____

6 Satisfactions/Discharges/Releases List Property Owners Mailing Address

RECORD & RETURN TO:

Town of Huntington
100 Main Street
Huntington, NY 11743

Attn: Heidi Levine-Sorkin

7 Title Company Information

Co. Name Advantage Title

Title # Ctay 7104

8 Suffolk County Recording & Endorsement Page

This page forms part of the attached Declaration of Covenants and Restrictions made by:
(SPECIFY TYPE OF INSTRUMENT)

IHCC, Inc.

The premises herein is situated in SUFFOLK COUNTY, NEW YORK.

TO

In the Township of Huntington

In the VILLAGE

or HAMLET of _____

BOXES 6 THRU 8 MUST BE TYPED OR PRINTED IN BLACK INK ONLY PRIOR TO RECORDING OR FILING.

(over)

SUFFOLK COUNTY CLERK
RECORDS OFFICE
RECORDING PAGE

Type of Instrument: DECLARATION/DOP
Number of Pages: 13

Recorded: 12/16/2003
At: 11:22:23 AM
LIBER: D00012290
PAGE: 130

District:	Section:	Block:	Lot:
0400	014.00	04.00	001.000

EXAMINED AND CHARGED AS FOLLOWS

Received the Following Fees For Above Instrument

		Exempt			Exempt
Page/Filing	$39.00	NO	Handling	$5.00	NO
COE	$5.00	NO	NYS SRCHG	$15.00	NO
TP-584	$0.00	NO	Notation	$0.00	NO
Cert.Copies	$8.45	NO	RPT	$90.00	NO
SCTM	$0.00	NO			
			Fees Paid	$162.45	

THIS PAGE IS A PART OF THE INSTRUMENT
THIS IS NOT A BILL

Edward P.Romaine
County Clerk, Suffolk County

APPENDIX B

ARCHITECTURAL RENDERINGS

APPENDIX C

SOIL BORING LOCATION MAP & LOGS

East Coast Geoservices, LLC

FIGURE 1
SOIL BORING LOCATION MAP

Source: ESRI Web Mapping Service

Scale: 1 inch = 300 feet

N

Indian Hills Country Club

East Coast Geoservices, LLC
P.O. Box 2806
Huntington Station, New York 11746
Phone: (631) 513-8595
info@eastcoastgeoservices.com

SOIL BORING LOG

BORING I.D. EC-1	**PROJECT NO.** East Coast Geoservices# 86047	**PROJECT NAME** Indian Hills Country Club	
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York	
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Steve McGinn		
DRILL BIT DIAMETER/TYPE 2.25 inch/Hollow Stem Auger	**BOREHOLE DIAMETER** 4 inch	**BORING LOCATION DESCRIPTION** Centrally located on fairway of the 6th Hole	
LAND SURFACE ELEVATION ± 130 ft	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600	**SAMPLING METHOD** Split Spoon
DEPTH OF BORING 75 feet	**DEPTH TO WATER** 53-60 feet bgs (Perched)	**START/FINISH DATE** 3/11/09 to 3/13/09	**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
5		No Sample Collected				Samples were collected at 5 foot intervals down to a depth of 20 feet after which samples were collected at 10 foot intervals until boring terminated.
10	5 to 7	All strong brown clayey silt.	ML	1-1-1-1 (1-1)	NA	0.6 feet recovered
15	10 to 12	All strong brown fine to medium sand, trace gravel.	SW	2-2-2-3 (2-2)	NA	1.1 feet recovered Sample submitted for sieve analysis.
20	15 to 17	Top 0.9 feet yellow fine sand. Bottom 0.4 feet reddish yellow clayey silt, traces of mica present.	SP SM	1-2-1-3 (2-1)	NA	1.3 feet recovered Sample submitted for seive analysis.
25	20 to 22	Top 1.2 feet very pale brown silt. Bottom 0.3 feet reddish yellow clayey silt, traces of mica present.	ML ML	2-6-7-11 (6-7)	NA	1.5 feet recovered
30	25 to 27	No sample collected				
35	30 to 32	Top 1.2 feet strong brown silty clay Bottom 0.6 feet reddish yellow silt.	CL ML	2-6-6-11 (6-6)	NA	1.8 feet recovered Bottom sample submitted for sieve analysis.
40	35 to 37	No sample collected				
45	40 to 42	Top 1.3 feet strong brown silt. Mid 0.5 feet strong brown silty clay. Bottom 0.5 feet strong brown silt.	ML CL ML	6-9-11-15 (9-11)	NA	2.0 feet recovered Sample collected for sieve analysis.
50	45 to 47	No sample collected.				

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SOIL BORING LOG

BORING I.D.	**PROJECT NO.**	**PROJECT NAME**
EC-1	East Coast Geoservices# 86047	Indian Hills Country Club

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
50 55	50 to 52	All strong brown silt to clayey silt.	ML	9-12-16-20 (12-16)	NA	3.0 feet recovered.
60	55 to 57	No sample collected.				
PW 65	60 to 62	All yellowish red silt. Wet Perched water estimated within 53-60 feet.	ML	5-8-6-NA (8-6)	NA	1.1 feet recovered. Last 6 inches of sample not collected due to equipment failure. Perched water encountered. Entire sample wet.
70						
75	70 to 72	Strong brown clay encountered at ~ 70 to 73 feet.			NA	Sample characterized and depth estimated based on cuttings left on lead auger. Split spoon sample not possible due to residual heave in augers. **Boring Complete**
80						**Notes:** bgs - below ground surface PW - Perched Water Blow counts represent the number of strikes required to drive a 2 foot split spoon sampler ever 6 inches.
85						
90						
95						
100						
105						
110						

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SOIL BORING LOG

BORING I.D. EC-2	**PROJECT NO.** East Coast Geoservices# 86047	**PROJECT NAME** Indian Hills Country Club		
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York		
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Steve McGinn			
DRILL BIT DIAMETER/TYPE 2.5 inch/Hollow Stem Auger	**BOREHOLE DIAMETER** 4 inch	**BORING LOCATION DESCRIPTION** Located 50 feet west of paved cart path on the north side of the 12th hole fairway.		
LAND SURFACE ELEVATION ± 54 ft	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600		**SAMPLING METHOD** Split Spoon
DEPTH OF BORING 62 feet	**DEPTH TO WATER** 35 feet bgs (Perched)	**START/FINISH DATE** 3/17/09 to 3/17/09		**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
5		No Sample Collected				Samples were collected at 5 foot intervals down to a depth of 40 feet after which samples were collected at 10 foot intervals until boring terminated.
10	5 to 7	All yellow to reddish yellow fine sand, trace silt, trace mica present.	SP	1-2-2-3 (2-2)	NA	1.5 feet recovered
15	10 to 12	All yellow to reddish yellow fine to medium sand, trace gravel.	SW	1-1-0-1 (1-0)	NA	1.0 feet recovered
20	15 to 17	All yellow fine to medium sand, trace gravel.	SW	1-2-2-2 (2-2)	NA	1.1 feet recovered Sample submitted for sieve analysis.
25	20 to 22	All yellowish brown silt.	ML	2-4-6-8 (4-6)	NA	1.0 feet recovered
30	25 to 27	Top 0.4 feet light yellowish brown sandy silt, trace Mid 0.7 feet brownish yellow fine sand, trace silt, trace gravel. Bottom 0.3 feet light yellowish brown silty sandy, trace gravel.	SM SP SM	3-5-4-5 (5-4)	NA	1.4 feet recovered
35	30 to 32	Top 0.5 feet yellowish brown to grayish brown silty sand. Bottom 1.2 feet grayish brown clayey silt.	SM ML	3-4-6-10 (4-6)	NA	1.7 feet recovered Sample submitted for sieve analysis.
PW 40	35 to 37	All brownish yellow sandy silt, trace gravel. Wet	SM	5-7-8-10 (7-8)	NA	1.2 feet recovered Sample submitted for sieve analysis. Perched water encountered at 35 feet. Determined by measuring water on center rods.
45	40 to 42	All light brownish silty clay with 0.2 foot sandy clay lens at 41.5 feet.	CL	2-6-8-10 (6-8)	NA	1.6 feet recovered Sample collected for sieve analysis.
50	45 to 47	No sample collected.				

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SOIL BORING LOG

BORING I.D.	**PROJECT NO.**	**PROJECT NAME**
EC-2	East Coast Geoservices# 86047	Indian Hills Country Club

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
50	50 to 52	All brown clay.	CL	3-5-10-14 (5-10)	NA	2.0 feet recovered.
55						
	55 to 57	No sample collected.				
60						
	60 to 62	All brown clay.	CL	2-6-11-17 (6-11)	NA	1.5 feet recovered.
65						**Boring Complete**
70						**Notes:** bgs - below ground surface PW - Perched Water Blow counts represent the number of strikes required to drive a 2 foot split spoon sampler ever 6 inches.
75						
80						
85						
90						
95						
100						
105						
110						

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SOIL BORING LOG

BORING I.D. SB-1	**PROJECT NO.** ECG# 86047	**PROJECT NAME** Indian Hills Country Club	
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York	
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Steve McGinn		
DRILL BIT DIAMETER/TYPE 2.0 inch core barrel/2.5 inch HAS	**BOREHOLE DIAMETER** 4 inch	**BORING LOCATION DESCRIPTION** Northwest corner of the property in the temporary storage area	
LAND SURFACE ELEVATION NA	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600	**SAMPLING METHOD** Split Spoon
DEPTH OF BORING 32 feet	**DEPTH TO WATER** ~4 feet bgs (Perched)	**START/FINISH DATE**	**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
	0 to 2	All light brown silt, trace gravel.	ML	NA	NA	1.0 feet recovered
	2 to 4	All light brown fine sand.	SP	NA	NA	1.0 feet recovered
5	4 to 6	All brown fine sand. Wet	SP	NA	NA	2.0 feet recovered
						DTW @ ~ 4 feet bgs (perched)
	6 to 8	Top 1.0 feet same as above. Bottom 1.0 feet reddish brown clay.	SP CL	NA	NA	2.0 feet recovered
10	8 to 10	All reddish brown clay.	CL	NA	NA	2.0 feet recovered
	10 to 12	All same as above.	CL	NA	NA	1.0 feet recovered
15						
	15 to 17	All same as above.	CL	NA	NA	2.0 feet recovered
20						
	20 to 22	All same as above.	CL	NA	NA	1.5 feet recovered
25						
	25 to 27	All same as above.	CL	NA	NA	2.0 feet recovered
30						
	30 to 32	All same as above.	CL	NA	NA	1.5 feet recovered
35						Boring Complete
40						
45						
50						

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SOIL BORING LOG

BORING I.D. SB-2	**PROJECT NO.** ECG# 86047	**PROJECT NAME** Indian Hills Country Club	
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York	
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Steve McGinn		
DRILL BIT DIAMETER/TYPE 2.0 inch core barrel/2.5 inch HAS	**BOREHOLE DIAMETER** 2 inch/4 inch	**BORING LOCATION DESCRIPTION** East side of the wooded located in the northwest corner of the property	
LAND SURFACE ELEVATION NA	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600	**SAMPLING METHOD** Core Barrel/Split Spoon
DEPTH OF BORING 32 feet	**DEPTH TO WATER** Not Encountered	**START/FINISH DATE**	**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
5	0 to 5	Top 3.0 feet grayish brown silt. Bottom 1.0 feet grayish brown to reddish brown silty sand, trace gravel.	ML SM	NA	NA	4.0 feet recovered
10	5 to 10	All light brown fine sand, trace gravel.	SP	NA	NA	2.0 feet recovered
15	10 to 12	All same as above.	SP	NA	NA	1.0 feet recovered
20	15 to 17	All reddish brown clay.	CL	NA	NA	2.0 feet recovered
25	20 to 22	All same as above.	CL	NA	NA	1.5 feet recovered
30	25 to 27	All reddish brown clayey silt	SC	NA	NA	2.0 feet recovered
35	30 to 32	All same as above.	SC	NA	NA	1.5 feet recovered Boring Complete
40						
45						
50						

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SOIL BORING LOG

BORING I.D. SB-3	**PROJECT NO.** ECG# 86047	**PROJECT NAME** Indian Hills Country Club		
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York		
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Steve McGinn			
DRILL BIT DIAMETER/TYPE 2.0 inch core barrel/2.5 inch HAS	**BOREHOLE DIAMETER** 4 inch	**BORING LOCATION DESCRIPTION** Southwest portion of the Maintenance Yard area		
LAND SURFACE ELEVATION NA	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600		**SAMPLING METHOD** Split Spoon
DEPTH OF BORING 32 feet	**DEPTH TO WATER** Not Encountered	**START/FINISH DATE**		**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
	0 to 2	All light brown silt.	ML	NA	NA	1.0 feet recovered
	2 to 4	All light brown silt, trace gravel.	ML	NA	NA	1.0 feet recovered
5	4 to 6	Top 1.0 feet reddish brown silty sand, trace gravel.	SM	NA	NA	1.5 feet recovered
		Bottom 0.5 feet gray silt.	ML			
10						
	10 to 12	Top 1.0 feet reddish brown silty clay. Bottom 1.0 feet reddish brown silty sand.	CL SM	NA	NA	1.0 feet recovered
15						
	15 to 17	All reddish brown silty sand, trace gravel.	SM	NA	NA	2.0 feet recovered
20						
	20 to 22	All white fine sand, trace gravel.	SP	NA	NA	1.5 feet recovered
25						
	25 to 27	All same as above.	CL	NA	NA	2.0 feet recovered
30						
	30 to 32	Top 1.0 feet reddish brown fine sand. Bottom 1.0 feet reddish brown silty clay.	SP CL	NA	NA	1.5 feet recovered
35						Boring Complete
40						
45						
50						

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SOIL BORING LOG

BORING I.D. SB-4	**PROJECT NO.** ECG# 86047	**PROJECT NAME** Indian Hills Country Club		
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York		
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Steve McGinn			
DRILL BIT DIAMETER/TYPE 2.0 inch core barrel/2.5 inch HAS	**BOREHOLE DIAMETER** 2 inch	**BORING LOCATION DESCRIPTION** West central portion of the driving range		
LAND SURFACE ELEVATION NA	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600		**SAMPLING METHOD** Core Barrel
DEPTH OF BORING 32 feet	**DEPTH TO WATER** Not Encountered	**START/FINISH DATE**		**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
5	0 to 5	Top 2.0 feet reddish brown silty sand, trace gravel. Bottom 2.0 feet reddish brown sandy clay, trace gravel. gravel.	SM SC	NA	NA	4.0 feet recovered
10	5 to 10	All reddish brown sandy clay, trace gravel.	SC	NA	NA	2.0 feet recovered
15	10 to 15	Top 1.5 feet reddish brown fine sand, trace gravel. Bottom 2.5 feet yellowish brown fine sand.	SP SP	NA	NA	4.0 feet recovered
20	15 to 20	All same as above.	SP	NA	NA	4.0 feet recovered
25	20 to 25	All same as above.	SP	NA	NA	4.0 feet recovered
30	25 to 30	All same as above.	SP	NA	NA	3.0 feet recovered Boring Complete
35						
40						
45						
50						

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SOIL BORING LOG

BORING I.D. SB-5	**PROJECT NO.** ECG# 86047	**PROJECT NAME** Indian Hills Country Club		
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York		
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Steve McGinn			
DRILL BIT DIAMETER/TYPE 2.0 inch core barrel/2.5 inch HAS	**BOREHOLE DIAMETER** 2 inch	**BORING LOCATION DESCRIPTION** Southwest corner of the driving range		
LAND SURFACE ELEVATION NA	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600		**SAMPLING METHOD** Core Barrel
DEPTH OF BORING 32 feet	**DEPTH TO WATER** Not Encountered	**START/FINISH DATE**		**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
5	0 to 5	All brown clayey silt to silty clay.	SC	NA	NA	2.5 feet recovered
10	5 to 10	Top 1.0 feet reddish brown fine sand, trace gravel.	SP	NA	NA	5.0 feet recovered
15	10 to 15	All reddish brown clay.	CL	NA	NA	3.0 feet recovered
20	15 to 20	All same as above.	CL	NA	NA	4.0 feet recovered
25	20 to 25	All same as above.	CL	NA	NA	4.0 feet recovered
30	25 to 30	All same as above.	CL	NA	NA	3.0 feet recovered Boring Complete
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SOIL BORING LOG

BORING I.D. SB-6	**PROJECT NO.** ECG# 86047	**PROJECT NAME** Indian Hills Country Club		
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York		
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Jonathan McGinn			
DRILL BIT DIAMETER/TYPE 2.0 inch core barrel	**BOREHOLE DIAMETER** 2 inch	**BORING LOCATION DESCRIPTION** Southwest corner of the driving range north of SB-5		
LAND SURFACE ELEVATION NA	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600		**SAMPLING METHOD** Core Barrel
DEPTH OF BORING 30 feet	**DEPTH TO WATER** Not Encountered	**START/FINISH DATE**		**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
5	0 to 5	Top 05 feet brown silty loam (Top Soil). Mid 0.5 feet reddish brown silty clay. Mid 1.5 feet reddish brown silty sand, trace gravel. Bottom 0.5 feet reddish brown silt.	ML CL SM ML	NA	NA	3.0 feet recovered
10	5 to 10	Top 1.5 feet reddish brown silty clay. Mid 1.0 feet reddish brown silty sand, trace gravel. Bottom 1.5 feet reddish brown silt.	CL SM Ml	NA	NA	4.0 feet recovered
15	10 to 15	Top 1.0 feet reddish brown silty sand, trace gravel. Bottom 3.0 feet reddish brown silty clay.	SM CL	NA	NA	4.0 feet recovered
20	15 to 20	All reddish brown silty clay.	CL	NA	NA	4.5 feet recovered
25	20 to 25	All same as above.	CL	NA	NA	5.0 feet recovered
30	25 to 30	All same as above.	CL	NA	NA	5.0 feet recovered Boring Complete
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SOIL BORING LOG

BORING I.D. SB-7	**PROJECT NO.** ECG# 86047	**PROJECT NAME** Indian Hills Country Club		
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York		
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Jonathan McGinn			
DRILL BIT DIAMETER/TYPE 2.0 inch core barrel	**BOREHOLE DIAMETER** 2 inch	**BORING LOCATION DESCRIPTION** Southeast corner of the driving range		
LAND SURFACE ELEVATION NA	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600		**SAMPLING METHOD** Core Barrel
DEPTH OF BORING 30 feet	**DEPTH TO WATER** Not Encountered	**START/FINISH DATE**		**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
5	0 to 5	Top 1.0 feet brown silty loam (Top Soil). Bottom 1.0 feet reddish brown silty sand, trace gravel.	ML SM	NA	NA	2.0 feet recovered
10	5 to 10	All pale brown fine sand, trace gravel.	SP	NA	NA	4.5 feet recovered
15	10 to 15	All same as above.	SP	NA	NA	4.5 feet recovered
20	15 to 20	All same as above.	SP	NA	NA	4.0 feet recovered
25	20 to 25	No recovery.	SP	NA	NA	No recovery
30	25 to 30	All same as above.	SP	NA	NA	3.0 feet recovered Boring Complete
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SOIL BORING LOG

BORING I.D. SB-8	**PROJECT NO.** ECG# 86047	**PROJECT NAME** Indian Hills Country Club		
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York		
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Jonathan McGinn			
DRILL BIT DIAMETER/TYPE 2.0 inch core barrel	**BOREHOLE DIAMETER** 2 inch	**BORING LOCATION DESCRIPTION** Northeast corner of the driving range		
LAND SURFACE ELEVATION NA	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600		**SAMPLING METHOD** Core Barrel
DEPTH OF BORING 30 feet	**DEPTH TO WATER** Not Encountered	**START/FINISH DATE**		**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
5	0 to 5	Top 0.5 feet brown silty loam (Top Soil). Bottom 3.5 feet pale brown silty sand, trace gravel.	ML SM	NA	NA	4.0 feet recovered
10	5 to 10	Top 0.5 feet pale brown silty sand, trace gravel. Mid 0.5 feet pale brown clayey silt. Bottom 3.5 feet reddish brown silty to clay sand, trace gravel.	SM SC SC-SM	NA	NA	4.5 feet recovered
15	10 to 15	All reddish brown silty to clayey sand, trace gravel.	SC-SM	NA	NA	4.5 feet recovered
20	15 to 20	All reddish brown silty sand, trace gravel.	SM	NA	NA	4.0 feet recovered
25	20 to 25	Top 1.0 feet reddish brown silty sand, trace gravel. Bottom 1.0 feet pale brown fine sand, trace gravel.	SM SP	NA	NA	2.0 feet recovered
30	25 to 30	No recovery		NA	NA	No recovery Boring Complete
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SOIL BORING LOG

BORING I.D. SB-9	**PROJECT NO.** ECG# 86047	**PROJECT NAME** Indian Hills Country Club		
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York		
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Jonathan McGinn			
DRILL BIT DIAMETER/TYPE 2.0 inch core barrel	**BOREHOLE DIAMETER** 2 inch	**BORING LOCATION DESCRIPTION** West of clubhouse enterance		
LAND SURFACE ELEVATION NA	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600		**SAMPLING METHOD** Core Barrel
DEPTH OF BORING 30 feet	**DEPTH TO WATER** Not Encountered	**START/FINISH DATE**		**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
5	0 to 5	Top 0.5 feet brown silty loam (Top Soil). Bottom 3.5 feet pale brown silty sand, trace gravel.	ML SM	NA	NA	4.0 feet recovered
10	5 to 10	Top 1.5 feet pale brown silty sand, trace gravel. Bottom 2.5 feet pale brown fine sand, trace gravel.	SM SP	NA	NA	4.0 feet recovered
15	10 to 15	Top 2.0 feet brown silty to clayey sand, trace gravel. Mid 0.8 feet pale brown silt. Bottom 1.2 feet brown clayey silt.	SC-SM ML SC-SM	NA	NA	4.0 feet recovered
20	15 to 20	Top 0.5 feet reddish brown silty sand. Bottom 3.5 feet white fine sand.	SM SP	NA	NA	4.0 feet recovered
25	20 to 25	No recovery.		NA	NA	No recovery
30	25 to 30	Top 0.8 feet brown fine sand. Mid 1.0 feet brown silty sand. Mid 1.0 feet white fine sand. Bottom 0.7 feet pale brown silty sand, trace gravel.	SP SM SP SM	NA	NA	3.5 feet recovered Boring Complete
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SOIL BORING LOG

BORING I.D. SB-10	**PROJECT NO.** ECG# 86047	**PROJECT NAME** Indian Hills Country Club		
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York		
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Jonathan McGinn			
DRILL BIT DIAMETER/TYPE 2.0 inch core barrel	**BOREHOLE DIAMETER** 2 inch	**BORING LOCATION DESCRIPTION** Located in southeastern portion of property.		
LAND SURFACE ELEVATION NA	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600		**SAMPLING METHOD** Core Barrel
DEPTH OF BORING 20 feet	**DEPTH TO WATER** Not Encountered	**START/FINISH DATE**		**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
5	0 to 5	All reddish brown sandy silt.	SM	NA	NA	4.0 feet recovered
10	5 to 10	All same as above.	CL	NA	NA	4.0 feet recovered
15	10 to 15	Top 2.0 feet reddish brown silty sand. Bottom 2.0 feet reddish brown silty clay.	SM CL	NA	NA	4.0 feet recovered
20	15 to 20	Top 2.0 feet reddish brown silty clay. Bottom 2.0 feet reddish brown fine sand.	CL SP	NA	NA	4.0 feet recovered Boring Complete
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SOIL BORING LOG

BORING I.D. SB-11	**PROJECT NO.** ECG# 86047	**PROJECT NAME** Indian Hills Country Club		
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York		
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Jonathan McGinn			
DRILL BIT DIAMETER/TYPE 2.0 inch core barrel	**BOREHOLE DIAMETER** 2 inch	**BORING LOCATION DESCRIPTION** Between holes 4 & 8		
LAND SURFACE ELEVATION NA	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600		**SAMPLING METHOD** Core Barrel
DEPTH OF BORING 30 feet	**DEPTH TO WATER** DTW @ ~20 feet bgs	**START/FINISH DATE**		**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
5	0 to 5	Top 0.5 feet brown silty loam (Top Soil). Bottom 2.0 feet brown silty sand, trace gravel.	ML SM	NA	NA	2.5 feet recovered
10	5 to 10	No recovery.		NA	NA	No recovery
15	10 to 15	Top 2.0 feet brown sand, trace gravel. Mid 1.0 feet brown silty clay. Bottom 1.2 feet brown sand.	SC-SM ML SC-SM	NA	NA	4.0 feet recovered
20	15 to 20	No recovery.		NA	NA	No recovery
25	20 to 25	All brown silty clay. Wet	SC	NA	NA	3.0 feet recovered Water at ~20 feet
30	25 to 30	Top 2.0 feet brown silty clay. Mid 1.0 feet brown silty sand. Bottom 2.0 feet brown silty clay.	SC SM SP	NA	NA	5.0 feet recovered Boring Complete
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SOIL BORING LOG

BORING I.D. SB-12	**PROJECT NO.** ECG# 86047	**PROJECT NAME** Indian Hills Country Club		
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York		
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Jonathan McGinn			
DRILL BIT DIAMETER/TYPE 2.0 inch core barrel	**BOREHOLE DIAMETER** 2 inch	**BORING LOCATION DESCRIPTION** Between Holes 3 & 4		
LAND SURFACE ELEVATION NA	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600		**SAMPLING METHOD** Core Barrel
DEPTH OF BORING 30 feet	**DEPTH TO WATER** DTW @ ~25 feet	**START/FINISH DATE**		**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
5	0 to 5	Top 0.5 feet brown silty loam (Top Soil). Bottom 2.0 feet reddish brown silty clay.	ML SM	NA	NA	2.5 feet recovered
10	5 to 10	All reddish brown silty clay to silty sand.	SC-SM	NA	NA	3.0 feet recovered
15	10 to 15	All same as above.	SC-SM	NA	NA	4.0 feet recovered
20	15 to 20	All reddish brown fine sand, trace gravel.	SP	NA	NA	3.0 feet recovered
25	20 to 25	All brown silty sand, trace gravel.	SM	NA	NA	3.0 feet recovered
30	25 to 30	All brown fine sand, trace gravel. Wet	SP	NA	NA	5.0 feet recovered DTW @ ~25 feet Boring Complete
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SOIL BORING LOG

BORING I.D. SB-13	**PROJECT NO.** ECG# 86047	**PROJECT NAME** Indian Hills Country Club		
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York		
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Jonathan McGinn			
DRILL BIT DIAMETER/TYPE 2.0 inch core barrel	**BOREHOLE DIAMETER** 2 inch	**BORING LOCATION DESCRIPTION** West of Hole 11		
LAND SURFACE ELEVATION NA	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600		**SAMPLING METHOD** Core Barrel
DEPTH OF BORING 30 feet	**DEPTH TO WATER** Not Encountered	**START/FINISH DATE**		**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
5	0 to 5	Top 0.5 feet brown silty loam (Top Soil). Bottom 2.0 feet reddish brown silty clay.	ML SM	NA	NA	2.5 feet recovered
10	5 to 10	Top 1.0 feet reddish brown silty sand. Bottom 2.5 feet gray clay.	SM CL	NA	NA	3.5 feet recovered
15	10 to 15	Top 2.5 feet brown silty clay. Bottom 1.5 feet brown silty sand.	CL SM	NA	NA	4.0 feet recovered
20	15 to 20	All white fine sand, trace gravel.	SP	NA	NA	3.0 feet recovered
25	20 to 25	All brown fine sand.	SP	NA	NA	5.0 feet recovered
30	25 to 30	All brown fine sand, trace silt, trace gravel.	SP	NA	NA	5.0 feet recovered DTW @ ~25 feet Boring Complete
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SOIL BORING LOG

BORING I.D. SB-14	**PROJECT NO.** ECG# 86047	**PROJECT NAME** Indian Hills Country Club		
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York		
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Jonathan McGinn			
DRILL BIT DIAMETER/TYPE 2.0 inch core barrel	**BOREHOLE DIAMETER** 2 inch	**BORING LOCATION DESCRIPTION** Northern end of the site south of SB-13		
LAND SURFACE ELEVATION NA	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600		**SAMPLING METHOD** Core Barrel
DEPTH OF BORING 30 feet	**DEPTH TO WATER** Not Encountered	**START/FINISH DATE**		**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
5	0 to 5	All reddish brown silty sand.	SM	NA	NA	3.0 feet recovered
10	5 to 10	Top 1.5 feet reddish brown silt. Bottom 1.5 feet reddish brown clay.	ML CL	NA	NA	3.0 feet recovered
15	10 to 15	All reddish brown clay.	CL	NA	NA	4.0 feet recovered
20	15 to 20	All same as above.	CL	NA	NA	3.0 feet recovered
25	20 to 25	All same as above.	CL	NA	NA	5.0 feet recovered
30	25 to 30	All same as above.	CL	NA	NA	5.0 feet recovered Boring Complete
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SOIL BORING LOG

BORING I.D. SB-15	**PROJECT NO.** ECG# 86047	**PROJECT NAME** Indian Hills Country Club		
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York		
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Jonathan McGinn			
DRILL BIT DIAMETER/TYPE 2.0 inch core barrel	**BOREHOLE DIAMETER** 2 inch	**BORING LOCATION DESCRIPTION** Northern end of the site south of SB-14		
LAND SURFACE ELEVATION NA	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600		**SAMPLING METHOD** Core Barrel
DEPTH OF BORING 20 feet	**DEPTH TO WATER** 7 feet bgs (Perched)	**START/FINISH DATE**		**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
5	0 to 5	All reddish brown silty sand.	SM	NA	NA	3.5 feet recovered
10	5 to 10	All reddish brown silty sand.	SM CL	NA	NA	3.0 feet recovered Water encounteredat 7 feet. Perched
15	10 to 15	All reddish brown silty clay, trace sand.	CL	NA	NA	4.0 feet recovered
20	15 to 20	All reddish brown fine sand and gravel.	SW	NA	NA	3.0 feet recovered Boring Complete
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SOIL BORING LOG

BORING I.D. SB-16	**PROJECT NO.** ECG# 86047	**PROJECT NAME** Indian Hills Country Club		
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York		
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Jonathan McGinn			
DRILL BIT DIAMETER/TYPE 2.0 inch core barrel	**BOREHOLE DIAMETER** 2 inch	**BORING LOCATION DESCRIPTION**		
LAND SURFACE ELEVATION NA	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600		**SAMPLING METHOD** Core Barrel
DEPTH OF BORING 30 feet	**DEPTH TO WATER** Not Encountered	**START/FINISH DATE**		**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
5	0 to 5	All reddish brown silt.	ML	NA	NA	3.5 feet recovered
10	5 to 10	All reddish brown silty sand and gravel.	SM	NA	NA	3.0 feet recovered
15	10 to 15	All reddish brown silty clay.	CL	NA	NA	4.0 feet recovered
20	15 to 20	All same as above.	CL	NA	NA	4.0 feet recovered
25	20 to 25	All reddish brown clay.	CL	NA	NA	4.0 feet recovered
30	25 to 30	All same as above.	CL	NA	NA	3.0 feet recovered. Boring Complete
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SOIL BORING LOG

BORING I.D. SB-17	**PROJECT NO.** ECG# 86047	**PROJECT NAME** Indian Hills Country Club		
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York		
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Jonathan McGinn			
DRILL BIT DIAMETER/TYPE 2.0 inch core barrel	**BOREHOLE DIAMETER** 2 inch	**BORING LOCATION DESCRIPTION** Located in far southern end of site, east of SB-18		
LAND SURFACE ELEVATION NA	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600		**SAMPLING METHOD** Core Barrel
DEPTH OF BORING 30 feet	**DEPTH TO WATER** Not Encountered	**START/FINISH DATE**		**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
5	0 to 5	All reddish brown silt, trace sand.	CL	NA	NA	3.5 feet recovered
10	5 to 10	Top 1.0 feet pale brown silty sand. Bottom 2.0 feet reddish brown fine sand.	SM SP	NA	NA	3.0 feet recovered
15	10 to 15	All reddish brown fine sand.	SP	NA	NA	4.0 feet recovered
20	15 to 20	All same as above.	SM	NA	NA	4.0 feet recovered
25	20 to 25	All reddish brown silty sand.	SM	NA	NA	4.0 feet recovered
30	25 to 30	All pale brown fine sand, trace gravel.	SP	NA	NA	3.0 feet recovered. Boring Complete
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SOIL BORING LOG

BORING I.D. SB-18	**PROJECT NO.** ECG# 86047	**PROJECT NAME** Indian Hills Country Club		
LOGGED BY Eric Arnesen	**APPROVED BY** Eric Arnesen	**LOCATION** Breeze Hill Road, Northport, New York		
DRILLING CONTRACTOR East Coast Geoservices, LLC	**DRILLER** Jonathan McGinn			
DRILL BIT DIAMETER/TYPE 2.0 inch core barrel	**BOREHOLE DIAMETER** 2 inch	**BORING LOCATION DESCRIPTION** Located in far southern end of site, west of SB-17		
LAND SURFACE ELEVATION NA	**COORDINATES** NA	**DRILLING EQUIPMENT/METHOD** Power Probe 9600		**SAMPLING METHOD** Core Barrel
DEPTH OF BORING 30 feet	**DEPTH TO WATER** Not Encountered	**START/FINISH DATE**		**BACKFILL** Cuttings

Sample Depth (feet)	Sample Interval (feet)	Visual Description	Group Symbol	Blow Counts	PID (ppm)	Remarks
5	0 to 5	All reddish brown silty clay.	CL	NA	NA	3.5 feet recovered
10	5 to 10	All reddish brown fine sand.	SP	NA	NA	3.0 feet recovered
15	10 to 15	All same as above.	SP	NA	NA	4.0 feet recovered
20	15 to 20	All same as above.	SP	NA	NA	4.0 feet recovered
25	20 to 25	All same as above.	SP	NA	NA	4.0 feet recovered
30	25 to 30	All reddish brown silty sand.	SM	NA	NA	3.0 feet recovered. Boring Complete
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APPENDIX D

ENVIRONMENTAL SITE ASSESSMENTS (ESA)

(See CD-ROM in front pocket of DEIS for access to PDFs of the appendices of the Phase I/II ESA reports)

Appendix D-1
Indian Hills Country Club, Phase I ESA

Nelson, Pope & Voorhis, LLC
February 4, 2014

Phase I

Environmental Site Assessment

Indian Hills Country Club

Northport, New York

NP&V Job# 86047

February 4, 2014

CONFIDENTIAL AND PRIVILEGED

Phase I

Environmental Site Assessment

Indian Hills Country Club

Northport, New York

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ENVIRONMENTAL • PLANNING • CONSULTING

Phase I

Environmental Site Assessment

Indian Hills Country Club

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Phase I

Environmental Site Assessment

Indian Hills Country Club

1.0 SUMMARY

The subject property has been inspected and reviewed independently by Nelson, Pope & Voorhis, LLC in order to determine potential environmental or public health concerns. This report is intended to identify Recognized Environmental Conditions (as defined in Standard Practice for Environmental Site Assessment; ASTM E 1527-13 and United States Environmental Protection Agency (USEPA) Standards and Practices for All Appropriate Inquiries (AAI)) on the subject property based on four (4) components of a Phase I Environmental Site Assessment (ESA): records review, site reconnaissance, interviews and evaluation and reporting. **Appendix A** provides a statement of limiting conditions. **Appendix B** includes the resumes of key personnel.

The subject property lies in the Village of Northport, Town of Huntington, County of Suffolk, New York. The subject property consists of a ±45 acre property that is comprised of two (2) tax parcels on the north side of Breeze Hill Road and two (2) tax parcels on the south side of Breeze Hill Road. The entirety of the subject property is located east of Makamah Road, west of Fresh Pond Road and directly south of Long Island Sound. The parcels north of Breeze Hill Road are more particularly described as Suffolk County Tax Map #s 0400-14-04-1 and 2, and the parcels south of Breeze Hill Road are more particularly described as Suffolk County Tax Map #s 0400-15-01-11 and 12. The surrounding area is moderately developed and contains a mix of residential and vacant land.

The subject property consists of an irregularly-shaped property that presently contains a landscaped 18-hole golf course with a driving range and associated country club facilities. There are several small freshwater ponds throughout the golf course and the course borders an estuarine and marine wetland to the north (Long Island Sound). The structures currently present on the subject property include: the main clubhouse, a pro shop, a halfway house, a barn utilized for storage, an equipment shed, a fertilizer and spray rig storage structure, and a maintenance garage with associated offices. All of the buildings are connected to separate sanitary systems with the exception of the storage barn, the equipment shed, and the fertilizer storage structure, which are not connected to sanitary systems. The clubhouse is connected to two (2) separate sanitary systems, one (1) for the kitchen and one (1) for the bathrooms.

The main clubhouse, which consists of a two-story building with a painted concrete and wood shingle exterior, was originally constructed in 1896 according to Bob Cornelius, the maintenance manager of the country club. Several additions were added to the original structure over the years to form its current configuration. This building contains locker rooms, a kitchen, dining areas, restrooms, an event hall, a card room, office space, and storage areas. The building is presently heated by a fuel oil-fired boiler located in the basement. The boiler appeared to be in

good condition, with no evidence of any major staining and no floor drains in the vicinity of the boiler. There is an outdoor underground fuel oil storage tank on the east side of the building. The capacity of the storage tank and the age of installation are not known.

The pro shop consists of a two-story building with a wood shingle exterior. The building contains storage areas for member's golf bags and golf carts in the basement, a retail pro shop on the first floor, and office space on the second floor. The building is presently heated by a fuel oil-fired boiler located in the basement. According to Mr. Cornelius, the boiler is approximately one (1) year old. The boiler appeared to be in very good condition, with no evidence of staining or floor drains in the vicinity of the boiler. There is a 275 gallon above ground fuel oil storage tank located in the basement of the pro shop. The storage tank also appeared to be in good condition with no evidence of any staining or floor drains in the vicinity of the tank.

The halfway house consists of a very small, one-story concrete structure with an asphalt shingle roof. The building contains a small storage area, a small kitchen area, and a restroom. The building is presently serviced by electric heat and an electric-powered hot water heater. The kitchen is connected to a grease trap in addition to the sanitary system that services the building.

The storage barn located south of the main clubhouse consists of a one-story structure with a vinyl-sided exterior. The structure is utilized for the storage of electric golf carts in addition to furniture for the clubhouse. The building is not heated and does not contain a sanitary system Two (2) propane tanks were observed in the storage barn; however, according to Mr. Cornelius, the propane tanks were empty and are usually not stored in the barn. There is a large paved parking area between the storage barn and the clubhouse. Stormwater leaching pools were observed in the paved parking area. There was no evidence of any staining in the vicinity of any of the leaching pools.

The maintenance buildings include an equipment shed, a fertilizer and spray rig storage structure, and a repair shop with associated offices; these buildings are located in the northeastern portion of the subject property, adjoined by a common paved parking area. There were several maintenance sand piles and chopped wood piles stored east of these buildings in addition to some landscaping equipment and some empty drums stored outdoors. There was no staining observed in the vicinity of any of the outdoor drums or equipment.

The equipment shed consists of a one-story metal structure that stores the landscaping equipment for the golf course. Two (2) drums and several gas cans were observed in the shed. The drums were unlabeled and Speedi-Dri was observed on the concrete floor in the vicinity of the drums. Other minor staining was observed on the concrete floor near the landscaping equipment; however, it is not expected to adversely affect the subsurface resources of the subject property, since no floor drains were observed. The equipment shed is heated and does not contain a sanitary system. Two (2) 1,000 gallon above ground self-contained diesel fuel and gasoline storage tanks were observed on the western side of the structure. The storage tanks are utilized for fueling the landscaping equipment. The tanks appeared to be in good condition and there was no evidence of any staining in the vicinity of the storage tanks.

The fertilizer and spray rig storage structure consists of a metal dome-shaped structure. The structure presently contains fertilizing machinery for the golf course, plastic storage drums for fertilizing materials and bags of fertilizer. The drums were reportedly empty. No staining was observed on the concrete floor of the storage structure. The structure is not heated and does not contain a sanitary system.

The repair shop consists of a one-story concrete block building with concrete floors and an attached office with vinyl siding. The maintenance shop contained several motor oil drums. Minor staining was observed in several areas on the concrete floor of the repair shop; however, the staining is not expected to adversely affect the subject property, since there are no floor drains present. A dirt-filled pit covered with wood boards was observed in the concrete floor towards the center of the repair shop. According to John Paquette, the Golf Course Superintendent, this was formerly a concrete maintenance pit that did not contain any floor drains and was backfilled approximately a year ago. The building is heated by a fuel oil-fired heating system. There is a 275 gallon outdoor above ground fuel storage tank located within a vault on the western side of the maintenance building. No staining was observed in the vicinity of the storage tank vault.

A well house that supplies water to the irrigation pumps for the golf course is located south of the maintenance structures on the eastern property boundary. In addition, several pole-mounted transformers were observed on the subject property. All of the transformers observed appeared to be in good condition. There was no evidence of any major staining, discharge, areas of stressed vegetation, residue of oils or other toxic substances, pools of discharge, petroleum or chemical odors, or other such indicators noted during the site reconnaissance.

Sanborn map coverage was not available for the area of the subject property. Aerial photographs from 1938, 1953, 1957, 1966, 1976, 1980, 1994, 2006, 2008, 2009 and 2011 were reviewed in order to determine if any prior uses occupied the subject property. The subject property appeared to be primarily vacant, wooded land with the exception of a cleared path in the northern portion of the subject property and a cleared, possibly developed area where the clubhouse presently exists in the 1938-1957 aerial photographs. The majority of the surrounding area consisted of vacant, wooded land during these years, with the exception of some areas of light residential development or farmland. In all of the remaining aerial photographs, the subject property contained a golf course with several small associated structures and several small ponds. The surrounding area consisted of light to moderate residential development in the vicinity of the subject property, and the Long Island Sound directly north of the subject property.

The USGS Northport and Islip Quadrangle Maps dated 1903, 1904, 1942, 1944, 1954, 1967 and 1979 were reviewed. Review of the topographic maps revealed that the subject property was vacant, wooded land with the exception of a small structure depicted where the clubhouse presently exists in the 1903-1954 topographic maps. In all of the remaining topographic maps, the subject property was identified as the Indian Hills Golf Course and Country Club and contained several small ponds. The surrounding area was lightly developed residentially in all of the topographic maps, with Crab Meadow Park and a golf course west of the subject property, Fresh Pond directly east of the subject property and the Long Island Sound directly north of the subject property.

An extensive government records search identified the subject property as a RCRA hazardous waste generator and Petroleum Bulk Storage (PBS) facility with five (5) closed spill incidents. According to the hazardous waste generator listing for the subject property, the Indian Hills Country Club generated 5 gallons of solid waste that exhibits the characteristic of ignitability, 11 gallons of arsenic, and 30 gallons of arsenic acid in 1988. A generator classification was not provided for the facility and no additional waste information was provided for the facility.

According the PBS listings for the subject property, the Indian Hills Country Club utilizes a 1,500 gallon outdoor underground #2 fuel oil storage tank that was installed in 1960, which reportedly expired in 2009, and a 275 gallon outdoor above ground #2 fuel oil storage tank that was installed in 1989 and is reportedly non-complying, in addition to 580 gallons of outdoor above ground drum storage, which expired in 1991. The Country Club previously utilized a 1,000 gallon outdoor underground gasoline storage tank and a 500 gallon outdoor above ground diesel storage tank, which were installed in 1962 and removed in 1990. In addition, the facility listed a 1,500 gallon outdoor underground #2 fuel oil storage tank, and two (2) 500 gallon outdoor above ground gasoline storage tanks that were never installed.

According to the closed spill listings for the subject property, the subject property had an incident occur on 7/27/1986 that resulted in a greenish liquid running from Indian Hills Country Club pond onto the nearby road and into Fresh Pond (Spill #s 8602746 and 8602804). According to these listings, 200,000 gallons of unknown petroleum were released to surface water. The spill was closed on 5/7/1987 and no further information regarding the spill was provided. On 10/5/1988, Spill #8805704 was issued to the subject property when an above ground storage tank was moved to another location and oil was found beneath the tank due to filter leakage. The area was cleaned, 0.20 yards of soil was removed from the site, and the spill was subsequently closed on 12/30/1988. An additional spill was issued to the subject property on 12/21/1993 (Spill #9311366) that resulted from poor housekeeping. Specifically, a 300 gallon above ground tank near the maintenance building historically leaked small quantities of fuel during vehicle refueling. This spill was addressed and closed on 5/19/1997. Lastly, an incident occurred on 3/25/1994 that resulted from a fire at the maintenance building that caused the possible spillage of unknown petroleum on the ground. It was determined that less than 25 gallons of petroleum were released and that it posed no threat. The spill was subsequently closed on 2/10/2004.

Some Federal, State and County documented regulated sites were noted in the vicinity of the subject property. Specifically, two (2) active and thirty-two (32) closed spill incidents and one (1) closed LUST incident are located within one-half (0.5) mile of the subject property. In addition, one (1) PBS facility is located within one-quarter (0.25) mile of the subject property.

A Tier 1 Vapor Encroachment Condition (VEC) Assessment was conducted as part of this Phase I ESA, due to the proximity of several spill incidents. The assessment was conducted in accordance to the methods and procedures, outlined within ASTM E2600-10, Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions.

For this assessment, under conditions where the direction of groundwater flow can be ascertained, critical search distances are used to determine if a VEC exists. Specifically, the following distances are applied to the Tier I Assessment:

Upgradient Sources
1,760 feet for Chemical of Concern (COC)
520 feet for petroleum hydrocarbons

Cross-gradient Sources
365 feet for COC
165 feet for petroleum hydrocarbon LNAPL sources & 95 feet dissolved petroleum hydrocarbon sources with plume considerations

Down-gradient Sources
100 feet for COC/petroleum hydrocarbon LNAPL sources
30 feet dissolved petroleum hydrocarbon sources

Review of the regulatory agency database report provided for the subject property revealed that there are two (2) closed spill incidents located within the critical up-gradient distance. In addition, the subject property was identified as a RCRA Generator and a PBS facility with five (5) closed spill incidents. Since the subject property is permitted and regulated by state or federal agencies for petroleum bulk storage and waste generation, these listings are not expected to adversely affect the subject property. In addition, all of the closed spill incidents have been addressed to the satisfaction of the NYSDEC and are not expected to adversely affect the subject property. Therefore, the subject property is not expected to be adversely affected by a VEC. Based on the information reviewed, it is concluded that a VEC can be ruled out.

This assessment has identified the following with respect to recognized environmental conditions, historic recognized environmental conditions and de minimus conditions in connection with the subject property, subject to the methodology and limitations of this report.

Two (2) recognized environmental conditions were noted on the subject property based on the site reconnaissance, interviews and regulatory agency records review.

1. The sanitary systems and grease traps connected to the clubhouse kitchen, the halfway house kitchen and the maintenance building should be sampled to ensure that current and past operations have not adversely affected the subsurface resources of the subject property.

2. There is an underground fuel oil storage tank located on the east side of the clubhouse. The age and capacity of the storage tank are uncertain. The storage tank should be tested in order to ensure that it is not negatively affecting the subsurface resources of the subject property.

No controlled recognized environmental conditions were noted on the subject property based on the site reconnaissance, interviews and regulatory agency records review.

Four (4) de minimus conditions were noted on the subject property based on the site reconnaissance, interviews and regulatory agency records review.

1. Several drums were observed in the maintenance buildings and outdoor areas near the maintenance buildings. Some of the drums were unlabeled or empty. No major staining was observed in the vicinity of these drums, therefore, they are not expected to adversely affect the subject property. However, any drums that are not being utilized should be properly removed and disposed of. Any drums that are being utilized should be properly stored on secondary containment, and labeled, and if there are more than five (5) drums a drum storage permit should be obtained/maintained/updated in accordance with Article 12 of the Suffolk County Sanitary Code and NYSDEC PBS regulations. In addition, the permits for these drums identified in the PBS listing for the subject property that reportedly expired in 1991 should be renewed in order to avoid violation.

2. The subject property was identified as a RCRA Generator that generated 5 gallons of solid waste that exhibits the characteristic of ignitability, 11 gallons of arsenic, and 30 gallons of arsenic acid in 1988. Since there was no evidence of these materials presently existing on the subject property and the generation of these materials was permitted and regulated by a regulatory agency, this listing is not expected to adversely affect the subject property

3. The subject property was identified as a PBS facility. The listings provided in the Toxics Targeting database included multiple tanks that were identified as non-complying or as having expired permits. In addition, some storage tanks observed on the subject property did not appear in the Toxics Targeting listings. All of the storage tanks present on the subject property should be registered in accordance with Article 12 of the Suffolk County Sanitary Code and NYSDEC PBS regulations and any outdated permits should be updated in order to avoid violation.

4. The majority of the subject property has been utilized as a golf course since approximately 1960, according to review of historic aerial photographs. If the property is to be used for residential purposes in the future, it is recommended that a pesticide survey be conducted in order to ensure that the surface soils have not been impacted by past or current operations.

No historic recognized environmental conditions were noted on the subject property based on the site reconnaissance, interviews and regulatory agency records review.

This report was completed in accordance with the standards set forth in the ASTM E 1527-13 and the USEPA AAI. ASTM protocols identify asbestos containing material (ACM) as non-scope issues. In the interest of serving the client, observations concerning ACM are included herein. This visual assessment should not be considered an asbestos survey which would be required for building demolition and/or identification of all possible sources of ACM, regardless of health danger. Based on observations made during the site reconnaissance, the following is noted:

1. No suspect ACM was observed during the reconnaissance of the subject property. If the buildings are to undergo major renovation or demolition, an Asbestos Survey should be

completed in accordance with the New York State Department of Labor Industrial Code 56.

The observation noted above is not intended to eliminate any other possible sources which may or may not be present.

NP&V has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-13 and USEPA AAI for the Indian Hills Country Club Property located in Northport, New York. Any exceptions to, or deletions from, this practice are described in Section 11.0 of this report. In conclusion, this assessment has revealed evidence of two (2) recognized environmental conditions and four (4) de minimus conditions in connection with the subject property, subject to the methodology and limitations of this report.

2.0 INTRODUCTION

2.1 PURPOSE

This report is intended to meet the format and requirements of the ASTM Standard Practice for Environmental Site Assessments, as published in ASTM E 1527-13 and USEPA AAI standards. Banks, insurance companies and prospective property purchasers require an understanding of existing and past property conditions and uses in order to assess the potential liabilities associated with a site. This assessment has been completed by a qualified environmental professional as defined in ASTM Standards. The objectives of this Environmental Site Assessment are stated as follows:

- Establish a basis of understanding of past and present use in order to determine potential environmental and/or public health risk.
- Establish a basis of understanding of surrounding uses, and area environmental resources in order to determine if the property is affected by such uses or resources.
- Identify, to the extent feasible, *recognized environmental conditions* (i.e., potential risk caused by the presence of Hazardous Substances or Petroleum Products) in connection with the site and adjoining properties.
- Identify any known or potential items in noncompliance with applicable Local, State or Federal laws and regulations.
- Specify how any items in noncompliance with applicable Local, State or Federal laws and regulations can be brought into compliance.
- Confirm the absence of environmental problems or quantify potential environmental liabilities. In the event such findings cannot be made, recommend further environmental sampling.

The final purpose of the report is to utilize the information gained to report "Recognized Environmental Conditions", a very important term defined and utilized in the ASTM Standards. Recognized Environmental Conditions are defined as follows:

> *The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimus conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimus are not recognized environmental conditions.*

2.2 DETAILED SCOPE OF SERVICES

This ESA has been completed by Nelson, Pope & Voorhis, LLC, in accordance with ASTM standards. The following documentation is intended to provide the financing institution with the information related to the environmental and public health integrity of the subject property.

The report was completed utilizing a variety of techniques and sources of information. The following is a procedural account of the methodology for report preparation:

1) Field inspection of the site was conducted including indoor and outdoor facilities and interview of site personnel and property owners, to document facilities and operations, and to determine applicable Federal, State and Local laws and regulations.
2) Inspection of areas surrounding the site was conducted in order to document surrounding uses as related to the integrity of the subject site.
3) Federal government records were researched including the NPL site list, the CERCLIS site list, and RCRA Hazardous Waste TSD Facilities and Generator Lists, and ERNS lists to determine if the site or adjacent sites are included in listings.
4) State government records were researched including NYS Department of Environmental Conservation (NYSDEC) Inactive Hazardous Waste Disposal site lists, landfills and solid waste disposal facilities, registered underground storage tanks (USTs), wastewater disposal sites, air emission sources, and leaking USTs/materials spill lists, to determine if the site or adjacent sites are included in listings.
5) County government records were researched including tank and drum registration, violations/enforcement action files, and for sites in Suffolk County, the CLEARS remote sensing site inventory.
6) Local government records were researched including zoning, assessor's records, building permit and Certificate of Occupancy to determine site compliance and history.
7) Records involving Transfer of Property were reviewed as available to determine site ownership and history where possible.
8) Published literature concerning on-site soils, and groundwater resources were reviewed as related to environmental audits to establish environmental resource information.
9) Additional interviews of past owners and operators, surrounding property owners/users were conducted as necessary.
10) Conclusions regarding the site were formulated based upon the above tasks.
11) No sampling of suspected recognized environmental conditions was completed as part of this report.
12) Non-scope issues such as asbestos, radon, lead based paint, wetlands, lead in drinking water, cultural and historic resources, endangered species, indoor air quality, mold, etc. are addressed with certain limitations noted herein. If obvious signs of such issues were observed during the site reconnaissance, such observations are indicated in the report. However, this report should not be considered a full asbestos survey, lead based paint report, wetlands delineation survey, mold assessment, etc. The recommendations of this will indicate if a full survey or report should be undertaken to fully determine if such issues exist on the subject property.

2.3 LIMITATIONS AND EXCEPTIONS

This report is dated, and is only valid for activities which occurred prior to the date of facility inspection. Activities, liabilities and alterations to environmental conditions documented in this report that may have occurred subsequent to the date of inspection are not included in this analysis.

There are several limitations of this study which should be understood. The study is intended to assess the potential for public health or environmental liabilities based upon examination of the subject property in accordance with the ASTM Standards. The ASTM Standards provide specific guidance with regard to radon, asbestos, lead in drinking water and lead based paint.

Analysis of the CERCLA implications with regard to the innocent purchaser defense under Superfund, finds that naturally occurring radon is not subject to CERCLA liability and is appropriately considered as a non-scope issue. Accordingly, this survey will not address radon gas, and will not involve or recommend air monitoring for radon gas. As a point of information for users of this report, radon is a colorless, odorless, inert gas which has become a common air contaminant of concern in certain geographic areas. Radon is a natural isotope, which is present most commonly in association with crystalline bedrock and at times other geologic deposits. Natural isotope decay, can emit radiation which causes health concerns due to inhalation **(Sax and Lewis, 1987).** Radon levels generally increase in areas where bedrock is close to the land surface, and generally creates a health related problem only where underground basements are constructed which may allow radon gas to accumulate in a manner which would cause exposure. Geographically, radon may be of concern in some portions of western Long Island, New York City and nearby counties. Absent these conditions radon gas presents less of a concern. Similarly, the ASTM Standards do not recognize liability with regard to asbestos that is part of the building materials of a structure, in accordance with CERCLA innocent purchaser defense under Superfund. If asbestos containing material is disposed of on a site however, such practice would be subject to Superfund response actions and should be identified. In the interest of serving the client, and addressing the needs of lending institutions, this report will identify observed asbestos containing material (ACM) on the site which may cause a health danger or is considered friable, as a non-scope issue. This report is not a full asbestos survey as would be required for building demolition, or identification of all possible sources of ACM, regardless of health danger.

Lead in drinking water and lead based paint are also issues which are considered to be non–scope under CERCLA innocent purchaser defense under Superfund. Lead based paint has been in use for many years, and it is likely that most older buildings will contain this paint. As a general rule, painted surfaces should be maintained and ingestion of paint products should be avoided. If disposal of these materials is involved, disclosure of this practice would be subject to the scope of this environmental audit. Lead in drinking water occurs generally as a result of past use of high lead content solder. Water left stagnant in pipes overnight or longer, may leach lead from these joints and affect drinking water quality. As a general rule, water should be run for several minutes in the morning where such plumbing is present.

This report cannot identify all sources of PCB containing oils. Common sources of these materials include transformers and fluorescent lamp ballast. Electric service transformers may include ground level or pole mounted units. These transformers are owned and maintained by the Long Island Power Authority (LIPA), the entity responsible for their use and integrity. Transformers are inventoried and periodically inspected. LIPA environmental engineer Mike Lauro reported in conversation that LIPA transformers were not manufactured to contain PCB

contaminated oils. Aggressive and destructive testing which would be required for definitive identification of PCB's is beyond the scope of this study. The study will however identify observed potential sources, fluid leaks, hazardous materials and/or petroleum substance disposal and other environmental or health hazards appropriate the scope of the survey.

It must be noted that the accuracy of any Environmental Site Assessment is limited to the information available during the time of the site survey, and from the records, files and drawings provided by the owner and released by governmental agencies; and, the accuracy and completeness of the information provided during interviews. **Appendix A** of this report contains a Supplemental Statement of Conditions for Phase I Environmental Audits. This list was established by the Environmental Assessment Association (EAA) in order to standardize procedures and understanding with regard to the scope of environmental audits. Charles J. Voorhis is an active member of the EAA and is a Certified Environmental Inspector (CEI). Nelson, Pope & Voorhis, LLC (NP&V), may be contacted if there are any questions regarding this analysis or the methods involved. The resumes of key personnel involved in the preparation of this report are included in **Appendix B**.

2.4 SPECIAL TERMS AND CONDITIONS

It is the responsibility of the user of this report (for example, the purchaser, potential tenant, owner lender or property manager) to provide certain segments of information utilized in the report. This would include reporting of any *environmental liens* (i.e. consideration against property for response action, cleanup or remediation of hazardous substances or petroleum product) encumbering the property or specialized knowledge or experience that would assist in identifying *recognized environmental conditions*.

It must be recognized that the level of inquiry is variable for each Phase I Environmental Site Assessment, depending upon the availability of information and quality of information received. As per the ASTM Standards, it should also be noted that the "environmental professional is not required to verify independently the information provided but may rely on information provided unless he or she has actual knowledge that certain information is incorrect or unless it is obvious that certain information is incorrect based on other information obtained in the Phase I Environmental Site Assessment or otherwise actually known to the environmental professional". Personnel involved in report preparation will make judgments on the accuracy of information and conduct additional research as necessary in order to meet the requirement of identifying recognized environmental conditions on the site. ASTM Standards provide a number of standards sources of historic information, any one of which may be sufficient. Nelson, Pope & Voorhis, LLC will seek to research as many sources of historic information as may be available as a means cross confirmation. Based on ASTM Standards, the Phase I Environmental Site Assessment is not intended to include any sampling or testing of materials associated with the project site (i.e. soil, water, air or building materials). Accordingly, this report will conform with this intent and no testing will be conducted.

2.5 USER RELIANCE

Nelson, Pope & Voorhis, LLC (NP&V) understands that our client (and their successors or assigns) are relying upon the contents of this Phase I Environmental Site Assessment report for the above referenced property in making a loan secured by or affecting the property and/or acquiring the property as the case may be. The format of this Phase I Environmental Site Assessment was predicated upon general guideline requirements established by individual lending institutions, American Society for Testing and Materials Standards (1527-13) and United States Environmental Protection Agency (USEPA) All Appropriate Inquiries (AAI) standards, various professional organizations, and our professional judgment.

The date of inspection, key personnel in the preparation of the report, and a list of persons interviewed is provided below in order to provide further insight into methodology:

Project Commenced:	January 14, 2014
Inspection Date:	January 30, 2014
Report Date:	February 4, 2014
Inspector/Preparer:	Charles J. Voorhis, CEP, AICP Steven J. McGinn, CEI Brianna M. Scarfo
Persons Interviewed	Bob Cornelius - Country Club Maintenance Manager John Paquette - Golf Course Superintendent

3.0 SITE DESCRIPTION & RECONAISSANCE

3.1 OBJECTIVES

The objective of the site reconnaissance is to obtain information indicating the likelihood of identifying recognized environmental conditions in connection with the subject property. The site reconnaissance typically involves observing all areas of the subject property in order to determine if any potential recognized environmental conditions are present.

3.2 METHODOLOGY

All areas of the interior and exterior of the buildings were observed during the site reconnaissance. This was completed with the assistance of Bob Cornelius, the Country Club maintenance manager. All areas of the buildings were observed in order to identify any potential recognized environmental conditions present in the buildings. The exteriors of the buildings were examined for any potential pipes or structures which may indicate a potential recognized environmental condition that may be present. The exteriors of the buildings and remaining area which comprises the subject property were walked in order to identify potential recognized environmental conditions associated with the specific use of the subject property and the uses surrounding the subject property.

3.3 LIMITATIONS

There were no limitations encountered during the site reconnaissance of the subject property. All areas of the property were inspected without impediments.

3.4 LOCATION, SETTING AND LEGAL DESCRIPTION

The subject property lies in the Village of Northport, Town of Huntington, County of Suffolk, New York. The subject property consists of a ±45 acre property that is comprised of two (2) tax parcels on the north side of Breeze Hill Road and two (2) tax parcels on the south side of Breeze Hill Road. The entirety of the subject property is located east of Makamah Road, west of Fresh Pond Road and directly south of the Long Island Sound. The parcels north of Breeze Hill Road are more particularly described as Suffolk County Tax Map #s 0400-14-04-1 and 2, and the parcels south of Breeze Hill Road are more particularly described as Suffolk County Tax Map #s 0400-15-01-11 and 12. The surrounding area is moderately developed and contains a mix of residential and vacant land. **Figure 1** provides a location map depicting the subject property and the surrounding area. *All figures are located in a separate section immediately following the text of this report.*

3.5 EXISTING AND PAST SITE USES

The subject property consists of an irregularly-shaped property that presently contains a landscaped 18-hole golf course with a driving range and associated country club facilities. There are several small freshwater ponds throughout the golf course and an estuarine and marine wetland on the northern property boundary (the Long Island Sound). The structures currently present on the subject property include: the main clubhouse, a pro shop, a halfway house, a barn utilized for storage, an equipment shed, a fertilizer and spray rig storage structure, and a maintenance garage with associated offices. A copy of a recent aerial illustrating the conditions on the subject property is provided as **Figure 2**.

In terms of available records, historical use can be documented using a variety of standard records. The intent is to trace land use to a period prior to 1940. For the purpose of this Environmental Site Assessment, as many sources as are reasonably available have been consulted. The following are considered standard historical sources:

Aerial Photographs
Fire Insurance Maps (Sanborn Maps)
Property Tax Files
Recorded Land Title Records
USGS 7.5 Minute Topographic Maps
Local Street Directories (Cole Directories)
Building Department Records
Zoning/Land Use Records

3.5.1 Aerial Photography

Aerial photographs from 1938, 1953, 1957, 1966, 1976, 1980, 1994, 2006, 2008, 2009 and 2011 were reviewed in order to determine if any prior uses occupied the subject property. The subject property appeared to be primarily vacant, wooded land with the exception of a cleared path in the northern portion of the subject property and a cleared, possibly developed area where the clubhouse presently exists in the 1938-1957 aerial photographs. The majority of the surrounding area consisted of vacant, wooded land during these years, with the exception of some areas of light residential development or farmland. In all of the remaining aerial photographs, the subject property contained a golf course with several small associated structures and several small ponds. The surrounding area consisted of light to moderate residential development in the vicinity of the subject property, and the Long Island Sound directly north of the subject property. Refer to **Appendix E** for a copy of the aerial photographs.

3.5.2 Sanborn Maps

Sanborn map coverage was not available for the area of the subject property.

3.5.3 USGS Quadrangle Maps

The USGS Northport and Islip Quadrangle Maps dated 1903, 1904, 1942, 1944, 1954, 1967 and 1979 were reviewed. Review of the topographic maps revealed that the subject property was vacant, wooded land with the exception of a small structure depicted where the clubhouse presently exists in the 1903-1954 topographic maps. In all of the remaining topographic maps, the subject property was identified as the Indian Hills Golf Course and Country Club and contained several small ponds. The surrounding area was lightly developed residentially in all of the topographic maps, with Crab Meadow Park and a golf course west of the subject property, a fresh pond directly east of the subject property and the Long Island Sound directly north of the subject property. Refer to **Appendix G** for a copy of the topographic maps.

3.5.4 Other Sources

The EDR Cities Directory Report provided occupant listings for the subject property and surrounding area from 1972, 1977, 1982, 1987, 1992, 1999, 2003, 2008 and 2013. Listings for the subject property were not provided in the 1972-1987 reports. The subject property was occupied by the Indian Hills Country Club or IHCC Inc. in all of the remaining listings for the subject property. The surrounding area was occupied by primarily individual residential tenants with the exception of some professional offices and a baseball camp for all of the years listed.

3.5.5 Data Gaps

The aerial photographs received exceeded the five (5) year interval in several consecutive photographs in the series as noted above. The data gap has been evaluated and it is noted that the subject property has always been vacant land.

3.6 SITE AND VICINITY CHARACTERISTICS

The subject property consists of an irregularly-shaped property that presently contains a landscaped 18-hole golf course with a driving range and associated country club facilities. There are several small freshwater ponds throughout the golf course and is bordered by an estuarine and marine wetland to the north (Long Island Sound). The structures currently present on the subject property include: the main clubhouse, a pro shop, a halfway house, a barn utilized for storage, an equipment shed, a fertilizer and spray rig storage structure, and a maintenance garage with associated offices. **Appendix D** contains site photographs which depict typical views of the subject property. An aerial photograph depicting the existing conditions of the subject property is provided as **Figure 2**.

The area immediately surrounding the subject property is a mix of vacant land, agricultural and residential uses that are described in more detail in **Section 3.8**. An aerial photograph depicting the surrounding property uses is provided as **Figure 3**.

3.7 DESCRIPTION OF SITE CONDITIONS

The subject property consists of an irregularly-shaped property that presently contains a landscaped 18-hole golf course with a driving range and associated country club facilities. There are several small freshwater ponds throughout the golf course and Long Island Sound to the north. The structures currently present on the subject property include: the main clubhouse, a pro shop, a halfway house, a barn utilized for storage, an equipment shed, a fertilizer and spray rig storage structure, and a maintenance garage with associated offices. All of the buildings are connected to separate sanitary systems with the exception of the storage barn, the equipment shed, and the fertilizer storage structure, which are not connected to sanitary systems. The clubhouse is connected to two (2) separate sanitary systems.

The clubhouse, pro shop and maintenance building are all heated by fuel-oil fired heating systems. All of the fuel oil-fired boilers appeared to be in good condition with no evidence of staining in the vicinity of the boilers. There is an outdoor underground fuel oil storage tank of unknown age or capacity located on the east side of the club house, a 275 gallon above ground storage tank located in the basement of the pro shop, and a 275 gallon outdoor above ground storage tank located in a vault on the west side of the maintenance building. In addition, there are two (2) 1,000 gallon self-contained, above ground diesel fuel and gasoline storage tanks located outside of the equipment storage building that are utilized for equipment refueling. All of the above ground storage tanks appeared to be in good condition, with no evidence of staining in the vicinity of the tanks.

Several drums and storage containers were observed in the equipment storage building, the fertilizer and spray rig storage building, and the maintenance building. Several of the drums or containers were unlabeled or empty. Some Speedi-Dri was observed in the vicinity of drums located in the equipment storage building; however, no major staining was observed in the vicinity of any of the drums or storage containers.

A well house that supplies water to the irrigation pumps for the golf course is located south of the maintenance structures on the eastern property edge. In addition, several pole-mounted transformers were observed on the subject property. All of the transformers observed appeared to be in good condition. There was no evidence of any major staining, discharge, areas of stressed vegetation, residue of oils or other toxic substances, pools of discharge, petroleum or chemical odors, or other such indicators noted during the site reconnaissance.

Construction - The structures currently present on the subject property include: the main clubhouse, a pro shop, a halfway house, a barn utilized for storage, an equipment shed, a fertilizer and spray rig storage structure, and a maintenance garage with associated offices. The structures present on the subject property range from one-story to two-story structures with painted concrete, wood shingle, or vinyl-siding exteriors.

Roads or Parking Areas - There is a large paved parking area in the vicinity of the clubhouse and the storage barn in addition to a paved parking area in the vicinity of the maintenance buildings. There are also several paved roads for golf carts throughout the golf course.

Hazardous Substances or Pools of Liquids – See Storage Tanks and Drum Storage below.

Asbestos Containing Material (ACM) - No suspected asbestos containing materials were observed during the site reconnaissance.

Storage Tanks - There is an outdoor underground fuel oil storage tank of unknown age or capacity located on the east side of the club house, a 275 gallon above ground storage tank located in the basement of the pro shop, and a 275 gallon outdoor above ground storage tank located in a vault on the west side of the maintenance building. In addition, there are two (2) 1,000 gallon self-contained, above ground diesel fuel and gasoline storage tanks located outside of the equipment storage building that are utilized for equipment refueling. All of the above ground storage tanks appeared to be in good condition, with no evidence of staining in the vicinity of the tanks.

Drum Storage - Several drums and storage containers were observed in the equipment storage building, the fertilizer and spray rig storage building, and the maintenance building. Several of the drums or containers were unlabeled or empty. Some Speedi-Dri was observed in the vicinity of drums located in the equipment storage building; however, no major staining was observed in the vicinity of any of the drums or storage containers.

Polychlorinated Biphenyls (PCBs) - Several pole-mounted transformers were observed on the subject property. All of the transformers observed appeared to be in good condition.

Sanitary Disposal - All of the buildings are connected to separate sanitary systems with the exception of the storage barn, the equipment shed, and the fertilizer storage structure, which are not connected to sanitary systems. The clubhouse is connected to two (2) separate sanitary systems.

Water Supply - The subject property is serviced by the Suffolk County Water Authority (SCWA) which maintains a distribution system in the area of the subject property.

Stormwater - Stormwater leaching pools were observed in the paved parking areas on the subject property. There was no staining observed in the vicinities of any of the leaching pools.

Wells - A well house that supplies water to the irrigation pumps for the golf course is located south of the maintenance structures on the eastern property edge. No other monitoring or private supply wells were observed on the subject property.

3.8 Adjacent Land Use

Current land use at the subject property and surrounding area is described based on aerial photographs and visual observations. The area immediately surrounding the subject property consists primarily of residential uses, with some vacant land. An aerial photograph depicting the surrounding property uses is provided as **Figure 3**.

North: The Long Island Sound
South: Single-family residential homes, beyond which is Fort Salonga Road.
East: Single-family residential homes and Fresh Pond Road, beyond which is Fresh Pond.

West: Single-family residential homes and Makamah Road, beyond which is the Makamah Nature Preserve and the Jerome A. Ambro Memorial Wetland Preserve.

Past uses in the vicinity of the subject property are described based on review of historic aerial photographs and the field reconnaissance. The area surrounding the subject property was primarily vacant wooded land prior to the construction of the existing developments surrounding the subject property.

3.9 NATURAL SETTING

3.9.1 Soils and Topography

The surficial geology of a site can often provide insight into the past activities on a given parcel of land. The Soil Survey of Suffolk County, conducted by the U.S. Department of Agriculture in 1975 is a useful source of soils information, which identifies soil types resulting from natural deposition and modification, as well as man-induced alterations associated with land use.

The subject property is comprised of soil types: Bc - Beaches, Bd - Berryland mucky sand, CpE - Carver and Plymouth sands (15-35% slopes), CuB - Cut and fill land (gently sloping), CuC - Cut and fill land (sloping), Es - Escarpments, PIB - Plymouth loamy sand (3-8% slopes), Ra - Raynham loam, RdC - Riverhead sandy loam (8-15% slopes), SdB - Scio silt loam, sandy substratum (2-6% slopes), Su - Sudbury sandy loam, and Wd - Walpole sandy loam.. The characteristics of these soil types are identified as follows **(Warner et al., 1975)**:

Beaches (Bc) - These area consist of sandy, gravelly or cobbly areas between water at mean sea level and dunes and upland areas. Slopes are nearly level but can be as much as 15% in areas along the Atlantic coast. The beaches along the north shore consist predominantly of cobbles and gravel and large boulders may be present. Beaches along the south shore are more sandy except for areas near Montauk Point.

Berryland Mucky Sand, (Bd) - The Berryland series consists of deep, very poorly drained coarse-textured soils. These nearly level soils formed in deep sandy outwash deposits on low lying wet areas adjacent to ponds, tidal creeks and low gradient streams or between areas of tidal marsh and better drained uplands. This is the only Berryland soil mapped in the county. The hazard for erosion is slight.

Carver and Plymouth sands, 15-35% slopes (CpE) - The Carver series consists of deep, excessively drained coarse-textured soils. This soil type is found almost exclusively on moraines except for a few steep areas on side slopes along some of the more deeply cut drainage channels on outwash plains. The hazard for erosion is moderate to severe.

Cut and fill land, gently sloping (CuB) - This series is comprised of areas that have been cut and filled for nonfarm uses. The areas generally are large, but some areas are about

five (5) acres in size. This soil type is comprised of moderately sloping areas that have been graded for building sites. Slopes range from 1 to 8 percent.

Cut and fill land, sloping (CuC) - This series is comprised of areas that have been altered in grading operations for housing developments, shopping centers, and similar nonfarm uses. Generally, the initial grading consists of cuts and fill for streets or parking lots. This soil type is comprised of moderately sloping areas that have been graded for building sites. Slopes range from 8 to 15 percent.

Escarpments (Es) - These areas are made up of bluffs that have slopes greater than 35 percent. The soils horizons have not formed in this actively eroding material. Except for a few scattered areas, this unit is devoid of vegetation. Generally the slopes are uniform with very little dissection. Height of the escarpments ranges from about 20 feet to more than 100 feet. The material in the escarpments is sand along the north shore and sandy loam or loamy sand at Montauk Point. Many escarpments have large boulders embedded in the soil, which roll to the beach as the escarpment erodes.

Plymouth loamy sand, 3-8% slopes (PlB) - Consists of deep, excessively drained, coarse-textured soils that formed in a mantle of loamy sand over thick layers of stratified coarse sand and gravel. This soil is on moraines and outwash plains. The erosion hazard is slight and soil tends to be droughty.

Raynham loam (Ra) - This nearly level soil is in low lying areas besides marshes and creeks. In many areas it forms a transition between poorly drained areas and better drained areas on uplands. It is on outwash plains and moraines. Because of its position on the landscape, it is difficult to locate adequate drainage outlets. This soil is better suited to woodland and to recreational uses than to other uses.

Riverhead Sandy Loam, 8-15% slopes (RdC) - Consists of deep, excessively drained, coarse - textured soils that formed in a mantle of sandy loam or fine sandy loam over thick layers of coarse sand and gravel. This soil is found in narrow bands on outwash plains along the side slopes of deep intermittent drainageways. Hazard of erosion is moderately severe.

Scio silt Loam, sandy substratum, 2-6% slopes (SdB) - The Scio series consists of deep, moderately well-drained, medium-textured soils that form in the mantle over very fine sandy loam or silt loam over coarse sand and gravel or glacial till. These soils are found throughout the county on moraines and outwash plains on gentle side slopes of depressions or in areas between well-drained Haven soils and lower lying areas of somewhat poorly drained soils. The hazard of erosion is moderate to slight and the soil is well suited to all crops commonly grown in the county.

Sudbury Sandy Loam (Su): This soil type is characterized by deep, moderately well drained, moderately coarse textured soil formed in a mantle of fine sandy loam or sandy loam over coarse sand or gravel. These soils are found on outwash plains and moraines in flat areas between poorly drained soils. Slopes generally range from 0-3% slopes. Permeability varies from rapid to moderate and fertility is low.

Walpole Sandy Loam (Wd) - The Walpole series consists of deep, somewhat poorly drained and poorly drained, moderately coarse textured soils that formed in a mantle of

> *sandy loam or fine sandy loam over coarse sand or sand and gravel. This (Wd) is the only Walpole soil mapped in the county. Slopes are 3 percent or less. The hazard of erosion is slight.*

The nature of the surrounding area consists of primarily residential uses in addition to some vacant land. The subject property contains areas of sloped topography that generally trends from higher elevations in the southwest corner of the property to lower elevations on the northern property boundary, with the exception of a hill in the northeastern portion of the subject property. Neither soils nor topography appear to pose a constraint to the current use of the subject property. Bedrock in the vicinity of the subject property is approximately 750 feet below grade. The soil types overlying the subject property are illustrated in **Figure 5**. The topography of the subject property is provided in **Figure 6**.

3.9.2 Groundwater Resources

Groundwater on Long Island is entirely derived from precipitation. Precipitation entering the soils in the form of recharge, passes through the unsaturated zone to a level below which all strata are saturated, referred to as the water table. The groundwater table is equal to sea level on the north and south shores of Long Island, and rises in elevation toward the center of the Island. The high point of the parabola is referred to as the groundwater divide. The changes in elevation of the water table create a hydraulic gradient which causes groundwater to flow, dependent upon potential.

The subject property is located to the north of the regional groundwater divide indicating that in the horizontal plane, flow is generally toward the north. Groundwater will be discharged from the subsurface system into the Long Island Sound. The major water bearing units beneath the subject property include: the Upper Glacial aquifer, the Magothy aquifer, and the Lloyd aquifer **(Smolensky et al, 1989).**

The elevation of groundwater beneath the subject property ranges from 0 to 15 feet above msl, depending on meteorological conditions associated with the water year. The topographic elevation of the subject property ranges from approximately 0 feet on the northern property boundary to 155 feet at the top of the hill in the northeastern portion of the subject property. Therefore, the depth to groundwater ranges from approximately 0 to 155 feet. The water table elevations and generalized direction of flow are illustrated in **Figure 7**.

The Suffolk County Comprehensive Water Resources Management Plan (SCCWRMP) provides information on water quality from 0 to 400 feet below the water table, based upon observation as well as public and private water supply and well monitoring. The general area in proximity to the subject property is depicted as having good water quality with respect to nitrate-nitrogen (0-6 mg/l) at between 0 and 100 feet. With regard to organic compounds, SCDHS water quality data presented in the Suffolk County Comprehensive Water Resources Management Plan indicates that Volatile Organic Compound levels at 0-100 feet below the water table are good (<60% of standard) and

found not to exceed drinking water standards the majority of the time; however, there are several areas in proximity to the site that exceed drinking water standards for organic parameters.

The Suffolk County Department of Health Services (SCDHS) conducted an eighteen (18) month long study of the impact pesticides have had on the groundwater. The study obtained water quality information from across the full geographic area of both counties in order to identify if any pesticides and metabolites had leached into the groundwater. The data from the wells in Nassau County and the five (5) western Towns of Suffolk show that only 1.5 and 2.0%, respectively, exceeded the pesticide related drinking water MCL and 15.4% of the wells in the five (5) eastern Suffolk Towns exceeded the MCL. Private wells in the five (5) eastern towns are at the highest risk of pesticides contamination. Based on the maps provided in the appendix of the SCDHS report the subject property is not located in the vicinity of any public water supply wells with pesticide detections. Susceptibility to pesticides is rated as low to medium throughout most of the County, except on the North Fork, where community supply wells are highly or very highly susceptible to pesticide contamination due to agricultural land uses.

The nearest water supply well to the subject property is the Waterside Road Well Field and Pump Station. This well field is located on the east side of Waterside Road, approximately one (1.0) mile southwest of the subject property.

3.9.3 Wetlands

The subject property was inspected to identify the possible presence of any wetland vegetation and/or water surfaces that would sustain wetland vegetation. The site reconnaissance revealed that there are wetlands located on the subject property. Review of NYSDEC Wetland Maps and National Wetland Inventory Maps verified that there are wetlands located on the subject property. The NYSDEC Wetland Maps, **Figure 9**, revealed that there are some small freshwater ponds located in the golf course areas of the subject property, and that there are Tidal Wetlands located directly north of the subject property. In addition, there is a large freshwater pond directly east of the subject property. The National Wetlands Inventory Map, **Figure 10**, also identified several freshwater ponds, designated PUBHx throughout the golf course areas of the subject property in addition to an estuarine and marine wetland located on the northern boundary of the subject property (the Long Island Sound). This report is not a substitute for inspection of the property by a qualified biologist.

3.9.4 Coastal Barrier Improvements/Flood Plains

The subject property is located directly south of the Long Island Sound; therefore, coastal barrier improvements may be required. The majority of the subject property is located in Flood Zone X, an area of minimal flooding, with the exception of the northern property boundary, which is located in Flood Zone VE, an area subject to inundation by the 1-percent-annual-chance flood event with additional hazards due to storm-induced velocity wave action. Therefore, coastal barrier improvements may be required along the northern

property edge. In addition, there is an AE Flood Zone located directly east of the subject property, along the coast of Fresh Pond. The portion of the Flood Insurance Rate Map that covers the subject property is provided in **Figure 11**.

3.9.5 Critical Habitat/Endangered Species

The NYSDEC Environmental Resource Mapper identified the subject property as being located within the vicinity of the High Salt Marsh natural community and within a wetland check zone. The subject property was not identified as being located within the vicinity of any rare species. This report is not a substitute for an endangered species survey.

4.0 USER PROVIDED INFORMATION AND INTERVIEWS

The purpose of this section as defined in Section 6 of the ASTM E1527-13 is to describe tasks to be performed by the user (the individual or entity for which this document has been prepared) that will help identify the possibility of recognized environmental conditions in connection with the subject property. This information does not require the technical expertise of an environmental professional and is generally not performed by environmental professionals who prepare Phase I Environmental Site Assessments. The information provided in this section is the sole responsibility of the user and has been included in this report if provided by the user.

4.1 Title Records

No Title Insurance Report was provided for review as part of this Phase I ESA.

4.2 Environmental Liens or Activity and Use Limitations

No environmental liens appear to have been imposed on the subject property. No other activity or use limitations have been imposed on the subject property to best of our knowledge.

4.3 Specialized Knowledge Obtained from Interviews

No specialized knowledge regarding the environmental quality of the subject property was obtained.

4.4 Commonly Known or Reasonably Ascertainable Information

No additional information, other than that previously noted was available or provided regarding the subject property.

4.5 Property Valuation Reduction for Environmental Issues

Based on the inspection of the property and review of available documentation, no reduction in the price of the land appears to be warranted due to the presence of past or existing hazardous or toxic materials, provided items discussed in *Section 6.0* are addressed.

4.6 Owner, Property Manager and Occupant Information

The Suffolk County Tax Assessor records indicated that the property is presently owned by IHCC Inc.

4.7 Reason for Performing Phase I ESA

This Phase I ESA has been completed as part of the due diligence of the refinancing of the subject property.

5.0 ENVIRONMENTAL RECORDS AND AGENCY DATA REVIEW

With the understanding of the facilities at the subject property, it is important to establish the environmental and regulatory conditions of the subject property and surrounding area, as related to public health and environmental issues. This section of the report includes a review of agency records, soils and groundwater resources and historical data review. The site inspection and the environmental and regulatory conditions form the basis for conclusions regarding the risks and liabilities associated with this site.

5.1 STANDARD ENVIRONMENTAL RECORD SOURCES

A search of Federal, State and Local databases was performed in order to provide a profile of the site and surrounding area with regard to published government agency records. The procedures employed adhere as closely as possible to ASTM standards.

Contact was made with the United States Environmental Protection Agency (USEPA), the New York State Department of Environmental Conservation (NYSDEC), the Suffolk County Department of Health Services (SCDHS), and local government regarding environmental and/or public health concerns associated with the subject property.

5.1.1 United States Environmental Protection Agency

The United States Environmental Protection Agency was contacted in order to obtain information regarding the National Priorities List (NPL), and sites documented on the Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS). The NPL defines all known hazardous material waste sites, which are described by the Federal Government as needing immediate cleanup action. All hazardous material waste sites considered for addition to the NPL are listed in the CERCLIS list.

Review of the NPL Site List (search distance 1.0 mile), and the CERCLIS) lists (search distance 0.5 miles) finds the following with respect to the subject property and surrounding area:

1. Subject property did not appear on the NPL, Delisted NPL or CERCLIS lists.
2. There were no sites appearing on the NPL list located within one (1.0) mile of the subject property.
3. There were no sites appearing on the Delisted NPL list located within one half (0.5) mile of the subject property.
4. There were no sites appearing on the CERCLIS list located within one-half (0.5) mile of the subject property.
5. There were no sites appearing on the CERCLIS NFRAP list located within one-half (0.5) mile of the subject property.

The USEPA was also contacted in order to obtain information concerning RCRA TSD facilities (treatment, storage, and disposal of hazardous wastes, as defined and regulated by the Resource Conservation and Recovery Act, RCRA), and RCRA Generators (of

hazardous wastes as defined and regulated by RCRA). RCRA TSD facilities are sites that treat, store or dispose of wastes that can be toxic, flammable, corrosive, explosive or otherwise hazardous; and, RCRA Generators are sites that generate or transport wastes of the above noted characteristics. The search also included review of the Emergency Response Notifications System (ERNS) list, which is a list of reported releases or spills in quantities greater than reportable quantities, Federal Permit Compliance System Toxic Wastewater Discharges (PCSTWD) which permits toxic wastewater discharges and Federal Civil Enforcement Docket (CED) which lists judiciary cases filed on behalf of the EPA by the Department of Justice.

Review of the RCRA TSD Facilities List (search distance 1.0 mile), the PCSTWD and CED facilities (search distance 0.25 mile), the RCRA Generator List (search distance, subject property and adjoining properties), and the ERNS List (search distance, subject property only) finds the following with respect to the subject property and surrounding area:

1. The subject property did not appear on the RCRA TSD Facilities List, or the ERNS List.
2. The subject property was listed as a RCRA Generator.
    a. Indian Hills Country Club (Facility ID# NYD068077593), located at 21 Breeze Hill Road, generated 5 gallons of solid waste that exhibits the characteristic of ignitability, 11 gallons of arsenic, and 30 gallons of arsenic acid in 1988. No further information regarding the wastes was provided and a generator classification was not provided for the facility.
3. The subject property was not listed as a Civil Enforcement Docket Facility.
4. The subject property was not listed for a Permit Compliance System Toxic Wastewater Discharge.
5. The subject property was not identified on the ERNS list.
6. There were no sites listed as a RCRA TSD facility identified within one (1.0) mile of the subject property.
7. There were no RCRA Generators listed within one-quarter (0.25) mile of the subject property.
8. There were no CED facilities within one-quarter (0.25) mile of the subject property.
9. There were no PCSTWD facilities located within one-quarter (0.25) mile of the subject property.

The RCRA Generator program is intended to track the origin and destination of hazardous waste, and there is no indication that listing on this inventory constitutes an environmental threat. In addition, the Federal Facilities Index that includes resources conservation and Recovery Corrective Action Sites (CORRACTS) were reviewed. No sites were identified in the vicinity of the subject property.

5.1.2 New York State Department of Environmental Conservation (NYSDEC)

The NYSDEC is charged with the responsibility of registering inactive hazardous waste disposal sites, and administering the investigation and cleanup of such sites. The NYSDEC inventory is contained in the publication, Inactive Hazardous Waste Disposal Sites in New York State. The inventory provides the location, extent of contamination and remediation status of each listed site in New York State. Accordingly, the registry of

the NYSDEC was consulted for information on Inactive Hazardous Waste Disposal Sites (IHWDS). The NYSDEC provides information regarding Hazardous Substance Waste Disposal Sites (HSWDS) that are sites contaminated with toxic substances but are not eligible for state cleanup funding programs. The NYSDEC provides information regarding Brownfield cleanup site - these are sites that are abandoned, idled or under-used industrial and/or commercial sites where expansion or redevelopment is complicated by real or perceived environmental contamination. Similarly, the NYSDEC is responsible for permitting Solid Waste Facilities (SWF) - these are facilities including landfills, incinerators, transfer stations and other solid waste management sites. The NYSDEC also registers Petroleum Bulk Storage (PBS) where the total storage capacity at the facility exceeds 1,100 gallons, Chemical Bulk Storage (CBS), Major Oil Storage Facilities (MOSF) and Toxic Release Inventory Sites (TRI). Finally, the NYSDEC regulates and monitors Air Discharges and NYS Toxic Spills which include Leaking Underground Storage Tanks (LUSTs).

Review of the IHWDS, Brownfield Sites and HSWDS Lists (search distance 1.0 mile), SWF, CBS and MOSF lists, and LUST Lists (search distance 0.5 miles), TRI and Air Discharge sites (search distance 0.25 miles) and the PBS List (search distance, subject property and adjoining properties) finds the following with respect to the subject property and surrounding area:

1. The subject property was not listed as an IHWDS Brownfields or HSWDS site.
2. The subject property was not listed on the SWF, CBS or MOSF Lists.
3. The subject property was listed as a PBS facility.
    a. Indian Hills Country Club II (Facility ID# 07149), located at 21 Breeze Hill Road, utilizes a 1,500 gallon outdoor underground #2 fuel oil storage tank that was installed in 1960. The permit for this storage tank reportedly expired in 2009. In addition, a listing was provided for a 500 gallon outdoor above ground gasoline storage tank that was never installed.
    b. Indian Hills Country Club I (Facility ID# 08194), located at 21 Breeze Hill Road, utilizes a 275 gallon outdoor above ground #2 fuel oil storage tank that was installed in 1989 and was listed as non-complying and a total of 580 gallons of outdoor above ground drum storage that was installed in 1986. The permits for the drums reportedly expired in 1991. The facility previously utilized a 1,000 gallon outdoor underground gasoline storage tank and a 500 gallon outdoor above ground diesel storage tank, which were installed in 1962 and removed in 1990. In addition, the facility listed a 1,500 gallon outdoor underground #2 fuel oil storage tank and a 500 gallon outdoor above ground gasoline storage tank, which were never installed.
4. The subject property was listed on the NYS Toxic Spill site list.
    a. Indian Hills Country Club (Spill #8602746, Closed 7/30/1986), located at 26 and 27 Fresh Pond Road, had an incident occur on 7/27/1986 that resulted in a greenish liquid running from Indian Hills Country Club pond onto the nearby road and into Fresh Pond. According to the listing, 200,000 gallons of unknown petroleum were released to surface water. It was noted that this spill listing refers to the same spill as Spill #8602804.

b. Indian Hills Country Club (Spill #8602804, Closed 5/7/1987), had an incident occur on 7/30/1986 that involved an unknown material affecting the air of the site. It was noted that this spill listing refers to the same spill as Spill #8602746. No additional information regarding the spill was provided.

c. Indian Hills CC (Spill #8805704, Closed 12/30/1988), located at 21 Breeze Hill Road, had the spill number issued to the subject property on 10/5/1988 when an above ground storage tank was moved to another location and oil was found beneath the tank due to filter leakage. The area was cleaned, 0.20 yards of soil was removed from the site, and the spill was subsequently closed.

d. IHCC Inc. Maint. Bldg. (Spill #9311366, Closed 5/19/1997), located at 21 Breeze Hill Road, had an incident occur on 12/21/1993 that resulted from poor housekeeping. Specifically, a 300 gallon above ground tank near the maintenance building historically leaked small quantities of fuel during vehicle refueling. This spill was adequately addressed and closed.

e. Indian Hills Country Club (Spill #9315196, Closed 2/10/2004), located on Clamore Street, had an incident occur on 3/25/1994 that resulted from a fire at the maintenance building that caused the possible spillage of unknown petroleum on the ground. It was determined that less than 25 gallons of petroleum were released and that it posed no threat. The spill was subsequently closed.

5. The subject property was not listed as a TRI Site.
6. The subject property was not listed on the NYS Air Discharge list.
7. The subject property was not listed as having a LUST incident.
8. There were no IHWDS listings located within one (1.0) mile of the subject property.
9. There were no HSWDS facilities located within one (1.0) mile of the subject property.
10. There were no Brownfields Sites located within one (1.0) mile of the subject property.
11. There were no SWF listings identified within one-half (0.5) mile of the subject property.
12. There was one (1) PBS facility within one-quarter (0.25) mile of the subject property.
    a. Michelle & Ronnie DePietro (Facility ID# 16896), located 174 feet to the northwest on Mystic Lane, utilized a 2,000 gallon outdoor underground #2 fuel oil storage tank that was abandoned in 2004.
14. There were no State Registered MOSF facilities within one-half (0.5) mile of the subject property.
15. There were no TRI sites within one-half (0.5) mile of the subject property.
16. There were no Air Dischargers located within one-quarter (0.25) mile of the subject property.
17. There was one (1) closed LUST incident identified within one half (0.5) mile of the subject property. This LUST incident was adequately addressed to the satisfaction of the NYSDEC and closed and, therefore, is not expected to adversely affect the subsurface resources of the subject property.

The NYSDEC also responds to incidents involving hazardous waste spills. The Department maintains a logbook and files on all reported and actual incidents at the NYSDEC offices at Stony Brook. This file was reviewed in conjunction with the subject property. Review of the file revealed that two (2) active and thirty-two (32) closed spill incidents were identified within one-half (0.5) mile of the subject property. Each of the active spill incidents are located cross gradient and/or at a sufficient distance from the subject property and, therefore, are not expected to adversely affect the subsurface resources of the subject property. In addition, the closed spill incidents have been

investigated and addressed to the satisfaction of the NYSDEC. Therefore, none of the spill incidents are expected to adversely affect the subject property. Information regarding all of the reported incidents is contained in **Appendix C**.

5.1.3 Suffolk County Department of Health Services (SCDHS)

The SCDHS performs many important functions in environmental resource protection. These include inspection of facilities that use or store significant quantities of toxic or hazardous material or generate waste. SCDHS records were not received prior to the completion of this report; however, since the property has been vacant land with the exception of a few years when the former model homes existed, no files are expected to be maintained.

Also of interest with regard to Health Department functions is a study completed in conjunction with Cornell University, referred to as the CLEARS study (Cornell Laboratory for Environmental Applications of Remote Sensing). This research involves stereoscopic analysis and interpretation of historic aerial photographs for the purpose of identifying past and present hazardous waste disposal sites, solid waste disposal sites, disturbed areas, chemical storage, and other potential sources of contamination. The study has been ongoing since approximately 1986. The CLEARS study was consulted with regard to the area surrounding the subject property. No CLEARS study sites were identified in the vicinity of the subject property.

The CLEARS Study assists with an historical perspective of the site and surrounding area. Little interpretation can be made with regard to the findings of the CLEARS study. There is no confirmation of activities which may have caused environmental degradation with regard to any of the sites. The SCDHS contracted the CLEARS study and will continue to interpret the results and take remedial action as necessary. The subject property was not identified as a CLEARS study site.

5.1.4 Local Agencies

Freedom of Information requests were submitted to the Town of Huntington. Building Permit records were received from the Building Department for each of the subject parcels. There were several permits issued to parcel 2 from 1961-2010. According to these permit listings, a one-story supply building and shed were built in 1961, four (4) containers for equipment storage, a container for fertilizer storage, and a container for pesticide storage were erected in 1986, and the golf course was enlarged and an addition to an existing building for golf cart storage was erected in 1993. In 1994, a previous irrigation pump house was demolished, a new pump house was erected to irrigate the golf course, and fire damage was repaired in the maintenance building. In 1997, several additional structures were built including: a one-story storage building, a starter shack, a cart barn, a halfway house snack bar, a pump house, and an addition to an existing

building for golf cart storage. An addition to the existing clubhouse was installed in 2000 and a sea wall was erected for erosion control on the site in 2001. Additionally, alterations and repairs occurred in the halfway house and clubhouse from 2004-2008 and fairway collection areas were installed in 2010 to improve drainage on the site. No permit records were provided for any of the additional subject parcels. Any additional pertinent information received will be included as an addendum to this report. The Town of Huntington Zoning Map indicated that the subject property is zoned R40 - Residence. The zoning of the subject property and surrounding area is provided in **Figure 4**. The Town Tax Assessors records identified the subject property as being owned by IHCC Inc. Refer to **Appendix G** for information all of the data received from FOIL requests.

6.0 FINDINGS

NP&V has performed a Phase I Environmental Site Assessment for The Indian Hills Country Club Property, located east of Makamah Road, west of Fresh Pond Road and directly south of the Long Island Sound in Northport, New York. This environmental inspection report, has been conducted in order to provide the prospective purchaser and/or lending institutions with accurate and complete information regarding the subject property, surrounding area, historic uses, agency records and regulations, and additional environmental considerations. Based upon this report, the limitations of this report and the methodology employed, the following statement is provided:

NP&V has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-13 and USEPA AAI for The Indian Hills Country Club Property. Any exceptions to, or deletions from, this practice are described in Section 9.0 of this report.

This assessment has identified the following with respect to recognized environmental conditions, historical recognized environmental conditions and de minimus conditions in connection with the subject property, subject to the methodology and limitations of this report.

Two (2) recognized environmental conditions were noted on the subject property based on the site reconnaissance, interviews and regulatory agency records review.

1. The sanitary systems and grease traps connected to the clubhouse kitchen, the halfway house kitchen and the maintenance building should be sampled to ensure that current and past operations have not adversely affected the subsurface resources of the subject property.

2. There is an underground fuel oil storage tank located on the east side of the clubhouse. The age and capacity of the storage tank are uncertain. The storage tank should be tested in order to ensure that it is not negatively affecting the subsurface resources of the subject property.

No controlled recognized environmental conditions were noted on the subject property based on the site reconnaissance, interviews and regulatory agency records review.

Four (4) de minimus conditions were noted on the subject property based on the site reconnaissance, interviews and regulatory agency records review.

1. Several drums were observed in the maintenance buildings and outdoor areas near the maintenance buildings. Some of the drums were unlabeled or empty. No major staining was observed in the vicinity of these drums, therefore, they are not expected to adversely affect the subject property. However, any drums that are not being utilized should be properly removed and disposed of. Any drums that are being utilized should be properly stored on secondary containment, and labeled in accordance, and if more than five (5) drums are stored a drum storage permit should be obtained/maintained/updated in conformance with Article 12 of the Suffolk County Sanitary Code and NYSDEC PBS regulations. In addition, the permits for these drums identified in the PBS listing for the

subject property that reportedly expired in 1991 should be renewed in order to avoid violation.

2. The subject property was identified as a RCRA Generator that generated 5 gallons of solid waste that exhibits the characteristic of ignitability, 11 gallons of arsenic, and 30 gallons of arsenic acid in 1988. Since there was no evidence of these materials presently existing on the subject property and the generation of these materials was permitted and regulated by a regulatory agency, this listing is not expected to adversely affect the subject property

3. The subject property was identified as a PBS facility. The listings provided in the Toxics Targeting database included multiple tanks that were identified as non-complying or as having expired permits. In addition, some storage tanks observed on the subject property did not appear in the Toxics Targeting listings. All of the storage tanks present on the subject property should be registered in accordance with Article 7 of the Suffolk County Sanitary Code and NYSDEC PBS regulations and any outdated permits should be updated in order to avoid violation.

4. The majority of the subject property has been utilized as a golf course since approximately 1960, according to review of historic aerial photographs. If the property is to be used for residential purposes in the future, it is recommended that a pesticide survey be conducted in order to ensure that the surface soils have not been impacted by past or current operations.

No historic recognized environmental conditions were noted on the subject property based on the site reconnaissance, interviews and regulatory agency records review.

7.0 OPINIONS

It is the opinion of the environmental professional who completed this report that this assessment has revealed evidence of two (2) recognized environmental conditions and four (4) de minimus conditions in connection with the subject property. The following recommendations are offered for the property:

1. The sanitary systems and grease traps connected to the clubhouse kitchen, the halfway house kitchen and the maintenance building should be sampled to ensure that current and past operations have not adversely affected the subsurface resources of the subject property.

2. The outdoor underground storage tank located on the east side of the clubhouse should be tested in order to ensure that it is not negatively affecting the subsurface resources of the subject property.

3. Any drums that are not being utilized should be properly removed and disposed of. Any drums that are being utilized should be properly stored on secondary containment, and labeled in accordance with Article 12 of the Suffolk County Sanitary Code and NYSDEC PBS regulations. In addition, the permits for these drums should be renewed in order to avoid violation.

4. All of the storage tanks present on the subject property should be registered in accordance with Article 12 of the Suffolk County Sanitary Code and NYSDEC PBS regulations and any outdated permits should be updated in order to avoid violation.

5. If the property is to be used for residential purposes in the future, it is recommended that a pesticide survey be conducted in order to ensure that the surface soils have not been impacted by previous agricultural operations.

8.0 CONCLUSIONS

This assessment was performed at the Client's request using the methods and procedures consistent with good commercial or customary practice designed to conform with acceptable industry standards.

This report is expressly and exclusively for the sole use and benefit of the Client identified on the first page of this report and is not for the use or benefit of, nor may it be relied upon by, any other person or entity without the advance written consent of NP&V.

The independent conclusions represent NP&V's best professional judgment based on information and data available to the consultant during the course of this assignment. NP&V's evaluations, analyses and opinions are not representations regarding either the design integrity, structural soundness or actual value of the property. Factual information including operations, site conditions and available test data provided by the Client or their representative have been assumed to be correct and complete. The conclusions presented are based on the data provided, observations and conditions that existed on the date of the assessment.

9.0 DEVIATIONS & ADDITIONAL SERVICES

9.1 Deviations

This report was completed in accordance with the standards set forth in the ASTM E 1527-13 and the USEPA AAI. No deviations from these standards were undertaken during the completion of this report.

9.2 Additional Services

A Tier 1 Vapor Encroachment Condition (VEC) Assessment was conducted as part of this Phase I ESA, due to the proximity of several spill incidents. The assessment was conducted in accordance to the methods and procedures, outlined within ASTM E2600-10, Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions.

For this assessment, under conditions where the direction of groundwater flow can be ascertained, critical search distances are used to determine if a VEC exists. Specifically, the following distances are applied to the Tier I Assessment:

Upgradient Sources
1,760 feet for Chemical of Concern (COC)
520 feet for petroleum hydrocarbons

Cross-gradient Sources
365 feet for COC
165 feet for petroleum hydrocarbon LNAPL sources & 95 feet dissolved petroleum hydrocarbon sources with plume considerations

Down-gradient Sources
100 feet for COC/petroleum hydrocarbon LNAPL sources
30 feet dissolved petroleum hydrocarbon sources

Review of the regulatory agency database report provided for the subject property revealed that there are two (2) closed spill incidents located within the critical up-gradient distance. In addition, the subject property was identified as a RCRA Generator and a PBS facility with five (5) closed spill incidents. Since the subject property is permitted and regulated by state or federal agencies for petroleum bulk storage and waste generation, these listings are not expected to adversely affect the subject property. In addition, all of the closed spill incidents have been addressed to the satisfaction of the NYSDEC and are not expected to adversely affect the subject property. Therefore, the subject property is not expected to be adversely affected by a VEC. Based on the information reviewed, it is concluded that a VEC can be ruled out.

No additional services were included in this report.

10.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONAL

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312, and

We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed the "All Appropriate Inquiries" in conformance with the standards and practices set forth in 40 CFR Part 312.

2/4/14
Date

Charles J. Voorhis, CEP, AICP
Manager Partner

2/4/14
Date

Steven J. McGinn
Partner/Division Manager

11.0 REFERENCES

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FIGURES

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FIGURE 1
LOCATION

Source: ESRI Web Mapping Service

Scale: 1 inch = 500 feet

N

Indian Hills
Golf Club
Northport

Updated
Phase I ESA

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FIGURE 2
AERIAL PHOTOGRAPH

Source: NYS Orthophotos, 2010

Scale: 1 inch = 500 feet

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FIGURE 3
LAND USE MAP

Source: NYS Orthophotos, 2013
Scale: 1 inch = 500 feet

N

Indian Hills
Golf Club
Northport

Updated
Phase I ESA

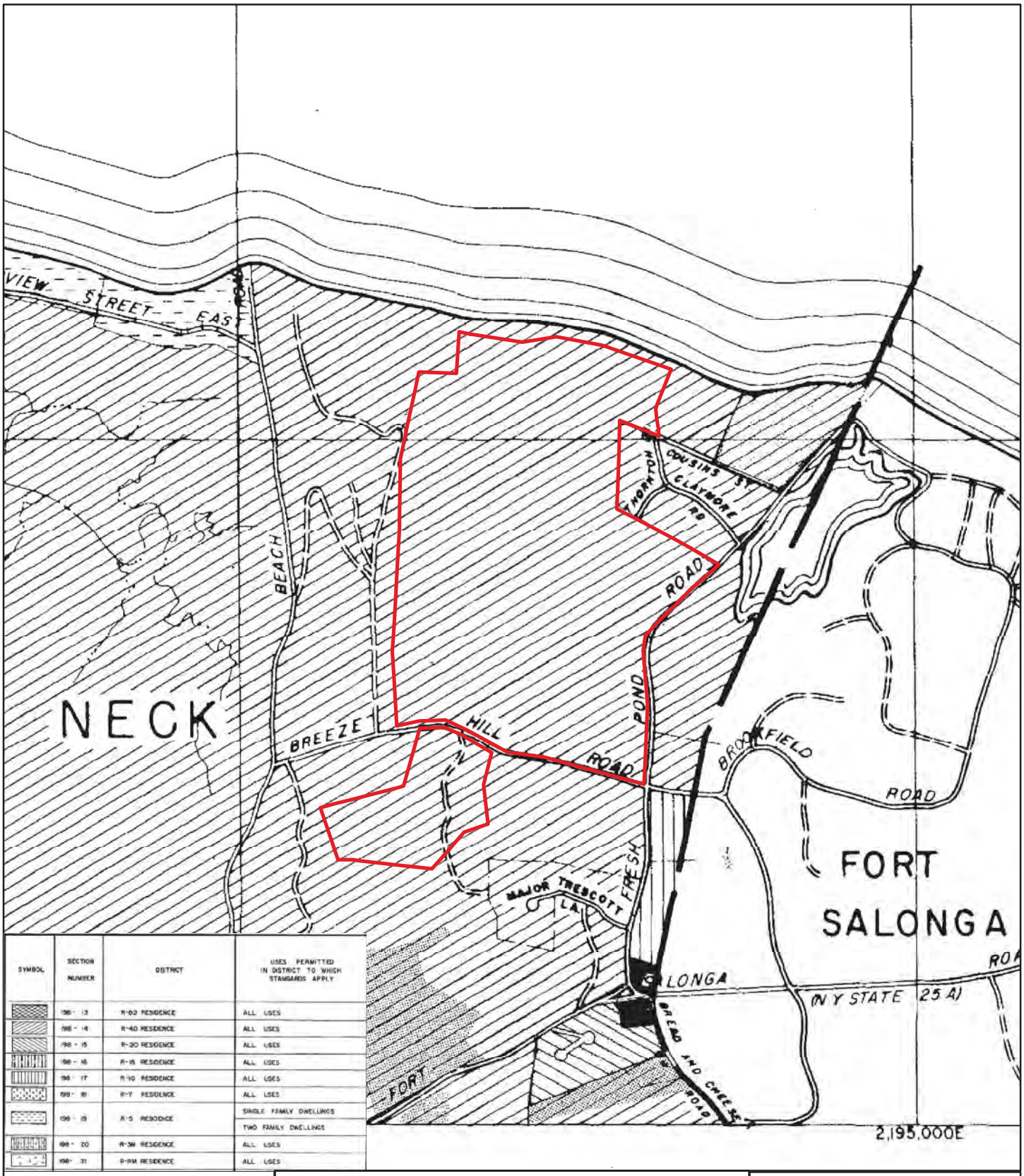

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FIGURE 4
ZONING MAP

Source: Huntington Zoning, sheet 2, ammendments 1986
Scale: 1 inch = 1,000 feet

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FIGURE 5
SOIL MAP

Source: ESRI Web Mapping Service, NRCS Soils Suffolk County, NY
Scale: 1 inch = 500 feet

N

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Updated Phase I ESA

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FIGURE 6
TOPOGRAPHIC MAP

Source: ESRI Web Mapping Service, USGS

Scale: 1 inch = 1,000 feet

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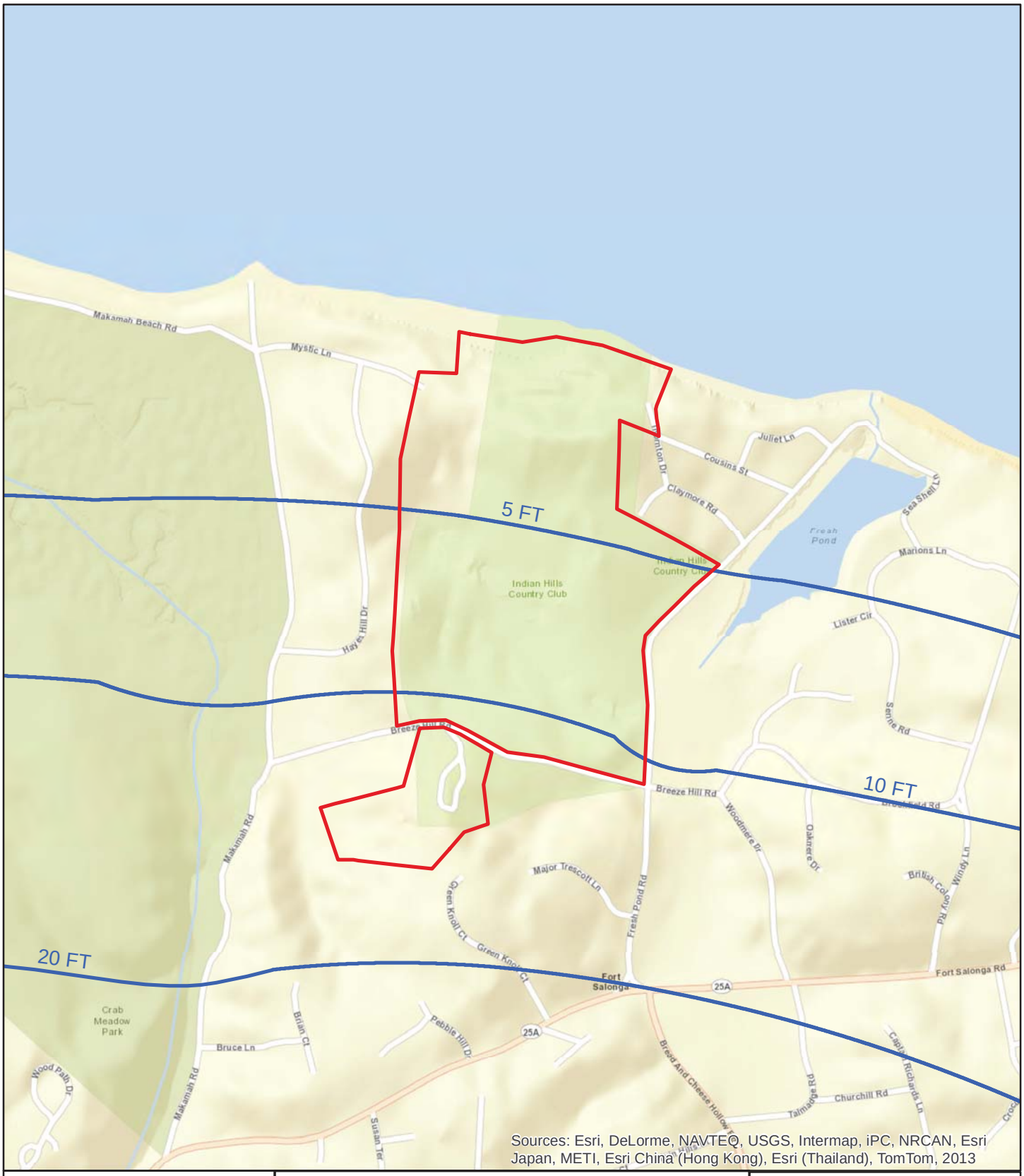
Northport

Updated
Phase I ESA



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

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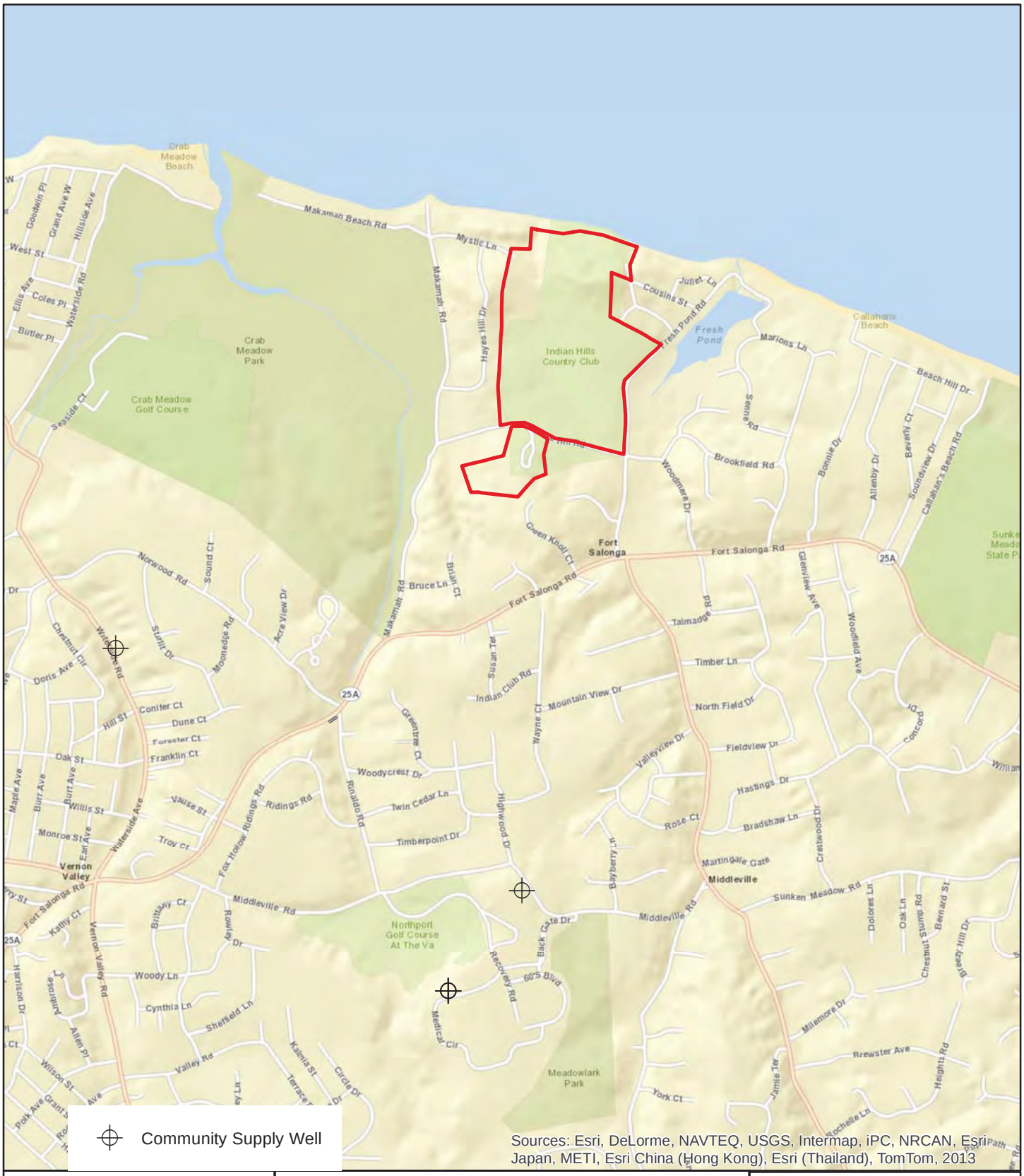
FIGURE 7
WATER TABLE CONTOUR MAP

Source: ESRI Web Mapping Service, USGS
Scientific Investigations Map 3270, 2010 data
Scale: 1 inch = 1,000 feet

N

Indian Hills
Golf Club
Northport

Updated
Phase I ESA



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

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FIGURE 8
WATER SUPPLY MAP

Source: ESRI Web Mapping Service,Suffolk SWAP dataset

Scale: 1 inch = 2,000 feet

N

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Northport

Updated Phase I ESA

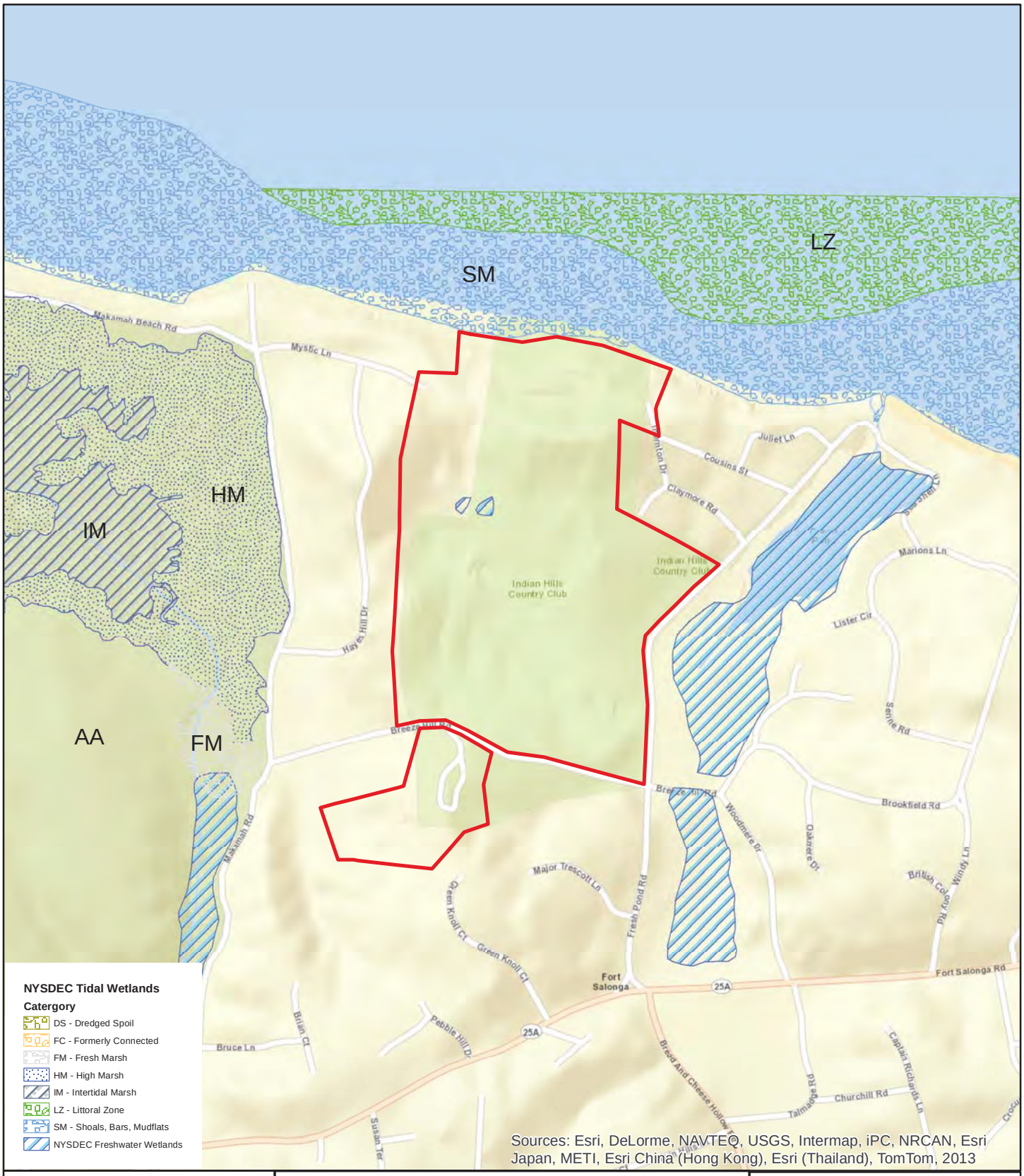

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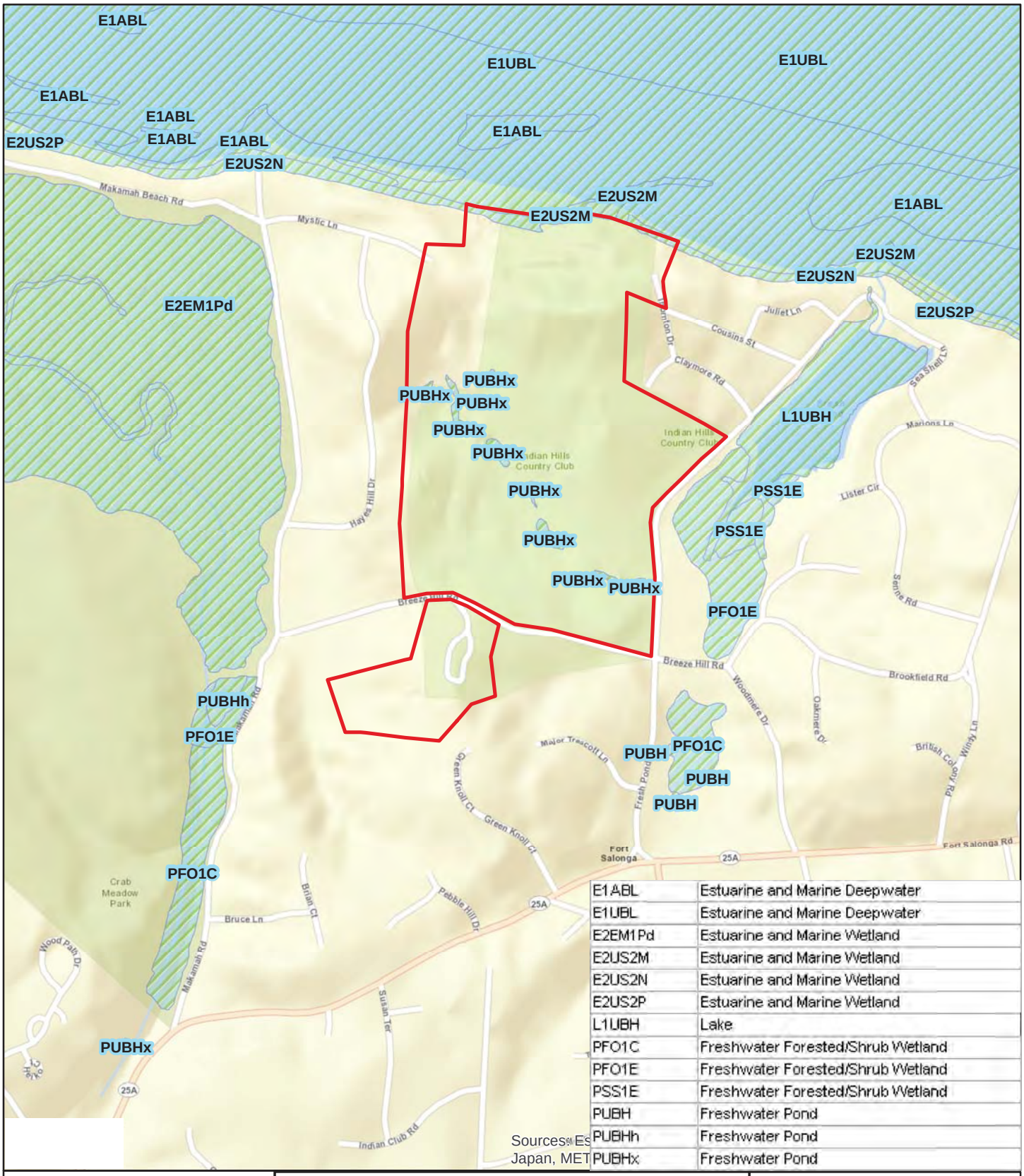
FIGURE 9
NYSDEC
WETLANDS MAP

Source: ESRI Web Mapping Service, NYSDEC Freshwater & Tidal Wetlands Maps
Scale: 1 inch = 1,000 feet

N

Indian Hills
Golf Club
Northport

Updated
Phase I ESA



E1ABL	Estuarine and Marine Deepwater
E1UBL	Estuarine and Marine Deepwater
E2EM1Pd	Estuarine and Marine Wetland
E2US2M	Estuarine and Marine Wetland
E2US2N	Estuarine and Marine Wetland
E2US2P	Estuarine and Marine Wetland
L1UBH	Lake
PFO1C	Freshwater Forested/Shrub Wetland
PFO1E	Freshwater Forested/Shrub Wetland
PSS1E	Freshwater Forested/Shrub Wetland
PUBH	Freshwater Pond
PUBHh	Freshwater Pond
PUBHx	Freshwater Pond

Sources: Es
Japan, MET

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FIGURE 10
NATIONAL WETLANDS INVENTORY MAP

Source: ESRI Web Mapping Service, National Wetlands Inventory Map (NWI, USF&WService)
Scale: 1 inch = 1,000 feet

N

Indian Hills
Golf Club
Northport

Updated
Phase I ESA

Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

FEMA zone X (unshaded) indicates minimal risk

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FIGURE 11
FEMA FLOOD MAP

Source: ESRI Web Mapping Service, FEMA

Scale: 1 inch = 1,000 feet

N

Indian Hills
Golf Club
Northport

Updated
Phase I ESA

APPENDICES

APPENDIX A

SUPPLEMENTAL STATEMENT OF CONDITIONS

ENVIRONMENTAL AUDITS

SUPPLEMENTAL STATEMENT OF CONDITIONS
ENVIRONMENTAL AUDITS

Charles J. Voorhis is Certified as an Environmental Inspector (CEI) with the Environmental Assessment Association (EAA). The Association provides technical support and is acting to standardize the industry with regard to procedures and techniques for report preparation. The EAA has established an outline of responsibilities for the Environmental Inspector as well as a Statement of Limiting Conditions. This information is reproduced below in order for clients and loan agencies to understand responsibilities and limitations under this contract.

Certification: The Environmental Inspector certifies to the Buyer, Seller and/or lender in a transaction as named in the inspection report "Principal Parties"; and the Inspector and the Principal Parties agree that:

1. The Environmental Inspector has no present or contemplated future (a) partnership with Principal Parties nor (b) an interest in the property inspected which could adversely affect the Inspector's ability to perform an objective inspection; and neither the employment of the inspector to conduct the inspection, nor the compensation for it, is contingent on the results of the inspection.

2. The Environmental Inspector has no personal interest in or bias with respect to the subject matter of the inspection report or any parties who may be part of a financial transaction involving the property. The conclusions and recommendations of the report are not based in whole or in part upon the race, color, creed, sex or national origin of any of the Principal Parties.

3. The Environmental Inspector has personally inspected the property, both inside and out and has made visual inspection of adjacent properties, to the extent possible by readily available access. The inspection does not include the removal of any soil, water or air samples, the moving of furniture or fixtures, or any type of inspection that would require extraordinary effort to access.

4. All contingent and limiting conditions are contained herein (imposed by the terms of the inspection assignment or by the undersigned affecting the conclusions and recommendations contained in the report).

5. This Environmental Inspection report has been made in conformity with and is subject to the requirements of the Code of Professional Ethics of the Environmental Assessment Association.

6. All opinions, conclusions and recommendations concerning the inspected property that are set forth in the inspection report were prepared by the Environmental Inspector whose signature appears on the report. No change of any item in the report shall be made by anyone other than the Inspector, and the Inspector shall have no responsibility for any such unauthorized change.

Contingent and Limiting Conditions: The certification of the Environmental Inspector appearing in the environmental inspection report is subject to the following conditions and to such other specific and limiting conditions as are set forth by the Inspector in the report.

1. The Inspector assumes no responsibility for matters of legal nature affecting the property inspected or the title thereto. The property is inspected assuming responsible ownership.

2. Any sketch appearing in or attached to the inspection report, or any statement of dimensions, capacities, quantities or distances, are approximate and are included to assist the reader in visualizing the property. The inspector has made no survey of the property.

3. The Inspector is not required to give testimony or appear in court because of having made the inspection with reference to the property in question, unless arrangements have been previously made therefor.

4. This report is not intended to have any direct effect on the value of the property inspected but simply to provide a visual Environmental Assessment solely for the benefit of the Principal Parties.

5. The Inspector assumes that there are no hidden, unapparent, or latent conditions or defects in or of the property, subsoil, or structures, other than those noted on the inspection report or any addendum to the report which the Inspector has included. The Inspector assumes no responsibility for such conditions, or for the inspection, engineering or repair which might be required to discover or correct such factors.

6. Information, estimates and opinions furnished to the Inspector, and contained in the report, were obtained from sources considered reliable and believed to be true and correct. However, the Inspector has made no independent investigation as to such matters and undertakes no responsibility for the accuracy of such items.

7. The Inspection and Inspection Report are made by the Inspector solely for the benefit and personal use of the Principal Parties. No disclosure may be made of the Inspection Report without the prior written consent of the Inspector and the Inspector undertakes no responsibility for harm or damages to any party other than the Principal Parties.

8. Neither the Inspection Report, any part thereof, nor any copy of the same (including conclusions or recommendations, the identity of the Inspector, professional designation, reference to any professional organization, or the firm with which the Inspector is connected), shall be used for any purposes by anyone but the Principal Parties. The report shall not be conveyed by anyone to the public through advertising, public relations, news, sales, or other media, without the prior written consent and approval of the Inspector.

APPENDIX B

RESUMES OF KEY PERSONNEL

PERSONAL PROFESSIONAL QUALIFICATIONS

CHARLES J. VOORHIS, CEP, AICP

Licensing and Certification:

Certified Environmental Professional (CEP)
American Institute of Certified Planners (AICP)
Certified Environmental Inspector, Environmental Assessment Association
US Coast Guard Master Steam and Auxiliary Sail Vessels

Experience:

* Managing Partner of Firm, Nelson, Pope & Voorhis, LLC; Melville, New York (1/97-Present)

* Principal of Firm, Charles Voorhis & Associates, Inc.; Miller Place, New York (8/88-1/97)

* Director, Division of Environmental Protection, Department of Planning, Environment and Development; Town of Brookhaven, New York (3/86-8/88)

* Environmental Analyst, Division of Environmental Protection, Department of Planning, Environment and Development; Town of Brookhaven, New York (8/82-3/86)

* Private and Public Consultant, Planning and Environmental Issues (8/82-3/87)

* Public Health Sanitarian, Suffolk County Department of Health Services; Hauppauge, New York (1/80-8/82)

* Environmentalist I, Suffolk County Department of Environmental Control, Central Islip, New York (2/78- 8/79)

Education:

* SUNY at Stony Brook; Master of Science in Environmental Engineering, concentration in Water Resource Management, 1984

* Princeton Associates; Groundwater Pollution and Hydrology Short Course, Princeton, New Jersey, 1983

* New York State Health Department, Environmental Health Training Course, Hauppauge, New York, 1982

* Southampton College of Long Island University; Bachelor of Science in Environmental Geology, 1977

Significant Professional Achievements:

* Airport International Plaza, DEIS, 1996
* Patchogue Lace Mill, Phase I ESA, 1996
* Price Club @ New Rochelle, DEIS and FEIS, 1995
* Commack Campus Park @ Commack DEIS and FEIS, 1994
* Water Mill Shops @ Water Mill DEIS, 1993
* PJ Venture Wholesale Club @ Commack DEIS and FEIS, 1993
* Dowling College NAT Center DEIS and FEIS, 1992
* Final EIS Angel Shores @ Southold, 1991
* Town of Brookhaven Boat Mooring Plan, 1991
* Draft EIS Round Hill @ Old Westbury, 1990
* Draft EIS St. Elsewhere @ Nesconset, 1989
* GEIS Commercial Rezonings on the Towns Own Motion, 1988
* GEIS Large Lot Rezonings on the Towns Own Motion, 1988
* Award for Environmentally Sensitive Land Design, Pine Barrens Review Comm., 1988
* EQBA, Acquisition Study for Brookhaven Town, 1987
* Town of Brookhaven Land Use Plan, 1987
* Discussion of Hydrogeologic Zone Boundaries in the Vicinity of S. Yaphank, LI, NY, 1986
* Duck Farms in Brookhaven Town, Land Restoration Techniques, 1985
* Coastal Energy Impact Program, 1984
* Comprehensive Review of Industrial Zoned Land in the Sensitive Hydrogeologic Zone, Town of Brookhaven, 1983
* Groundwater Supply and Early Groundwater Use in Brookhaven Township, Suffolk County, New York 1983

Professional & Other Organizations (past and present):

* American Institute of Certified Planners
* American Planning Association, Washington, D.C.
* National Association of Environmental Professionals, Alexandria, VA
* Environmental Assessment Association, Scottsdale, Arizona
* American Water Resources Association, Syracuse, New York
* National Water Well Association, Worthington, Ohio
* New York Planning Federation, Albany, New York
* New York Water Pollution Control Association, Riverdale, New York
* Water Pollution Control Federation, Washington, D.C.
* Long Island Seaport & EcoCenter, Inc., Director/Trustee, Port Jefferson, NY
* Boy Scouts of America, Trained Scoutmaster, Nathanial Woodhull District, NY
* Alumni Association, LIU, Southampton College, New York
* Historical Society of Port Jefferson, Trustee, Port Jefferson, NY
* Environmental Conservation Board, Inc. Village of Port Jefferson, NY
* Port Jefferson Village, Waterfront Advisory Committee, Port Jefferson, NY
* Town of Brookhaven Mount Sinai Harbor Advisory Committee, Medford, NY
* Brookhaven Conservation Advisory Council, Medford, New York

PERSONAL PROFESSIONAL QUALIFICATIONS

STEVEN J. McGINN, CEI

Licensing and Certification:

OSHA 40 Hour HAZWOPER
Certified Environmental Inspector, Environmental Assessment Association (CEI)
New York State Department of Labor - Licensed Asbestos Inspector
USEPA Certified Risk Assessor for Lead Based Paint

Experience:

- Partner/Division Manager, Nelson, Pope & Voorhis, LLC (July 2005 to Present)
- Sr. Environmental Analyst, Nelson, Pope & Voorhis, LLC (January 1997 to July 2005)
- Environmental Analyst, Nelson & Pope, LLP (July 1989 to January 1997)
- Project Manager, Middleton Kontokosta & Associates (May 1988 to July 1989)
- Planning Aide, Town of Huntington Planning Department (January 1987 to May 1988)

Education:

- EPA Model Lead Risk Assessor Initial Training, August , 2006
- EPA Model Lead Inspector Technician Training, August, 2006
- Training Course in the Theory and Practice of Applying Subsurface Interface Radar in Engineering and Geophysical Investigation, March, 2004
- 40-Hour Course Hazardous Materials Training, December, 1998
- Project Managers Bootcamp, PSMJ Resources, Inc., January 1998
- Performing Phase I Environmental Inspections, Environmental Assessment Association, Sept. 1997
- Environmental Regulations Course, Executive Enterprises, June 1996
- Environmental Impact Statements, Cook College/Rutgers University, December 1994
- State University of New York at Cortland - Bachelor of Science in Geography, January 1986

Significant Professional Achievements:

- 940 Bryant Avenue, Bronx - Phase I ESA
- 1345 Seneca Avenue, Bronx - Phase I ESA
- Red Roof Farms, Rye Brook - Phase I & II ESA

- Thomas Dodge Subaru, Port Jefferson - Phase I & II ESA
- 221 Skip Lane, Bay Shore - Phase I & II ESA
- 121 Maple Avenue (Shore Line Marina), Bay Shore - Phase I & II ESA
- 950 West Main Street, Riverhead - Phase I ESA
- Long Island Galleria/Price Club Plaza, Westbury - DEIS & FEIS
- Currans Road Development, Middle Island - DEIS & FEIS
- Timber Ridge at the Plains, Greenlawn - DEIS & FEIS
- Greene's Creek Marina, Sayville - DEIS
- Town of Brookhaven Marine Reconstruction Projects, Patchogue, Blue Point, Port Jefferson, Mount Sinai, - Tidal Wetland Permits
- Village of Lake Success, Lake Success - Land Use and Zoning Analyses
- Ridgehaven Estates, Ridge - DEIS & FEIS
- K-Mart @ Farmingville - Part III EAF
- Long Lake Estates, Coram - DEIS & FEIS

Professional Responsibilities:

- Partner/Division Manager for the preparation of Phase I and Phase II Environmental Site Assessments, Site Remediation, Lead Based Paint Surveys and Asbestos Surveys for lending institutions and Governmental Agencies.
- Author of numerous Phase I & II Environmental Site Assessments.
- Site Supervisor for numerous large and small scale site remediation projects.
- Author of numerous environmental impact statements in both draft and final formats for major large scale, high-profile projects.
- Other responsibilities include the preparation of various environmental, planning and zoning studies and the preparation of various state and federal applications such as: land use and zoning studies, noise and air quality assessments, Phase I Environmental Site Assessments, feasibility studies, economic analyses, freshwater and tidal wetland permits, etc.
- Interaction with various Town, County, State and Federal officials, attorneys, developers, engineers, Town Boards, Planning Boards, and Zoning Boards of Appeals.

Professional Organizations:

- American Institute of Certified Planners, Washington, D.C.
- American Planning Association, Washington, D.C.
- National Association of Environmental Professionals, Alexandria, VA
- Environmental Assessment Association, Scottsdale, Arizona
- National Groundwater Association, Assoc. of Groundwater Scientists and Engineers

APPENDIX C

DATABASE SEARCH INFORMATION

TOXICS TARGETING

Phase I
Environmental Database Report

Indian Hills Country Club
Northport, NY 11768

January 24, 2014

Privileged and Confidential.

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PLEASE REFER TO PAGES ONE AND FIVE FOR A DESCRIPTION OF SOME OF THE LIMITATIONS OF THIS ENVIRONMENTAL REPORT.

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Introduction

Toxics Targeting has combined environmental database searches, extensive regulatory analysis and sophisticated mapping techniques to produce your *Environmental Report*. It checks for the presence of 21 categories of government-reported toxic sites and provides detailed, up-to-date information on each identified site. The findings of your report are presented in an easy-to-understand format that:

1. ***Maps*** the approximate locations of selected government-reported toxic sites identified on or near a specified target address.

2. ***Estimates*** the distance and direction between the target address and each identified toxic site.

3. ***Reports*** air and water permit non-compliance and other regulatory violations.

4. ***Profiles*** some aspects of the usage, manufacture, storage, handling, transport or disposal of toxic chemicals at individual sites.

5. ***Summarizes*** some potential health effect information and drinking water standards for selected chemicals reported at individual sites.

The Three Sections Of Your Report

The first section highlights your report's findings by summarizing identified sites according to: **a)** distance intervals, **b)** direction, **c)** proximity to the target address and **d)** individual site categories. In addition, the locations of all identified toxic sites are illustrated on individual maps for each radius search distance used in your report. A close-up map illustrates the locations of all identified toxic sites, at the shortest radius search distance used in your report. Finally, a map of tax parcels and a table of selected information about those parcels are included.

The second section of your report contains *Toxic Site Profiles* that provide detailed information on each identified toxic site. The information in each *Toxic Site Profile* varies according to its source. Some toxic site categories have extensive information, some have limited information. All the information is updated on a regular basis.

The third section of the report contains appendices that identify: **1)** on-site spills reported to the national Emergency Response Notification System (ERNS), **2)** various toxic sites that cannot be mapped due to incomplete or erroneous addresses or other mapping problems, **3)** codes that characterize hazardous wastes reported at various facilities, **4)** methods used to map toxic sites identified in your report and **5)** information sources used in your report.

How to Use Your Report

- Check Table One to see the number of <u>identified sites by distance intervals</u>.

- Check Table Two to see identified sites sorted by <u>direction</u>.

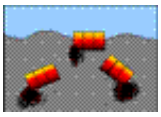
- Check Table Three to see identified sites <u>sorted by site categories</u>.

- Check Table Four to see identified sites ranked by <u>proximity to the target address</u>.

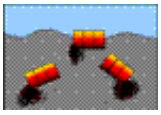
- Use Table Five to get info for the subject parcel and every parcel found on the Tax Parcel Map
- Refer to the various maps to see the locations of identified toxic sites. Refer to the *Toxic Site Profile* and *Appendix* sections for additional information.

Toxic Site Databases Analyzed In Your Report

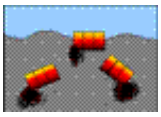
Search Radius

One-Mile 

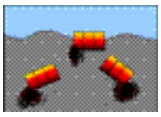
1) ***National Priority List for Federal Superfund Cleanup****:* a listing of sites known to pose environmental or health hazards that are being investigated or cleaned up under the Federal Superfund program.

Half-Mile 

2) ***Delisted National Priority List Sites****:* a listing of NPL sites that have been removed from the National Priority List.

One-Mile 

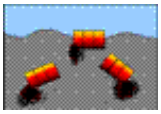
3) ***New York Inactive Hazardous Waste Disposal Site Registry****:* a state listing of sites that can pose environmental or public health hazards requiring investigation or clean up.

One-Mile 

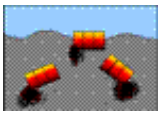
4) ***New York Inactive Hazardous Waste Disposal Site Registry Qualifying****:* a state listing of sites that qualify for possible inclusion to the NYDEC Inactive Haz. Waste Disposal Site Registry.

One-Mile

5) ***RCRA Corrective Action Activity (CORRACTS):*** waste facilities with RCRA corrective action activity reported by the USEPA.

Half-Mile 

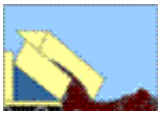
6) ***CERCLIS*** (Comprehensive Environmental Response, Compensation and Liability Information System): a federal listing of Non-NFRAP sites that can pose environmental or public health hazards requiring investigation or clean up.

Half-Mile 

7) ***CERCLIS NFRAP:*** a federal listing of CERCLIS sites that have no further remedial action planned.

Half-Mile

8) ***New York State Brownfield Cleanup Sites****:* a listing of sites that are abandoned, idled or under-used industrial and commercial sites where expansion or redevelopment is complicated by real or perceived environmental contamination.

Half-Mile 

9) ***New York Solid Waste Facilities Registry****:* active and inactive landfills, incinerators, transfer stations or other solid waste management facilities.

Half-Mile

10) ***New York and Federal Hazardous Waste Treatment, Storage or Disposal Facilities****:* sites reported by the NYS manifest system and the USEPA's Resource Conservation and Recovery Act Information System (RCRIS). Also includes the following database:

- ***RCRA violations:*** waste facilities with violations reported by the USEPA pursuant to the Resource Conservation and Recovery Act..

Half-Mile

11) ***Toxic Spills: active and inactive or closed*** spills reported to state environmental authorities, including *remediated* and *unremediated* leaking underground storage tanks. This database includes the following categories:

- Tank Failures
- Tank Test Failures
- Unknown Spill Cause or Other Spill Causes
- Miscellaneous Spill Causes

Quarter-Mile

12) ***New York State Major Oil Storage Facilities****:* sites with more than a 400,000-gallon capacity for storing petroleum products.

Quarter-Mile

13) ***New York and Local Petroleum Bulk Storage Facilities****:* sites with more than a 1,100-gallon capacity for storing petroleum products.

Quarter-Mile

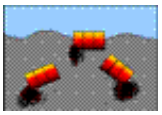
14) ***New York and Federal Hazardous Waste Generators and Transporters****:* sites reported by the NYS manifest system and the USEPA's Resource Conservation and Recovery Act Information System (RCRA). Also includes the following database:

- ***RCRA violations:*** waste facilities with violations reported by the USEPA pursuant to the Resource Conservation and Recovery Act.

Quarter-Mile

15) ***New York Chemical Bulk Storage Facilities****:* sites storing hazardous substances listed in 6 NYCRR Part 597 in aboveground tanks with capacities of 185 gallons or more and/or underground tanks of any size

Half-Mile



16) ***New York Hazardous Substance Disposal Site Draft Study****:* a state listing of sites contaminated with toxic substances that can pose environmental or public health hazards. These sites are not eligible for state clean up funding programs.

Quarter-Mile

17) ***Federal Toxic Release Inventory Facilities****:* discharges of selected toxic chemicals to air, land, water or treatment facilities.

Quarter-Mile

18) ***Federal Air Discharges****:* Air pollution point sources monitored by U.S. EPA and/or state and local air regulatory agencies.

Quarter-Mile

19) ***Federal Permit Compliance System Toxic Wastewater Discharges:*** permitted toxic wastewater discharges.

Quarter-Mile

20) ***Federal Civil and Administrative Enforcement Docket****:* judiciary cases filed on behalf of the U. S. Environmental Protection Agency by the Department of Justice.

Property only

21) ***ERNS: Federal Emergency Response Notification System Spills****:* a listing of federally reported spills.

Limitations Of The Information In Your Report

The information presented in your *Environmental Report* has been obtained from various local, state and federal government agencies. Please be aware that: **1)** additional information on individual sites may be available, **2)** newly discovered sites are continually reported and **3)** all map locations are approximate. As a result, this report is intended to be the FIRST STEP in the process of identifying and evaluating possible environmental threats to specific properties and can only serve as a guide for conducting on-site visits or additional, more detailed toxic hazard research.

Toxics Targeting tries to ensure that the information in your report is presented accurately and with minimal alteration. The only systematic changes that are made correct obvious address errors in order to allow sites to be mapped. Any address changes that are made are noted in the map information section at the top of each corresponding *Toxic Site Profile*. Since the information presented in your report is not edited, please be aware that it can contain reporting errors or typographical mistakes made by the site owners/operators or government agencies that produced the information. Please be aware of some other limitations of the information in your report:

- The map used by *Toxics Targeting* is the same one used by the U. S. Census. While the map is generally accurate, no map is perfect. In addition, *Toxics Targeting's* mapping methods estimate where toxic site addresses are located if the address is not specifically designated on the Census map. FOR THESE REASONS, ALL MAP LOCATIONS OF ADDRESSES AND REPORTED TOXIC SITES SHOULD BE CONSIDERED APPROXIMATE AND SHOULD BE VERIFIED BY ON-SITE VISITS;

- UNDISCOVERED, UNREPORTED OR UNMAPPABLE TOXIC SITES MIGHT NOT BE IDENTIFIED BY THIS REPORT'S CHECK OF 21 TOXIC SITE CATEGORIES. TOXIC SITES REPORTED IN OTHER GOVERNMENT DATABASES MIGHT ALSO EXIST. FOR THESE REASONS, YOUR REPORT MIGHT NOT IDENTIFY ALL THE TOXIC SITES THAT EXIST IN THE AREA IT SEARCHES;

- The appendix of your report contains a listing of sites that could not be mapped due to incomplete or erroneous address information or other mapping problems. This listing includes unmappable toxic sites in zip code areas within one mile of the target address as well as toxic sites without zip codes reported in the same county. IF YOU WOULD LIKE INFORMATION ON ANY OF THE LISTED SITES, PLEASE CONTACT *TOXICS TARGETING AND REFER TO THE SITE ID NUMBER.*

- Some toxic sites identified in your report may be classified as **known hazards**. Most of the toxic sites identified in your report involve **potential hazards** related to the on-site use, manufacture, handling, storage, transport or disposal of toxic chemicals. <u>Some of the toxic sites identified in your report may be the addresses of parties responsible for toxic sites located elsewhere</u>. YOU SHOULD ONLY CONCLUDE THAT TOXIC HAZARDS ACTUALLY EXIST AT A SPECIFIC SITE WHEN GOVERNMENT AUTHORITIES MAKE THAT DETERMINATION OR WHEN THAT CONCLUSION IS FULLY DOCUMENTED BY THE FINDINGS OF AN APPROPRIATE SITE INVESTIGATION UNDERTAKEN BY LICENSED PROFESSIONALS;

- Compass directions and distances are approximate. Compass directions are calculated from the subject property address to the mapped location of each identified toxic site. The compass direction does not necessarily refer to the closest property boundary of an identified toxic site. The compass direction also can vary substantially for toxic sites that are located very close to the subject property address.

- The information presented in your report is a summary of the information that *Toxics Targeting* obtains from government agencies on reported toxic sites. YOU MAY BE ABLE TO OBTAIN ADDITIONAL INFORMATION ABOUT REPORTED SITES WITH THE FREEDOM OF INFORMATION REQUEST FORM LETTERS THAT ARE PROVIDED ON THE INSIDE OF THE BACK COVER.

Section One:

Report Summary

- *Table One:* *Number of Identified Toxic Sites By Distance Interval*
- *Table Two:* *Identified Toxic Sites By Direction*
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- *Map Four:* *Quarter-Mile Radius Close up Map*

NUMBER OF IDENTIFIED SITES BY DISTANCE INTERVAL

Database Searched	0 − 100 ft	100 ft − 1/8 mi	1/8 mi − 1/4 mi	1/4 mi − 1/2 mi	1/2 mi − 1 mi	Site Category Totals
ASTM−Required 1 Mile Search						
National Priority List (NPL) Sites	0	0	0	0	0	0
NYS Inactive Hazardous Waste Disposal Site Registry	0	0	0	0	0	0
NYS Inactive Haz Waste Disposal Site Registry Qualifying	0	0	0	0	0	0
RCRA Corrective Action (CORRACTS) Sites	0	0	0	0	0	0
ASTM−Required 1/2 Mile Search						
Delisted National Priority List (NPL) Sites	0	0	0	0	Not searched	0
CERCLIS Superfund Non−NFRAP Sites	0	0	0	0	Not searched	0
CERCLIS Superfund NFRAP Sites	0	0	0	0	Not searched	0
Brownfields Sites						
Voluntary Cleanup Program	0	0	0	0	Not searched	0
Environmental Restoration Program	0	0	0	0	Not searched	0
Brownfield Cleanup Program	0	0	0	0	Not searched	0
NYSDEC Solid Waste Facilities / Landfills	0	0	0	0	Not searched	0
RCRA Hazardous Waste Treatment, Storage, Disposal Sites	0	0	0	0	Not searched	0
NYS Toxic Spills						
Active Tank Failures	0	0	0	0	Not searched	0
Active Tank Test Failures	0	0	0	0	Not searched	0
Active Spills − Unknown / Other Causes	0	0	0	0	Not searched	0
Active Spills − Miscellaneous Causes	0	1	0	1	Not searched	2
Closed Tank Failures	0	0	0	0	Not searched	0
Closed Tank Test Failures	0	0	0	1	Not searched	1
Closed Spills − Unknown / Other Causes	3	2	5	5	Not searched	15
Closed Spills − Miscellaneous Causes	2	4	4	12	Not searched	22
ASTM−Required Property & Adjacent Property (1/4 Mile Search)						
NYS Major Oil Storage Facilities	0	0	0	Not searched	Not searched	0
Local & State Petroleum Bulk Storage Sites	2	1	0	Not searched	Not searched	3
RCRA Hazardous Waste Generators & Transporters	1	0	0	Not searched	Not searched	1
NYS Chemical Bulk Storage Sites	0	0	0	Not searched	Not searched	0
Emergency Response Notification System (ERNS)	0	Not searched	Not searched	Not searched	Not searched	0
Institutional Controls / Engineering Controls (IC/EC)	See databases for NPL, CERCLIS, Inactive Hazardous Waste Disposal Site Registry and Brownfield Sites.					
ASTM−Required Databases Distance Interval Totals	**8**	**8**	**9**	**19**	**0**	**44**

NOTE: Table continues on next page.

Non−ASTM Databases 1/2 Mile Search						
Hazardous Substance Waste Disposal Sites	0	0	0	0	Not searched	0
Non−ASTM Databases 1/4 Mile Search						
Toxic Release Inventory Sites (TRI)	0	0	0	Not searched	Not searched	0
Permit Compliance System (PCS) Toxic Wastewater Discharges	0	0	0	Not searched	Not searched	0
Air Discharges	0	0	0	Not searched	Not searched	0
Civil & Administrative Enforcement Docket Facilities	0	0	0	Not searched	Not searched	0
Non−ASTM Databases Distance Interval Totals	**0**	**0**	**0**	**0**	**Not Searched**	**0**
Distance Interval Totals	***8***	***8***	***9***	***19***	***0***	***44***

Identified Toxic Sites by Direction

Indian Hills Country Club
Northport, NY 11768

* Compass directions can vary substantially for sites located very close to the subject property address.

Sites less than 100 feet from subject property sorted by distance

Map Id#	Site Name	Site Street	Approximate Distance & Direction From Property	Toxic Site Category
4	INDIAN HILLS COUNTRY CLUB	CLAMORE STREET	0 feet	Closed Status Spill (Unk/Other Cause)
5	INDIAN HILLS COUNTRY CLUB	INDIAN HILLS COUNTRY CLUB	0 feet	Closed Status Spill (Unk/Other Cause)
6	INDIAN HILLS CTRY CLUB	#26/#27 FRESH POND ROAD	0 feet	Closed Status Spill (Unk/Other Cause)
19	IHCC INC MAINT BLDG	21 BREEZE HILL ROAD	0 feet	Closed Status Spill (Misc. Spill Cause)
20	INDIAN HILLS CC	21 BREEZE HILL ROAD	0 feet	Closed Status Spill (Misc. Spill Cause)
41	INDIAN HILLS COUNTRY CLUB II	21 BREEZE HILL RD	0 feet	Petroleum Bulk Storage Site
42	INDIAN HILLS COUNTRY CLUB I	21 BREEZE HILL RD	0 feet	Petroleum Bulk Storage Site
44	INDIAN HILL COUNTRY CLUB	21 BREEZE HILL ROAD	0 feet	Hazardous Waste Generator/Transporter

Sites between 100 ft and 660 ft from the subject property sorted by direction and distance

Map Id#	Site Name	Site Street	Approximate Distance & Direction From Property	Toxic Site Category
7	HARGIS RESIDENCE	20 COUSINS STREET	364 feet to the NE	Closed Status Spill (Unk/Other Cause)
8	200 FT BEFORE BEACH WEST	FOOT OF THORNTON DRIVE	382 feet to the NE	Closed Status Spill (Unk/Other Cause)
21	RESIDENCE	48 BREEZE HILL ROAD	125 feet to the S*	Closed Status Spill (Misc. Spill Cause)
22	SMITH RESIDENCE	14 MAJOR TRESCOTT LANE	493 feet to the S	Closed Status Spill (Misc. Spill Cause)
24	GARAFOLA SANITATION	MAKAMAH RD & BREEZE HILL	590 feet to the WSW	Closed Status Spill (Misc. Spill Cause)
1	UNKNOWN	108 MAKAMAH ROAD	648 feet to the W	Active Haz Spill (Misc. Spill Cause)
43	MECHELLE & RONNIE DEPIETRO	14 MYSTIC LN	174 feet to the NW*	Petroleum Bulk Storage Site
23	ADAMO RESIDENCE	27 HAYES HILL DRIVE	524 feet to the NW	Closed Status Spill (Misc. Spill Cause)

Sites equal to or greater than 660 ft from subject property sorted by direction and distance

Map Id#	Site Name	Site Street	Approximate Distance & Direction From Property	Toxic Site Category
28	RESIDENCE	2/6 JULIET LN/FRESH POND RD)	1241 feet to the NE	Closed Status Spill (Misc. Spill Cause)
26	SPILL NUMBER 0202990	3 COUSINS STREET	746 feet to the ENE	Closed Status Spill (Misc. Spill Cause)
11	AIELLO RESIDENCE	36 LISTER CIRCLE	1030 feet to the E	Closed Status Spill (Unk/Other Cause)
12	HARRYMAN RESIDENCE	36 LISTER CIRCLE	1030 feet to the E	Closed Status Spill (Unk/Other Cause)

27	HARRYMAN RESIDENCE	36 LISTER CIRCLE	1030 feet to the E	Closed Status Spill (Misc. Spill Cause)
3	ALLEN RESIDENCE	4 SEASHELL LANE	1437 feet to the E	Closed Status Tank Test Failure
32	FRESH POND OUTLET	SEA SHELL LANE/MARION LN	1441 feet to the E	Closed Status Spill (Misc. Spill Cause)
13	KRYSSING RESIDENCE	25 TIMBERBROOK ROAD	1163 feet to the ESE	Closed Status Spill (Unk/Other Cause)
14	KLEIN RESIDENCE	22 BROOKFIELD ROAD	1475 feet to the SE	Closed Status Spill (Unk/Other Cause)
40	DR REICHEK RESIDENCE	2 BRITISH COLONY ROAD	2516 feet to the SE	Closed Status Spill (Misc. Spill Cause)
18	BOTTA RESIDENCE	1 CAPTAIN RICH LANE	2586 feet to the SE	Closed Status Spill (Unk/Other Cause)
29	CAPITAL ONE BANK	9 RTE 25A	1372 feet to the SSE	Closed Status Spill (Misc. Spill Cause)
30	CAPITAL ONE BANK	9 ROUTE 25A	1372 feet to the SSE	Closed Status Spill (Misc. Spill Cause)
33	FRANCECHA PIZZA	25A & BREAD & CHEESEHOLLO	1481 feet to the SSE	Closed Status Spill (Misc. Spill Cause)
34	FLYNNS OIL DELIVERY	RTE 25 & BREAD & CHEESE	1481 feet to the SSE	Closed Status Spill (Misc. Spill Cause)
35	LETSCHER ET AL	BREAD & CHEESEHOLLOW/25A	1481 feet to the SSE	Closed Status Spill (Misc. Spill Cause)
36	ON ROADWAY	FORT SALONGA RD/WOODMERE ROAD	1782 feet to the SSE	Closed Status Spill (Misc. Spill Cause)
17	FISHTEIN RESIDENCE	29 WAYNE COURT	2566 feet to the S	Closed Status Spill (Unk/Other Cause)
10	ROCHMAN RESIDENCE	5 PEBBLE HILL DRIVE	980 feet to the SSW	Closed Status Spill (Unk/Other Cause)
37	BRADY RESIDENCE	1069 FORT SALONGA ROAD	1877 feet to the SSW	Closed Status Spill (Misc. Spill Cause)
2	MANHOLE 3	RTE 25A/MAKAMAH ROAD	2373 feet to the SSW	Active Haz Spill (Misc. Spill Cause)
31	NAIDEAU RESIDENCE	26 MAKANAH ROAD	1427 feet to the SW	Closed Status Spill (Misc. Spill Cause)
25	WILLIAMS RESIDENCE	4 HAYES HILL DRIVE	710 feet to the WSW	Closed Status Spill (Misc. Spill Cause)
16	UNKNOWN	30B MAKAMAH BEACH ROAD	2501 feet to the WNW	Closed Status Spill (Unk/Other Cause)
9	GEISLERS BEACH	MAKAMAH ROAD	747 feet to the NW	Closed Status Spill (Unk/Other Cause)
15	UNK	18 MAKAMAH BEACH RD	2039 feet to the NW	Closed Status Spill (Unk/Other Cause)
38	FRANCIS RESIDENCE	24 MAKAMAH BEACH ROAD	2183 feet to the NW	Closed Status Spill (Misc. Spill Cause)
39	FRANCI RESIDENCE	24 MAKAMAH BEACH ROAD	2183 feet to the NW	Closed Status Spill (Misc. Spill Cause)

Identified Toxic Sites by Category

Indian Hills Country Club
Northport, NY 11768

* Compass directions can vary substantially for sites located very close to the subject property address.

Active Haz Spills (Miscellaneous Spill Causes) −− Total Sites − 2 — **Database searched at 1/2 MILE − ASTM required search distance: 1/2 Mile**

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
1	1303676	UNKNOWN	108 MAKAMAH ROAD	648 feet to the W
2	1306192	MANHOLE 3	RTE 25A/MAKAMAH ROAD	2373 feet to the SSW

Closed Status Tank Test Failures −− Total Sites − 1 — **Database searched at 1/2 MILE − ASTM required search distance: 1/2 Mile**

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
3	1010033	ALLEN RESIDENCE	4 SEASHELL LANE	1437 feet to the E

Closed Status Spills (Unknown Causes & Other Causes) −− Total Sites − 15 — **Database searched at 1/2 MILE − ASTM required search distance: 1/2 Mile**

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
4	9315196	INDIAN HILLS COUNTRY CLUB	CLAMORE STREET	0 feet
5	8602804	INDIAN HILLS COUNTRY CLUB	INDIAN HILLS COUNTRY CLUB	0 feet
6	8602746	INDIAN HILLS CTRY CLUB	#26/#27 FRESH POND ROAD	0 feet
7	0613355	HARGIS RESIDENCE	20 COUSINS STREET	364 feet to the NE
8	0225283	200 FT BEFORE BEACH WEST	FOOT OF THORNTON DRIVE	382 feet to the NE
9	0001072	GEISLERS BEACH	MAKAMAH ROAD	747 feet to the NW
10	9800846	ROCHMAN RESIDENCE	5 PEBBLE HILL DRIVE	980 feet to the SSW
11	9914316	AIELLO RESIDENCE	36 LISTER CIRCLE	1030 feet to the E
12	9600646	HARRYMAN RESIDENCE	36 LISTER CIRCLE	1030 feet to the E
13	0311185	KRYSSING RESIDENCE	25 TIMBERBROOK ROAD	1163 feet to the ESE
14	9713884	KLEIN RESIDENCE	22 BROOKFIELD ROAD	1475 feet to the SE
15	9500751	UNK	18 MAKAMAH BEACH RD	2039 feet to the NW
16	0110866	UNKNOWN	30B MAKAMAH BEACH ROAD	2501 feet to the WNW
17	9912942	FISHTEIN RESIDENCE	29 WAYNE COURT	2566 feet to the S
18	9414196	BOTTA RESIDENCE	1 CAPTAIN RICH LANE	2586 feet to the SE

Closed Status Spills (Miscellaneous Spill Causes) −− Total Sites − 22 — **Database searched at 1/2 MILE − ASTM required search distance: 1/2 Mile**

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
19	9311366	IHCC INC MAINT BLDG	21 BREEZE HILL ROAD	0 feet
20	8805704	INDIAN HILLS CC	21 BREEZE HILL ROAD	0 feet
21	0912707	RESIDENCE	48 BREEZE HILL ROAD	125 feet to the S*
22	9405957	SMITH RESIDENCE	14 MAJOR TRESCOTT LANE	493 feet to the S
23	1211505	ADAMO RESIDENCE	27 HAYES HILL DRIVE	524 feet to the NW
24	9911634	GARAFOLA SANITATION	MAKAMAH RD & BREEZE HILL	590 feet to the WSW
25	0806590	WILLIAMS RESIDENCE	4 HAYES HILL DRIVE	710 feet to the WSW
26	0202990	SPILL NUMBER 0202990	3 COUSINS STREET	746 feet to the ENE
27	9511574	HARRYMAN RESIDENCE	36 LISTER CIRCLE	1030 feet to the E
28	0900526	RESIDENCE	2/6 JULIET LN/FRESH POND RD)	1241 feet to the NE
29	1007076	CAPITAL ONE BANK	9 RTE 25A	1372 feet to the SSE
30	1005147	CAPITAL ONE BANK	9 ROUTE 25A	1372 feet to the SSE
31	9510786	NAIDEAU RESIDENCE	26 MAKANAH ROAD	1427 feet to the SW
32	0006019	FRESH POND OUTLET	SEA SHELL LANE/MARION LN	1441 feet to the E
33	9003638	FRANCECHA PIZZA	25A & BREAD & CHEESEHOLLO	1481 feet to the SSE
34	8700699	FLYNNS OIL DELIVERY	RTE 25 & BREAD & CHEESE	1481 feet to the SSE
35	0212941	LETSCHER ET AL	BREAD & CHEESEHOLLOW/25A	1481 feet to the SSE
36	1106746	ON ROADWAY	FORT SALONGA RD/WOODMERE ROAD	1782 feet to the SSE
37	9712292	BRADY RESIDENCE	1069 FORT SALONGA ROAD	1877 feet to the SSW

38	1213616	FRANCIS RESIDENCE	24 MAKAMAH BEACH ROAD	2183 feet to the NW
39	1213610	FRANCI RESIDENCE	24 MAKAMAH BEACH ROAD	2183 feet to the NW
40	0107934	DR REICHEK RESIDENCE	2 BRITISH COLONY ROAD	2516 feet to the SE

Petroleum Bulk Storage Sites −− Total Sites − 3 **Database searched at 1/4 MILE − ASTM required search distance: Property & Adjacent**

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
41	07149	INDIAN HILLS COUNTRY CLUB II	21 BREEZE HILL RD	0 feet
42	08194	INDIAN HILLS COUNTRY CLUB I	21 BREEZE HILL RD	0 feet
43	16896	MECHELLE & RONNIE DEPIETRO	14 MYSTIC LN	174 feet to the NW*

Hazardous Waste Generators, Transporters −− Total Sites − 1 **Database searched at 1/4 MILE − ASTM required search distance: Property & Adjacent**

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
44	NYD068077593	INDIAN HILL COUNTRY CLUB	21 BREEZE HILL ROAD	0 feet

Identified Toxic Sites by Proximity

Indian Hills Country Club, Northport, NY 11768

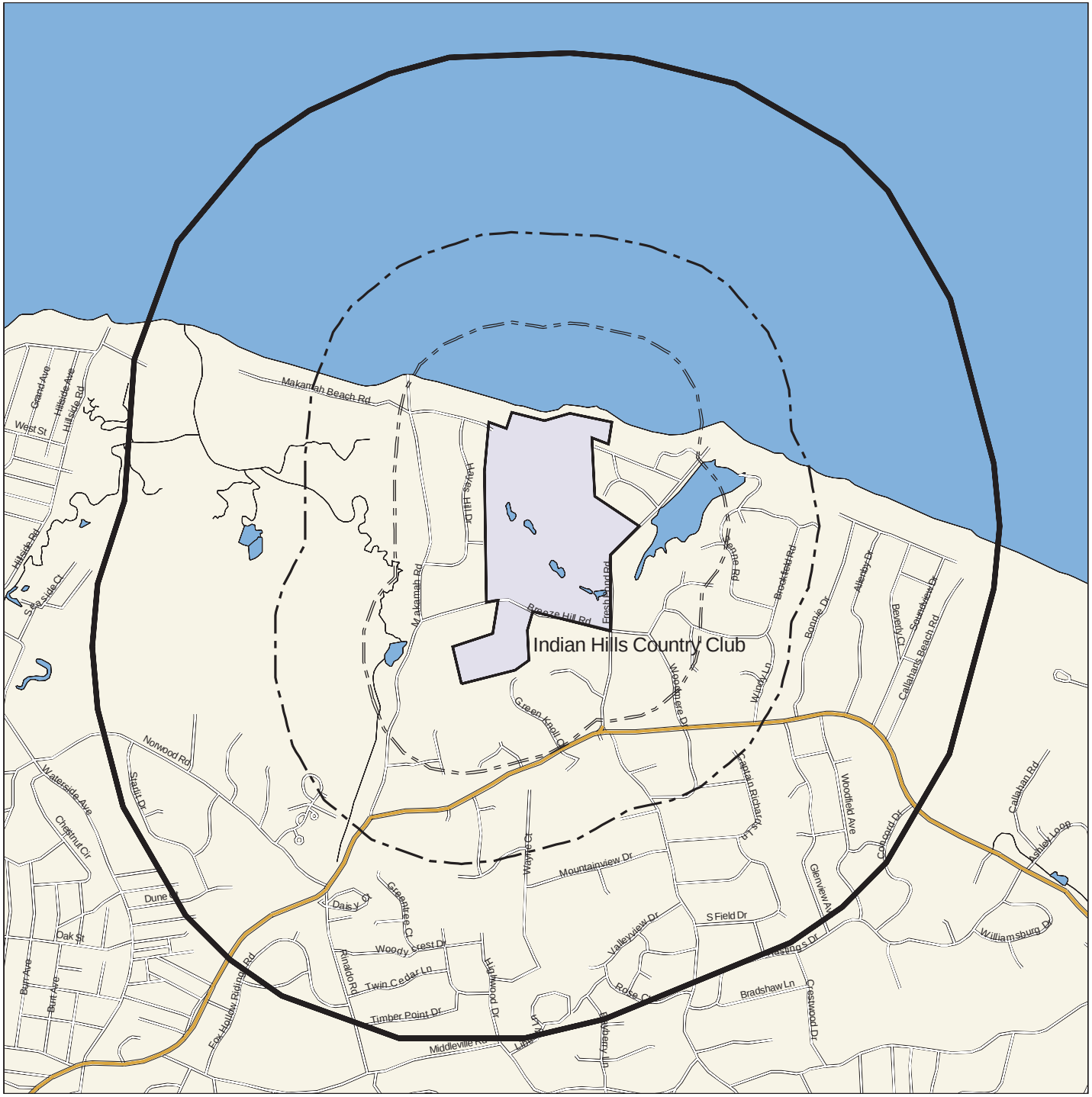
* Compass directions can vary substantially for sites located very close to the subject property address.

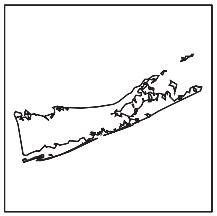
Map Id#	Site Name	Site Street	Approximate Distance & Direction From Property	Toxic Site Category
4	INDIAN HILLS COUNTRY CLUB	CLAMORE STREET	0 feet	Closed Status Spill (Unk/Other Cause)
5	INDIAN HILLS COUNTRY CLUB	INDIAN HILLS COUNTRY CLUB	0 feet	Closed Status Spill (Unk/Other Cause)
6	INDIAN HILLS CTRY CLUB	#26/#27 FRESH POND ROAD	0 feet	Closed Status Spill (Unk/Other Cause)
19	IHCC INC MAINT BLDG	21 BREEZE HILL ROAD	0 feet	Closed Status Spill (Misc. Spill Cause)
20	INDIAN HILLS CC	21 BREEZE HILL ROAD	0 feet	Closed Status Spill (Misc. Spill Cause)
41	INDIAN HILLS COUNTRY CLUB II	21 BREEZE HILL RD	0 feet	Petroleum Bulk Storage Site
42	INDIAN HILLS COUNTRY CLUB I	21 BREEZE HILL RD	0 feet	Petroleum Bulk Storage Site
44	INDIAN HILL COUNTRY CLUB	21 BREEZE HILL ROAD	0 feet	Hazardous Waste Generator/Transporter
21	RESIDENCE	48 BREEZE HILL ROAD	125 feet to the S*	Closed Status Spill (Misc. Spill Cause)
43	MECHELLE & RONNIE DEPIETRO	14 MYSTIC LN	174 feet to the NW*	Petroleum Bulk Storage Site
7	HARGIS RESIDENCE	20 COUSINS STREET	364 feet to the NE	Closed Status Spill (Unk/Other Cause)
8	200 FT BEFORE BEACH WEST	FOOT OF THORNTON DRIVE	382 feet to the NE	Closed Status Spill (Unk/Other Cause)
22	SMITH RESIDENCE	14 MAJOR TRESCOTT LANE	493 feet to the S	Closed Status Spill (Misc. Spill Cause)
23	ADAMO RESIDENCE	27 HAYES HILL DRIVE	524 feet to the NW	Closed Status Spill (Misc. Spill Cause)
24	GARAFOLA SANITATION	MAKAMAH RD & BREEZE HILL	590 feet to the WSW	Closed Status Spill (Misc. Spill Cause)
1	UNKNOWN	108 MAKAMAH ROAD	648 feet to the W	Active Haz Spill (Misc. Spill Cause)
25	WILLIAMS RESIDENCE	4 HAYES HILL DRIVE	710 feet to the WSW	Closed Status Spill (Misc. Spill Cause)
26	SPILL NUMBER 0202990	3 COUSINS STREET	746 feet to the ENE	Closed Status Spill (Misc. Spill Cause)
9	GEISLERS BEACH	MAKAMAH ROAD	747 feet to the NW	Closed Status Spill (Unk/Other Cause)
10	ROCHMAN RESIDENCE	5 PEBBLE HILL DRIVE	980 feet to the SSW	Closed Status Spill (Unk/Other Cause)
11	AIELLO RESIDENCE	36 LISTER CIRCLE	1030 feet to the E	Closed Status Spill (Unk/Other Cause)
12	HARRYMAN RESIDENCE	36 LISTER CIRCLE	1030 feet to the E	Closed Status Spill (Unk/Other Cause)
27	HARRYMAN RESIDENCE	36 LISTER CIRCLE	1030 feet to the E	Closed Status Spill (Misc. Spill Cause)
13	KRYSSING RESIDENCE	25 TIMBERBROOK ROAD	1163 feet to the ESE	Closed Status Spill (Unk/Other Cause)
28	RESIDENCE	2/6 JULIET LN/FRESH POND RD)	1241 feet to the NE	Closed Status Spill (Misc. Spill Cause)
29	CAPITAL ONE BANK	9 RTE 25A	1372 feet to the SSE	Closed Status Spill (Misc. Spill Cause)
30	CAPITAL ONE BANK	9 ROUTE 25A	1372 feet to the SSE	Closed Status Spill (Misc. Spill Cause)
31	NAIDEAU RESIDENCE	26 MAKANAH ROAD	1427 feet to the SW	Closed Status Spill (Misc. Spill Cause)
3	ALLEN RESIDENCE	4 SEASHELL LANE	1437 feet to the E	Closed Status Tank Test Failure
32	FRESH POND OUTLET	SEA SHELL LANE/MARION LN	1441 feet to the E	Closed Status Spill (Misc. Spill Cause)
14	KLEIN RESIDENCE	22 BROOKFIELD ROAD	1475 feet to the SE	Closed Status Spill (Unk/Other Cause)
33	FRANCECHA PIZZA	25A & BREAD & CHEESEHOLLO	1481 feet to the SSE	Closed Status Spill (Misc. Spill Cause)
34	FLYNNS OIL DELIVERY	RTE 25 & BREAD & CHEESE	1481 feet to the SSE	Closed Status Spill (Misc. Spill Cause)
35	LETSCHER ET AL	BREAD & CHEESEHOLLOW/25A	1481 feet to the SSE	Closed Status Spill (Misc. Spill Cause)
36	ON ROADWAY	FORT SALONGA RD/WOODMERE ROAD	1782 feet to the SSE	Closed Status Spill (Misc. Spill Cause)
37	BRADY RESIDENCE	1069 FORT SALONGA ROAD	1877 feet to the SSW	Closed Status Spill (Misc. Spill Cause)
15	UNK	18 MAKAMAH BEACH RD	2039 feet to the NW	Closed Status Spill (Unk/Other Cause)
38	FRANCIS RESIDENCE	24 MAKAMAH BEACH ROAD	2183 feet to the NW	Closed Status Spill (Misc. Spill Cause)
39	FRANCI RESIDENCE	24 MAKAMAH BEACH ROAD	2183 feet to the NW	Closed Status Spill (Misc. Spill Cause)
2	MANHOLE 3	RTE 25A/MAKAMAH ROAD	2373 feet to the SSW	Active Haz Spill (Misc. Spill Cause)
16	UNKNOWN	30B MAKAMAH BEACH ROAD	2501 feet to the WNW	Closed Status Spill (Unk/Other Cause)
40	DR REICHEK RESIDENCE	2 BRITISH COLONY ROAD	2516 feet to the SE	Closed Status Spill (Misc. Spill Cause)
17	FISHTEIN RESIDENCE	29 WAYNE COURT	2566 feet to the S	Closed Status Spill (Unk/Other Cause)
18	BOTTA RESIDENCE	1 CAPTAIN RICH LANE	2586 feet to the SE	Closed Status Spill (Unk/Other Cause)

Toxics Targeting
1 Mile Buffer Search Map

Indian Hills Country Club

Northport, NY 11768





Suffolk County

National Priority List (NPL)

Inactive Hazardous Waste Disposal Registry Site

Inact. Haz Waste Disp. Registry Qualifying

RCRA Corrective Action Facility

Subject Area

Waterbody

County Border

Railroad Tracks

1 Mile Radius

1/2 Mile Radius

1/4 Mile Radius

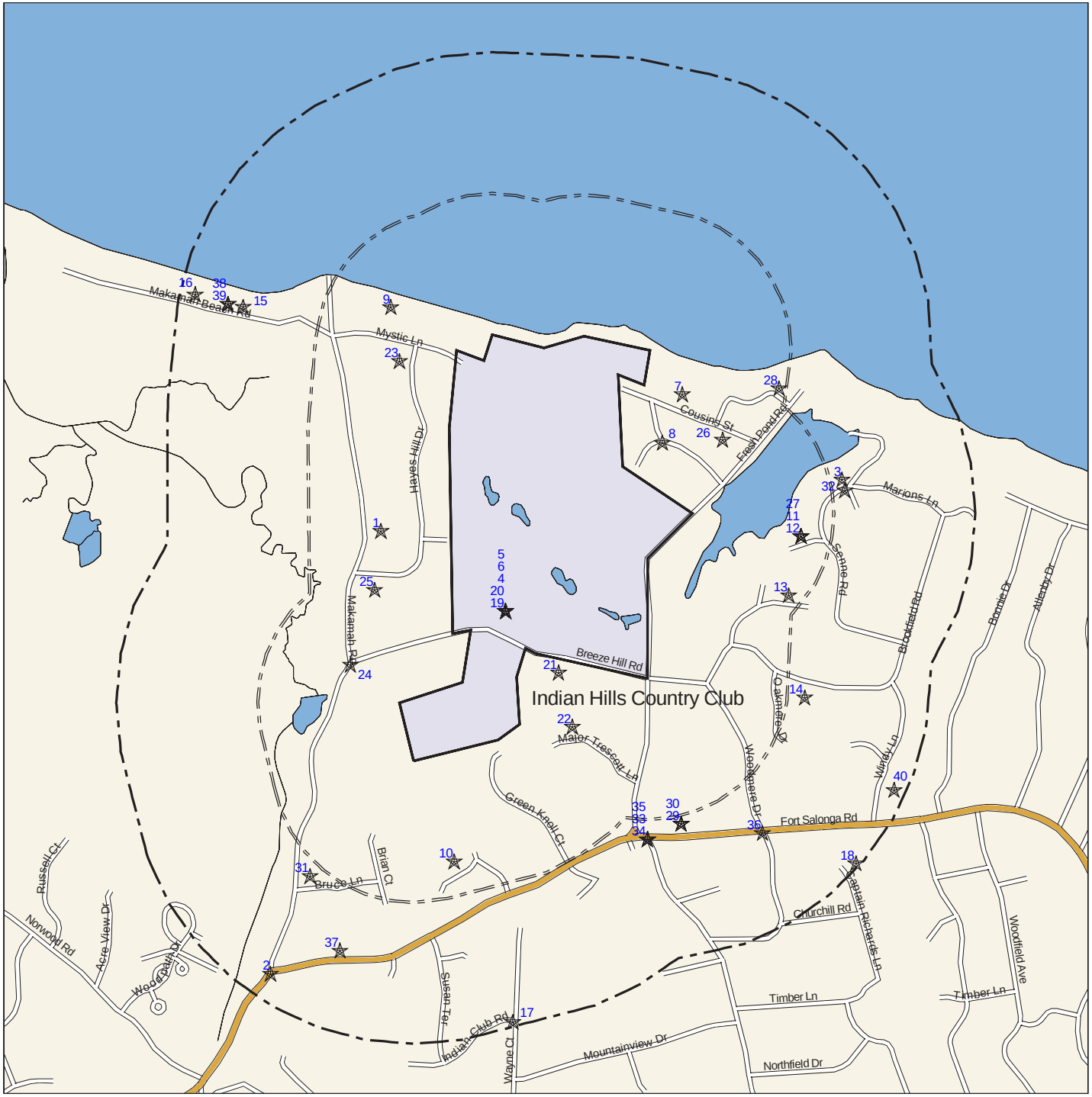
1/8 Mile Radius

Scale: 1 inch = 2151 feet

Toxics Targeting
1/2 Mile Buffer Search Map

Indian Hills Country Club

Northport, NY 11768



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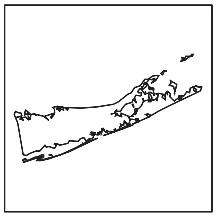


Suffolk County

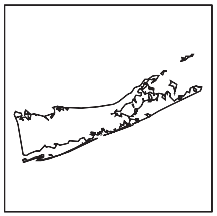
- Delisted NPL Site
- CERCLIS Superfund Non-NFRAP Site
- CERCLIS Superfund NFRAP Site
- Hazardous Waste Treater, Storer, Disposer
- Hazardous Substance Waste Disposal Site
- Solid Waste Facility
- Brownfields Site
- Hazardous Material Spill
- Subject Area
- Waterbody
- County Border
- Railroad Tracks
- 1 Mile Radius
- 1/2 Mile Radius
- 1/4 Mile Radius
- 1/8 Mile Radius

Scale: 1 inch = 1369 feet

Toxics Targeting
1/4 Mile Buffer Search Map

Indian Hills Country Club

Northport, NY 11768



Suffolk County

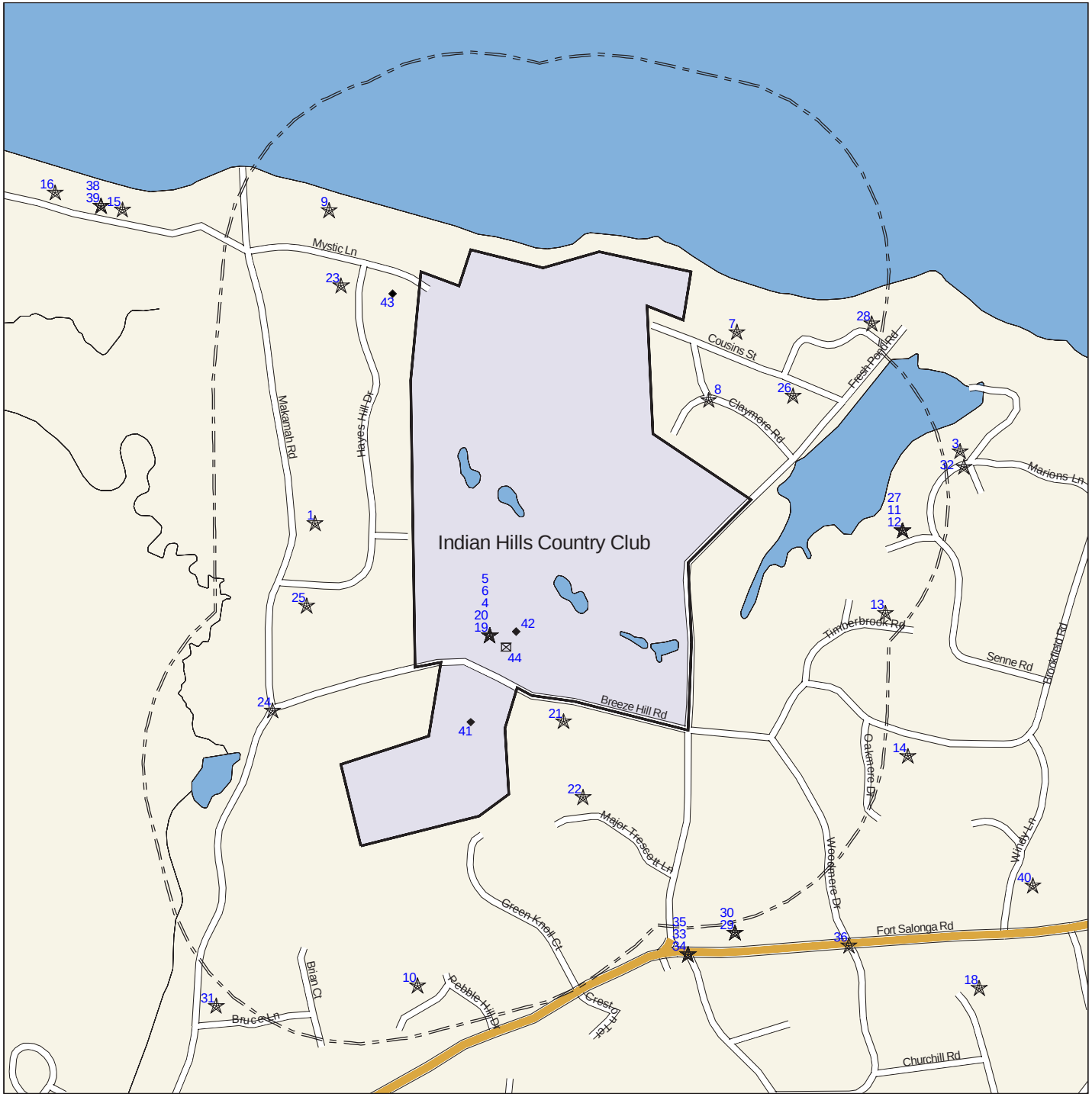
- Major Oil Storage Facility
- Chemical Storage Facility
- Toxic Release
- Wastewater Discharge
- Enforcement Docket Facility
- Air Release
- Petroleum Bulk Storage Facility
- Hazardous Waste Generator, Transp.
- Subject Area
- County Border
- 1/4 Mile Radius
- Waterbody
- Railroad Tracks
- 1/8 Mile Radius

Scale: 1 inch = 979 feet

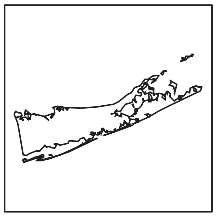
Toxics Targeting
1/4 Mile Buffer Closeup Map

Indian Hills Country Club

Northport, NY 11768



Scale: 1 inch = 979 feet



Suffolk County

- National Priority List (NPL) *
- Delisted NPL Site **
- CERCLIS Superfund Non-NFRAP Site **
- CERCLIS Superfund NFRAP Site **
- Inactive Hazardous Waste Disposal Registry Site *
- Inact. Haz Waste Disp. Registry Qualifying *
- Hazardous Waste Treater, Storer, Disposer **
- RCRA Corrective Action Facility *
- Hazardous Substance Waste Disposal Site **
- Solid Waste Facility **
- Major Oil Storage Facility ***
- Brownfields Site **
- Chemical Storage Facility ***
- Hazardous Material Spill **
- Toxic Release ***
- Wastewater Discharge ***
- Petroleum Bulk Storage Facility ***
- Enforcement Docket Facility ***
- Hazardous Waste Generator, Transp. ***
- Air Release ***
- Remediation Site Borders
- Subject Area
- Waterbody
- County Border
- Railroad Tracks
- 1/4 Mile Radius
- 1/8 Mile Radius

* 1 Mile Search Radius

** 1/2 Mile Search Radius

*** 1/4 Mile Search Radius

Section Two: Toxic Site Profiles

The heading of each *Toxic Site Profile* refers to the site's map location and details:

- The facility name, address, city, state, and zip code.
- Any changes that were made to a site's address in order to map its location.
- The site mapping method that was used (see ***How Sites are Located***, at the end of this section for more information).

Toxic Site Profiles summarize information provided by site owners or operators and government agencies regarding various toxic chemical activities reported at each site, such as:

- Whether chemicals were stored, produced, transported, discharged or disposed of.
- The name of chemicals and their Chemical Abstract Series (CAS) numbers.
- The amount of chemicals and the units (gallons/pounds) the chemical was measured in.
- Whether the site or storage tanks at the site are currently active or inactive.
- Special codes used by government agencies to regulate hazardous waste activities at some sites, or a complete description of the codes follows the profiles section.

For selected individual chemicals reported at various toxic sites, some potential health effect summary information appears below the site profile. Each potential health effect summary identifies chemicals by name and by Chemical Abstract Series (CAS) Number. An "x" under each potential health effect heading indicates positive toxicity testing results reported by the National Institute of Occupational Safety and Health's Registry of Toxic Effects of Chemical Substances (RTECS). Some chemicals (mostly appearing in profiles of Hazardous Waste facilities), are reported as mixtures, and RTECS health effect information is only available for individual chemicals. In addition, RTECS only provides information on approximately 100,000 common chemicals. Consequently, the absence of potential health effect summary information for a particular chemical identified in a Toxic Site Profile does not necessarily mean that the chemical does not pose potential health effects.

The Maximum Contaminant Level (MCL) in drinking water allowed for selected chemicals is also noted. In most cases, the only applicable MCL has been set by the New York State Department of Health (NYSDOH). Where NYSDOH has not set an MCL, the federal standard, if one exists, is listed and is marked by an asterisk.

Presented below are column headings that describe the health effect definitions used in RTECS and applicable New York State and federal drinking water standards. Reference sources for information presented in this section are also provided.

ACUTE TOX: **Acute Toxicity**: Short-term exposure to this chemical can cause lethal and non-lethal toxicity effects not included in the following four categories.

TUMOR TOX: **Tumorigenic Toxicity**: The chemical can cause an increase in the incidence of tumors.

MUTAG TOX: **Mutagenic Toxicity**: The chemical can cause genetic alterations that are passed from one generation to the next.

REPRO TOX: **Reproductive Toxicity**: May signify one of the following effects: maternal effects, paternal effects, effects on fertility, effects on the embryo or fetus, specific developmental abnormalities, tumorigenic effects, or effects on the newborn (only positive reproductive effects data for mammalian species are referenced).

IRRIT TOX: **Primary Irritant**: The chemical can cause eye or skin irritation.

MCL: **Drinking Water Standard - Maximum Contaminant Level** (MCL) listed under Drinking Water Supplies, 10 NYCRR Part 5, Subparts 1.51(f),(g), and (h) for NYDOH MCL's and under the Safe Drinking Water Act, 40 CFR 141, Subparts B and G, (* indicates value for total trihalomethanes) for federal MCL's.

Reference Source for Toxicity Information: Registry of Toxic Effects of Chemical Substances (RTECS), NIOSH (on-line database); For further information, contact: NIOSH, 4676 Columbia Parkway, Cincinnati, OH, 45226, 800/35-NIOSH.

Reference Source for Drinking Water Standards: New York State Department of Health, Bureau of Toxic Substances Assessment, 2 University Place, Room 240, Albany, NY 12203, 518/458-6373.

U.S. Environmental Protection Agency, Office of Drinking Water, 401 M St SW, Mailstop WH-556, Washington, DC, 20460, 202/260-5700.

Inactive Hazardous Waste Disposal Site Classifications:

1 -- Causing or presenting an imminent danger of causing irreversible or irreparable damage to the public health or the environment -- immediate action required;
2 -- Significant threat to the public health or environment -- action required;
3 -- Does not Present a significant threat to the environment or public health -- action may be deferred;
4 -- Site properly closed --requires continued management;
5 -- Site properly closed, no evidence of present or potential adverse impact -- no further action required;
2a -- This temporary classification has been assigned to sites where there is inadequate data to assign them to the five classifications specified by law;
A -- Work underway and not yet complete;
P -- Potential Site;
$D_{1, 2, 3}$ -- Delisted Site (1: hazardous waste not found; 2: remediated; 3: consolidated site or site incorrectly listed);
C -- Remediation Complete (formerly D2).

NO NATIONAL PRIORITIES LIST (NPL) SITES IDENTIFIED WITHIN 1 MILE SEARCH RADIUS

NO INACTIVE HAZ WASTE DISPOSAL REGISTRY OR REGISTRY−QUALIFYING SITES IDENTIFIED WITHIN 1 MILE SEARCH RADIUS

NO RCRA CORRECTIVE ACTION SITES IDENTIFIED WITHIN 1 MILE SEARCH RADIUS

NO CERCLIS SUPERFUND SITES IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS

NO BROWNFIELDS SITES IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS

NO SOLID WASTE FACILITIES IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS

NO HAZARDOUS WASTE TREATMENT/STORAGE/DISPOSERS IDENTIFIED WITHIN THE 1/2 MILE SEARCH RADIUS

NO ACTIVE TANK FAILURES IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS

NO ACTIVE TANK TEST FAILURES IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS

NO ACTIVE UNKNOWN CAUSE SPILLS AND OTHER CAUSE SPILLS IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS

ACTIVE HAZARDOUS SPILLS − MISC. SPILL CAUSES − EQUIPMENT FAILURE, HUMAN ERROR, TANK OVERFILL, DELIBERATE SPILL, TRAFFIC ACCIDENT, HOUSEKEEPING, ABANDONED DRUM, VANDALISM AND STORMS − IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS.

Please Note: * − Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 1 **UNKNOWN** **Spill Number: 1303676** **Close Date:**
108 MAKAMAH ROAD NORTHPORT, NY TT−Id: 520A−0289−824

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 648 feet to the W

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill: TRANSFORMER
Spiller: JOE BARBERA − LIPA/NATIONAL GRID
Spiller Phone:
Notifier Type: Responsible Party
Notifier Name:
Notifier Phone:
Caller Name:
Caller Agency:
Caller Phone:
DEC Investigator: Unassigned
Contact for more spill info: JOE BARBERA
Contact Person Phone: (516) 790−5726

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − No DEC Field Response − Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
07/07/2013		EQUIPMENT FAILURE	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
TRANSFORMER OIL	PETROLEUM	2.00	GALLONS	0.00	GALLONS	SOIL

Caller Remarks:

cleanup pending

DEC Investigator Remarks:

POLE 16 TRANSFORMER

Map Identification Number 2 **MANHOLE 3** **Spill Number: 1306192** **Close Date:**
RTE 25A/MAKAMAH ROAD NORTHPORT, NY TT−Id: 520A−0292−176

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 2373 feet to the SSW

ADDRESS CHANGE INFORMATION
Revised street: STATE HWY 25A / MAKAMAH RD
Revised zip code: 11768

Source of Spill: UNKNOWN
Spiller: BILLY STUBER − LIPA/NATIONAL GRID
Spiller Phone:
Notifier Type: Affected Persons
Notifier Name:
Notifier Phone:
Caller Name:
Caller Agency:
Caller Phone:
DEC Investigator: Unassigned
Contact for more spill info: BILLY STUBER
Contact Person Phone: (917) 578−0160

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − DEC Field Response − Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
09/12/2013		EQUIPMENT FAILURE	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
DIELECTRIC FLUID	PETROLEUM	500.00	GALLONS	0.00	GALLONS	

Caller Remarks:

in manhole − cleanup pending

DEC Investigator Remarks:

MANHOLE 3

09/12/13 1045 Hrs: VP called Stuber− Stuber said he is enroute to the site. VP requested a callback with an update to confirm the amount of product spilled, what happened, etc. DR

09/12/13 1150 Hrs (A): Stuber called− HE SAID THE MATERIAL DOES NOT APPEAR TO BE TRANSFORMER OR CABLE FLUID, THERE IS ONLY A FILM ON THE WATER IN THE VAULT, AND THE MATERIAL IS CONTAINED TO THE VAULT.

09/12/13 1150 Hrs (B): He suspects someone may have dumped some other type of oil into the vault.

09/12/13 1150 Hrs (C): National/LIPA will have a sample analyzed to try to identify the material, and will have the vault cleaned. DR

09/12/13 @15:30 t/c from Stuber, he stated that 500 g of oil spilled was exagerrated by original caller, there is ~500 gal of water in the man hople with traces of motor oil on top.
Has been pumped out by Waste Rec. (VP)

NO CLOSED STATUS TANK FAILURES IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS

CLOSED STATUS TANK TEST FAILURES IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS

Please Note: * − Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 3 **ALLEN RESIDENCE** **Spill Number: 1010033** **Close Date: 10/13/2011**
4 SEASHELL LANE FORT SALONGA, NY TT−Id: 520A−0259−644

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (4)
Approximate distance from property: 1437 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: 4 SEA SHELL LN
Revised zip code: 11768

Source of Spill: PRIVATE DWELLING
Spiller: UNKNOWN
Spiller Phone:
Notifier Type: Tank Tester
Notifier Name:
Notifier Phone:
Caller Name:
Caller Agency:
Caller Phone:
DEC Investigator: hmcirrit
Contact for more spill info: UNKNOWN
Contact Person Phone:

Category: Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.
Class: Willing RP − DEC Field Response − Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

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Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
12/21/2010		TANK TEST FAILURE	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	0	UNKNOWN	0	UNKNOWN	SOIL

Caller Remarks:

1000g tank test failure

DEC Investigator Remarks:

TANK ABANDONED IN PLACE

CLOSED STATUS UNKNOWN CAUSE SPILLS AND OTHER CAUSE SPILLS IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS

Please Note: * − Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 4 **INDIAN HILLS COUNTRY CLUB** **Spill Number: 9315196** **Close Date: 02/10/2004**
CLAMORE STREET NORTHPORT, NY TT−Id: 520A−0166−348

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING − LARGE SITE
Approximate distance from property: 0 feet

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill:	INSTITUTIONAL, EDUC, GOV, OTHER	Spiller:	INDIAN HILLS COUNTRY CLUB	Spiller Phone:	
Notifier Type:	Health Department	Notifier Name:		Notifier Phone:	
Caller Name:	MADELINE FENDT	Caller Agency:	SCDH	Caller Phone:	
DEC Investigator:	BPAUSTIN	Contact for more spill info:		Contact Person Phone:	

Category: Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.
Class: Willing RP − DEC Field Response − Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
03/25/1994		OTHER	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
UNKNOWN PETROLEUM	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks:

FIRE AT MAINT BLDG, ELECTRICAL FIRE, BLDG FIRE CAUSED POSS SPILLAGE OF UNK PETROLEUM OF GROUND, TYREE ON SITE TO INSPECT

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "AUSTIN"
1/30/04 MEMO CRITERION #2

TOTAL PETROLEUMS RELEASED LESS THAN 25 GALS, SPILL SPREAD BY WATER OVER VERY LARGE AREA AND VERY DIFFUSE. NO CONFIRMATION RE'CVD THAT CLEANUP TOOK PLACE AS DIRECTED BUT MATERIAL POSED NO THREAT AT THIS TIME

Map Identification Number 5 **INDIAN HILLS COUNTRY CLUB** **Spill Number: 8602804** **Close Date: 05/07/1987**

INDIAN HILLS COUNTRY CLUB FORT SALONGA, NY TT−Id: 520A−0166−347

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING − LARGE SITE
Approximate distance from property: 0 feet

ADDRESS CHANGE INFORMATION
Revised street:
Revised zip code: 11768

Source of Spill: UNKNOWN
Spiller: INDIAN HILLS COUNTRY CLUB
Spiller Phone:
Notifier Type: Other
Notifier Name:
Notifier Phone:
Caller Name:
Caller Agency:
Caller Phone:
DEC Investigator: PAREJA
Contact for more spill info:
Contact Person Phone:

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Unable or Unwilling RP − DEC Field Response − DEC Corrective Action Required

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
07/30/1986	05/07/1987	UNKNOWN	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
UNKNOWN MATERIAL	OTHER	0	GALLONS	0	GALLONS	AIR

Caller Remarks:

SAME AS SPILL NUMBER 86−2746

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "PAREJA FD"
SAME AS 86−02746

FILE HAS BEEN DESTROYED ACCORDING TO STATE ARCHIVE AND RECORD ADMINISTRATOR RETENTION/DISPOSAL PROCEDURES

Map Identification Number 6 **INDIAN HILLS CTRY CLUB** **Spill Number: 8602746** **Close Date: 07/30/1986**
#26/#27 FRESH POND ROAD FORT SALONGA, NY TT−Id: 520A−0166−349

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING − LARGE SITE
Approximate distance from property: 0 feet

ADDRESS CHANGE INFORMATION
Revised street: 27 FRESH POND RD
Revised zip code: 11768

Source of Spill: UNKNOWN
Spiller: INDIAN HILLS CTRY CLUB
Spiller Phone:
Notifier Type: Responsible Party
Notifier Name:
Notifier Phone:
Caller Name:
Caller Agency:
Caller Phone:
DEC Investigator: PAREJA
Contact for more spill info:
Contact Person Phone:

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
07/27/1986	07/30/1986	UNKNOWN	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
UNKNOWN PETROLEUM	PETROLEUM	200000	GALLONS	0	GALLONS	SURFACE WATER

Caller Remarks:

SAME AS SPILL # 86−2804

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "PAREJA FD"
/ / : DEC INVEST. SPILL RUNNING FROM INDIAN HILLS COUNTRY CLUB POND ONTO THE ROAD AND INTO FRESH POND.

10/10/95: This is additional information about material spilled from the translation of the old spill file: GREENISH LIQUID.

FILE HAS BEEN DESTROYED ACCORDING TO STATE ARCHIVE AND RECORD ADMINISTRATOR RETENTION/DISPOSAL PROCEDURES

Map Identification Number 7 **HARGIS RESIDENCE** **Spill Number: 0613355** **Close Date: 08/16/2007**
20 COUSINS STREET NORTHPORT, NY 11768 TT−Id: 520A−0156−555

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 364 feet to the NE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Source of Spill:	PRIVATE DWELLING	Spiller:	JOHN HARGIS − HARGIS HOME	Spiller Phone:	(631) 329−5002
Notifier Type:	Other	Notifier Name:		Notifier Phone:	
Caller Name:		Caller Agency:		Caller Phone:	
DEC Investigator:	jlpitkew	Contact for more spill info:	JOHN HARGIS	Contact Person Phone:	(631) 329−5002

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.

Class: Willing RP − DEC Field Response − Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
03/13/2007		OTHER	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks:

FOUND CONTAMINATED SOIL AND NO GROUNDWATER

DEC Investigator Remarks:

13 MAR 1225 CALLED TOY
− 1000 GAL TANK
− 4 BORINGS
− STRONG ODOR
− COMPOSITED THE FOUR INTO ONE SAMPLE FOR ANALYSIS
− 625 PPM TPH

8/16/07 SPILL CALLED IN BY ADVANCED TANK, BORINGS AROUND TANK REVEALED CONTAMINATION. TANK WAS EMPTIED AND TEMP TANK INSTALLED BY MILRO, ECC ON BEHALF OF INSURANCE COMPANY WAS DRILLED TO GW, COLLECTED GW SAMPLE, GW WAS CLEAN BECAUSE OF LOCATION AND SIZE OF TANK, 1000 GAL, TANK UNABLE TO BE REMOVED DUE TO THE STRUCTURAL INTEGRITY OF HOME, SOIL BORINGS BY ECC AROUND THE TANK SHOWED CONTAMINATION WAS FROM 6FT ENDED AT APPROX 10−12" BG, GW IS AT ~ 30 " BG LEAVING A 20FT BUFFER ZONE, THIS SPILL IS UNLIKELY TO CAUSE SIGNIFICANT ENVIRONMENT HAZARDS. TANK ABANDONED IN PLACE, NO FURTHER ACTION, REQUEST CLOSURE

Map Identification Number 8 **200 FT BEFORE BEACH WEST** **Spill Number: 0225283** **Close Date: 11/06/2002**
FOOT OF THORNTON DRIVE FORT SALONGA, NY TT−Id: 520A−0178−518

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (5)
Approximate distance from property: 382 feet to the NE

ADDRESS CHANGE INFORMATION
Revised street: THORNTON DR
Revised zip code: 11768

Source of Spill: UNKNOWN
Spiller: INDIAN HILLS COUNTRY CLUB
Spiller Phone:
Notifier Type: Affected Persons
Notifier Name:
Notifier Phone:
Caller Name: CLAYMORE ASSOCIATION
Caller Agency:
Caller Phone:
DEC Investigator: WJGABIN
Contact for more spill info:
Contact Person Phone:

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − DEC Field Response − Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
10/15/2002		UNKNOWN	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
UNKNOWN PETROLEUM	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks:

OIL LEAKING FROM GROUND IN AREA THAT WAS RECENTLY EXCAVATED.

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "GABIN 02−124"

Map Identification Number 9 **GEISLERS BEACH** **Spill Number: 0001072** **Close Date: 06/21/2000**
MAKAMAH ROAD HUNTINGTON, NY TT−Id: 520A−0178−519

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (4)
Approximate distance from property: 747 feet to the NW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill:	INSTITUTIONAL, EDUC, GOV, OTHER	Spiller:	STEVE DIFURSIO − TOWN OF HUNTINGTON	Spiller Phone:	(631) 351−3276
Notifier Type:	Other	Notifier Name:	FIELD CREW	Notifier Phone:	(631) 864−4200
Caller Name:	JED MYERS	Caller Agency:	PHOENIX ENVIRO.	Caller Phone:	(631) 864−4200
DEC Investigator:	HMCIRRIT	Contact for more spill info:	STEVE DIFURSIO	Contact Person Phone:	(631) 351−3276

Category: Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.
Class: Willing RP − DEC Field Response − Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
04/26/2000		OTHER	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks:

UPON EXCAVATION OF AN UNDERGROUND (275 GAL) TANK SOIL CONTAMINATION

WAS DISCOVERED. SOIL HAS BEEN STOCKPILED FOR REMOVAL.

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "CIRRITO"
4/26/00 TELECON WITH JED MYERS: PHOENIX WAS HIRED BY TOWN OF HUNTINGTON TO REMOVE 1/2 BURIED 275 GAL STORAGE TANK. CONT SOIL FOUND AND STOCKPILED, APPROX 6 YARDS,NO ENDPOINT SAMPLES TAKEN

4/28/00 CIRRITO ON SITE, APPEARS TO BE A DEMO BUILDING WITH STOCKPILE OF APPX 5 CY NO EVIDENCE OF LOCATION OF TANK, CIRRITO TO CONTACT PHOENIX

TANK REMOVED CONTAMINATED SOIL EXCAVATED, RECVD DISPOSAL MANIFEST NO FURTHER ACTION

Map Identification Number 10 **ROCHMAN RESIDENCE** **Spill Number: 9800846** **Close Date: 10/18/2001**
5 PEBBLE HILL DRIVE NORTHPORT, NY TT−Id: 520A−0170−037

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 980 feet to the SSW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill:	PRIVATE DWELLING	Spiller:	UNKNOWN	Spiller Phone:	
Notifier Type:	Other	Notifier Name:	RICHARD SORGER	Notifier Phone:	
Caller Name:	FAUST MATACOTTA	Caller Agency:	SLOMINS OIL COMPANY	Caller Phone:	(516) 932−7000
DEC Investigator:	DONOVAN	Contact for more spill info:	ANDREW ROCHMAN	Contact Person Phone:	(516) 754−4178

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − DEC Field Response − Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
04/05/1998		OTHER	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks:

CALLER WAS NOTIFIED OF A SPILL THAT WAS JUST FOUND − ACCORDING TO RESIDENT AN UNKNOWN COMPANY FILLED THE TANK AT SITE AND NEVER SECURED THE TANK − IT APPARS THE DRIVER REALIZED A MISTAKE WAS MADE AND TOOK OFF − THERE IS CONTAMINATED SOIL ON SITE

DEC Investigator Remarks:

CONTAMINATED SOIL EXCAVATED, 44 TONS TAKEN TO FARMINGDALE, DTW ~ 70' MINIMUM POTENTIAL FOR GW IMPACT, NO FURTHER ACTION

Map Identification Number 11 **AIELLO RESIDENCE** **Spill Number: 9914316** **Close Date: 05/09/2000**
36 LISTER CIRCLE NORTHPORT, NY TT−Id: 520A−0159−428

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1030 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill:	PRIVATE DWELLING	Spiller:	DOMINIC ALIELLO − DOMINIC AIELLO RESIDENCE	Spiller Phone:	(631) 757−1114
Notifier Type:	Affected Persons	Notifier Name:	DOMINIC ALIELLO	Notifier Phone:	(631) 757−1114
Caller Name:	CLIFF RAU	Caller Agency:	PETRO OIL	Caller Phone:	(516) 686−2029
DEC Investigator:	HMCIRRIT	Contact for more spill info:	CLIFF RAV	Contact Person Phone:	(516) 686−2029

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − DEC Field Response − Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
03/20/2000		UNKNOWN	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks:

abandoned tank at residence was discovered to be leaking

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "CIRRITO"
TELECON WITH ROB (ANS) AS PER ROB, ANS PERFORMED A TANK ABANDONMENT IN SEPT 99, RECENT RAINS FORCED OIL OUT OF TOP OF TANK. ANS TO PERFORM CLEANUP.

TELECON GREG COLLINS: AS PER GREG, THE AMT OF OIL RELEASED MEASURED LESS THAN 1 OZ. ONLY A SHEEN APPEARED ON A PUDDLE OF WATER, ANS TO UNCOVER THE UST SO THAT A SAMPLE CAN BE TAKEN FROM THE TANK FOR INSPECTION

TANK REABANDONED, NO FURTHER ACTION

Map Identification Number 12 **HARRYMAN RESIDENCE** **Spill Number: 9600646** **Close Date: 04/15/1996**
36 LISTER CIRCLE FORT SALONGA, NY TT−Id: 520A−0162−555

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1030 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill:	PRIVATE DWELLING	Spiller:	MR HARRYMAN − HARRYMAN RESIDENCE	Spiller Phone: (516) 758−8563
Notifier Type:	Other	Notifier Name:	BOB DEMELLA	Notifier Phone: (516) 576−3000
Caller Name:	RAY BERGSTOM	Caller Agency:	GIFFORD OIL	Caller Phone: (516) 576−3000
DEC Investigator:	UNASSIGNED	Contact for more spill info:	MR HARRYMAN	Contact Person Phone: (516) 758−8563

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − DEC Field Response − Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
04/13/1996		UNKNOWN	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	1.00	GALLONS	1.00	GALLONS	SOIL

Caller Remarks:

small stain on floor

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "NONE"

Map Identification Number 13 **KRYSSING RESIDENCE** **Spill Number: 0311185** **Close Date: 07/21/2004**
25 TIMBERBROOK ROAD FORT SALONGA, NY TT−Id: 520A−0157−996

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1163 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill: PRIVATE DWELLING
Notifier Type: Responsible Party
Caller Name: BILL ANDERSON
DEC Investigator: BXDONOVA

Spiller: BILL ANDERSON − MEENAN OIL
Notifier Name: BILL ANDERSON
Caller Agency: MEENAN OIL
Contact for more spill info: MRS. CAROL KRYSSING

Spiller Phone: (516) 783−1000
Notifier Phone: (516) 783−1000
Caller Phone: (516) 783−1000
Contact Person Phone: (631) 261−1469

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − No DEC Field Response − Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
01/02/2004		OTHER	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks:

UNKNOWN AMOUNT APPROX.5 GALLON, DRIVER OVERFILLED CAME OUT THE VENT. WILL CALL MILRO FOR CLEAN UP.

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "BRIAN D "1/5/04 LEFT MESSAGE FOR MR ANDERSON WITH HIS SECRETARY
TELECON WITH MRS KRYSSING−MILRO ASSOC IS ON SITE PERFORMING THE CLEANUP, NO PRIVATE WELL IMPACTED

1/8/04 FILE REASSIGNED

1/7/04 AS PER PAUL−MILRO, APPROX 10−12 YARDS OF SOIL REMOVED, NEEDS BACKFILL INSPECTION.
APPROX 10 CY OF CONTAMINATED SOIL EXCAVATED AND PROPERLY DISPOSED BY MILRO, NO FUEL OIL ODOR IN THE EXCAVATION

Map Identification Number 14 **KLEIN RESIDENCE** **Spill Number: 9713884** **Close Date: 03/09/2000**
22 BROOKFIELD ROAD FORT SALONGA, NY TT−Id: 520A−0160−128

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1475 feet to the SE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill: TANK TRUCK
Notifier Type: Other
Caller Name: KEN MINICOZZI
DEC Investigator: COSTELLO

Spiller: GENERAL UTILITIES
Notifier Name: DAVID SPITT
Caller Agency: GENERAL UTILITIES
Contact for more spill info: ROY KLEIN (RESIDENT)

Spiller Phone: (516) 349−8989
Notifier Phone: (516) 349−8989
Caller Phone: (516) 349−8989 ext. 6
Contact Person Phone: (516) 754−2270

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − DEC Field Response − Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
03/16/1998		OTHER	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	1.00	GALLONS	1.00	GALLONS	SOIL

Caller Remarks:

PROBLEM WITH VENT WHISTLE. SPILLED ONTO RAILROAD TIE AND CONCRETE. BEING CLEANED UP AND REPAIRED.

DEC Investigator Remarks: DEC INVESTIGATOR REMARKS NOT AVAILABLE FOR THIS SPILL ACCORDING TO THE LAST UPDATE.

The following DEC Investigator Remarks were available prior to 1/1/2002:

SPILL AT PRIVATE RESIDENCE, TANK IS IN A GARAGE. GEN UTILITIES TO COMPLETE CLEANUP TODAY. TO HIS KNOWLEDGE, NO SOIL AFFECTED. NO RESPONSE NEEDED

Map Identification Number 15 **UNK** **Spill Number: 9500751** **Close Date: 04/27/1995**

18 MAKAMAH BEACH RD NORTHPORT, NY TT−Id: 520A−0162−122

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 2039 feet to the NW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill:	UNKNOWN	Spiller:	UNK	Spiller Phone:	
Notifier Type:	Citizen	Notifier Name:		Notifier Phone:	
Caller Name:	RICHARD HERATY	Caller Agency:	CITIZEN	Caller Phone:	(516) 754−0634
DEC Investigator:	NJACAMPO	Contact for more spill info:		Contact Person Phone:	

Category: Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.
Class: Willing RP − DEC Field Response − Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
04/18/1995	04/27/1995	UNKNOWN	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
UNKNOWN PETROLEUM	PETROLEUM	0	GALLONS	0	GALLONS	SURFACE WATER

Caller Remarks:

BLACK RING IN SAND APPROX 1/4 MILE IN SEMI−CIRCLE.

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "ACAMPORA"
04/27/95: MATERIAL EXPOSED AND FOUND TO BE NATURALLY OCCURING BLACK SAND, NO ENVIR IMPACT.

Map Identification Number 16 **UNKNOWN** **Spill Number: 0110866** **Close Date: 02/21/2002**
30B MAKAMAH BEACH ROAD NORTHPORT, NY TT−Id: 520A−0158−215

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 2501 feet to the WNW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill:	TANK TRUCK	Spiller:	PETRO OIL	Spiller Phone:	
Notifier Type:	Responsible Party	Notifier Name:		Notifier Phone:	
Caller Name:	JESSICA RUSS	Caller Agency:	PETRO	Caller Phone:	(516) 349−4110
DEC Investigator:	UNASSIGNED	Contact for more spill info:	GURCAN RESIDENCE	Contact Person Phone:	(631) 261−9214

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − No DEC Field Response − Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
02/14/2002		OTHER	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	1.00	GALLONS	1.00	GALLONS	SOIL

Caller Remarks:

THE BAZUCA THAT THEY PUT INTO THE FILL PIPE WASN'T LONG ENOUGH TO GET A WHISTLE − 1 QUART SPILL OUT − DUG UP THE CONTAMINATED SOIL − HOMEOWNER NOTIFIED

DEC Investigator Remarks:

2/14 11:55 SPOKE TO JESSICA, CONFIRMED INFO

Map Identification Number 17 **FISHTEIN RESIDENCE** **Spill Number: 9912942** **Close Date: 02/14/2000**
29 WAYNE COURT FORT SALONGA, NY TT−Id: 520A−0159−405

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 2566 feet to the S

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill: TANK TRUCK
Notifier Type: Responsible Party
Caller Name: RICHARD RUSSELL
DEC Investigator: UNASSIGNED

Spiller: RICHARD RUSSELL − PETRO
Notifier Name: BILL MATHAWES
Caller Agency: PETRO
Contact for more spill info: MR FISHTEIN (RESIDENT)

Spiller Phone: (516) 686−1969
Notifier Phone: (516) 686−1969
Caller Phone: (516) 686−1969
Contact Person Phone: (516) 757−4745

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − No DEC Field Response − Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
02/12/2000		OTHER	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	3.00	GALLONS	3.00	GALLONS	SOIL

Caller Remarks:

overfill into basement

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "NONE"
TELECON FROM RUSSELL: WOODCHIPS PICKED UP AND SPEEDI DRI USED IN BASEMENT FOR CLEANUP, SMALL AMT WAS OUTSIDE HOUSE, TELECON FROM FISHTEIN: CLEANUP IS COMPLETE JUST SPEEDI DRI LEFT ON FLOOR THAT WILL BE PICKED UP

SPILL CLEANED UP BY RP, HOMEOWNER HAPPY WITH CLEANUP,NO FURTHER ACTION

Map Identification Number 18 **BOTTA RESIDENCE** **Spill Number: 9414196** **Close Date: 01/27/1995**
1 CAPTAIN RICH LANE FORT SALONGA, NY TT−Id: 520A−0163−646

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 2586 feet to the SE

ADDRESS CHANGE INFORMATION
Revised street: 1 CAPTAIN RICHARDS LANE
Revised zip code: 11768

Source of Spill: PRIVATE DWELLING
Spiller: BOTTA RESIDENCE
Spiller Phone: (516) 261−9107
Notifier Type: Other
Notifier Name:
Notifier Phone:
Caller Name: PATTY FARMER
Caller Agency: ANS TANKS
Caller Phone: (516) 249−5443
DEC Investigator: KMYAGER
Contact for more spill info:
Contact Person Phone:

Category: Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.
Class: Willing RP − DEC Field Response − Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
01/26/1995	01/27/1995	OTHER	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks:

1000 GALLON TANK − SUSPECT SPILL. TANK REMOVAL ON 1−27−95.

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "DEROSA"

CLOSED STATUS HAZARDOUS SPILLS − MISC. SPILL CAUSES − EQUIPMENT FAILURE, HUMAN ERROR, TANK OVERFILL, DELIBERATE SPILL, TRAFFIC ACCIDENT, HOUSEKEEPING, ABANDONED DRUM, VANDALISM AND STORMS − WITHIN 1/2 MILE SEARCH RADIUS.

Please Note: * − Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 19 **IHCC INC MAINT BLDG** **Spill Number: 9311366** **Close Date: 05/19/1997**
21 BREEZE HILL ROAD NORTHPORT, NY TT−Id: 520A−0166−350

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING − LARGE SITE
Approximate distance from property: 0 feet

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill: COMMERCIAL/INDUSTRIAL
Notifier Type: Responsible Party
Caller Name: MIKE AGOSTINCICCHIO
DEC Investigator: ACLAMANN

Spiller: IHCC INC MAINT BLDG
Notifier Name:
Caller Agency: IHCC INC
Contact for more spill info:

Spiller Phone:
Notifier Phone:
Caller Phone: (516) 757−0555
Contact Person Phone:

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − DEC Field Response − Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
12/21/1993		HOUSEKEEPING	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
DIESEL	PETROLEUM	1.00	GALLONS	0.00	GALLONS	SOIL

Caller Remarks:

300 GAL A/G TANK, HISTORICALLY SMALL QTS OF FUEL LEAK FROM HOSE, NO NOZZLE, ON HAND, CRANK PUMP TO SOIL AREA DURING VEHICLE REFUELING

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "LAMANNO"

Map Identification Number 20 **INDIAN HILLS CC** **Spill Number: 8805704** **Close Date: 12/30/1988**
21 BREEZE HILL ROAD NORTHPORT, NY TT−Id: 520A−0166−351

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING − LARGE SITE
Approximate distance from property: 0 feet

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill: COMMERCIAL/INDUSTRIAL
Notifier Type: Responsible Party
Caller Name: ED MCCAFFREY
DEC Investigator: WALEK

Spiller: INDIAN HILLS CC
Notifier Name:
Caller Agency: INDIAN HILLS C.C
Contact for more spill info:

Spiller Phone: (516) 932−7304
Notifier Phone:
Caller Phone: (516) 932−7304
Contact Person Phone:

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
10/05/1988	12/30/1988	EQUIPMENT FAILURE	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
DIESEL	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks:

A/G TANK MOVED TO ANOTHER LOCATION−OIL FOUND UNDER TANK DUE TO FILTER LEAKAGE. WILL HIRE CONTRACTOR TO DO WORK OR WILL DO WORK HIMSELF.

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "WALEK FD"
12/30/88: AREA ALL CLEAN. NO FURTHER ACTION NEEDED.20 YDS OF SOIL WAS REMOVED FROM SITE. DISPOSAL LETTER ATTACHED.

FILE HAS BEEN DESTROYED ACCORDING TO STATE ARCHIVE AND RECORD ADMINISTRATOR RETENTION/DISPOSAL PROCEDURES

Map Identification Number 21 **RESIDENCE** **Spill Number: 0912707** **Close Date: 08/17/2010**
48 BREEZE HILL ROAD NORTHPORT, NY TT−Id: 520A−0250−014

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 125 feet to the S*

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill: TANK TRUCK
Spiller: JOHN SCHAEFFER − PETRO
Spiller Phone:
Notifier Type: Other
Notifier Name:
Notifier Phone:
Caller Name:
Caller Agency:
Caller Phone:
DEC Investigator: Unassigned
Contact for more spill info: JOHN SCHAEFFER
Contact Person Phone: (516) 349−4111

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − No DEC Field Response − Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
03/06/2010		EQUIPMENT FAILURE	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	1.00	GALLONS	0.00	GALLONS	SOIL

Caller Remarks:

Caller reporting a spill of approx on cup of #2 fuel oil to soil.

DEC Investigator Remarks:

Left Message for John Schaffer, Petro. (BD)

Map Identification Number 22 **SMITH RESIDENCE** **Spill Number: 9405957** **Close Date: 08/02/1994**
14 MAJOR TRESCOTT LANE FORT SALONGA, NY TT−Id: 520A−0161−764

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 493 feet to the S

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill:	PRIVATE DWELLING	Spiller:	SMITH RESIDENCE	Spiller Phone:	(516) 261−4594
Notifier Type:	Other	Notifier Name:		Notifier Phone:	
Caller Name:	HOWARD DESCH	Caller Agency:	COMMANDER	Caller Phone:	(516) 922−7000
DEC Investigator:	UNASSIGNED	Contact for more spill info:		Contact Person Phone:	

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − No DEC Field Response − Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
08/01/1994	08/02/1994	EQUIPMENT FAILURE	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	1.00	GALLONS	0.00	GALLONS	SOIL

Caller Remarks:

FLARE FITTING LEAKING ON LINE, REPLACED AND CLEANED UP BY COMMANDER, NO RESPONSE NEEDED

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "NONE"

Map Identification Number 23 **ADAMO RESIDENCE** **Spill Number: 1211505** **Close Date: 11/20/2012**
27 HAYES HILL DRIVE NORTHPORT, NY TT−Id: 520A−0283−873

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 524 feet to the NW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill:	PRIVATE DWELLING	Spiller:	ANTORINO SEWER AND CESSPOOL	Spiller Phone:	
Notifier Type:	Other	Notifier Name:		Notifier Phone:	
Caller Name:		Caller Agency:		Caller Phone:	
DEC Investigator:	Unassigned	Contact for more spill info:	CAROLYN ADAMO	Contact Person Phone:	(631) 262−0502

Category: Possible petroleum release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters, known releases with no potential for damage, or non−petroleum/non−hazardous spills.
Class: Any Type of RP Including No RP − No DEC Field Response − Corrective Action by Spill Response Not Required

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
11/20/2012		HUMAN ERROR	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
RAW SEWAGE	OTHER	0	UNKNOWN	0	UNKNOWN	SOIL

Caller Remarks:

Caller stated that yesterday her cesspool was pumped and the company spilled on the lawn and refused to clean it up.

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

Map Identification Number 24 **GARAFOLA SANITATION** **Spill Number: 9911634** **Close Date: 02/14/2001**

MAKAMAH RD & BREEZE HILL HUNTINGTON, NY TT−Id: 520A−0156−634

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 590 feet to the WSW

ADDRESS CHANGE INFORMATION
Revised street: MAKAMAH RD / BREEZE HILL RD
Revised zip code: 11768

Source of Spill: COMMERCIAL VEHICLE
Spiller: MARIO GARAFOLA − GARAFOLA SANITATION
Spiller Phone: (516) 231−0999
Notifier Type: Other
Notifier Name:
Notifier Phone:
Caller Name: BRIAN TUOHEY
Caller Agency: HUNTINGTON HARBORMASTER
Caller Phone: (516) 351−3050
DEC Investigator: UNASSIGNED
Contact for more spill info: BRIAN TUOHEY
Contact Person Phone: (516) 351−3050

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − No DEC Field Response − Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
01/06/2000		EQUIPMENT FAILURE	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
HYDRAULIC OIL	PETROLEUM	10.00	GALLONS	0.00	GALLONS	SOIL

Caller Remarks:

caller spill to pavement. has been covered with sand and will be swept up. approx 1/3 mile long on pavement.

DEC Investigator Remarks:

TELECON TO TUOHEY, LEFT MESSAGE TO CONFIRM CLEANUP

Map Identification Number 25 **WILLIAMS RESIDENCE** **Spill Number: 0806590** **Close Date: 03/12/2009**
4 HAYES HILL DRIVE NORTHPORT, NY TT−Id: 520A−0221−169

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 710 feet to the WSW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill: PRIVATE DWELLING
Spiller: JOHN WILLIAMS − WILLIAMS RESIDENCE
Spiller Phone:
Notifier Type: Affected Persons
Notifier Name:
Notifier Phone:
Caller Name:
Caller Agency:
Caller Phone:
DEC Investigator: Unassigned
Contact for more spill info: JOHN WILLIAMS
Contact Person Phone:

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − No DEC Field Response − Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
09/11/2008		HUMAN ERROR	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	0	UNKNOWN	0	UNKNOWN	SOIL

Caller Remarks:

A slight overfill of a 275 gallon tank resulted in a quart of oil coming out of the vent pipe. Callers company cleaned the area.

DEC Investigator Remarks:

14:20 LEFT MESSAGE FOR SALERNO (KY)

Map Identification Number 26 **SPILL NUMBER 0202990** **Spill Number: 0202990** **Close Date: 06/21/2002**
3 COUSINS STREET NORTHPORT, NY TT−Id: 520A−0158−314

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 746 feet to the ENE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill: COMMERCIAL/INDUSTRIAL Spiller: PETRO Spiller Phone:
Notifier Type: Responsible Party Notifier Name: Notifier Phone:
Caller Name: KATHY WHITTEMORE Caller Agency: PETRO Caller Phone: (516) 349−4114
DEC Investigator: UNASSIGNED Contact for more spill info: Contact Person Phone:

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − No DEC Field Response − Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
06/21/2002		EQUIPMENT FAILURE	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	1.00	GALLONS	0.00	GALLONS	SOIL

Caller Remarks:

FITTING ON THE FILL PIPE POPPED OFF WHILE FILLING − CLEAN UP IN PROGRESS BY PETRO

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "NONE"
TELECON WITH KATHY−SPILL WAS TO SOIL AND DRIVEWAY, CLEANUP COMPLETED BY PETRO

Map Identification Number 27 **HARRYMAN RESIDENCE** **Spill Number: 9511574** **Close Date: 12/13/1995**
36 LISTER CIRCLE FORT SALONGA, NY TT−Id: 520A−0162−366

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1030 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill: PRIVATE DWELLING
Spiller: JOSEPH SANTORO − GIFFORDS OIL
Spiller Phone: (516) 576−3000
Notifier Type: Responsible Party
Notifier Name: MR.STRONG
Notifier Phone: (516) 576−3000
Caller Name: JOSEPH SANTORO
Caller Agency: GIFFORDS OIL
Caller Phone: (516) 576−3000
DEC Investigator: UNASSIGNED
Contact for more spill info: MR HARRYMAN
Contact Person Phone: (516) 757−8563

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − DEC Field Response − Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
12/13/1995		EQUIPMENT FAILURE	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	1.00	GALLONS	1.00	GALLONS	SOIL

Caller Remarks:

clogged vent on system at home.

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "NONE"
TELECON WITH GIFFORDS, CLEANUP PERFORMED, APPROX 1 QT SPILLED, NO OTHER ACTIONS

Map Identification Number 28 **RESIDENCE** **Spill Number: 0900526** **Close Date: 11/23/2009**
2/6 JULIET LN/FRESH POND RD) FORT SALONGA, NY TT−Id: 520A−0226−980

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (4)
Approximate distance from property: 1241 feet to the NE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill: UNKNOWN
Spiller: UNK
Spiller Phone:
Notifier Type: Citizen
Notifier Name:
Notifier Phone:
Caller Name:
Caller Agency:
Caller Phone:
DEC Investigator: dhraymon
Contact for more spill info: ROBERT WARREN
Contact Person Phone: 516 523 4218

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Unable or Unwilling RP − DEC Field Response − DEC Corrective Action Required

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
04/14/2009		ABANDONED DRUM	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
OTHER	OTHER	15.00	GALLONS	0.00	GALLONS	SURFACE WATER

Caller Remarks:

Sealed drum washed up on shore. Unknown material inside. Requesting callback.

DEC Investigator Remarks:

04/14/09 @21:35 t/c to R. Warren, (T) Huntington; he stated that 55 gal plasic drum on private property not leaking any product, it is secure to p/u tommorow

@21:50 t/c to property owner, Mr Alexander; he stated that the drum is labeled; "Environmental Waste" and in his opinion smells like petroleum

04/15/09 @8:45 t/c to USCG, Coram; P.O. Dibley; ref. by fax; 631−732−1636 (VP)

04/15/09 1035 Hrs: Called by VP while in Hauppauge− USCG (P.O. Joeckel) had responded, was on site, and was requesting DEC response. DR

04/15/09 1040 Hrs: Called Joeckel− ETA approximately 15−20min. DR

04/15/09 1100 Hrs (A): DEC arrived, met P.O. Joeckel and Mr Alexander (6 Juliet).

04/15/09 1100 Hrs (B): The drum was 55gal, blue plastic, and intact with no leakage noted.

04/15/09 1100 Hrs (C): IT WAS ACTUALLY IN FRONT OF 91 FRESH POND RD JUST EAST OF 6 JULIET, AT THE HIGH TIDE LINE (IT WAS CURRENTLY LOW TIDE).

04/15/09 1100 Hrs (D): THERE WERE NO PAPER LABELS, ONLY A GENERIC CAUTION STATEMENT MOLDED ON TOP STATING "...CONTAINER USE FOR HAZARDOUS MATERIALS SUBJECT TO GOVERNMENT REGULATION".

04/15/09 1100 Hrs (E): It contained approximately 6" of a clear, odorless liquid that did not absorb into pads (DEC suspected water).

04/15/09 1100 Hrs (F): As per Joeckel, he had spoken to the HUNTINGTON TOWN ENVIRONMENTAL DEPT, but they did not want to pick up the drum (as some other Towns do). DR

04/15/09 1125 Hrs: Called NA to update. DR

04/15/09 1130 Hrs: Discussed with Joeckel− SINCE THE DRUM IS NOT IN THE WATER, IT IS TECHNICALLY NOT USCG'S JURISDICTION. DEC AGREED TO HIRE A CONTRACTOR TO PICK UP THE DRUM AND ARRANGE ITS PROPER DISPOSAL. DR

04/15/09 1140 Hrs: Joeckel left. DR

04/15/09 1140 Hrs: Called NA to update. DR

04/15/09 UNK TIME: MR ALEXANDER SAID RESIDENT AT 91 FRESH POND HAS ELECTRIC DRIVEWAY GATE SHE ALLOWS OTHER RESIDENTS TO USE TO ACCESS THE BEACH. HE PROVIDED THE CODE TO DEC. DR

04/15/09 UNK TIME: DEC KNOCKED ON THE DOOR OF 91 FRESH POND− NO ANSWER. DR

04/15/09 1143 Hrs: Called Brian Lenehan's (FENLEY & NICOL− DEC'S PRIMARY CONTRACTOR) cell and left message. DR

04/15/09 1150 Hrs: Lenehan called− DEC updated him. Lenehan said their ETA was 1 − 1.5 hrs. DR

04/15/09 1200 Hrs: DEC off site. DR

04/15/09 1240 Hrs: DEC on site. DR

04/15/09 1255 Hrs: Lenehan arrived. DR

04/15/09 1300 Hrs: THE OWNER OF 91 FRESH POND CAME OUT− DEC EXPLAINED THE SITUATION. DR

04/15/09 1330 Hrs (A): F&N arrived (1 man with pickup and wheelbarrow)− they picked up the drum and took it away in the pickup.

04/15/09 1330 Hrs (B): DEC DIRECTED LENEHAN THAT IF THEY CONCURRED THE MATERIAL WAS WATER, THEY COULD DISPOSE OF IT IN THEIR WASTE TANK, BUT IF THEY FELT THEY NEEDED TO HAVE A SAMPLE ANALYZED TO CALL DEC. DR

Map Identification Number 29 **CAPITAL ONE BANK** **Spill Number: 1007076** **Close Date: 03/18/2011**
9 RTE 25A FORT SALONGA, NY TT−Id: 520A−0257−176

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (4)
Approximate distance from property: 1372 feet to the SSE

ADDRESS CHANGE INFORMATION
Revised street: 9 STATE HWY 25A
Revised zip code: 11768

Source of Spill:	COMMERCIAL/INDUSTRIAL	Spiller:	CAPITAL ONE BANK	Spiller Phone:	
Notifier Type:	Other	Notifier Name:		Notifier Phone:	
Caller Name:		Caller Agency:		Caller Phone:	
DEC Investigator:	TJDEMEO	Contact for more spill info:	EDDIE BISSO	Contact Person Phone:	

Category: Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.

Class: Willing RP − DEC Field Response − Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
10/01/2010		EQUIPMENT FAILURE	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	0	UNKNOWN	0	UNKNOWN	SOIL

Caller Remarks:

Caller advised removed tank and now smell in the air.

DEC Investigator Remarks:

ROUTINE REMOVAL OF ONE 1,000GAL OR 1,500GAL TANK (THERE IS AN ACTIVE SPILL HERE FOR A 1GAL OVERFILL− 1005147) DR

10/1/2010 11:30, t/c from Eva Bodula, SCDHS

−UST removed.
−1 hole found in the side of the tank.
−Contaminated soil found in the tank excavation.
−F&N has is not contracted to do the soil removal. Soil is also very wet and unstable from the rain and will be difficult to dig today.
−F&N will line the excavation and backfill.
−Arrangements will be made to excavate the contaminated soil. (BD)

1/11/11 TJD
Site inspection. Field report on E−DOCS.

3/8/11 TJD
File review. All required closure documentation has been received. A total of 6 cu yds of petroleum impacted soil was excavated and properly disposed of during remedial process. Laboratory analysis of endpoint samples reveal all target analytes concentrations are within acceptable levels. No further action required.

Map Identification Number 30 **CAPITAL ONE BANK** **Spill Number: 1005147** **Close Date: 10/01/2010**
9 ROUTE 25A FORT SALONGA, NY TT−Id: 520A−0257−175

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (4)
Approximate distance from property: 1372 feet to the SSE

ADDRESS CHANGE INFORMATION
Revised street: 9 STATE HWY 25A
Revised zip code: 11768

Source of Spill:	COMMERCIAL/INDUSTRIAL	Spiller:	METRO	Spiller Phone:	
Notifier Type:	Responsible Party	Notifier Name:		Notifier Phone:	
Caller Name:		Caller Agency:		Caller Phone:	
DEC Investigator:	Unassigned	Contact for more spill info:	SCOTT HANNON	Contact Person Phone:	(516) 322−6073

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − No DEC Field Response − Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
08/06/2010		HUMAN ERROR	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	1.00	GALLONS	0.00	GALLONS	SOIL

Caller Remarks:

cleanup pending

DEC Investigator Remarks:

SEE 1007076− CONTAMINATION FOUND UPON THE REMOVAL OF ONE 1,000GAL OR 1,500GAL TANK DR

8−06−10 @ 14:00 WG spoke w/ Tom Anderson
As per Tom, less than 5 gal of #2 fuel oil spilled onto soil due to an overfill. Fenley & Nicol Env. has been dispatched to the site to perform cleanup. No waterways affected by the spill. (WG)

09/29/10 @15:45 t/c from Fenley & Nickol, by Eddy they planning to remove 1,000 UST at this location on 09/30/10, SCHD notified, routine removal. (VP)

09/30/10 0930 Hrs: As per F&N− ACTUAL REMOVAL DATE IS TOMORROW. DR

Map Identification Number 31 **NAIDEAU RESIDENCE** **Spill Number: 9510786** **Close Date: 11/28/1995**
26 MAKANAH ROAD NORTHPORT, NY TT−Id: 520A−0164−553

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1427 feet to the SW

ADDRESS CHANGE INFORMATION
Revised street: 26 MAKAMAH ROAD
Revised zip code: 11768

Source of Spill: PRIVATE DWELLING
Notifier Type: Other
Caller Name: MR KNAPP
DEC Investigator: UNASSIGNED

Spiller: HAROLD NAIDEAU − NAIDEAU RESIDENCE
Notifier Name: SAME
Caller Agency: RELIANCE OIL
Contact for more spill info: HAROLD NAIDEAU

Spiller Phone: (516) 754−6250
Notifier Phone:
Caller Phone: (516) 475−4770
Contact Person Phone: (516) 754−6250

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − No DEC Field Response − Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
11/27/1995		EQUIPMENT FAILURE	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	1.00	GALLONS	1.00	GALLONS	SOIL

Caller Remarks:

FITTING WAS LOOSE GOING INTO THE OIL PUMP.ITEM WAS REPAIRED.SPEEDY DRY WAS USED TO CLEAN UP SPILL.LESS THAN A GALLON WAS SPILLED

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "NONE"
NO RESPONSE NEEDED

Map Identification Number 32 **FRESH POND OUTLET** **Spill Number: 0006019** **Close Date: 08/22/2000**
SEA SHELL LANE/MARION LN SMITHTOWN, NY TT−Id: 520A−0293−014

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (4)
Approximate distance from property: 1441 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11787

Source of Spill: UNKNOWN
Spiller: UNKNOWN
Spiller Phone:
Notifier Type: Citizen
Notifier Name: STEVEN STARK
Notifier Phone: (631) 757−5183
Caller Name: STEVEN STARK
Caller Agency: CITIZEN
Caller Phone: (631) 757−5183
DEC Investigator: UNASSIGNED
Contact for more spill info: STEVEN STARK
Contact Person Phone: (631) 757−5183

Category: Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.
Class: Willing RP − No DEC Field Response − Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
08/20/2000		ABANDONED DRUM	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
UNKNOWN MATERIAL	OTHER	0	GALLONS	0	GALLONS	SURFACE WATER

Caller Remarks:

A DRUM WAS FOUND TO BE ORIGINALLY FLOATING, NOW PARTIALLY BURIED IN THE SAND. IT IS A 55 GALLON PLASTIC DRUM THAT APPEARS TO HAVE SOME TYPE OF PRODUCT INSIDE. NO LABELING OR MARKINGS VISIBLE.

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "NONE"
8/21 TELECON STARK, DRUM IS FEW HUNDRED YARDS EAST OF OUTLET OF POND TO SOUND ON BEACH, HE LIVES AT 1 SEASHELL, USCG TO CHECK, AS PER USCG (CORAM) THEY WILL BE HIRING CONTRACTOR TO PICK UP THE DRUM

Map Identification Number 33 **FRANCECHA PIZZA** **Spill Number: 9003638** **Close Date: 10/22/1990**
25A & BREAD & CHEESEHOLLO KINGS PARK, NY TT−Id: 520A−0176−301

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1481 feet to the SSE

ADDRESS CHANGE INFORMATION
Revised street: STATE HWY 25A / BREAD CHEESE HOLLOW RD
Revised zip code: 11768

Source of Spill: COMMERCIAL/INDUSTRIAL
Spiller: FRANCECHA PIZZA
Spiller Phone:
Notifier Type: Fire Department
Notifier Name:
Notifier Phone:
Caller Name: FRED PEARRSAL
Caller Agency: SMITHTOWN F.D
Caller Phone: (516) 265−1500
DEC Investigator: LUCE
Contact for more spill info:
Contact Person Phone:

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Unknown RP − DEC Field Response − DEC Corrective Action Required

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
06/30/1990	10/22/1990	VANDALISM	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	2.00	GALLONS	0.00	GALLONS	SEWER

Caller Remarks:

VANDALS KNOCKED OVER TANK, BROKE LINE. 275 GAL TANK, OIL IN DRAIN

DEC Investigator Remarks:

WALDBAUMS SHOPPING CENTER

CLEANUP SATISFACTORY

Map Identification Number 34 **FLYNNS OIL DELIVERY** **Spill Number: 8700699** **Close Date: 04/29/1987**
RTE 25 & BREAD & CHEESE FORT SALONGA, NY TT−Id: 520A−0175−519

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1481 feet to the SSE

ADDRESS CHANGE INFORMATION
Revised street: FORT SALONGA RD/BREAD AND CHSE HOLLOW RD
Revised zip code: 11768

Source of Spill:	TANK TRUCK	Spiller:	FLYNNS OIL DELIVERY	Spiller Phone:	(516) 269−1200
Notifier Type:	Police Department	Notifier Name:		Notifier Phone:	
Caller Name:		Caller Agency:		Caller Phone:	
DEC Investigator:	WALEK	Contact for more spill info:		Contact Person Phone:	

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
04/24/1987	04/29/1987	EQUIPMENT FAILURE	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	100.00	GALLONS	0.00	GALLONS	SOIL

Caller Remarks:

FLYNN OIL CALLED.

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "WALEK FD"
/ / : SCDH RESPONDING. SPILLER CALLED TYREE TO CLEANUP.3−5 YARDS DEBRIS.

FILE HAS BEEN DESTROYED ACCORDING TO STATE ARCHIVE AND RECORD ADMINISTRATOR RETENTION/DISPOSAL PROCEDURES

Map Identification Number 35 **LETSCHER ET AL** **Spill Number: 0212941** **Close Date: 02/19/2004**
BREAD & CHEESEHOLLOW/25A NORTHPORT, NY TT−Id: 520A−0177−628

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1481 feet to the SSE

ADDRESS CHANGE INFORMATION
Revised street: BREAD AND CHSE HOLO RD / FORT SALONGA RD
Revised zip code: 11768

Source of Spill:	PASSENGER VEHICLE	Spiller:	STEPHEN LETSCHER	Spiller Phone:	(631) 207−5868
Notifier Type:	Fire Department	Notifier Name:	CHIEF RUGGIERO	Notifier Phone:	(631) 774−2145
Caller Name:	BARBARA (DISPATCHER 90)	Caller Agency:	SMITHTOWN FIRE COMM	Caller Phone:	(631) 265−1500
DEC Investigator:	NMHART	Contact for more spill info:		Contact Person Phone:	

Category: Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.
Class: Willing RP − DEC Field Response − Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
03/31/2003	03/31/2003	TRAFFIC ACCIDENT	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
GASOLINE	PETROLEUM	35.00	GALLONS	35.00	GALLONS	SOIL

Caller Remarks:

fire dept on scene requesting a call back asap

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "HART"
03/31/03 (A): DEC was notified of a gasoline spill resulting from a multi−vehicle motor vehicle accident.

03/31/03 (B): Apparently, one vehicle had been rear−ended, causing its tank to leak.

03/31/03 (C): A small amount of gasoline had leaked onto the ground. There were no drains impacted. The FD had applied speedi−dri.

03/31/03 (D): DEC (Hart) responded− met Suffolk County PD (CASE # 03−166788) and the FD.

03/31/03 (E): Approx 5−7gal of gas had spilled onto the ground.

03/31/03 (F): The FD had placed buckets under the vehicle’s tank to contain the ongoing leakage. There was an unknown amount of gas still in the tank.

03/31/03 (G): ACCORDING TO THE POLICE, THERE WERE THREE VEHICLES INVOLVED−

03/13/03 (H): 2001 Jeep NY plate BPJ4108 (THIS WAS THE VEHICLE WITH THE LEAKING TANK; POLICE LIST IT AS VEHICLE 2)

03/13/03 (I): 2002 Honda NY plate AXN1230 (POLICE LIST IT AS VEHICLE 1)

03/13/03 (J): 1997 Ford pickup NY plate CDD9413 (POLICE LIST IS AS VEHICLE 3)

03/13/03 (K): THE JEEP WAS REAR−ENDED (DEC HAS A PHOTO OF THE VEHICLE) AND ITS TRAILER HITCH PUNCTURED THE GAS TANK.

03/13/03 (L): THE PARTIES HAD BEEN HOSPITALIZED.

03/13/03 (M): The police were to tow the Jeep, but the remaining gas in the tank had to first be removed.

03/13/03 (N): DEC hired Tradewinds to pick up the speedi dri and sorbent pads, and remove the remaining gas from the Jeep's tank.

02/06/04: Letter to SCPD− requested copies of their reports.

Map Identification Number 36 **ON ROADWAY** **Spill Number: 1106746** **Close Date: 12/29/2011**
FORT SALONGA RD/WOODMERE ROAD FORT SALONGA, NY TT−Id: 520A−0268−077

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1782 feet to the SSE

ADDRESS CHANGE INFORMATION
Revised street: FORT SALONGA RD / WOODMERE RD
Revised zip code: 11768

Source of Spill: UNKNOWN
Spiller: REBECCA ELFAST − LIPA/NATIONAL GRID
Spiller Phone:
Notifier Type: Responsible Party
Notifier Name:
Notifier Phone:
Caller Name:
Caller Agency:
Caller Phone:
DEC Investigator: Unassigned
Contact for more spill info: REBECCA ELFAST
Contact Person Phone: (516) 545−5511

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − No DEC Field Response − Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
09/01/2011		EQUIPMENT FAILURE	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
TRANSFORMER OIL	PETROLEUM	20.00	GALLONS	0.00	GALLONS	SOIL

Caller Remarks:

possible stormdrain involvement − weather related − cleanup pending

DEC Investigator Remarks:

HURRICANE IRENE−RELATED? DR

PER NATIONAL GRID INCIDENT REPORT:
TRANSFORMER HANDING FROM FALLEN POLE/TREE. CATCH BASIN WAS AFFECTED, STORM #20 HURRICANE IRENE, MEG CONTRACTOR

Map Identification Number 37 **BRADY RESIDENCE** **Spill Number: 9712292** **Close Date: 03/19/1998**
1069 FORT SALONGA ROAD NORTHPORT, NY TT−Id: 520A−0160−087

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1877 feet to the SSW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill: PRIVATE DWELLING
Spiller: BRADY RESIDENCE
Spiller Phone:
Notifier Type: Citizen
Notifier Name: JOHN THOMAS
Notifier Phone: (516) 366−2020
Caller Name: JOHN THOMAS
Caller Agency: CITIZEN
Caller Phone: (516) 366−2020
DEC Investigator: BPAUSTIN
Contact for more spill info:
Contact Person Phone:

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Unable or Unwilling RP − DEC Field Response − DEC Corrective Action Required

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
02/03/1998		DELIBERATE	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
CLEANING CHEMICALS/PRODUCTS	OTHER	0	GALLONS	0	GALLONS	SEWER
WASTEWATER	OTHER	0	GALLONS	0	GALLONS	SEWER

Caller Remarks:

subjs are drumming waste water and cleaning material into driveway which runs to roadway store sewers run into north port harbor

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "AUSTIN"
2/17/98 AUSTIN ON SITE. FOUND NO EVIDENCE OF DUMPING

Map Identification Number 38 **FRANCIS RESIDENCE** **Spill Number: 1213616** **Close Date: 12/17/2012**
24 MAKAMAH BEACH ROAD NORTHPORT, NY TT−Id: 520A−0283−947

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 2183 feet to the NW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill: PRIVATE DWELLING
Spiller: SARAH FELLOM − PETRO OIL
Spiller Phone:
Notifier Type: Responsible Party
Notifier Name:
Notifier Phone:
Caller Name:
Caller Agency:
Caller Phone:
DEC Investigator: Unassigned
Contact for more spill info: BOLZ FRANCIS
Contact Person Phone: (631) 491−5223

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − No DEC Field Response − Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
12/17/2012		HUMAN ERROR	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	0.05	GALLONS	0.00	GALLONS	SOIL

Caller Remarks:

gravel and cement clean up complete

DEC Investigator Remarks:

SAME AS 1213610− SEE IT FOR DETAILS DR

Map Identification Number 39 **FRANCI RESIDENCE** **Spill Number: 1213610** **Close Date: 12/17/2012**
24 MAKAMAH BEACH ROAD NORTHPORT, NY TT−Id: 520A−0283−945

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 2183 feet to the NW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill:	PRIVATE DWELLING	Spiller:	SARA FELLOM − PETRO	Spiller Phone:	
Notifier Type:	Responsible Party	Notifier Name:		Notifier Phone:	
Caller Name:		Caller Agency:		Caller Phone:	
DEC Investigator:	Unassigned	Contact for more spill info:	BOLZ FRANCIS	Contact Person Phone:	(631) 491−5223

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP − No DEC Field Response − Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
12/17/2012		HUMAN ERROR	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	0.05	GALLONS	0.00	GALLONS	SOIL

Caller Remarks:

gravel and cement clean up complete

DEC Investigator Remarks:

OUTSIDE

SAME AS 1213616 DR

12/17/12 1510 Hrs: Called Fellom− she said about 1 cup of oil spilled when the driver disconnected the hose from the fillpipe.
They cleaned up the spillage. DR

Map Identification Number 40 **DR REICHEK RESIDENCE** **Spill Number: 0107934** **Close Date: 02/21/2003**
2 BRITISH COLONY ROAD FORT SALONGA, NY TT−Id: 520A−0158−594

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 2516 feet to the SE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Source of Spill:	PRIVATE DWELLING	Spiller:	DR REICHEK − DR REICHEK RESIDENCE		Spiller Phone: (631) 754−3316
Notifier Type:	Responsible Party	Notifier Name:	DR REICHEK		Notifier Phone: (631) 754−3316
Caller Name:	DR REICHEK	Caller Agency:	HOMEOWNER		Caller Phone: (631) 754−3316
DEC Investigator:	UNASSIGNED	Contact for more spill info:	DR REICHEK		Contact Person Phone: (631) 754−3316

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.

Class: Willing RP − No DEC Field Response − Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
11/03/2001		HUMAN ERROR	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
GASOLINE	PETROLEUM	1.00	GALLONS	0.00	GALLONS	SEWER

Caller Remarks:

CALLERS WIFE POURED GASOLINE DOWN DRAIN IN KITCHEN SINK. CALLER

HAS A SEPTIC SYSTEM AND IS CONCERNED. CALLER WISHES TO SPEAK TO

DEC REGIONAL OFFICE.

DEC Investigator Remarks:

HC TELECON TO REICHEK, SOME WORK WAS DONE AT HOUSE, A 16 OZ SODA BOTTLE, 2/3 FULL, WAS LEFT ON SITE BY WORKER, WIFE POURED INTO KITCHEN SINK AND REALIZED IT WAS GAS, 6−8 OZ POURED IN, TOLD REICHEK TO FLUSH DRAINS WITH WATER AND TO CALL LOCAL FD FOR ADDITIONAL INSTRUCTIONS. HE TOLD ME THAT IS WHAT FD TOLD HIM TO DO, NO CLEANUP REQUIRED AT THIS TIME

NO OIL STORAGE FACILITIES LARGER THAN 400,000 GALLONS IDENTIFIED WITHIN 1/4 MILE SEARCH RADIUS

PETROLEUM BULK STORAGE FACILITIES LESS THAN 400,000 GALLONS IDENTIFIED WITHIN THE 1/4 MILE SEARCH RADIUS

PLEASE NOTE: * Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 41 **INDIAN HILLS COUNTRY CLUB II** **Facility Id: 07149** **Source: SUFF. HEALTH DEPT**

21 BREEZE HILL RD NORTHPORT, NY 11768 Facility Ref. No.: 10972
TT−Id: 640A−0071−614

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING − LARGE SITE
Approximate distance from property: 0 feet

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Owner Name: IHCC INC
Owner Address:

Facility Phone #:

TANK NO.	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	PERMIT ISSUED	REMOVED DATE
1	Heating Oil over 1100 Gal − Expires 2009	#2 FUEL OIL	1500	Outdoor Under	60		
2	Never Installed	GASOLINE	500	Outdoor Above			

Map Identification Number 42 **INDIAN HILLS COUNTRY CLUB I** **Facility Id: 08194** **Source: SUFF. HEALTH DEPT**

21 BREEZE HILL RD NORTHPORT, NY 11768 Facility Ref. No.: 03926
TT−Id: 640A−0071−615

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING − LARGE SITE
Approximate distance from property: 0 feet

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11768

Owner Name: IHCC INC
Owner Address:

Facility Phone #:

TANK NO.	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	PERMIT ISSUED	REMOVED DATE
1	Removed − Marked for Removal 1990 (Confirmed)	GASOLINE	1000	Outdoor Under	62		083090
2	Removed − Marked for Removal 1990 (Confirmed)	DIESEL	500	Outdoor Above	62		092190
3	Permitted − Expired 1991	DRUM STORAGE	330	Outdoor Above	86	022786	
4	Permitted − Expired 1991	DRUM STORAGE	250	Outdoor Above	86	022786	
5	Never Installed	#2 FUEL OIL	1500	Outdoor Under			
6	Non−Complying − Compliance Reqd as of 1985	#2 FUEL OIL	275	Outdoor Above	89		
7	Never Installed	GASOLINE	500	Outdoor Above			

**** TANK INFO CONTINUES ON NEXT PAGE ****

Map Identification Number 43 **MECHELLE & RONNIE DEPIETRO** **Facility Id: 16896** **Source: SUFF. HEALTH DEPT**

14 MYSTIC LN
NORTHPORT, NY 11768
Facility Ref. No.: 17158
TT−Id: 640A−0071−616

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 174 feet to the NW*

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Owner Name:
Owner Address:

Facility Phone #:

TANK NO.	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	PERMIT ISSUED	REMOVED DATE
1	Abandoned 2004	#2 FUEL OIL	2000	Outdoor Under			101304

HAZARDOUS WASTE GENERATORS/TRANSPORTERS IDENTIFIED WITHIN 1/4 MILE SEARCH RADIUS

PLEASE NOTE: * Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 44 **NYSDEC Name:** **INDIAN HILL COUNTRY CLUB** **Facility Id: NYD068077593**

NYSDEC Address: 21 BREEZE HILL ROAD NORTHPORT, NY 11768 TT−Id: 740A−0047−969
EPA (RCRA) Name: INDIAN HILLS COUNTRY CLUB
EPA (RCRA) Address: 21 BREEZE HILL RD NORTHPORT, NY 11768

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING − LARGE SITE
Approximate distance from property: 0 feet

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

US EPA RCRA Type: GENERATOR TYPE NOT GIVEN
Notification date: 11/18/1988
Land Disposal: Receives offsite waste: Incinerator:
Storer: Treatment facility: Transporter:
Contact Name: GENE CONTINU Source Type: Notification Contact Phone: 516−261−5700 Contact Info Date: 11/18/1988

NYS DEC Manifested Waste Summary:
Waste Codes, Waste Units, and Transaction Types are only shown for the most recently reported year.

WASTE CODE	WASTE DESCRIPTION	WASTE AMOUNT	WASTE UNITS	TRANSACTION TYPE	YEAR	HISTORIC MAXIMUM AMOUNT	HISTORIC MAXIMUM YEAR
D001	Solid waste that exhibits the characteristic of ignitability	5	GALLONS	GENERATED	1988		
D004	Arsenic	11	GALLONS	GENERATED	1988		
P010	Arsenic acid H3AsO4	30	GALLONS	GENERATED	1988		

NO CHEMICAL STORAGE FACILITIES IDENTIFIED WITHIN 1/4 MILE SEARCH RADIUS

NO HAZARDOUS SUBSTANCE WASTE DISPOSAL SITES IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS

NO TOXIC AIR, LAND AND WATER RELEASES IDENTIFIED WITHIN 1/4 MILE SEARCH RADIUS

NO WASTEWATER DISCHARGES IDENTIFIED WITHIN 1/4 MILE SEARCH RADIUS

NO AIR DISCHARGE FACILITIES IDENTIFIED WITHIN 1/4 MILE SEARCH RADIUS

NO CIVIL & ADMINISTRATIVE ENFORCEMENT DOCKET FACILITIES IDENTIFIED WITHIN THE 1/4 MILE SEARCH RADIUS

U.S. EPA EMERGENCY RESPONSE NOTIFICATION SYSTEM (ERNS) SPILLS
AT THE LOCATION OR POTENTIALLY AT THE LOCATION OF
Indian Hills Country Club
Northport, NY 11768

* Any ERNS Spills listed below are NOT mapped in this report *

ONSITE ERNS (A count of these spills can be found in the distance interval table):
THIS SITE IS NOT FOUND IN THE ERNS DATABASE

POTENTIALLY ONSITE ERNS:
THIS SITE IS NOT FOUND IN THE ERNS DATABASE

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Unmappable facilities for 'Suffolk' County

NPL/CERCLIS/NYSDEC Inactive Haz. Waste or Reg. Qual. Sites

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
NYD986882389	LONG ISLAND SOUND		MORICHES	UNKNOWN

Solid Waste Facilities

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
	TRANS MED LIMITED RMW TS			UNKNOWN
	SYNCOR NUCLEAR PHARMACY S			UNKNOWN
52C03	DUNLOP AVE COMPOSTING			UNKNOWN
52C09	SMITHTOWN LEAF COMPOSTING			UNKNOWN
52C20	TOWN OF HUNTINGTON			UNKNOWN
52W54R	TRI−TOWN CARTING CORP.			UNKNOWN
52W69R	GLOBAL LAND MATERIALS			UNKNOWN
52W72R	C&A MATERIALS			UNKNOWN
52W74	HOLBROOK TRUCK & LEASING			UNKNOWN
52W76R	LONG ISLAND DIRT CORP.			UNKNOWN
52W77R	T.S. HAULERS, INC.			UNKNOWN
52W78	NORTH SHORE RECYCLING			UNKNOWN
52W80R	CALVERTON INDUSTRIES, LLC			UNKNOWN
52W81R	BELLI CONTRACTING CO, INC			UNKNOWN
52W85R	LONG ISLAND RECYCLING INC			UNKNOWN
52W98R	ALEXANDER AND ANTHONY IZZ			UNKNOWN
52I 0	NORTHPORT		HUNTINGTON (T)	11768
52M 0	SMITHTOWN		SMITHTOWN (T)	UNKNOWN

Hazardous Spills − TANK FAILURES − Closed

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
9612298	NYS PARKS RECREATION	RTE 25A	KINGS PARK	UNKNOWN

Hazardous Spills − TANK TEST FAILURES − Closed

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
9612260	NYS DEPT PARKS & REC	SUNKEN MEADOW PARK/RT 25A	KINGS PARK	UNKNOWN
9612199	SUNKEN MEADOW STATE PARK	ROUTE 25A & PARKWAY	KINGS PARK	UNKNOWN
8601040	NEW YORK STATE	RTE 25A	KINGS PARK	UNKNOWN
8601928	MEENAN	RTE 25A	NORTHPORT	UNKNOWN

Hazardous Spills − UNKNOWN CAUSE OR OTHER CAUSES − Closed

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
8401635				UNKNOWN
8401564				UNKNOWN
8100603				UNKNOWN
8809065	UNKNOWN	BLUFF−LILCO & ASHAROKEN	ASHAROKEN	11768
7800390			DUCK LAKE	UNKNOWN
9808513	ASHAROKEN BEACH	LOCAL BOAT RAMP	EATONS NECK	11768
9804226	UNKNOWN	1/2 MILES NW EATONS NECK	EATONS NECK	11768
9201051	UNKNOWN	32 ALPHA/EXECUTION ROCK	EATONS NECK	11768
9100312	SANDS CITY	END OF EATONS NECK	EATONS NECK	11768
8903351	UNKNOWN	200 YARDS FROM SHORE	EATONS NECK	UNKNOWN
0205440	SHELL GAS #1	RTE 25A	FORT SALONGA	11768
0904783	UNKNOWN	MARIONS LANE	FORT SOLONGA	11768
9408360	ASTA VESSEL	DORNIC MARINA	HUNTINGTON	UNKNOWN
9404970	UNK	RTE 25A & PRESTON PLACE	HUNTINGTON	UNKNOWN
8300237			HUNTINGTON	UNKNOWN
8201585			HUNTINGTON	UNKNOWN
0808872	UNKNOWN	WEST NECK ROAD	HUNTINGTON	11743

0803513	TOWN PARKING LOT #20	HUNTINGTON RAIL LOT	HUNTINGTON	11743
9805382	SUNKEN MEADOW STATE PARK	RTE 25A	KINGS PARK	UNKNOWN
9305946	UNK	1 MEMORIAL PARK	KINGS PARK	UNKNOWN
9100145	SHELL S/S	RTE 25A/GROVE ROAD	KINGS PARK	UNKNOWN
9005455	UNKNOWN	KINGS PARK BLUFF	KINGS PARK	UNKNOWN
9515378	1 MILE W/O MATTITUCK	NEAR RIVERHEAD	LONG ISLAND	UNKNOWN
9807048	LONG ISLAND SOUND	LONG ISLAND SOUND	LONG ISLAND SOUND	UNKNOWN
9605087	RACE ROCK POINT	LONG ISLAND SOUND	LONG ISLAND SOUND	UNKNOWN
9312898	LILCO	LONG ISLAND SOUND	LONG ISLAND SOUND	UNKNOWN
8908372	UNK BOAT	LONG ISLAND SOUND	LONG ISLAND SOUND	UNKNOWN
9606699	ALL OF LONG ISLAND SOUND	LITTLE NECK BAY	NEW YORK CITY	UNKNOWN
9603970	EAST OF LOCO OUTFLOW	NORTHPORT	NORTHPORT	UNKNOWN
9512715	LONG ISLAND SOUND	LONG ISLAND SOUND	NORTHPORT	UNKNOWN
9508723	SPILL NUMBER 9508723	LONG ISLAND SOUND	NORTHPORT	UNKNOWN
9005814	UNKNOWN	19 BAUSE STREET	NORTHPORT	UNKNOWN
9004838	UNKNOWN	SOUTH OF HOBART BEACH	NORTHPORT	UNKNOWN
8805238	UNKNOWN	MAKAMAH BEACH	NORTHPORT	UNKNOWN
8805206	TANKER	LILCO OFF SHORE LOADING	NORTHPORT	11768
1105795	NORTHPORT BAY	VINEYARD RD	NORTHPORT	11768
1100631	LONG ISLAND SOUND	5 MILES EAST OF THE	NORTHPORT	11768
0906670	SHELL STATION	15416 RTE 25A	NORTHPORT	11768
0706079	UNKNOWN	47 STOOTHOFF STREET	NORTHPORT	11768
0325212	NORTHPORT HARBOR	ROUTE 25A FORT SALONGA RD	NORTHPORT	11768
0108024	138 CV CABLE UNDER	LONG ISLAND SOUND	NORTHPORT	UNKNOWN
0102951	BRITTANIA MARINA	RTE 25A	NORTHPORT	11768
0008855	LIPA	LONG ISLAND SOUND	NORTHPORT	11768
0202805	SPILL NUMBER 0202805	LONG ISLAND SOUND	NORTHVILLE	UNKNOWN
7801072			PILOT STATION	UNKNOWN
8101594			SMITHTOWN	UNKNOWN
8100822			SMITHTOWN	UNKNOWN
8001402			SMITHTOWN	UNKNOWN
8000458			SMITHTOWN	UNKNOWN
0651429	UNKNOWN	SMITHTOWN BAY	SMITHTOWN	11787
0608398	UNKNOWN	RTE 25A	SMITHTOWN	11787
0411224	LONG BEACH	LONG BEACH	SMITHTOWN	11787
0225489	SPILL NUMBER 0225489	BANK AVENUE	SMITHTOWN	11787
0000020	IN ROADWAY	FLORENCE AVENUE	SMITHTOWN	11787

Hazardous Spills – MISC. SPILL CAUSES – Closed

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
1209119	LEWGUE RESIDENCE	3 QUE CORT	ASHROKEN	11768
8600688	UNKNOWN	ON THE BEACH	BELLE TERRE	11777
9513220	RESIDENCE	15 ALBERTA DRIVE	EAST NORTHPORT	UNKNOWN
9412804	GABBERTY RESIDENCE	8 DASILL LANE	EAST NORTHPORT	UNKNOWN
9412717	MAURO RESIDENCE	17 CARAVAN STREET	EAST NORTHPORT	UNKNOWN
9410205	CRABLEY RESIDENCE	304 BASE AVENUE	EAST NORTHPORT	UNKNOWN
9407065	CONSTANCE PINEO RESIDENCE	17 DARTMERE LANE	EAST NORTHPORT	UNKNOWN
9213584	BROWN RESIDENCE	5 JEAN ANNE	EAST NORTHPORT	UNKNOWN
9210881	COMMANDER OIL	109 DANELA LANE	EAST NORTHPORT	UNKNOWN
9110209	UNK	OLD HOSPITAL ROAD	EAST NORTHPORT	UNKNOWN
8603667	CHEMLAWN	29 NORTHERN DRIVE	EAST NORTHPORT	UNKNOWN
1206393	UNKNOWN	10 SALISBURY DRIVE	EAST NORTHPORT	11731
9301005	MOBIL OIL	LONG ISLAND SOUND	EATONS NECK	11768
0606633	UNKNOWN	FRESH POND ROAD	FORT SALONGA	11768
9509046	EATONS NECK ROAD	EAST SIDE OF ROAD	HUNTINGTON	11768
9412737	SPILL NUMBER 9412737	26 ARAGON DRIVE	HUNTINGTON	UNKNOWN
9408570	NEIL GREENBERG RESIDENCE	7 MONLOWOOD COURT	HUNTINGTON	UNKNOWN
9408482	RESIDENCE	12 BORDWELL LANE	HUNTINGTON	UNKNOWN
0901646	RESIDENTIAL ROADWAY	CRAGG COURT	HUNTINGTON	11743
0605655	LIRR	HUNT 1	HUNTINGTON	11743

0311267	COMMERCIAL TRUCK	HALLOWVILE ROAD	HUNTINGTON	11743
9907992	SUNKEN MEADOWS PARK	SUNKEN MEADOWS PARK	KINGS PARK	UNKNOWN
8909990	UNKNOWN	RTE 25A/SMITHTOWN PARKS	KINGS PARK	UNKNOWN
9812718	RIVERHEAD PLATFORM	LONG ISLAND SOUND	LONG ISLAND SOUND	UNKNOWN
9811756	LONG ISLAND SOUND	LONG ISLAND SOUND	LONG ISLAND SOUND	UNKNOWN
9905694	LIPA CABLE 6 LI SOUND	LONG ISLAND SOUND	NORTHPORT	11768
9703039	LONG ISLAND SOUND	LONG ISLAND SOUND	NORTHPORT	UNKNOWN
9602780	LONG ISLAND SOUND BTWN	NORTHPORT & NORWALK HRBR	NORTHPORT	11768
9504505	LILCO	LI SOUND 1 MI N OF NRTHPT	NORTHPORT	11768
9413901	LILCO	LI SOUND TO CONN	NORTHPORT	UNKNOWN
9411561	LILCO	LONG ISLAND SOUND	NORTHPORT	UNKNOWN
9404618	UNK VESSEL OWNER	NORTHPORT DOCK	NORTHPORT	UNKNOWN
9312101	LILCO	LONG ISLAND SOUND	NORTHPORT	UNKNOWN
9311533	LILCO	NORWALK,CT & NORTHPORT	NORTHPORT	UNKNOWN
9208035	LILCO	BREAD & CHEESE HOLLOW RD	NORTHPORT	11768
9207439	LILCO	INLET HARBOR UNITS 2 −3	NORTHPORT	UNKNOWN
9206200	UNK	BASIN ON WOODHULL	NORTHPORT	11768
8909437	LILCO	UNDER LONG ISLAND SOUND	NORTHPORT	UNKNOWN
8908267	LILCO	LONG ISLAND SOUND	NORTHPORT	UNKNOWN
8804235	LILCO	LONG ISLAND SOUND	NORTHPORT	UNKNOWN
1010478	NORTHPORT TOWN DOCK	SCUTTER DRIVE	NORTHPORT	11768
0308358	NORTHPORT STATION	NORTHPORT STATION	NORTHPORT	11768
0301321	UNKNOWN	LONG ISLAND SOUND	NORTHPORT	UNKNOWN
0301242	LONG ISLAND SOUND	2 MILES NORTH NORTHPORT	NORTHPORT	UNKNOWN
0209524	UNDERWATER CABLE	LONG ISLAND SOUND	NORTHPORT	UNKNOWN
0208517	LONG ISLAND SOUND	LONG ISLAND SOUND	NORTHPORT	UNKNOWN
0103524	UNKNOWN	GERRIET COURT	NORTHPORT	11768
0008860	LIPA	LONG ISLAND SOUND	NORTHPORT	11768
9204071	JOHN BYANK PASS VEHICLE	IN RP’S VEHICLE	NOT GIVEN	UNKNOWN
9109519	ISLAND TRANSPORTATION	RTE 25A	SMITHTOWN	UNKNOWN
9011197	HAZELTINE CORP	RTE 25A	SMITHTOWN	UNKNOWN
8907260	LILCO	RTE 25A	SMITHTOWN	UNKNOWN
1111688	UNKNOWN	3 POND ROAD	SMITHTOWN	11787
1008287	ROADWAY	44 ROUTE 25A	SMITHTOWN	11787
1007548	UNKNOWN	LEDGEWOOD AVENUE	SMITHTOWN	11787
0510382	UNKNOWN	191 PERRY ROAD	SMITHTOWN	11787
0505784	WALDBAUMS #697	RTE 25A	SMITHTOWN	11787
0000398	FLORIO RESIDENCE	88 WESLEY ROAD	SMITHTOWN	11787
0125321	UNKNOWN	STREETS OF SUFFOLK COUNTY	TOWNS OF SUFFOLK COUNTY	UNKNOWN

Petroleum Bulk Storage Facilities

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
6−11907				UNKNOWN
NYSF13940	GO TO REF NO. 04189			UNKNOWN
NYSF15282	GO TO REF.NO 07541			UNKNOWN
4−0366	CHEVRON S/S	RTE 25 A	NORTHPORT	11768
NYSF06837	NORTHPORT VILLAGE STP	BEACH ST	NORTHPORT	11768
NYSF07056	CHEVRON S/S	RTE 25 A FORT SALONGA RD	NORTHPORT	11768
NYSF08658	THREE STORY OFFICE BUILDING	RTE 25 A FORT SALONGA RD	NORTHPORT	11768
8−0165	SMITHTOWN CONCRETE PROD CORP	PO BOX 612	SMITHTOWN	UNKNOWN

Hazardous Waste Generation or Transport Facilities

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
NYD986941268	SHELL OIL COMPANY	ROUTE 25A	CENTERPORT	UNKNOWN
NYP003631264	NYSDEC	SPILLS ?	LIC	UNKNOWN
NYP003631512	NYSDEC BUREAU OF SPILLS	EXIT 27A GARDEN STATE PKWY	N/S	UNKNOWN
NYP000945600	BELL ATLANTIC	FORT SALONGA RD	NORTHPORT	11768
NYX720000000	TRANSPORTER X	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXX	UNKNOWN

Hazardous Substance Waste Sites

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
NY0002	MANDERVILLE PLANT		MANDERVILLE, NY ?	UNKNOWN
NY0003	PINE‘S SWITCH PLANT		PINE‘S SWITCH	UNKNOWN

Wastewater Discharges

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
NY0199621	METROPOLITAN LIFE INSURANCE CO			UNKNOWN
NY0210595	SELDEN CHANNEL LAUNDROMAT			UNKNOWN
NY0220841	WASHINGTON AVENUE CONDOMINIUMS			UNKNOWN
NY0221350	PIZZA HUT #606176			UNKNOWN

Air Releases

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
3610300013	AXINN&SONS LUMBER	ROUTE 25A	NORTHPORT	UNKNOWN

Hazardous waste codes presented in individual Toxic Information Profiles are defined below.

D001 Solid waste that exhibits the characteristic of ignitability, but is not listed under any other hazardous waste code.

D004 Arsenic

P010 Arsenic acid H3AsO4

Source: U. S. Environmental Protection Agency

How Toxic Site Locations Are Mapped

Toxics Targeting maps toxic site locations on a digital version of the U. S. Census map or those used by local authorities using addresses and map coordinates provided by site owners/operators or government agencies. In order to allow site locations to be verified independently, the information used to map each site is presented in the first section of each Toxic Site Profile, along with a description of the mapping technique used and any address corrections that were made in order to locate toxic sites with incomplete or inadequate site location information. The mapping process is explained below.

Map Identification Number: 12

Site Name: Acme World Manufacturing, Inc.

Site Address: 55 Main Street

Anytown, NY 11797

MAP LOCATION INFORMATION

Site location mapped by:

Address Matching

1) Most toxic sites are mapped by matching addresses provided by site owners/operators or government agencies with locations on a digital version of the street or parcel map. These site locations are identified with the method used to map them.

Note: Some sites have an address match location and a map coordinate location. Both locations are mapped because they can be equally correct.

or Map Coordinate

2) Some toxic sites are located using map coordinates provided by site owners/ operators or government agencies. These site locations are identified "map coordinate." Map coordinates for Toxic Wastewater Discharges, Toxic Release Inventory sites and Major Oil Storage Facilities should be considered suspect.

or Manual Mapping

or Site Visit

3) Incomplete addresses or map coordinates require some site locations to be determined by commercial street maps (manual mapping), site visits, map coordinates from other databases and address location services. Application of any of these methods is identified accordingly.

ADDRESS CHANGE INFORMATION

Revised Street: NO CHANGE

Revised zip code: NO CHANGE

4) Site addresses are sometimes corrected to eliminate obvious errors that prevent sites from being mapped. All address corrections are noted here.

Information Source Guide

Toxics Targeting's Environmental Reports contain government and other information compiled on 18 categories of reported known or potential toxic sites. Each toxic site database is described below with information detailing a) the source of the information, b) the date when each database is covered to and c) when *Toxics Targeting* obtained the information..

1) **National Priority List for Federal Superfund Cleanup:** Toxic sites nominated for cleanup under the Federal Superfund program. Annual compilation of special two-page detailed profiles of NPL sites. Also includes delisted NPL sites.
ASTM required.* Fannie Mae required.** Source: U. S. Environmental Protection Agency.[1]
Data attributes updated from: 1/7/2014. Data obtained by Toxics Targeting: 1/7/2014.
New Facilities updated through: 1/7/2014. Data obtained by Toxics Targeting: 1/7/2014.

2) **Inactive Hazardous Waste Disposal Site Registry:** New York State database that maintains information and aids decision making regarding the investigation and cleanup of toxic sites. The Registry's data includes two-page profiles noting site name, ID number, description, classification, cleanup status, types of cleanup, owner information, types and quantities of contaminants, and assessment of health and environmental problems. Also included are sites that qualify for possible inclusion on the Registry. These Registry Qualifying sites may or may not be on the Site Registry.
ASTM required.* Fannie Mae required.** Source: New York State Department of Environmental Conservation.[2]
Data attributes updated through: 11/1/2013. Data obtained by Toxics Targeting: 11/1/2013.
New Facilities updated to: 11/1/2013. Data obtained by Toxics Targeting: 11/1/2013.

3) **Corrective Action Activity (CORRACTS):** U. S. Environmental Protection Agency database of hazardous facilities regulated pursuant to the Resource Conservation and Recovery Act (RCRA).
ASTM required.* Fannie Mae required.** Source: U. S. Environmental Protection Agency[1]
Data attributes updated through: 10/17/2013. Data obtained by Toxics Targeting: 10/30/2013.
New facilities updated through: 10/17/2013. Data obtained by Toxics Targeting: 10/30/2013.

4) **CERCLIS:** Toxic sites listed in the Federal Comprehensive Environmental Response, Compensation and Liability Information System. Includes Active and No Further Remedial Action Planned (NFRAP) sites.
ASTM required.* Fannie Mae required.** Source: U. S. Environmental Protection Agency.[1]
Data attributes updated through: 4/25/2013. Data obtained by Toxics Targeting: 7/2/2013.
New Facilities updated through: 4/25/2013. Data obtained by Toxics Targeting: 7/2/2013.

5) **Brownfield Programs:** NYS programs for sites that are abandoned, idled or under-used industrial and/or commercial sites where expansion or redevelopment is complicated by real or perceived environmental contamination.
ASTM required.* Source: New York State Department of Environmental Conservation.[2]
Data attributes updated through: 11/1/2013. Data obtained by Toxics Targeting: 11/1/2013.
New Facilities updated to: 11/1/2013. Data obtained by Toxics Targeting: 11/1/2013.

(a) **Brownfield Cleanup Program (BCP)**
(b) **Voluntary Cleanup Program (VCP)**
(c) **Environmental Restoration Program (ERP)**

6) **Solid Waste Facilities: NYS Solid Waste Registry**, including, but not limited to, landfills, incinerators, transfer stations, recycling centers.
ASTM required.* Fannie Mae required.** Source: New York State Department of Environmental Conservation.[2]
Data updated to: 12/31/2001. Data obtained by Toxics Targeting: 3/16/2002.

7) **RCRA Hazardous Waste Treatment, Storage or Disposal Facility Databases:**

(a) **Manifest Information:** New York State database of hazardous waste facilities and shipments regulated by the DEC's Bureau of Hazardous Waste Facility Compliance pursuant to NYS Law and the Resource Conservation and Recovery Act (RCRA).
ASTM required.* Fannie Mae required.** Source: New York State Department of Environmental Conservation.[2]

New facilities updated through: 10/25/2013. New facilities obtained by Toxics Targeting: 11/5/2013.
Manifest transactions data updated to: 10/25/2013. Manifest transactions data obtained by Toxics Targeting: 11/5/2013.

(b) **RCRA Notifier & Violations Information:** U. S. Environmental Protection Agency database of hazardous facilities regulated pursuant to the Resource Conservation and Recovery Act (RCRA).
ASTM required.* Fannie Mae required.** Source: U. S. Environmental Protection Agency[1]
New facilities updated through: 10/17/2013. Data obtained by Toxics Targeting: 10/30/2013.
Data attributes updated through: 10/17/2013. Data obtained by Toxics Targeting: 10/30/2013.

8) **Spills Information Database:** Spills reported to the DEC as required by one or more of the following: Article 12 of the Navigation Law, 6 NYCRR Section 613.8 (from Petroleum Bulk Storage Regulations) or 6 NYCRR Section 595.2 (from Chemical Bulk Storage Regulations). This database includes both *active* and *closed* spills.
ASTM required.* Fannie Mae.** Source: NYS Department of Environmental Conservation.[2]

New spills through: 9/20/2013 New spills data obtained by Toxics Targeting: 9/20/2013
Spill attribute data through: 9/20/2013 Spill attribute data obtained by Toxics Targeting: 9/20/2013

Active spills: paperwork not completed. Closed spills: paperwork completed.
Both active and closed spills may or may not have been cleaned up (see Date Cleanup Ceased in spill profiles).

9) **Major Oil Storage Facilities:** NYS database of facilities licensed pursuant to Article 12 of the Navigation Law, 6NYCRR Parts 610 and 17NYCRR Part 30, such as onshore facilities or vessels, with petroleum storage capacities equal to or greater than 400,000 gallons. **Tank and other data withheld by NYSDEC as of 4/1/2002**.
ASTM required.* Fannie Mae required.** Source: New York State Department of Environmental Conservation.[2]

Data updated through: 7/19/2013. Data obtained by Toxics Targeting: 7/19/2013.

10) **Petroleum Bulk Storage Facilities:** County or State databases of aboveground and underground petroleum storage facilities.
ASTM required.* Fannie Mae required.**

All New York Counties except Cortland, Nassau, Rockland, Suffolk:
NYS Petroleum Bulk Storage Database. This includes all New York State counties except Cortland, Nassau, Rockland, Suffolk, and Westchester. ASTM required.* Fannie Mae required.**
Source: NYS Department of Environmental Conservation.[2]
New facilities updated through: 7/19/2013. Data obtained by Toxics Targeting: 7/19/2013.
Tank data updated through: 7/19/2013. Data obtained by Toxics Targeting: 7/19/2013.

Westchester County: Data updated through 10/1/1998

Cortland County: **Cortland County Health Dept. Tank database**.
Source: Cortland County Health Department[7]
Data updated through: 7/15/2004 Data obtained by Toxics Targeting: 7/23/2004

Nassau County: a compilation of the following 2 databases:
Heat producing products and other products:
Source: Nassau County Department of Health.[3]
NOTE: This data is being withheld by the Nassau County DOH
Data updated through: 4/1/2001. Data obtained by Toxics Targeting: 1/2/2002

Generally non-heat producing products:
Source: Nassau County Fire Marshal.[4]
Data updated through: 8/6/2009. Data obtained by Toxics Targeting: 9/22/2009

Rockland County: **Rockland County Dept. of Health Tank database.**
Source: Rockland County Department of Health.[5]
Data updated through: 4/13/2004. Data obtained by Toxics Targeting: 4/16/2004.

Suffolk County: **Suffolk County Dept. of Health Article 12 database**
Source: Suffolk County Department of Health Services.[6]
Data updated through: 6/21/2005. Data obtained by Toxics Targeting: 7/12/2006.

11) **RCRA Hazardous Waste Generators and/or Transporters Databases:**
(a) **Manifest Information:** New York State database of hazardous waste facilities and shipments regulated by the NYS Department of Environmental Conservation's Bureau of Hazardous Waste Facility Compliance pursuant to New York State Law.
ASTM required.* Fannie Mae required.** Source: New York State Department of Environmental Conservation.[2]

New facilities updated through: 10/25/2013. New facilities obtained by Toxics Targeting: 11/5/2013.
Manifest transactions data updated to: 10/25/2013. Manifest transactions data obtained by Toxics Targeting: 11/5/2013.

(b) **RCRA Notifier & Violations Information:** U. S. Environmental Protection Agency database of hazardous facilities regulated pursuant to the Resource Conservation and Recovery Act (RCRA).
ASTM required.* Fannie Mae required.** Source: U. S. Environmental Protection Agency[1]

New facilities updated through: 10/17/2013. Data obtained by Toxics Targeting: 10/30/2013.
Data attributes updated through: 10/17/2013. Data obtained by Toxics Targeting: 10/30/2013.

12) **Chemical Bulk Storage Facilities:** New York State database of facilities compiled pursuant to 6NYCRR Part 596 that store regulated substances listed in 6NYCRR Part 597 in aboveground tanks with capacities greater than 185 gallons and /or in underground tanks of any size. **Tank and other data withheld by NYSDEC as of 4/1/2002**.
ASTM required.* Fannie Mae required.** Source: New York State Department of Environmental Conservation.[2]
Data updated through: 7/19/2013. Data obtained by Toxics Targeting: 7/19/2013.

13) **Hazardous Substance Waste Disposal Site Study:** NYS database of waste disposal sites that may pose threats to public health or the environment, but could not be remediated using monies from the Hazardous Waste Remedial Fund.
Source: New York State Department of Environmental Conservation.[2]
Data updated to: 5/16/2000. Data obtained by Toxics Targeting: 5/16/2000.

14) **Toxic Release Inventory (TRI):** Federal database of manufacturing facilities required under Section 313 of the Federal Emergency Planning and Community Right-to-Know Act to report releases to the air, water and land of any specifically listed toxic chemical. See Fannie Mae requirement** below.
Source: U. S. Environmental Protection Agency.[1] / NYS Department of Environmental Conservation[2]
Data updated through: 3/8/2004. Data obtained by Toxics Targeting: 3/25/2004

15) **Toxic Wastewater Discharges (Permit Compliance System):** Federal database of discharges of wastewater to surface waters and groundwaters. See Fannie Mae requirement** below. Source: U. S. Environmental Protection Agency.[1]
Data updated through: 6/17/2004. Data obtained by Toxics Targeting: 7/19/2004.

16) **Air Discharge Facilities:** EPA AIRS database containing address information on each air emission facility and the type of air pollutant emission it is. Compliance information is also provided on each pollutant as well as the facility itself.
See Fannie Mae requirement** below. Source: U. S. Environmental Protection Agency[1]
Data updated through: 11/24/1999. Data obtained by Toxics Targeting: 1/6/2000

17) **Civil Enforcement & Administrative Docket:** This database is the U. S. EPA's system for tracking administrative and civil judiciary cases filed on behalf of the agency by the Department of Justice. Fannie Mae required.**
Source: U. S. Environmental Protection Agency.[1]
New Sites through: 10/14/1999.
Data updated through: 10/14/1999. Data obtained by Toxics Targeting: 11/18/1999.

18) **Emergency Response Notification System (ERNS):** Federal database of spills compiled by the Emergency Response Notification System. On-site searches only.
ASTM required.* See Fannie Mae requirement** below. Source: U. S. Environmental Protection Agency.[1]
Data updated through: 1/31/2000. Data obtained by Toxics Targeting: 2/15/2000

* American Society of Testing Materials: Standard Practice on Environmental Site Assessments: Phase I Environmental Site Assessment Process (E1527-05).
** Fannie Mae's Part X Environmental Hazards Management Procedures specify 1.0 mile searches for "any state or Federal list of hazardous waste sites (e.g. CERCLIS, HWDMS etc.)." Searches for the property and adjacent properties are specified for "chemical manufacturing plants," "obvious high risk neighbors engaging in storing or transporting hazardous waste, chemicals or substances" and "...any documented or visible evidence of dangerous waste handling... (e.g. stressed vegetation, stained soil, open or leaking containers, foul fumes or smells, oily ponds, etc." Searches for property and adjacent properties can include sites up to a quarter mile away (W. Hayward, Director, Multi-Family Business Planning and Control, Fannie Mae, personal communication, 5/94).

[1]U. S. Environmental Protection Agency, 290 Broadway, NY, NY 10007-1866.

[2]NYS Department of Environmental Conservation, 625 Broadway, Albany, NY 12233.

[3]Nassau County Department of Health, Bureau of Land Resources Management, 240 Old Country Road, Mineola, NY 11501.

[4]Nassau County Fire Commission, Office of the Fire Marshal, 899 Jerusalem Avenue, P. O. Box 128, Uniondale, NY 11553.

[5]Rockland County Department of Health, The Dr. Robert Yeager Health Center, Building D, Sanitorium Road, Pomona, NY 10970.

[6]Suffolk County Department of Health, Hazardous Materials Management, 15 Horseblock Place, Farmingville, NY 11738-1220.

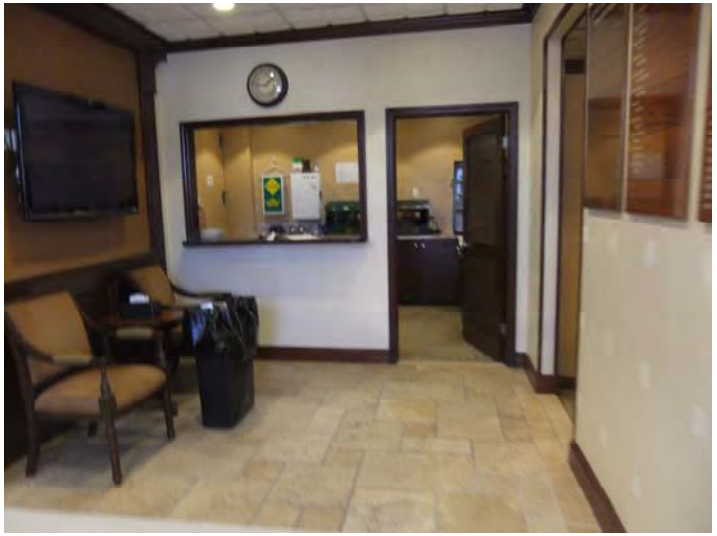
[7]Cortland County Department of Health, 60 Central Avenue, Cortland, NY 13045-2746

APPENDIX D

SITE PHOTOGRAPHS

Indian Hills Country Club, Northport

View of exterior of club house



View of interior of club house

View of locker rooms in basement of club house

View of locker rooms in basement of club house

View of sprinkler closet in club house

View of fuel oil-fired boiler in basement of club house

View of fuel oil-fired boiler in basement of club house

View of storage closet in club house

View of restrooms in club house

View of exterior of club house

View of sealed drain near club house

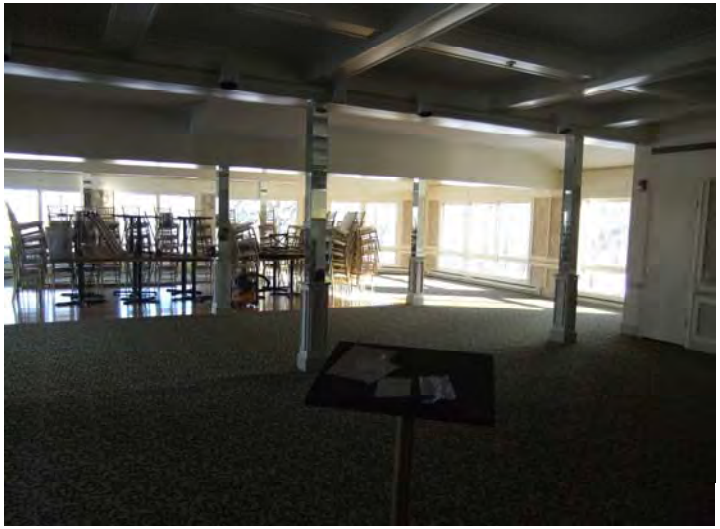
View of piping on exterior of club house

View of kitchen in club house

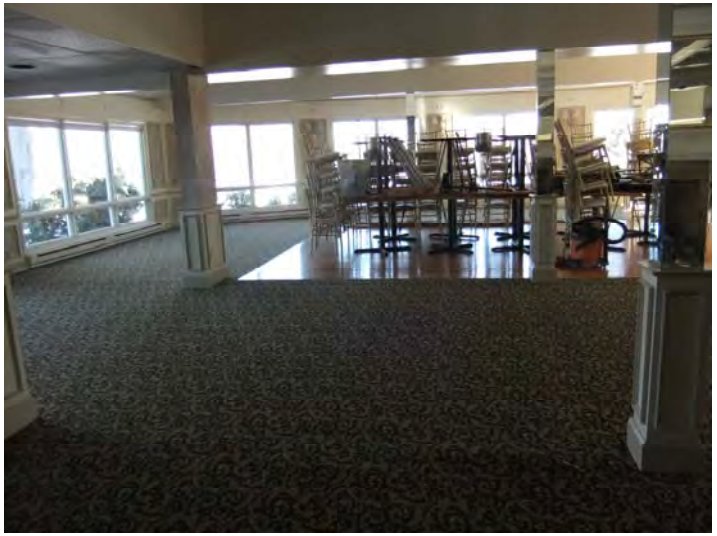
View of hot water heater for club house kitchen

View of dining area in club house

View of interior of club house



View of event room in club house



View of interior of event room in club house

View of exterior area near club house

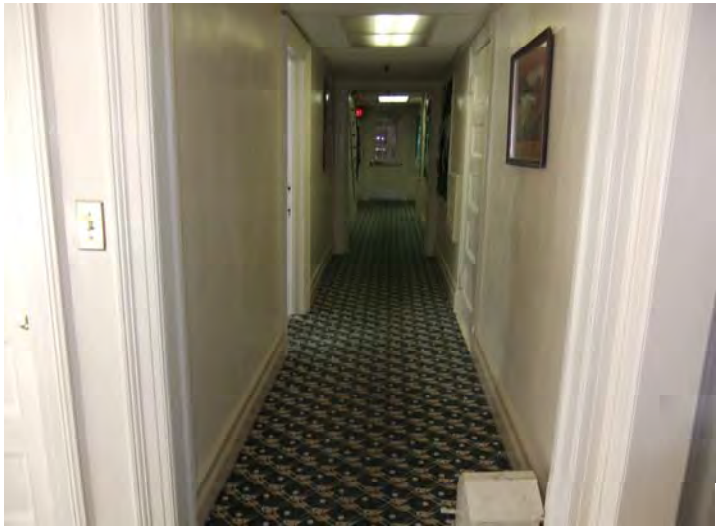
View of vent line for underground storage tank for clubhouse

View of fill port for club house underground storage tank

View of sanitary pools near club house

View of exterior of club house

View of second floor of club house

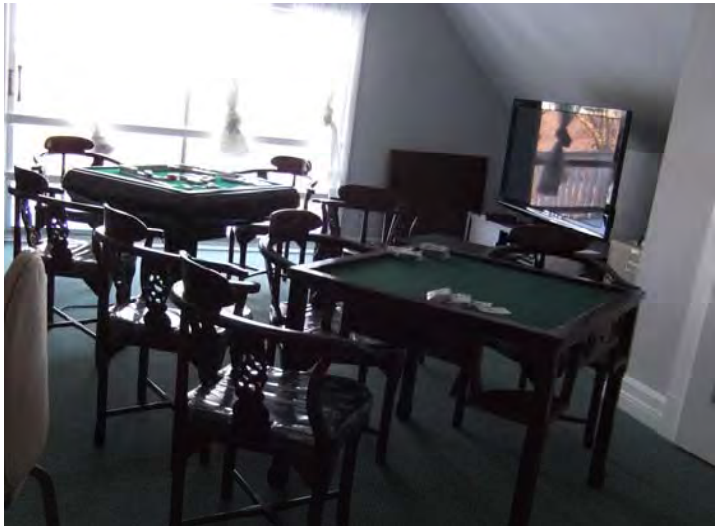


View of second floor of club house

View of office area on second floor of club house

View of cleaning closet on second floor of club house

View of restroom on second floor of club house



View of card room on second floor of club house

View of attic of club house

View of interior of attic of club house

View of leaching pool outside of club house

View of exterior of pro shop building

View of exterior of pro shop building

View of interior of pro shop building

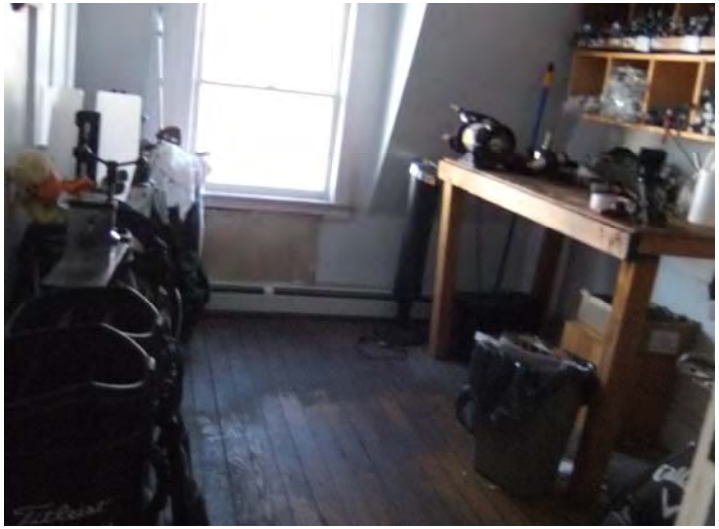
View of interior of pro shop building

View of basement of pro shop building

View of fuel oil-fired boiler in basement of pro shop

275 gallon above ground fuel oil storage tank in pro shop

275 gallon above ground fuel oil storage tank in pro shop



View of second floor of pro shop

View of second floor of pro shop

View of sanitary pool for pro shop

View of golf course area

View of golf course area

View of golf course area

View of exterior of halfway house

View of exterior of halfway house

View of interior of halfway house

View of interior of halfway house

View of sanitary pools and grease trap for halfway house

View of exterior of halfway house

View of exterior of halfway house

View of grease trap outside of halfway house

View of sanitary pool outside of halfway house

View of pole-mounted transformer on subject property

View of paved parking area on subject property

View of paved parking area on subject property

View of golf cart storage barn

View of interior of storage barn

View of interior of storage barn

View of empty propane tanks in storage barn

View of electric golf carts in storage barn

View of interior of storage barn

View of interior of storage barn

View of leaching pool in paved parking area near storage barn

View of sand piles near maintenance buildings

View of exterior of equipment shed

View of exterior of equipment shed

View of storage tank on exterior of equipment shed

View of interior of equipment shed

View of interior of equipment shed

View of drums and gas cans in equipment shed

View of SpeedyDry near drums in equipment shed

View of exterior area near equipment shed

View of above ground diesel storage tank near equipment shed

View of above ground diesel storage tank for equipment shed

View of exterior of fertilizer and spray rig storage building

View of exterior of fertilizer and spray rig building

View of equipment outside of storage building

View of exterior of storage building

Storage containers in interior of fertilizer storage building

Storage containers in interior of fertilizer storage building

Storage containers in interior of fertilizer storage building

Storage containers in interior of fertilizer storage building

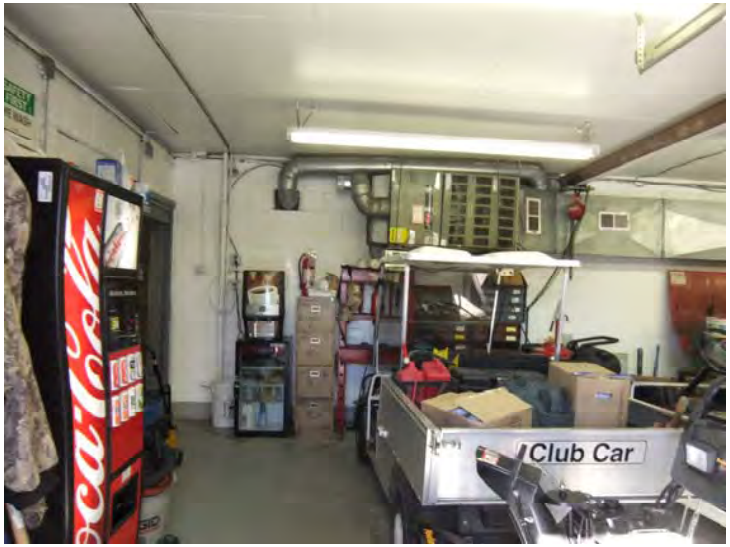
View of materials stored in fertilizer storage building

View of exterior of storage building

View of exterior of maintenance building

View of exterior of maintenance building

View of exterior of maintenance building



View of interior of maintenance garage

View of interior of maintenance garage

View of interior of maintenance garage

View of drums stored in maintenance garage

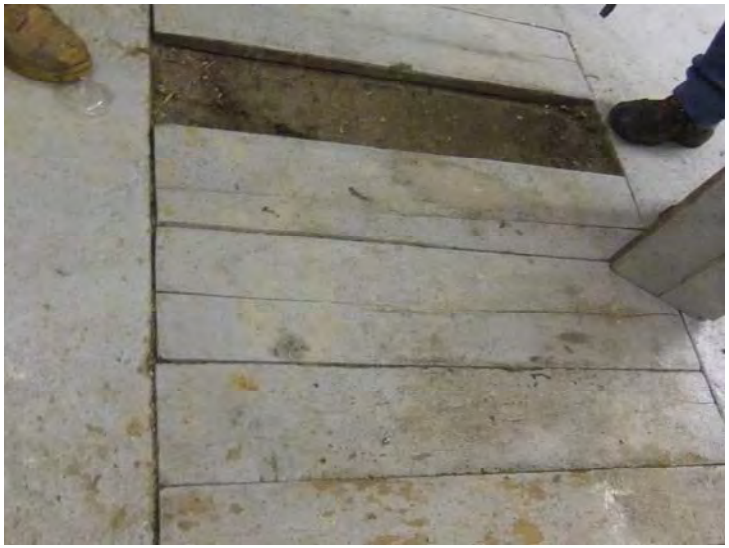
View of drums stored in maintenance garage

View of drums stored in maintenance garage

View of interior of maintenance garage

View of air compressor in maintenance garage

View of filled in concrete pit in maintenance garage



View of filled in concrete pit in maintenance garage

View of storage shed outside of fertilizer storage building

View of exterior of maintenance office

View of exterior of maintenance office

View of above ground storage tank for maintenance building

View of above ground storage tank for maintenance building

View of outdoor area behind maintenance building

View of outdoor area behind maintenance building

View of outdoor area behind maintenance building

View of wood piles outside of maintenance building

View of empty drum outside of maintenance building

View of wood piles outside of maintenance building

View of well house

APPENDIX E

AERIAL PHOTOGRAPHS

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

1938 Aerial Photography

Source: SUNY Stony Brook digital archives

Scale: 1 inch = 1,000 feet

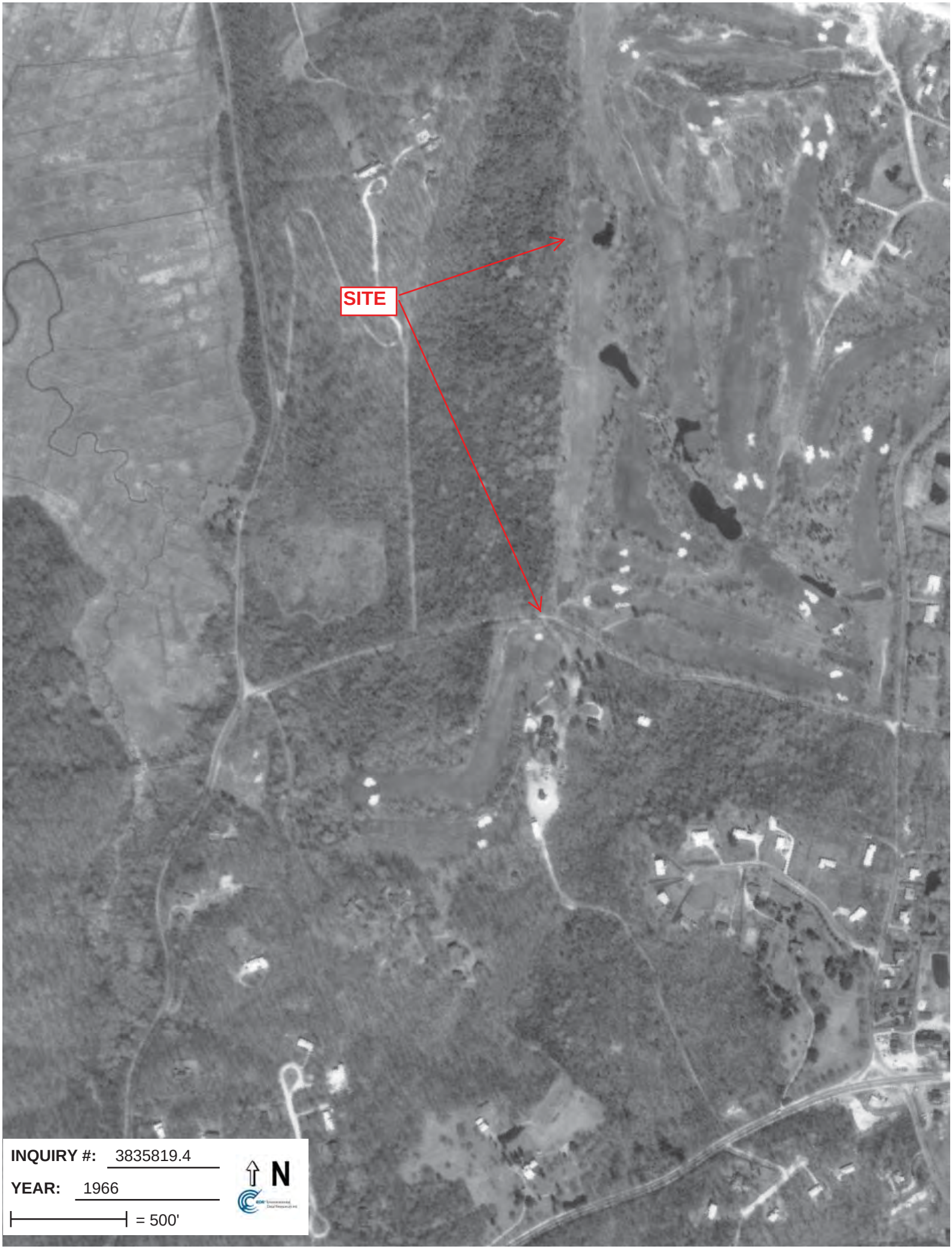
N

Indian Hills
Golf Club
Northport

Updated
Phase I ESA

SITE
INQUIRY #: 3835819.4
YEAR: 1953
= 500'
N

SITE
INQUIRY #: 3835819.4
YEAR: 1957
= 500'
N


SITE
INQUIRY #: 3835819.4
YEAR: 1966
= 500'
N

SITE
INQUIRY #: 3835819.4
YEAR: 1976
= 500'
N

SITE
INQUIRY #: 3835819.4
YEAR: 1980
= 500'
N

SITE
INQUIRY #: 3835819.4
YEAR: 1994
= 500'
N

SITE
INQUIRY #: 3835819.4
YEAR: 2006
= 500'
N

SITE
INQUIRY #: 3835819.4
YEAR: 2008
= 500'
N

SITE
INQUIRY #: 3835819.4
YEAR: 2009
= 500'
N

SITE
INQUIRY #: 3835819.4
YEAR: 2011
= 500'
N

APPENDIX F

USGS TOPOGRAPHIC MAPS

Indian Hills Country Club
21 Breeze Hill Road
Northport, NY 11768

Inquiry Number: 3835819.1
January 21, 2014

EDR Historical Topographic Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer - Copyright and Trademark Notice

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Historical Topographic Map

N	TARGET QUAD NAME: NORTHPORT MAP YEAR: 1903 SERIES: 15 SCALE: 1:62500	SITE NAME: Indian Hills Country Club ADDRESS: 21 Breeze Hill Road Northport, NY 11768 LAT/LONG: 40.9178 / -73.3074	CLIENT: Nelson, Pope & Voorhis LLC CONTACT: Steven Mcginn INQUIRY#: 3835819.1 RESEARCH DATE: 01/21/2014

Historical Topographic Map

N	TARGET QUAD NAME: ISLIP MAP YEAR: 1904 SERIES: 30 SCALE: 1:125000	SITE NAME: Indian Hills Country Club ADDRESS: 21 Breeze Hill Road Northport, NY 11768 LAT/LONG: 40.9178 / -73.3074	CLIENT: Nelson, Pope & Voorhis LLC CONTACT: Steven Mcginn INQUIRY#: 3835819.1 RESEARCH DATE: 01/21/2014

Historical Topographic Map

N	TARGET QUAD NAME: ISLIP MAP YEAR: 1942 SERIES: 30 SCALE: 1:125000	SITE NAME: Indian Hills Country Club ADDRESS: 21 Breeze Hill Road Northport, NY 11768 LAT/LONG: 40.9178 / -73.3074	CLIENT: Nelson, Pope & Voorhis LLC CONTACT: Steven Mcginn INQUIRY#: 3835819.1 RESEARCH DATE: 01/21/2014

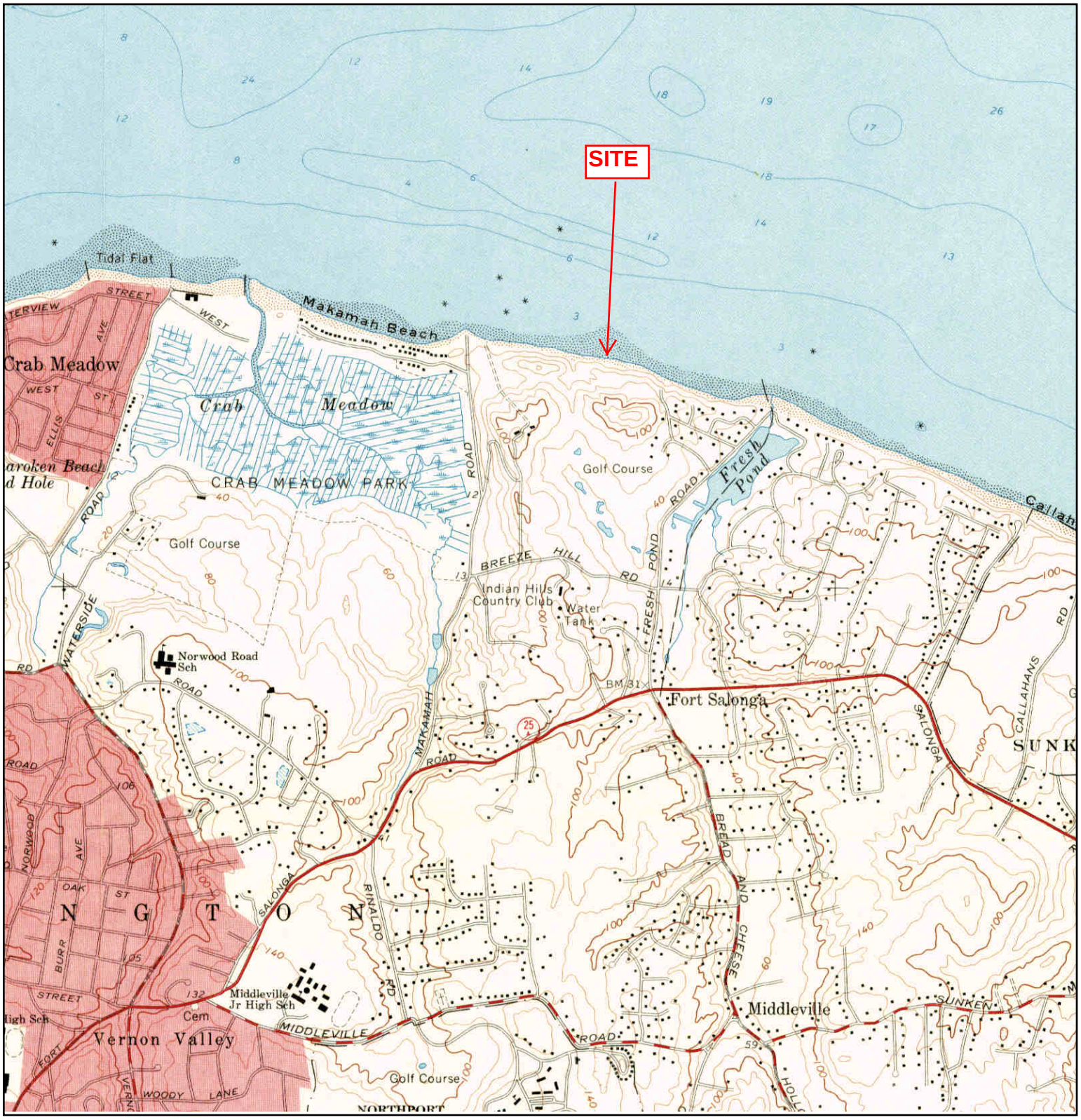
Historical Topographic Map

N	TARGET QUAD NAME: NORTHPORT MAP YEAR: 1944 SERIES: 7.5 SCALE: 1:25000	SITE NAME: Indian Hills Country Club ADDRESS: 21 Breeze Hill Road Northport, NY 11768 LAT/LONG: 40.9178 / -73.3074	CLIENT: Nelson, Pope & Voorhis LLC CONTACT: Steven Mcginn INQUIRY#: 3835819.1 RESEARCH DATE: 01/21/2014

Historical Topographic Map

N	TARGET QUAD NAME: NORTHPORT MAP YEAR: 1954 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Indian Hills Country Club ADDRESS: 21 Breeze Hill Road Northport, NY 11768 LAT/LONG: 40.9178 / -73.3074	CLIENT: Nelson, Pope & Voorhis LLC CONTACT: Steven Mcginn INQUIRY#: 3835819.1 RESEARCH DATE: 01/21/2014

Historical Topographic Map



N	TARGET QUAD NAME: NORTHPORT MAP YEAR: 1967 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Indian Hills Country Club ADDRESS: 21 Breeze Hill Road Northport, NY 11768 LAT/LONG: 40.9178 / -73.3074	CLIENT: Nelson, Pope & Voorhis LLC CONTACT: Steven Mcginn INQUIRY#: 3835819.1 RESEARCH DATE: 01/21/2014

Historical Topographic Map

N	TARGET QUAD NAME: NORTHPORT MAP YEAR: 1979 PHOTOREVISED FROM :1967 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Indian Hills Country Club ADDRESS: 21 Breeze Hill Road Northport, NY 11768 LAT/LONG: 40.9178 / -73.3074	CLIENT: Nelson, Pope & Voorhis LLC CONTACT: Steven Mcginn INQUIRY#: 3835819.1 RESEARCH DATE: 01/21/2014

APPENDIX G

FOIL INFORMATION

APPLICATION FOR PUBLIC ACCESS TO RECORDS
TOWN OF HUNTINGTON

SECTION I TO BE COMPLETED BY APPLICANT

INSTRUCTIONS TO APPLICANT: Please complete Section I of a four-part set of this form. Carbon paper is not required. Give the form to the agency Freedom of Information Officer. The Freedom of Information Officer will return the original (white copy) to you as a response to your request, or will give you part 4 as an interim response.

TO: FREEDOM OF INFORMATION OFFICER
AGENCY NAME:
AGENCY ADDRESS:

DEPT. OF ENGINEERING
BUILDING & HOUSING
TOWN OF HUNTINGTON
100 MAIN STREET
HUNTINGTON, N.Y. 11743

I HEREBY APPLY TO INSPECT THE FOLLOWING RECORD (Please describe the record sought. If possible supply a date, a file title and number, and any other information that will help locate the record desired): Permit #S F110862, F110359, F014138, F012790, 065359 (co#072104), 065358 (co#072105), 971069 (co#106206), 970976 (co#100951), Certificate # GRANT, Application #A19950003039

TM#S
KO-14-4-1 and 2
HO-15-1-11 and 12

Looking for plans, surveys and all other info specifically CO's, permits, storage tank info, hazardous material info, locations of [illegible]

Signature of Applicant and Printed Name	Applicant represents
Steven McGinn c/o Ashley Marciszyn	Nelson, Pope & Voorhis, LLC

Applicant's Mailing Address	Date of Application
572 Walt Whitman Rd., Melville, NY 11747 phone # (631) 427-5665 x215	1/22/14

SECTION II FOR USE BY AGENCY FREEDOM OF INFORMATION OFFICER ONLY

____Approved
____Denied: (for the reason(s) checked below)
____Confidential Disclosure or Non-final communication
____Part of Investigatory Files
____Unwarranted Invasion of Privacy
____Record of Which This Agency Is Legal Custodian Cannot Be Found
____Exempted by Statute Other Than the Freedom of Information Law
____Other (Specify):

____Receipt of this request is acknowledged. There will be a delay in supplying the requested record until_____for the following reason:

Signature	Title	Date
	Freedom of Information Officer	

SECTION III NOTICE TO APPLICANT

YOU HAVE A RIGHT TO APPEAL A DENIAL OF THIS APPLICATION IN WRITING TO THE OFFICE OF THE TOWN ATTORNEY WITHIN 30 DAYS OF THE DENIAL. INFORMATION AS TO THE PERSON TO CONTACT IS SHOWN BELOW. THE CONTACTED PERSON MUST RESPOND TO YOU IN WRITING WITHIN SEVEN BUSINESS DAYS OF RECEIPT OF YOUR APPEAL

Name	Business Address	Business Telephone
	100 Main Street Huntington, N.Y. 11743	(516) 351-3042

Town of Huntington
Tax Map #0400-015.00-01.00-012.000
42 BREEZE HILL RD ,NORTHPORT
I H C C, INC

Name/ Mail Address
I H C C, INC
21 Breeze Hill Rd
Northport NY 11768-1305

Class	553 Country Clubs (membership	**Roll Section**	1 Taxable
Book No	01 Sect 001-015	**Property Type**	3 Commercial
Nbhd	90101	**School District**	472604 Northport
Zoning	R40	**Tax Code**	111 Tax District - 111
Size Total	2.9 Acres		
FY	2013		

Parcel Info.

Subdivision/Lot	Effective Year	Inactive Year	Legal
012000	1998		010142704

Property Area

Flood Zone		**Sub Nbhd**	
School Dist	472604 Northport	**City Dist**	
Park Dist		**Fire Dist**	
Ward		**Other Dist**	
Area		**Inspection Territory**	

Legal Description

Front Size			
Size1		**Class**	553 Country Clubs (membership
Size2	2.9 Acres	**Primary Land**	
Size Total	2.9 Acres	**Property Type**	3 Commercial

Owner (Current)

I H C C, INC
21 Breeze Hill Rd
Northport NY 11768-1305

Building Information

Id	Effective Year	Location
60409	1999	42 BREEZE HILL RD

Bldg Permits

Building & Housing

No data available

Insp.Date	Insp.Time	Status	Inspector	Notes

No data available

Inspections

Building & Housing

Insp.Date	Insp.Time	Status	Inspector	Notes

No data available

THIS IS NOT AN OFFICIAL RECORD OF THE TOWN OF HUNTINGTON.
This summary is for general information purposes only. Site histories may be updated without notice.
The public information summary shall not serve as a substitute for an official record.

Town of Huntington
Tax Map #0400-015.00-01.00-011.000
BREEZE HILL RD ,NORTHPORT
I H C C, INC

Name/ Mail Address
I H C C, INC
21 Breeze Hill Rd
Northport NY 11768-1305

Class	553 Country Clubs (membership	**Roll Section**	1 Taxable
Book No	01 Sect 001-015	**Property Type**	3 Commercial
Nbhd	90101	**School District**	472604 Northport
Zoning	R40	**Tax Code**	111 Tax District - 111
Size Total	15 Acres		
FY	2013		

Parcel Info.

Subdivision/Lot	Effective Year	Inactive Year	Legal
011000	1998		010142606

Property Area

Flood Zone		**Sub Nbhd**	
School Dist	472604 Northport	**City Dist**	
Park Dist		**Fire Dist**	
Ward		**Other Dist**	
Area		**Inspection Territory**	

Legal Description

Front Size			
Size1		**Class**	553 Country Clubs (membership
Size2	15 Acres	**Primary Land**	
Size Total	15 Acres	**Property Type**	3 Commercial

Owner (Current)

I H C C, INC
21 Breeze Hill Rd
Northport NY 11768-1305

Building Information

Id	Effective Year	Location
60408	1999	BREEZE HILL RD

Bldg Permits

Building & Housing

No data available

Insp.Date	Insp.Time	Status	Inspector	Notes
8/27/2012		Completed		INDIAN HILLS COUNTRY CLUB
OP - ANNUAL				
9/9/2013		Completed		INDIAN HILLS

OP - ANNUAL		COUNTRY CLUB
4/15/2011 OP - ANNUAL	Completed	INDIAN HILLS COUNTRY CLUB
8/17/2011 OP - ANNUAL	Completed	INDIAN HILLS COUNTRY CLUB

Inspections

Building & Housing

Insp.Date	Insp.Time	Status	Inspector	Notes
8/17/2011 OP - ANNUAL		Completed		INDIAN HILLS COUNTRY CLUB
	Linked Permits **Application** A111017 8/15/2011	**Permit** F110862 8/22/2011	**Certificate**	**Type** NO FLAM 6-10K GAL
4/15/2011 OP - ANNUAL		Completed		INDIAN HILLS COUNTRY CLUB
	Linked Permits **Application** A100588 10/18/2010	**Permit** F110359 4/25/2011	**Certificate**	**Type** NO FLAM 6-10K GAL
9/9/2013 OP - ANNUAL		Completed		INDIAN HILLS COUNTRY CLUB
	Linked Permits **Application** A131022 8/20/2013	**Permit** F014138 9/17/2013	**Certificate**	**Type** NO FLAM / COMB LIQ 6-10K GAL
8/27/2012 OP - ANNUAL		Completed		INDIAN HILLS COUNTRY CLUB
	Linked Permits **Application** A120875 8/20/2012	**Permit** F012790 9/5/2012	**Certificate**	**Type** NO FLAM / COMB LIQ 6-10K GAL

THIS IS NOT AN OFFICIAL RECORD OF THE TOWN OF HUNTINGTON.
This summary is for general information purposes only. Site histories may be updated without notice.
The public information summary shall not serve as a substitute for an official record.

Town of Huntington
Tax Map #0400-014.00-04.00-002.000
BREEZE HILL RD ,NORTHPORT
I H C C, INC

Name/ Mail Address
I H C C, INC
21 Breeze Hill Rd
Northport NY 11768-1305

Class	553 Country Clubs (membership	**Roll Section**	1 Taxable
Book No	01 Sect 001-015	**Property Type**	3 Commercial
Nbhd	90101	**School District**	472604 Northport
Zoning	R40	**Tax Code**	111 Tax District - 111
Size Total	1 Acres		
FY	2013		

Parcel Info.

Subdivision/Lot	Effective Year	Inactive Year	Legal
002000	1998		010135105

Property Area

Flood Zone		**Sub Nbhd**	
School Dist	472604 Northport	**City Dist**	
Park Dist		**Fire Dist**	
Ward		**Other Dist**	
Area		**Inspection Territory**	

Legal Description

Front Size			
Size1		**Class**	553 Country Clubs (membership
Size2	1 Acres	**Primary Land**	
Size Total	1 Acres	**Property Type**	3 Commercial

Owner (Current)

I H C C, INC
21 Breeze Hill Rd
Northport NY 11768-1305

Building Information

Id	Effective Year	Location
60406	1999	BREEZE HILL RD
Id	**Effective Year**	**Location**
60407	1999	BREEZE HILL RD

Bldg Permits

Building & Housing

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Transferred Data					
	A19610000047	003960	019657		
	1/1/1961	11/15/1961	4/6/1962		

Purpose

ERECT 1 STY MASONRY SUPPLY BLDG. AND OPEN SHED 24' X 70'

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Transferred Data					
	A19860000182	065363	072102	$3,200.00	$32.00
	1/1/1986	10/27/1986	10/14/1987		

Purpose

ERECT CONTAINER FOR STORAGE OF EQUIPMENT - NO. 4 (OF 4) BUILT WITHOUT PERMIT ZBA #11835-5/8/86 CONT: 160 SQ. FT.

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Transferred Data					
	A19860000181	065362	072107	$3,200.00	$32.00
	1/1/1986	10/27/1986	10/14/1987		

Purpose

ERECT CONTAINER FOR STORAGE OF EQUIPMENT - NO. 3 (OF 4) BUILT WITHOUT PERMIT ZBA #11835-5/8/86 CONT: 160 SQ. FT.

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Transferred Data					
	A19860000180	065361	072103	$3,200.00	$32.00
	1/1/1986	10/27/1986	10/14/1987		

Purpose

ERECT CONTAINER FOR STORAGE OF EQUIPMENT - NO. 2 (OF 4) BUILT WITHOUT PERMIT ZBA #11835-5/8/86 CONT: 160 SQ. FT.

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Transferred Data					
	A19860000179	065360	072106	$3,200.00	$32.00
	1/1/1986	10/27/1986	10/14/1987		

Purpose

ERECT CONTAINER FOR STORAGE OF EQUIPMENT -NO. 1 (OF 4) BUILT WITHOUT PERMIT ZBA #11835-5/8/86 CONT: 160 SQ. FT.

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Transferred Data					
	A19860000178	065359	072104	$3,200.00	$32.00
	1/1/1986	10/27/1986	10/14/1987		

Purpose

ERECT CONTAINER FOR STORAGE OF FERTILIZER - NO. 5 - 8' X 20' BUILT WITHOUT PERMIT ZBA #11835-5/8/86 CONT: 160 SQ. FT.

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Transferred Data					
	A19860000177	065358	072105	$3,200.00	$32.00
	1/1/1986	10/27/1986	10/14/1987		

Purpose

ERECT CONTAINER FOR STORAGE OF PESTICIDE -NO. 6- 8' X 20' BUILT WITHOUT PERMIT ZBA #11835-5/8/86 CONTAINER: 160 SQ. FT.

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Transferred Data					
	A19860000176	05/08/86	RESCINDED	$0.00	$0.00

	1/1/1986	5/8/1986	6/22/1995		
	Purpose				
	REQUEST OUTSIDE STORAGE OF FERTILIZER MATERIALS CONDITIONAL GRANT RESCINDED SEE ZBA # 15018, 6/22/95, COND. # 5 ZBA 011835				
Type	**Application**	**Permit**	**Certificate**	**Estimated Cost**	**Total Fee**
Transferred Data					
	A19930000085	03/16/71	GRANTED	$0.00	$0.00
	1/1/1993	3/16/1971	3/16/1971		
	Purpose				
	GRANTED - PERMISSION TO ENLARGE GOLF COURSE AND TO ERECT AN ADDITION TO EXISTING BUILDING FOR GOLF CART STORAGE ZBA 006593				
Type	**Application**	**Permit**	**Certificate**	**Estimated Cost**	**Total Fee**
Transferred Data					
	A19930000084	12/01/65	GRANTED	$0.00	$0.00
	1/1/1993	12/1/1965	12/1/1965		
	Purpose				
	GRANTED - SIDE YARD VARIANCE TO ERECT AN ADDITION TO THE EXISTING CLUB HOUSE ZBA 004610				
Type	**Application**	**Permit**	**Certificate**	**Estimated Cost**	**Total Fee**
Transferred Data					
	A19930000083	08/11/61	GRANTED	$0.00	$0.00
	1/1/1993	8/11/1961	8/11/1961		
	Purpose				
	GRANTED - PERMISSION TO CONDUCT A GOLF COURSE ZBA 002923				
Type	**Application**	**Permit**	**Certificate**	**Estimated Cost**	**Total Fee**
Transferred Data					
	A19940000890	940746	092858	$0.00	$50.00
	3/31/1994	4/13/1994	4/11/1995		
	Purpose				
	DEMOLISH EXIST. IRRIGATION PUMP HOUSE				
Type	**Application**	**Permit**	**Certificate**	**Estimated Cost**	**Total Fee**
Transferred Data					
	A19940001045	941097	replaced	$14,080.00	$430.00
	4/8/1994	5/24/1994			
	Purpose				
	ERECT PUMP HOUSE WHICH WILL BE USED TO IRRIGATE THE EXIST. GOLF COURSE SITE AND DRAINAGE LETTER SEQRA MEMO 5/12/94				
Type	**Application**	**Permit**	**Certificate**	**Estimated Cost**	**Total Fee**
Transferred Data					
	A19940001155	941098	098624	$0.00	$349.00
	4/20/1994	5/24/1994	7/21/1997		
	Purpose				
	REPAIR ROOF IN EXIST. MAINTENANCE BUILDING DUE TO FIRE DAMAGE AT THE INDIAN HILLS GOLF COURSE				
Type	**Application**	**Permit**	**Certificate**	**Estimated Cost**	**Total Fee**
Transferred Data					
	A19940001879			$0.00	$0.00

6/2/1994

Purpose

COASTAL EROSION EROSION

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Transferred Data					
	A19940002273			$0.00	$0.00
	6/24/1994				

Purpose

CHECK D.E.C. WETLAND

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Transferred Data					
	A19950003039		GRANT/C	$0.00	$0.00
	10/27/1995		10/27/1995		

Purpose

REQUEST SPECIAL USE PERMIT TO LEG- ALIZE SEVEN (7) ADDITIONAL STRUC- TURES; ADDITIONS TO CLUBHOUSE AND PRO-SHOP AND TO ERECT NEW STORAGE BUILDING. (SEE MICROFILM FOR 6 CONDITIONS) ZBA 15018 06/22/95

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Transferred Data					
	A19970001074	971069	106206	$92,370.00	$607.00
	4/14/1997	4/29/1997	1/26/2000		

Purpose

ERECT ONE STORY STORAGE BUILDING 60' X 50' AND REMOVAL OF SIX STORAGE CONTAINERS ZBA#15019 6/21/95

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Transferred Data					
	A19970001073	970977	100860	$20,510.00	$525.00
	4/14/1997	4/22/1997	4/9/1998		

Purpose

ERECT CORRUGATED ALUMINUM STORAGE SHED ZBA#15018 6/22/95 BUILT WITHOUT PERMIT SHED:684'

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Transferred Data					
	A19970001072	970978	102983	$1,260.00	$430.00
	4/14/1997	4/22/1997	12/2/1998		

Purpose

ERECT STARTER SHACK DETACHED FROM MAIN BUILDING FOR INDIAN HILLS GOLF COURSE ZBA#15018 6/22/95 BUILT WITHOUT PERMIT SHED:42'

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Transferred Data					
	A19970001071	970976	100951	$42,900.00	$921.00
	4/14/1997	4/22/1997	4/22/1998		

Purpose

ERECT CART BARN 23'7" X 60'7" BUILT WITHOUT PERMIT ZBA#15018 6/22/95

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Transferred Data					
	A19970001070	970971	102974	$12,690.00	$490.00

	4/14/1997	4/22/1997	12/1/1998		
	Purpose				
	ERECT HALFWAY HOUSE SNACK BAR 20.7' X 20.7' ZBA#15018 6/22/95 BUILT WITHOUT PERMIT				
Type	**Application**	**Permit**	**Certificate**	**Estimated Cost**	**Total Fee**
Transferred Data					
	A19970003502	973140	103291	$10,660.00	$430.00
	10/24/1997	10/31/1997	1/12/1999		
	Purpose				
	ERECT PUMP HOUSE WHICH WILL BE USED TO IRRIGATE EXIST. GOLF COURSE REPL. PERMIT#941097 - 5/24/94 ZBA#15018 10/22/95				
Type	**Application**	**Permit**	**Certificate**	**Estimated Cost**	**Total Fee**
Transferred Data					
	A19970003511	973629	replaced	$2,000.00	$430.00
	10/27/1997	12/19/1997			
	Purpose				
	ERECT TRIPLE COMPARTMENT REFUSE CONTAINER WITH MASONRY WALLS 40' X 10' X 6' ZBA #15018 6/22/95 SITE & DRAINAGE LETTER				
Type	**Application**	**Permit**	**Certificate**	**Estimated Cost**	**Total Fee**
Transferred Data					
	A19970003510	973150	102521	$93,840.00	$613.00
	10/27/1997	11/3/1997	10/6/1998		
	Purpose				
	ERECT 1 STORY ADDITION TO EXISTING BUILDING FOR GOLF CART STORAGE 42' X 42' O/A **ZBA#6593 & #15018 REPLACED BP#30859 3/9/71				
Type	**Application**	**Permit**	**Certificate**	**Estimated Cost**	**Total Fee**
Transferred Data					
	A19710002561			$0.00	$0.00
	9/2/1998				
	Purpose				
	2-STORY SINGLE FAMILY DWELLING LETTER IN LIEU 03/02/71				
Type	**Application**	**Permit**	**Certificate**	**Estimated Cost**	**Total Fee**
Transferred Data					
	A20000000413	000477	107078	$27,040.00	$651.00
	2/17/2000	3/1/2000	6/1/2000		
	Purpose				
	ERECT 15' X 24'10" ADDITION TO EXISTING CLUBHOUSE - 1ST FLOOR BUILT WITHOUT PERMIT ON				
Type	**Application**	**Permit**	**Certificate**	**Estimated Cost**	**Total Fee**
Transferred Data					
	A20000004904		LIL	$0.00	$0.00
	5/9/2000		4/27/2000		
	Purpose				
	1 STRUCTURE: 62.3' X 45'10" LETTER IN LIEU				
Type	**Application**	**Permit**	**Certificate**	**Estimated Cost**	**Total Fee**
Com Unheated Storage Buildings					
	A05046	P010542	110105	$16,960.00	$430.00
	12/27/2000	1/25/2001	9/5/2001		

Purpose

Erect triple compartment refuse container with masonry walls 40'x10'x6' Repl. permit 973629

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Retaining Wall					
	A013189	P020067	expired		$65.00
	10/29/2001	1/14/2002			

Purpose

ERECT SEA WALL FOR EROSION CONTROL - SITE & DRAINAGE LETTER

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Residential Alteration					
	A040639	P040799	O124946	$0.00	$430.00
	2/25/2004	3/30/2004	3/9/2007		

Purpose

REPAIR EXISTING 1 STORY CONCESSION/SNACK BAR BLDG WITH NEW ROOF, SIDING AND DOORS

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Hood & Duct					
	A051488	P051405	O129012		$240.00
	5/19/2005	6/10/2005	9/26/2008		

Purpose

INSTALL HOOD AND DUCT AT INDIAN HILL HALFWAY HOUSE

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Commercial Alteration - Basement					
	A082891	P090174	O130886	$204,000.00	$1,458.00
	12/3/2008	2/3/2009	7/8/2009		

Purpose

INTERIOR & EXTERIOR ALTS TO EXISTING LOCKER ROOMS,TOILET RMS & STORAGE RMS,UNDERPINNNG EXISTING FOUNDATION WALLS TO INCREASE CEILING HEIGHT IN BASEMENT W/ 10' HIGH 10' LONG RETAINING WALL FOR CLUBHOUSE -S & D LTR

Type	Application	Permit	Certificate	Estimated Cost	Total Fee
Re-grading					
	A101885			$345,000.00	$290.00
	9/13/2010				

Purpose

INSTALL FAIRWAY COLLECTION AREAS TO IMPROVE DRAINAGE ON THE SITE, REGRADE & RESEED DISTURBED AREAS & COASTAL EROSION PERMIT

Insp.Date	Insp.Time	Status	Inspector	Notes
2/3/2009		Unscheduled		
Plumbing underground				
2/3/2009		Unscheduled		
Plumbing Final				
2/3/2009		Unscheduled		
Plumbing Rough				
2/3/2009		Unscheduled		
Plumbing Mercury				

Inspections

Building & Housing

Insp.Date	Insp.Time	Status	Inspector	Notes
2/3/2009		Unscheduled		
Plumbing Final				
	Linked Permits			
	Application	**Permit**	**Certificate**	**Type**
	A082891	P090174	O130886	Commercial Alteration - Basement
	12/3/2008	2/3/2009	7/8/2009	
2/3/2009		Unscheduled		
Plumbing Rough				
	Linked Permits			
	Application	**Permit**	**Certificate**	**Type**
	A082891	P090174	O130886	Commercial Alteration - Basement
	12/3/2008	2/3/2009	7/8/2009	
2/3/2009		Unscheduled		
Plumbing underground				
	Linked Permits			
	Application	**Permit**	**Certificate**	**Type**
	A082891	P090174	O130886	Commercial Alteration - Basement
	12/3/2008	2/3/2009	7/8/2009	
2/3/2009		Unscheduled		
Plumbing Mercury				
	Linked Permits			
	Application	**Permit**	**Certificate**	**Type**
	A082891	P090174	O130886	Commercial Alteration - Basement
	12/3/2008	2/3/2009	7/8/2009	

THIS IS NOT AN OFFICIAL RECORD OF THE TOWN OF HUNTINGTON.
This summary is for general information purposes only. Site histories may be updated without notice.
The public information summary shall not serve as a substitute for an official record.

Town of Huntington
Tax Map #0400-014.00-04.00-001.000
BREEZE HILL RD ,NORTHPORT
I H C C, INC

Name/ Mail Address
I H C C, INC
21 Breeze Hill Rd
Northport NY 11768-1305

Class	553 Country Clubs (membership	**Roll Section**	1 Taxable
Book No	01 Sect 001-015	**Property Type**	3 Commercial
Nbhd	90101	**School District**	472604 Northport
Zoning	R40	**Tax Code**	111 Tax District - 111
Size Total	26 Acres		
FY	2013		

Parcel Info.

Subdivision/Lot	Effective Year	Inactive Year	Legal
001000	1998		010135007

Property Area

Flood Zone		**Sub Nbhd**	
School Dist	472604 Northport	**City Dist**	
Park Dist		**Fire Dist**	
Ward		**Other Dist**	
Area		**Inspection Territory**	

Legal Description

Front Size			
Size1		**Class**	553 Country Clubs (membership
Size2	26 Acres	**Primary Land**	
Size Total	26 Acres	**Property Type**	3 Commercial

Owner (Current)

I H C C, INC
21 Breeze Hill Rd
Northport NY 11768-1305

Building Information

Id	Effective Year	Location
		BREEZE HILL RD

Bldg Permits

Building & Housing

No data available

Insp.Date	Insp.Time	Status	Inspector	Notes

No data available

Inspections

Building & Housing

Insp.Date	Insp.Time	Status	Inspector	Notes
No data available				

THIS IS NOT AN OFFICIAL RECORD OF THE TOWN OF HUNTINGTON.
This summary is for general information purposes only. Site histories may be updated without notice.
The public information summary shall not serve as a substitute for an official record.

NPV#86047

APPLICATION FOR PUBLIC ACCESS TO RECORDS
TOWN OF HUNTINGTON

SECTION I TO BE COMPLETED BY APPLICANT

INSTRUCTIONS TO APPLICANT: Please complete Section I of a four-part set of this form. Carbon paper is not required. Give the form to the agency Freedom of Information Officer. The Freedom of Information Officer will return the original (white copy) to you as a response to your request, or will give you part 4 as an interim response.

TO: FREEDOM OF INFORMATION OFFICER
AGENCY NAME: DEPT. OF ENGINEERING ~~HUMAN HOUSING~~ Planning Dept.
AGENCY ADDRESS: TOWN OF HUNTINGTON 100 MAIN STREET HUNTINGTON, NY 11743-6899

I HEREBY APPLY TO INSPECT THE FOLLOWING RECORD (Please describe the record sought. If possible supply a date, a file title and number, and any other information that will help locate the record desired): SCTM#s 0400-14-4-1 and 2; and 0400-15-1-11 and 12
Name: Indian Hills Country Club, Northport; Address: 21 Breeze Hill Rd., Northport
also could have records under 42 Breeze Hill Rd., North

Looking for surveys, site plans, storage tank info, hazardous materials info

Signature of Applicant and Printed Name	Applicant represents
Steven McGann c/o Ashley Maraszyn	Nelson, Pope & Voorhis, LLC

Applicant's Mailing Address	Date of Application
572 Walt Whitman Rd., Melville, NY 11747 Phone #(631) 427-5605 x 215	1/22/14

SECTION II FOR USE BY AGENCY FREEDOM OF INFORMATION OFFICER ONLY

____Approved
____Denied: (for the reason(s) checked below)
____Confidential Disclosure or Non-final communication
____Part of Investigatory Files
____Unwarranted Invasion of Privacy
____Record of Which This Agency Is Legal Custodian Cannot Be Found
____Exempted by Statute Other Than the Freedom of Information Law
____Other (Specify): _____

____Receipt of this request is acknowledged. There will be a delay in supplying the requested record until _____ for the following reason: _____

Signature	Title	Date
	Freedom of Information Officer	

SECTION III NOTICE TO APPLICANT

YOU HAVE A RIGHT TO APPEAL A DENIAL OF THIS APPLICATION IN WRITING TO THE OFFICE OF THE TOWN ATTORNEY WITHIN 30 DAYS OF THE DENIAL. INFORMATION AS TO THE PERSON TO CONTACT IS SHOWN BELOW. THE CONTACTED PERSON MUST RESPOND TO YOU IN WRITING WITHIN SEVEN BUSINESS DAYS OF RECEIPT OF YOUR APPEAL

Name	Business Address	Business Telephone
	100 Main Street Huntington, N.Y. 11743	(516) 351-3042

APPLICATION FOR PUBLIC ACCESS TO RECORDS
Suffolk County Department of Health Services

INSTRUCTIONS TO APPLICANT: Please complete Section I of this form. Do not leave any areas blank. You can also use the print button to create a hard copy and submit the signed form to the Freedom of Information Officer.

Date of Application: 1/22/14
Applicant Represents: *Nelson, Pope & Voorhis, LLC*
Applicant's Name: *Ashley Marciszyn/Steven McGinn*
Applicant's Address: *572 Walt Whitman Road, Melville, NY 11747*
Applicant's Phone: *(631) 427-5665 x215* Applicant's Email: _____
Applicants Signature: Ashley R.C. Marciszyn

Describe the record sought and include a complete tax map number (District, Section, Block & Lot in the proper format). If possible supply date(s), a file title, file reference number, the physical address and any other information that will help locate the record desired.

SCTM #: 0400-14-4-1 and 2; 0400-15-1-11 and 12 *Address:* 21 Breeze Hill Road, Northport, NY 11768

Looking for site plans, surveys, storage tank information, spills information, property history, previous & current property owner information, CO's, hazardous materials info, cesspools, leaching pools, sanitary system information, inspections, etc. for the above referenced property.

NP&V# 86047 - Indian Hills Country Club

SECTION I –
I HEREBY APPLY TO:

- ✓ Inspect the following record
- o Receive a copy of the following document(s)

Please send to:

Acting Freedom of Information Officer:	Michelle Rosen
Agency Name:	Suffolk County Department of Health Services
Address:	3500 Sunrise Highway, Building 200, Ste. 124 Great River, NY 11739-3500 Fax # 631-854-0156

SECTION II - For use by Freedom of Information Officer** (or designee) **only

- o Approved. Call to arrange an appointment to inspect the requested record.
  Contact Person: _____ Phone: _____
- o Records not possessed or maintained by this agency.
- o Records cannot be found after diligent search.
- o Denied. Reason for denial: _____
- o Document(s) enclosed as requested.
- o Receipt of this request is acknowledged. There will be a delay in supplying the requested record until payment of reproduction fee is received. The following fee applies $ _____
- o Other: _____

Signature:_____ Title: _____ Date: _____

Section III - Notice to applicant

You have the right to appeal a denial of this application in writing to the Office of the County Attorney within 30 days of the denial. Information as to the person to contact is shown below. The contacted person must respond to you in writing within ten business days of receipt of your appeal.

Suffolk County Attorney
H. Lee Dennison Bld. 6th floor
Veterans Memorial Highway
Hauppauge, NY 11788

Business Telephone: (631) 853-4049
Tracking Number:
(Assigned by Agency)

COUNTY OF SUFFOLK

STEVEN BELLONE
SUFFOLK COUNTY EXECUTIVE

DEPARTMENT OF HEALTH SERVICES

JAMES L. TOMARKEN, MD, MPH, MBA, MSW
Commissioner of Health Services

January 27, 2014

RECEIVED
FEB 03 2014 SJM AM
NELSON & POPE

Ms. Ashley Marciszyn
Nelson, Pope & Voorhis, LLC
572 Walt Whitman Rd.
Melville, NY 11747

Re: F.O.I.L. Request – Dated 1/27/2014
Ref. No. F116213
NP&V#: 86047

Dear Ms. Marciszyn:

This letter is written pursuant to Public Officers Law section 89 (3) to acknowledge the request for records that you recently sent to Health Services pursuant to the Freedom of Information Law (FOIL). Please be advised that we are conducting a search for the requested records and 2/24/2014 is the approximate date on which your request will be granted or denied. Please retain this FOIL reference number, as it will be used to identify this request for all subsequent communication.

Sincerely,

Michelle Rosen
Acting Freedom of Information Officer

Attention: Freedom of Information Office
Department of Health Services
3500 Sunrise Highway, Suite 124
P.O. Box 9006
Great River, NY 11739-9006
(631) 854-0155 Fax (631) 854-0156

Appendix D-2
Indian Hills Country Club, Limited Phase II ESA

Nelson, Pope & Voorhis, LLC
August 31, 2015

Limited Phase II

Environmental Site Assessment

Indian Hills Country Club

Northport, New York

NP&V Job# 86047

August 31, 2015

Limited Phase II

Environmental Site Assessment

Indian Hills Country Club

THIS DOCUMENT CONTAINS 11 PAGES OF TEXT

COPIES AND CIRCULATION OF THIS REPORT ARE AS FOLLOWS:

Two (2) copies to client

One (1) copy retained in NP&V files

Prepared For:

Mr. Jim Tsunis
The Northwind Group
One Rabro Drive, Suite 100
Hauppauge, New York 11788

Jillian Mooney
Signature Bank
68 South Service Road
Melville, New York 11747

Prepared By:

Mr. Charles J. Voorhis, CEP, AICP
Nelson, Pope & Voorhis, LLC
572 Walt Whitman Road
Melville, New York 11747
(631) 427-5665

Long Island Analytical Laboratories
110 Colin Avenue
Holbrook, New York 11741

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NELSON POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

Limited Phase II

Environmental Site Assessment

Indian Hills Country Club

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Limited Phase II
Environmental Site Assessment

Indian Hills Country Club

1.0 INTRODUCTION AND PURPOSE

Nelson, Pope & Voorhis, LLC (NP&V) has been contracted to prepare a Limited Phase II Environmental Site Assessment for the subject property. This report is intended to address recognized environmental conditions that were identified in a Phase I Environmental Site Assessment report prepared by Nelson, Pope & Voorhis, LLC dated February 4, 2015. The Phase I ESA was performed in accordance with the standards detailed by the American Society of Testing and Materials (ASTM) for the Performance of a Phase I Environmental Site Assessment (E 1527). This Limited Phase II ESA was designed to determine what, if any, impact on-site activities have had upon the environmental quality of the subject property.

The subject property lies in the Town of Huntington, County of Suffolk, New York. The subject property consists of a ±145 acre property that is comprised of two (2) tax parcels on the north side of Breeze Hill Road and two (2) tax parcels on the south side of Breeze Hill Road. The entirety of the subject property is located east of Makamah Road, west of Fresh Pond Road and directly south of Long Island Sound. The parcels north of Breeze Hill Road are more particularly described as Suffolk County Tax Map #s 0400-14-04-1 and 2, and the parcels south of Breeze Hill Road are more particularly described as Suffolk County Tax Map #s 0400-15-01-11 and 12. The surrounding area is moderately developed and contains a mix of residential and vacant land.

The subject property consists of an irregularly-shaped property that presently contains a landscaped 18-hole golf course with a driving range and associated country club facilities. There are several small freshwater ponds located throughout the golf course and the course borders an estuarine and marine wetland to the north (Long Island Sound). The structures currently present on the subject property include: the main clubhouse, a pro shop, a halfway house, a barn utilized for storage, an equipment shed, a fertilizer and spray rig storage structure, and a maintenance garage with associated offices. All of the buildings are connected to separate sanitary systems with the exception of the storage barn, the equipment shed, and the fertilizer storage structure, which are not connected to sanitary systems. The clubhouse is connected to two (2) separate sanitary systems, one (1) for the kitchen and one (1) for the bathrooms.

The main clubhouse, which consists of a two-story building with a painted concrete and wood shingle exterior, was originally constructed in 1896 according to Bob Cornelius, the maintenance manager of the country club. Several additions were added to the original structure over the years to form its current configuration. This building contains locker rooms, a kitchen, dining areas, restrooms, an event hall, a card room, office space, and storage areas. The building is presently heated by a fuel oil-fired boiler located in the basement. The boiler appeared to be in good condition, with no evidence of any major staining and no floor drains in the vicinity of the boiler. There is an outdoor underground fuel oil storage tank on the east side of the building. The capacity of the storage tank and the age of installation are not known.

The pro shop consists of a two-story building with a wood shingle exterior. The building contains storage areas for member's golf bags and golf carts in the basement, a retail pro shop on the first floor, and office space on the second floor. The building is presently heated by a fuel oil-fired boiler located in the basement. According to Mr. Cornelius, the boiler is approximately one (1) year old. The boiler appeared to be in very good condition, with no evidence of staining or floor drains in the vicinity of the boiler. There is a 275 gallon above ground fuel oil storage tank located in the basement of the pro shop. The storage tank also appeared to be in good condition with no evidence of any staining or floor drains in the vicinity of the tank.

The halfway house consists of a very small, one-story concrete structure with an asphalt shingle roof. The building contains a small storage area, a small kitchen area, and a restroom. The building is presently serviced by electric heat and an electric-powered hot water heater. The kitchen is connected to a grease trap in addition to the sanitary system that services the building.

The storage barn located south of the main clubhouse consists of a one-story structure with a vinyl-sided exterior. The structure is utilized for the storage of electric golf carts in addition to furniture for the clubhouse. The building is not heated and does not contain a sanitary system Two (2) propane tanks were observed in the storage barn; however, according to Mr. Cornelius, the propane tanks were empty and are usually not stored in the barn. There is a large paved parking area between the storage barn and the clubhouse. Stormwater leaching pools were observed in the paved parking area. There was no evidence of any staining in the vicinity of any of the leaching pools.

The maintenance buildings include an equipment shed, a fertilizer and spray rig storage structure, and a repair shop with associated offices; these buildings are located in the northeastern portion of the subject property, adjoined by a common paved parking area. There were several maintenance sand piles and chopped wood piles stored east of these buildings in addition to some landscaping equipment and some empty drums stored outdoors. There was no staining observed in the vicinity of any of the outdoor drums or equipment.

The equipment shed consists of a one-story metal structure that stores the landscaping equipment for the golf course. Two (2) drums and several gas cans were observed in the shed. The drums were unlabeled and Speedi-Dri was observed on the concrete floor in the vicinity of the drums. Other minor staining was observed on the concrete floor near the landscaping equipment; however, it is not expected to adversely affect the subsurface resources of the subject property, since no floor drains were observed. The equipment shed is heated and does not contain a sanitary system. Two (2) 1,000 gallon above ground self-contained diesel fuel and gasoline storage tanks were observed on the western side of the structure. The storage tanks are utilized for fueling the landscaping equipment. The tanks appeared to be in good condition and there was no evidence of any staining in the vicinity of the storage tanks.

The fertilizer and spray rig storage structure consists of a metal dome-shaped structure. The structure presently contains fertilizing machinery for the golf course, plastic storage drums for fertilizing materials and bags of fertilizer. The drums were reportedly empty. No staining was observed on the concrete floor of the storage structure. The structure is not heated and does not contain a sanitary system.

The repair shop consists of a one-story concrete block building with concrete floors and an attached office with vinyl siding. The maintenance shop contained several motor oil drums. Minor staining was observed in several areas on the concrete floor of the repair shop; however, the staining is not expected to adversely affect the subject property, since there are no floor drains present. A dirt-filled pit covered with wood boards was observed in the concrete floor towards the center of the repair shop. According to John Paquette, the Golf Course Superintendent, this was formerly a concrete maintenance pit that did not contain any floor drains and was backfilled approximately a year ago. The building is heated by a fuel oil-fired heating system. There is a 275 gallon outdoor above ground fuel storage tank located within a vault on the western side of the maintenance building. No staining was observed in the vicinity of the storage tank vault.

A well house that supplies water to the irrigation pumps for the golf course is located south of the maintenance structures on the eastern property boundary. In addition, several pole-mounted transformers were observed on the subject property. All of the transformers observed appeared to be in good condition. There was no evidence of any major staining, discharge, areas of stressed vegetation, residue of oils or other toxic substances, pools of discharge, petroleum or chemical odors, or other such indicators noted during the site reconnaissance.

Based on these findings the Phase I Environmental Site Assessment identified recognized environmental conditions that prompted the performance of this Limited Phase II Environmental Site Assessment. These conditions included:

1. The sanitary systems and grease traps connected to the clubhouse kitchen, the halfway house kitchen and the maintenance building should be sampled to ensure that current and past operations have not adversely affected the subsurface resources of the subject property.

2. The outdoor underground storage tank located on the east side of the clubhouse should be tested in order to ensure that it is not negatively affecting the subsurface resources of the subject property.

This assessment has been designed and performed by NP&V to address the potential impacts to the on-site sanitary system structures. The underground storage tank identified in Item 2 was previously examined as reported in **Section 2.3**. The laboratory analysis was provided by Long Island Analytical Laboratories, Inc.

The protocol used to direct this investigation is based upon the following documents: 1) the Suffolk County Department of Health Services (SCDHS) SOP 9-95 Pumpout and Soil Cleanup Criteria. The following sections detail the subject property and surrounding area characteristics, sampling program, quality assurance protocol, laboratory analysis methodology and laboratory results.

2.0 SAMPLING AND ANALYSIS PROGRAM (SAP)

2.1 HAND AUGER SOIL SAMPLING

The two (2) on-site sanitary systems associated with the main clubhouse kitchen, the sanitary system associated with the halfway house and the maintenance structure were sampled using a stainless steel hand auger. The soil samples were collected from the sediment located in the septic tanks or from the bottom sediment soil of the leaching pools. The samples from the leaching pools were collected from the top zero to twelve (0-12) inches of the soil. All of the samples were analyzed for the presence of volatile and semi-volatile organic compounds and metals based on the SCDHS parameters. **Figure 1** located at the end of this document provides a location map of the samples collected.

2.2 LABORATORY SAMPLE LOCATION AND FREQUENCY

The soil samples collected from the site were containerized and labeled for identification purposes. The labels were coded to correspond to the location from which the samples were secured. **Table 1** provides an index of how the samples were coded during labeling.

TABLE 1
SAMPLE IDENTIFICATION

SAMPLE LOCATION	SAMPLE ID CODE
Sediment sample collected from septic tank located in the grass area off the southwest portion of the building	CHST-S
Soil sample collected from overflow leaching pool connected to CHST-S located off the southwest portion of the building.	CH-1S
Sediment sample collected from septic tank located in the planting area off the northeast corner of the building	CHST-N
Soil sample collected from overflow leaching pool connected to CHST-N located off the northeast corner of the building.	CH-1N
Sediment sample collected from septic tank located in the grass area on the east side of the Halfway House building.	HWH-ST
Soil sample collected from cesspool located in the west side of the maintenance barn building.	MBEP-1

2.3 UNDERGROUND STORAGE TANK

A 1,500 gallon underground fuel oil storage tank located off the southwest portion of the main clubhouse building was to be sampled as part of this document. Prior to the sampling process, it was reported by the superintendent of the clubhouse that the tank recently underwent a tank tightness test at the request of the SCDHS. The results of this tank tightness test, which indicated the tank is sound, are attached in **Appendix B** of this document.

3.0 LABORATORY ANALYSIS

3.1 ANALYTICAL TEST METHODS

The soil samples were transported to a New York State Certified Commercial Laboratory for analysis. Selection of the analytical test methods for the presence of volatile and semi-volatile organic compounds and metals based on SCDHS parameters set forth in SOP 9-95.

3.2 ANALYTICAL RESULTS

The laboratory analysis performed on the samples did not exhibit any elevated concentrations of semi-volatile organic compounds. Several of the analyzed volatile organic compounds and metals exhibited elevated concentrations. **Table 2** provides a comparison of those constituents with elevated concentrations and the regulatory guidance values. The laboratory analysis sheets (NYS ASPA) as prepared by Long Island Analytical Laboratories are presented in **Appendix A** of this document. As depicted in **Table 2**, several of the analyzed constituents in samples CHST-S, CH-1S, CHST-N & CH-1N exceeded the regulatory guidance values set forth in the SCDHS SOP 9-95. Since these concentrations exceed the SCDHS guidance values, it is recommended that these four (4) structures be remediated under the auspices of SCDHS personnel.

TABLE 2

COMPARISON ANALYSIS

Constituents	CHST-S	CH-1S	CHST-N	CH-1N	HWH-ST	MBEP-1	SCDHS SOP 9-95
Semi-Volatiles	**No SVOCs Detected**						**ug/kg**
Volatiles	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**
Acetone	711	ND	ND	ND	ND	ND	**
Methyl Ethyl Ketone	329	ND	ND	ND	ND	ND	400
Toluene	**47,100**	**15,600**	1,650	530	ND	413	3,000
Chlorobenzene	ND	ND	1,800	48.5	ND	ND	2,200
Ethylbenzene	ND	ND	200	37.8	ND	ND	2,000
m,p-Xylenes	ND	ND	809	150	ND	ND	3,200
o-Xylene	ND	ND	188	ND	ND	ND	3,200
2-Chlorotoluene	603	ND	ND	ND	ND	ND	5,200
4-Ethyltoluene	53.1	ND	182	88.2	ND	ND	9,000
1,3,5-Trimethylbenzene	ND	ND	179	56.9	ND	ND	16,800
1,2,4-Trimethylbenzene	90.4	ND	459	147	ND	69.8	7,200
1,3-Dichlorobenzene	379	ND	ND	74.7	ND	ND	4,800
4-Isopropyltoluene	1,040	154	ND	296	ND	2,470	22,000
1,4-Dichlorobenzene	593	ND	790	335	ND	ND	3,600
1,2-Dichlorobenzene	**3,390**	ND	ND	128	ND	ND	2,200
1,4-Diethylbenzene	ND	ND	447	207	ND	ND	NS
n-Butylbenzene	104	ND	ND	ND	ND	ND	12,000
1,2,4,5-Tetramethylbenzene	39.4	ND	ND	121	ND	91.2	18,000
Naphthalene	ND	ND	ND	40.2	ND	ND	24,000
Metals	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
Arsenic	ND	ND	12.4	4.33	ND	ND	30
Barium	46.2	9.87	206	72.4	8.11	36.7	4,000
Cadmium	ND	ND	9.76	ND	ND	ND	40
Chromium	**228**	2.44	64.6	5.70	4.52	ND	100
Copper	87.8	52.4	7,520	1,360	9.17	19.9	8,500
Lead	83.5	ND	372	56.9	3.25	9.75	2,000
Nickel	40.5	ND	36.2	12.2	2.81	ND	650
Silver	ND	ND	30.9	7.71	ND	ND	50
Mercury	0.05	0.02	**12.2**	**4.52**	ND	0.27	3.7

**Due to its relatively short half-life in the environment, if acetone is the only contaminant of concern in a sample, the primary response should be to determine and eliminate the source of the acetone discharge. The requirement to perform a remediation will be determined on a case-by-case basis.
ND - Not Detected
NS - No Standard
Bold and highlighted indicates the constituent exceeds the regulatory guidance values

4.0 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES (QA/QC)

This sampling protocol was conducted in accordance with USEPA accepted sampling procedures for hazardous waste streams (Municipal Research Laboratory, 1980, Sampling and Sampling Procedures for Hazardous Material Waste Streams, USEPA, Cincinnati, Ohio EPA- 600\280-018) and ASTM Material Sampling Procedures. All samples were collected by or under the auspices of USEPA trained personnel having completed the course Sampling of Hazardous Materials, offered by the Office of Emergency and Remedial Response.

Separate QA/QC measures were implemented for each of the instruments used in the Sampling and Analysis Program. Sampling instruments included a stainless steel hand auger and sample vessels.

Prior to arrival on the site and between sample locations, the probes sections were decontaminated by washing with a detergent (alconox/liquinox) and potable water solution with distilled water rinse. All sample vessels were "level A" certified decontaminated containers. Samples were placed into vessels consistent with the analytical parameters. After acquisition, samples were preserved in the field. All containerized samples were refrigerated to 4° C during transport.

A sample represents physical evidence; therefore, an essential part of liability reduction is the proper control of gathered evidence. To establish proper control, the following sample identification and chain-of-custody procedures were followed.

Sample Identification

Sample identification was executed by use of a sample tag, logbook and manifest. Documentation provides the following:

1. Project Code
2. Sample Laboratory Number
3. Sample Preservation
4. Instrument Used for Source Soil Grabs
5. Composite Medium Used for Source Soil Grabs
6. Date Sample was Secured from Source Soil
7. Time Sample was Secured from Source Soil
8. Person Who Secured Sample from Source Soil

Chain-of-Custody Procedures

Due to the evidential nature of samples, possession was traceable from the time the samples were collected until they were received by the testing laboratory. A sample was considered under custody if:

It was in a person's possession, or
It was in a person's view, after being in possession, or
It was in a person's possession and they were to lock it up, or
It is in a designated secure area.

When transferring custody, the individuals relinquishing and receiving signed, dated and noted the time on the Chain-of- Custody Form.

Laboratory Custody Procedures

A designated sample custodian accepted custody of the shipped samples and verified that the information on the sample tags matched that on the Chain-of-Custody records. Pertinent information as to shipment, pick-up, courier, etc. was entered in the "remarks" section. The custodian then entered the sample tag data into a bound logbook which was arranged by project code and station number.

The laboratory custodian used the sample tag number or assigned an unique laboratory number to each sample tag and assured that all samples were transferred to the proper analyst or stored in the appropriate source area.

The custodian distributed samples to the appropriate analysts. Laboratory personnel were responsible for the care and custody of samples from the time they were received until the sample was exhausted or returned to the custodian.

All identifying data sheets and laboratory records were retained as part of the permanent site record. Samples received by the laboratory were retained until after analysis and quality assurance checks were completed.

5.0 SUMMARY AND CONCLUSION

This investigation was completed to address issues raised in a prior Phase I ESA prepared by Nelson, Pope & Voorhis, LLC. A sampling and analysis program was designed to determine if the on-site sanitary systems had been impacted by the prior and existing uses of the subject property. The sampling and analysis plan consisted of soil/sediment quality testing using analytical test methods consistent with expected parameters and agency soil cleanup objectives. In addition, the following presents an evaluation of the results of this investigation.

1. Leaching structures from four (4) on-site sanitary systems were sampled and analyzed for the presence of volatile and semi-volatile organic compounds and metals. No elevated concentrations of any semi-volatile organic compounds were detected. Many of the analyzed volatile and metal constituents exhibited elevated concentrations. Several of the analyzed constituents in samples CHST-S, CH-1S, CHST-N & CH-1N exceeded the regulatory guidance values set forth in the SCDHS SOP 9-95. Since these concentrations exceed the SCDHS guidance values, it is recommended that these four (4) systems be remediated under the auspices of SCDHS personnel.

2. The 1,500 gallon underground fuel oil storage tank which supplies the main clubhouse building recently underwent a tank tightness test at the request of SCDHS. The results of the tank tightness test indicated that the tank passed the tightness test at the time the test was conducted.

The subject property has been evaluated consistent with the findings of a Phase I ESA, and in accordance with standard practice for the industry. This Limited Phase II ESA addresses only the specific areas of the site warranting further analysis and can only provide conclusions regarding the subsurface soil quality in those specific areas tested. The Limited Phase II ESA report is limited to the evaluation of on-site conditions at the time of completion of the field sampling program.

8/31/15

Date of Completion

Charles J. Voorhis, CEP, AICP
Project Manager

6.0 REFERENCES

New York State Department of Environmental Conservation (NYSDEC), 1992, Sampling Guidelines and Protocols, Technology Background and Quality Control/Quality Assurance for NYSDEC Spill Response Program, NYSDEC, Albany, New York.

American Society for Testing and Materials (ASTM), June 2011, E1903-11 Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process, West Conshohocken, Pennsylvania.

Suffolk County Department of Health Services (SCDHS), January 2011, Standard Operating Procedure For Administration of Article 12 of the Suffolk County Sanitary Code - "Pumpout and Soil Cleanup Criteria", Farmingville, New York.

FIGURES

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

FIGURE 1
SAMPLE LOCATION MAP

Source: ESRI Web Mapping Service
Scale: 1 inch = 300 feet

N

Indian Hills Country Club

Limited Phase II ESA

APPENDICES

APPENDIX A

LABORATORY DATA SHEETS

LONG ISLAND ANALYTICAL LABORATORIES INC.

"TOMORROWS ANALYTICAL SOLUTIONS TODAY"

Laboratory Report

NYSDOH ELAP# 11693
USEPA# NY01273
CTDOH# PH-0284
AIHA# 164456
NJDEP# NY012
PADEP# 68-2943

LIAL# 5081801

August 25, 2015

Nelson, Pope & Voorhis
Steve McGinn
572 Walt Whitman Road
Melville, NY 11747

Re: Indian Hills Country Club Northport

Dear Steve McGinn,

Enclosed please find the laboratory Analysis Report(s) for sample(s) received on August 18, 2015. Long Island Analytical laboratories analyzed the samples on August 24, 2015 for the following:

SAMPLE ID	ANALYSIS
CH-1S	SCDH Metals, SCDH Semi-Volatiles, SCDH Volatiles
HWH-ST	SCDH Metals, SCDH Semi-Volatiles, SCDH Volatiles
MBEP-1	SCDH Metals, SCDH Semi-Volatiles, SCDH Volatiles
CHST-S	SCDH Metals, SCDH Semi-Volatiles, SCDH Volatiles
CH-1N	SCDH Metals, SCDH Semi-Volatiles, SCDH Volatiles
CHST-N2	SCDH Metals, SCDH Semi-Volatiles, SCDH Volatiles

Samples received at 1.7 ◦ C

5.L Results may be biased low due to the sample not being collected according to 5035A-L/5035A-H low level specifications.

If you have any questions or require further information, please call at your convenience. Long Island Analytical Laboratories Inc. is a NELAP accredited laboratory. All reported results meet the requirements of the NELAP standards unless noted. Report shall not be reproduced except in full without the written approval of the laboratory. Results related only to items tested. Long Island Analytical Laboratories would like to thank you for the opportunity to be of service to you.

Best Regards,

Long Island Analytical Laboratories, Inc.

Michael Veraldi - Laboratory Director

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 10:21	Sample ID: CH-1S
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-01 % Solid:77.43
Matrix: Soil	ELAP: #11693

Volatiles Low Level Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
Dichlorodifluoromethane	75-71-8	9.84	129	<129	ug/kg dry	3.A, 5.L
Chloromethane	74-87-3	10.9	129	<129	ug/kg dry	3.A, 4.J, 4.N, 5.L
Vinyl chloride	75-01-4	13.2	129	<129	ug/kg dry	3.A, 5.L
Chloroethane	75-00-3	31.5	129	<129	ug/kg dry	3.A, 5.L
Trichlorofluoromethane	75-69-4	11.4	129	<129	ug/kg dry	3.A, 5.L
Acetone	67-64-1	344	1290	<1290	ug/kg dry	3.A, 5.L
1,1-Dichloroethylene	75-35-4	16.9	129	<129	ug/kg dry	3.A, 5.L
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	12.9	129	<129	ug/kg dry	3.A, 5.L
Methylene Chloride	75-09-2	78.3	129	<129	ug/kg dry	3.A, 5.L
Methyl-tert-Butyl Ether	1634-04-4	14.9	129	<129	ug/kg dry	3.A, 5.L
trans-1,2-Dichloroethylene	156-60-5	15.8	129	<129	ug/kg dry	3.A, 5.L
1,1-Dichloroethane	75-34-3	12.6	129	<129	ug/kg dry	3.A, 5.L
Methyl Ethyl Ketone (2-Butanone)	78-93-3	37.7	258	<258	ug/kg dry	3.A, 5.L
cis-1,2-Dichloroethylene	156-59-2	14.4	129	<129	ug/kg dry	3.A, 5.L
2,2-Dichloropropane	594-20-7	9.76	129	<129	ug/kg dry	3.A, 5.L
Bromochloromethane	74-97-5	11.5	129	<129	ug/kg dry	3.A, 5.L
Chloroform	67-66-3	12.7	129	<129	ug/kg dry	3.A, 5.L
1,1,1-Trichloroethane	71-55-6	8.21	129	<129	ug/kg dry	3.A, 5.L
1,2-Dichloroethane	107-06-2	16.2	129	<129	ug/kg dry	3.A, 5.L
1,1-Dichloropropylene	563-58-6	13.6	129	<129	ug/kg dry	3.A, 5.L
Carbon Tetrachloride	56-23-5	14.9	129	<129	ug/kg dry	3.A, 5.L
Benzene	71-43-2	10.3	129	<129	ug/kg dry	3.A, 5.L
Trichloroethylene	79-01-6	6.53	129	<129	ug/kg dry	3.A, 5.L
1,2-Dichloropropane	78-87-5	11.0	129	<129	ug/kg dry	3.A, 5.L
Dibromomethane	74-95-3	16.0	129	<129	ug/kg dry	3.A, 5.L
Bromodichloromethane	75-27-4	13.6	129	<129	ug/kg dry	3.A, 5.L
4-Methyl-2-Pentanone	108-10-1	21.1	258	<258	ug/kg dry	3.A, 5.L
cis-1,3-Dichloropropylene	10061-01-5	11.9	129	<129	ug/kg dry	3.A, 5.L
Toluene	108-88-3	11.9	129	15600	ug/kg dry	3.E, 4.A, 5.L
trans-1,3-Dichloropropylene	10061-02-6	18.0	129	<129	ug/kg dry	3.A, 5.L

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 10:21	Sample ID: CH-1S
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-01 % Solid:77.43
Matrix: Soil	ELAP: #11693

Volatiles Low Level Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
1,1,2-Trichloroethane	79-00-5	15.0	129	<129	ug/kg dry	3.A, 5.L
1,3-Dichloropropane	142-28-9	16.5	129	<129	ug/kg dry	3.A, 5.L
Dibromochloromethane	124-48-1	17.1	129	<129	ug/kg dry	3.A, 5.L
Tetrachloroethylene	127-18-4	11.9	129	<129	ug/kg dry	3.A, 5.L
1,2-Dibromoethane	106-93-4	16.0	129	<129	ug/kg dry	3.A, 5.L
Chlorobenzene	108-90-7	12.3	129	<129	ug/kg dry	3.A, 5.L
1,1,1,2-Tetrachloroethane	630-20-6	9.66	129	<129	ug/kg dry	3.A, 5.L
Ethylbenzene	100-41-4	9.38	129	<129	ug/kg dry	3.A, 5.L
m,p-Xylenes	108-38-3/106-42-3	18.4	258	<258	ug/kg dry	3.A, 5.L
Styrene	100-42-5	18.2	129	<129	ug/kg dry	3.A, 5.L
o-Xylene	95-47-6	8.99	129	<129	ug/kg dry	3.A, 5.L
Bromoform	75-25-2	21.3	129	<129	ug/kg dry	3.A, 5.L
1,1,2,2-Tetrachloroethane	79-34-5	14.6	129	<129	ug/kg dry	3.A, 5.L
Isopropylbenzene (Cumene)	98-82-8	8.06	129	<129	ug/kg dry	3.A, 5.L
1,2,3-Trichloropropane	96-18-4	13.5	129	<129	ug/kg dry	3.A, 5.L
Bromobenzene	108-86-1	11.5	129	<129	ug/kg dry	3.A, 5.L
n-Propylbenzene	103-65-1	9.04	129	<129	ug/kg dry	3.A, 5.L
2-Chlorotoluene	95-49-8	8.83	129	<129	ug/kg dry	3.A, 5.L
4-Ethyltoluene	622-96-8	11.4	129	<129	ug/kg dry	2.B, 3.A, 5.L
4-Chlorotoluene	106-43-4	11.3	129	<129	ug/kg dry	3.A, 5.L
1,3,5-Trimethylbenzene	108-67-8	9.45	129	<129	ug/kg dry	3.A, 5.L
tert-Butylbenzene	98-06-6	10.9	129	<129	ug/kg dry	3.A, 5.L
1,2,4-Trimethylbenzene	95-63-6	10.1	129	<129	ug/kg dry	3.A, 5.L
sec-Butylbenzene	135-98-8	9.87	129	<129	ug/kg dry	3.A, 5.L
1,3-Dichlorobenzene	541-73-1	9.84	129	<129	ug/kg dry	3.A, 5.L
4-Isopropyltoluene	99-87-6	7.23	129	154	ug/kg dry	3.E, 5.L
1,4-Dichlorobenzene	106-46-7	9.07	129	<129	ug/kg dry	3.A, 5.L
1,2-Dichlorobenzene	95-50-1	9.30	129	<129	ug/kg dry	3.A, 5.L
1,4-Diethylbenzene	105-05-5	8.70	129	<129	ug/kg dry	2.B, 3.A, 5.L

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 10:21	Sample ID: CH-1S
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-01 % Solid:77.43
Matrix: Soil	ELAP: #11693

Volatiles Low Level Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
n-Butylbenzene	104-51-8	9.61	129	<129	ug/kg dry	3.A, 5.L
1,2-Dibromo-3-chloropropane	96-12-8	19.2	129	<129	ug/kg dry	3.A, 5.L
1,2,4,5-Tetramethylbenzene	95-93-2	13.6	129	<129	ug/kg dry	2.B, 3.A, 5.L
1,2,4-Trichlorobenzene	120-82-1	14.8	129	<129	ug/kg dry	3.A, 5.L
Naphthalene	91-20-3	12.7	129	<129	ug/kg dry	3.A, 5.L
Hexachlorobutadiene	87-68-3	11.9	129	<129	ug/kg dry	3.A, 5.L
1,2,3-Trichlorobenzene	87-61-6	11.3	129	<129	ug/kg dry	3.A, 5.L

Surrogate	CAS No.	% Recovery	Rec. Limits	Flag
Dibromofluoromethane	1868-53-7	87	79.4-122	
1,2-Dichloroethane-d4	10706-07-0	91	74.4-131	
Toluene-d8	2037-26-5	100	85-123	
4-Bromofluorobenzene	460-00-4	113	82.3-134	

Internal Standard	CAS No.	% Recovery	Rec. Limits	Flag
Pentafluorobenzene	363-72-4	107	50-200	
1,4-Difluorobenzene	540-36-3	99	50-200	
Chlorobenzene-d5	3114-55-4	95	50-200	
1,4-Dichlorobenzene-d4	3855-82-1	81	50-200	

Date Prepared: 08/19/2015

Date Analyzed: 08/19/2015

Preparation Method: EPA 5035A-L

Analytical Method: EPA 8260 C

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 10:21	Sample ID: CH-1S
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-01 % Solid:77.43
Matrix: Soil	ELAP: #11693

Semivolatile Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
Naphthalene	91-20-3	83.8	775	<775	ug/kg dry	3.A
Acenaphthene	83-32-9	117	775	<775	ug/kg dry	3.A
Fluorene	86-73-7	108	775	<775	ug/kg dry	3.A
Phenanthrene	85-01-8	83.5	775	<775	ug/kg dry	3.A
Anthracene	120-12-7	82.5	775	<775	ug/kg dry	3.A
Fluoranthene	206-44-0	214	775	<775	ug/kg dry	3.A
Pyrene	129-00-0	242	775	<775	ug/kg dry	3.A
Benzo(a)anthracene	56-55-3	299	775	<775	ug/kg dry	3.A
Chrysene	218-01-9	96.9	775	<775	ug/kg dry	3.A
Benzo(b)fluoranthene	205-99-2	254	775	<775	ug/kg dry	3.A
Benzo(k)fluoranthene	207-08-9	285	775	<775	ug/kg dry	3.A
Benzo(a)pyrene	50-32-8	300	775	<775	ug/kg dry	3.A
Indeno(1,2,3-cd)pyrene	193-39-5	205	775	<775	ug/kg dry	3.A
Dibenzo(a,h)anthracene	53-70-3	140	775	<775	ug/kg dry	3.A
Benzo(g,h,i)perylene	191-24-2	126	775	<775	ug/kg dry	3.A

Surrogate	CAS No.	% Recovery	Rec. Limits	Flag
Nitrobenzene-d5	4165-60-0	93	31-118.25	3.E
2-Fluorobiphenyl	321-60-8	90	34.39-110.73	3.E
Terphenyl-d14	1718-51-0	97	41.02-106	3.E

Internal Standard	CAS No.	% Recovery	Rec. Limits	Flag
1,4-Dichlorobenzene-d4	3855-82-1	92	50-200	
Naphthalene-d8	1146-65-2	94	50-200	
Acenaphthene-d10	15067-26-2	90	50-200	
Phenanthrene-d10	1517-22-2	86	50-200	
Chrysene-d12	1719-03-5	82	50-200	
Perylene-d12	1520-96-3	85	50-200	

Date Prepared: 08/20/2015

Date Analyzed: 08/24/2015

Preparation Method: EPA 3545 A

Analytical Method: EPA 8270 D

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 10:21	Sample ID: CH-1S
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-01 % Solid:77.43
Matrix: Soil	ELAP: #11693

Total Metals Analysis

Parameter	Date Analyzed	Method	MDL	LOQ	Result	Units	Flag
Arsenic	08/20/2015	EPA 6010 C	1.21	2.17	<2.17	mg/kg dry	
Barium	08/20/2015	EPA 6010 C	0.88	2.17	9.87	mg/kg dry	
Beryllium	08/20/2015	EPA 6010 C	0.77	2.17	<2.17	mg/kg dry	
Cadmium	08/20/2015	EPA 6010 C	0.25	2.17	<2.17	mg/kg dry	
Chromium	08/20/2015	EPA 6010 C	0.92	2.17	2.44	mg/kg dry	
Copper	08/20/2015	EPA 6010 C	0.74	2.17	52.4	mg/kg dry	
Lead	08/20/2015	EPA 6010 C	0.90	2.17	<2.17	mg/kg dry	
Nickel	08/20/2015	EPA 6010 C	0.88	2.17	<2.17	mg/kg dry	
Selenium	08/20/2015	EPA 6010 C	1.20	2.17	<2.17	mg/kg dry	
Silver	08/20/2015	EPA 6010 C	0.05	2.17	<2.17	mg/kg dry	

Date Prepared: 08/18/2015 Preparation Method: EPA 3050B

Parameter	Date Analyzed	Method	MDL	LOQ	Result	Units	Flag
Mercury	08/19/2015	EPA 7471 B	0.003	0.02	0.02	mg/kg dry	

Date Prepared: 08/19/2015 Preparation Method: EPA 7471 B

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 11:32	Sample ID: HWH-ST
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-02 % Solid:87.63
Matrix: Soil	ELAP: #11693

Volatiles Low Level Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
Dichlorodifluoromethane	75-71-8	0.435	5.71	<5.71	ug/kg dry	5.L
Chloromethane	74-87-3	0.482	5.71	<5.71	ug/kg dry	4.N, 5.L, 4.J
Vinyl chloride	75-01-4	0.583	5.71	<5.71	ug/kg dry	5.L
Chloroethane	75-00-3	1.39	5.71	<5.71	ug/kg dry	5.L
Trichlorofluoromethane	75-69-4	0.502	5.71	<5.71	ug/kg dry	5.L
Acetone	67-64-1	15.2	57.1	<57.1	ug/kg dry	5.L
1,1-Dichloroethylene	75-35-4	0.745	5.71	<5.71	ug/kg dry	5.L
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.568	5.71	<5.71	ug/kg dry	5.L
Methylene Chloride	75-09-2	3.46	5.71	<5.71	ug/kg dry	5.L
Methyl-tert-Butyl Ether	1634-04-4	0.656	5.71	<5.71	ug/kg dry	5.L
trans-1,2-Dichloroethylene	156-60-5	0.697	5.71	<5.71	ug/kg dry	5.L
1,1-Dichloroethane	75-34-3	0.556	5.71	<5.71	ug/kg dry	5.L
Methyl Ethyl Ketone (2-Butanone)	78-93-3	1.67	11.4	<11.4	ug/kg dry	5.L
cis-1,2-Dichloroethylene	156-59-2	0.636	5.71	<5.71	ug/kg dry	5.L
2,2-Dichloropropane	594-20-7	0.431	5.71	<5.71	ug/kg dry	5.L
Bromochloromethane	74-97-5	0.509	5.71	<5.71	ug/kg dry	5.L
Chloroform	67-66-3	0.560	5.71	<5.71	ug/kg dry	5.L
1,1,1-Trichloroethane	71-55-6	0.363	5.71	<5.71	ug/kg dry	5.L
1,2-Dichloroethane	107-06-2	0.718	5.71	<5.71	ug/kg dry	5.L
1,1-Dichloropropylene	563-58-6	0.599	5.71	<5.71	ug/kg dry	5.L
Carbon Tetrachloride	56-23-5	0.656	5.71	<5.71	ug/kg dry	5.L
Benzene	71-43-2	0.455	5.71	<5.71	ug/kg dry	5.L
Trichloroethylene	79-01-6	0.289	5.71	<5.71	ug/kg dry	5.L
1,2-Dichloropropane	78-87-5	0.487	5.71	<5.71	ug/kg dry	5.L
Dibromomethane	74-95-3	0.706	5.71	<5.71	ug/kg dry	5.L
Bromodichloromethane	75-27-4	0.603	5.71	<5.71	ug/kg dry	5.L
4-Methyl-2-Pentanone	108-10-1	0.933	11.4	<11.4	ug/kg dry	5.L
cis-1,3-Dichloropropylene	10061-01-5	0.524	5.71	<5.71	ug/kg dry	5.L
Toluene	108-88-3	0.526	5.71	<5.71	ug/kg dry	5.L
trans-1,3-Dichloropropylene	10061-02-6	0.793	5.71	<5.71	ug/kg dry	5.L

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 11:32	Sample ID: HWH-ST
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-02 % Solid:87.63
Matrix: Soil	ELAP: #11693

Volatiles Low Level Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
1,1,2-Trichloroethane	79-00-5	0.663	5.71	<5.71	ug/kg dry	5.L
1,3-Dichloropropane	142-28-9	0.729	5.71	<5.71	ug/kg dry	5.L
Dibromochloromethane	124-48-1	0.754	5.71	<5.71	ug/kg dry	5.L
Tetrachloroethylene	127-18-4	0.524	5.71	<5.71	ug/kg dry	5.L
1,2-Dibromoethane	106-93-4	0.705	5.71	<5.71	ug/kg dry	5.L
Chlorobenzene	108-90-7	0.544	5.71	<5.71	ug/kg dry	5.L
1,1,1,2-Tetrachloroethane	630-20-6	0.427	5.71	<5.71	ug/kg dry	5.L
Ethylbenzene	100-41-4	0.414	5.71	<5.71	ug/kg dry	5.L
m,p-Xylenes	108-38-3/106-42-3	0.811	11.4	<11.4	ug/kg dry	5.L
Styrene	100-42-5	0.802	5.71	<5.71	ug/kg dry	5.L
o-Xylene	95-47-6	0.397	5.71	<5.71	ug/kg dry	5.L
Bromoform	75-25-2	0.941	5.71	<5.71	ug/kg dry	5.L
1,1,2,2-Tetrachloroethane	79-34-5	0.645	5.71	<5.71	ug/kg dry	5.L
Isopropylbenzene (Cumene)	98-82-8	0.356	5.71	<5.71	ug/kg dry	5.L
1,2,3-Trichloropropane	96-18-4	0.597	5.71	<5.71	ug/kg dry	5.L
Bromobenzene	108-86-1	0.508	5.71	<5.71	ug/kg dry	5.L
n-Propylbenzene	103-65-1	0.399	5.71	<5.71	ug/kg dry	5.L
2-Chlorotoluene	95-49-8	0.390	5.71	<5.71	ug/kg dry	5.L
4-Ethyltoluene	622-96-8	0.506	5.71	<5.71	ug/kg dry	2.B, 5.L
4-Chlorotoluene	106-43-4	0.501	5.71	<5.71	ug/kg dry	5.L
1,3,5-Trimethylbenzene	108-67-8	0.418	5.71	<5.71	ug/kg dry	5.L
tert-Butylbenzene	98-06-6	0.483	5.71	<5.71	ug/kg dry	5.L
1,2,4-Trimethylbenzene	95-63-6	0.446	5.71	<5.71	ug/kg dry	5.L
sec-Butylbenzene	135-98-8	0.436	5.71	<5.71	ug/kg dry	5.L
1,3-Dichlorobenzene	541-73-1	0.435	5.71	<5.71	ug/kg dry	5.L
4-Isopropyltoluene	99-87-6	0.320	5.71	<5.71	ug/kg dry	5.L
1,4-Dichlorobenzene	106-46-7	0.401	5.71	<5.71	ug/kg dry	5.L
1,2-Dichlorobenzene	95-50-1	0.411	5.71	<5.71	ug/kg dry	5.L
1,4-Diethylbenzene	105-05-5	0.385	5.71	<5.71	ug/kg dry	2.B, 5.L

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 11:32	Sample ID: HWH-ST
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-02 % Solid:87.63
Matrix: Soil	ELAP: #11693

Volatiles Low Level Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
n-Butylbenzene	104-51-8	0.425	5.71	<5.71	ug/kg dry	5.L
1,2-Dibromo-3-chloropropane	96-12-8	0.849	5.71	<5.71	ug/kg dry	5.L
1,2,4,5-Tetramethylbenzene	95-93-2	0.601	5.71	<5.71	ug/kg dry	2.B, 5.L
1,2,4-Trichlorobenzene	120-82-1	0.655	5.71	<5.71	ug/kg dry	5.L
Naphthalene	91-20-3	0.561	5.71	<5.71	ug/kg dry	5.L
Hexachlorobutadiene	87-68-3	0.526	5.71	<5.71	ug/kg dry	5.L
1,2,3-Trichlorobenzene	87-61-6	0.499	5.71	<5.71	ug/kg dry	5.L

Surrogate	CAS No.	% Recovery	Rec. Limits	Flag
Dibromofluoromethane	1868-53-7	89	79.4-122	
1,2-Dichloroethane-d4	10706-07-0	92	74.4-131	
Toluene-d8	2037-26-5	98	85-123	
4-Bromofluorobenzene	460-00-4	104	82.3-134	

Internal Standard	CAS No.	% Recovery	Rec. Limits	Flag
Pentafluorobenzene	363-72-4	130	50-200	
1,4-Difluorobenzene	540-36-3	119	50-200	
Chlorobenzene-d5	3114-55-4	117	50-200	
1,4-Dichlorobenzene-d4	3855-82-1	112	50-200	

Date Prepared: 08/19/2015

Date Analyzed: 08/19/2015

Preparation Method: EPA 5035A-L

Analytical Method: EPA 8260 C

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 11:32	Sample ID: HWH-ST
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-02 % Solid:87.63
Matrix: Soil	ELAP: #11693

Semivolatile Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
Naphthalene	91-20-3	18.5	171	<171	ug/kg dry	
Acenaphthene	83-32-9	25.8	171	<171	ug/kg dry	
Fluorene	86-73-7	23.8	171	<171	ug/kg dry	
Phenanthrene	85-01-8	18.5	171	<171	ug/kg dry	
Anthracene	120-12-7	18.2	171	<171	ug/kg dry	
Fluoranthene	206-44-0	47.3	171	<171	ug/kg dry	
Pyrene	129-00-0	53.4	171	<171	ug/kg dry	
Benzo(a)anthracene	56-55-3	66.0	171	<171	ug/kg dry	
Chrysene	218-01-9	21.4	171	<171	ug/kg dry	
Benzo(b)fluoranthene	205-99-2	56.1	171	<171	ug/kg dry	
Benzo(k)fluoranthene	207-08-9	63.0	171	<171	ug/kg dry	
Benzo(a)pyrene	50-32-8	66.4	171	<171	ug/kg dry	
Indeno(1,2,3-cd)pyrene	193-39-5	45.3	171	<171	ug/kg dry	
Dibenzo(a,h)anthracene	53-70-3	30.9	171	<171	ug/kg dry	
Benzo(g,h,i)perylene	191-24-2	27.9	171	<171	ug/kg dry	

Surrogate	CAS No.	% Recovery	Rec. Limits	Flag
Nitrobenzene-d5	4165-60-0	66	31-118.25	
2-Fluorobiphenyl	321-60-8	63	34.39-110.73	
Terphenyl-d14	1718-51-0	80	41.02-106	

Internal Standard	CAS No.	% Recovery	Rec. Limits	Flag
1,4-Dichlorobenzene-d4	3855-82-1	90	50-200	
Naphthalene-d8	1146-65-2	93	50-200	
Acenaphthene-d10	15067-26-2	89	50-200	
Phenanthrene-d10	1517-22-2	89	50-200	
Chrysene-d12	1719-03-5	84	50-200	
Perylene-d12	1520-96-3	84	50-200	

Date Prepared: 08/20/2015

Date Analyzed: 08/24/2015

Preparation Method: EPA 3545 A

Analytical Method: EPA 8270 D

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 11:32	Sample ID: HWH-ST
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-02 % Solid:87.63
Matrix: Soil	ELAP: #11693

Total Metals Analysis

Parameter	Date Analyzed	Method	MDL	LOQ	Result	Units	Flag
Arsenic	08/20/2015	EPA 6010 C	1.01	1.82	<1.82	mg/kg dry	
Barium	08/20/2015	EPA 6010 C	0.74	1.82	8.11	mg/kg dry	
Beryllium	08/20/2015	EPA 6010 C	0.64	1.82	<1.82	mg/kg dry	
Cadmium	08/20/2015	EPA 6010 C	0.21	1.82	<1.82	mg/kg dry	
Chromium	08/20/2015	EPA 6010 C	0.77	1.82	4.52	mg/kg dry	
Copper	08/20/2015	EPA 6010 C	0.62	1.82	9.17	mg/kg dry	
Lead	08/20/2015	EPA 6010 C	0.75	1.82	3.25	mg/kg dry	
Nickel	08/20/2015	EPA 6010 C	0.74	1.82	2.81	mg/kg dry	
Selenium	08/20/2015	EPA 6010 C	1.00	1.82	<1.82	mg/kg dry	
Silver	08/20/2015	EPA 6010 C	0.04	1.82	<1.82	mg/kg dry	

Date Prepared: 08/18/2015 Preparation Method: EPA 3050B

Parameter	Date Analyzed	Method	MDL	LOQ	Result	Units	Flag
Mercury	08/19/2015	EPA 7471 B	0.002	0.02	<0.02	mg/kg dry	

Date Prepared: 08/19/2015 Preparation Method: EPA 7471 B

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 15:08	Sample ID: MBEP-1
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-03 % Solid:76.53
Matrix: Soil	ELAP: #11693

Volatiles Low Level Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
Dichlorodifluoromethane	75-71-8	2.49	32.7	<32.7	ug/kg dry	3.A, 5.L
Chloromethane	74-87-3	2.76	32.7	<32.7	ug/kg dry	3.A, 4.J, 4.N, 5.L
Vinyl chloride	75-01-4	3.34	32.7	<32.7	ug/kg dry	3.A, 5.L
Chloroethane	75-00-3	7.97	32.7	<32.7	ug/kg dry	3.A, 5.L
Trichlorofluoromethane	75-69-4	2.87	32.7	<32.7	ug/kg dry	3.A, 5.L
Acetone	67-64-1	86.9	327	<327	ug/kg dry	3.A, 5.L
1,1-Dichloroethylene	75-35-4	4.27	32.7	<32.7	ug/kg dry	3.A, 5.L
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	3.25	32.7	<32.7	ug/kg dry	3.A, 5.L
Methylene Chloride	75-09-2	19.8	32.7	<32.7	ug/kg dry	3.A, 5.L
Methyl-tert-Butyl Ether	1634-04-4	3.76	32.7	<32.7	ug/kg dry	3.A, 5.L
trans-1,2-Dichloroethylene	156-60-5	3.99	32.7	<32.7	ug/kg dry	3.A, 5.L
1,1-Dichloroethane	75-34-3	3.18	32.7	<32.7	ug/kg dry	3.A, 5.L
Methyl Ethyl Ketone (2-Butanone)	78-93-3	9.54	65.3	<65.3	ug/kg dry	3.A, 5.L
cis-1,2-Dichloroethylene	156-59-2	3.64	32.7	<32.7	ug/kg dry	3.A, 5.L
2,2-Dichloropropane	594-20-7	2.47	32.7	<32.7	ug/kg dry	3.A, 5.L
Bromochloromethane	74-97-5	2.91	32.7	<32.7	ug/kg dry	3.A, 5.L
Chloroform	67-66-3	3.21	32.7	<32.7	ug/kg dry	3.A, 5.L
1,1,1-Trichloroethane	71-55-6	2.08	32.7	<32.7	ug/kg dry	3.A, 5.L
1,2-Dichloroethane	107-06-2	4.11	32.7	<32.7	ug/kg dry	3.A, 5.L
1,1-Dichloropropylene	563-58-6	3.43	32.7	<32.7	ug/kg dry	3.A, 5.L
Carbon Tetrachloride	56-23-5	3.76	32.7	<32.7	ug/kg dry	3.A, 5.L
Benzene	71-43-2	2.61	32.7	<32.7	ug/kg dry	3.A, 5.L
Trichloroethylene	79-01-6	1.65	32.7	<32.7	ug/kg dry	3.A, 5.L
1,2-Dichloropropane	78-87-5	2.79	32.7	<32.7	ug/kg dry	3.A, 5.L
Dibromomethane	74-95-3	4.04	32.7	<32.7	ug/kg dry	3.A, 5.L
Bromodichloromethane	75-27-4	3.45	32.7	<32.7	ug/kg dry	3.A, 5.L
4-Methyl-2-Pentanone	108-10-1	5.34	65.3	<65.3	ug/kg dry	3.A, 5.L
cis-1,3-Dichloropropylene	10061-01-5	3.00	32.7	<32.7	ug/kg dry	3.A, 5.L
Toluene	108-88-3	3.01	32.7	413	ug/kg dry	3.E, 5.L
trans-1,3-Dichloropropylene	10061-02-6	4.54	32.7	<32.7	ug/kg dry	3.A, 5.L

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 15:08	Sample ID: MBEP-1
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-03 % Solid:76.53
Matrix: Soil	ELAP: #11693

Volatiles Low Level Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
1,1,2-Trichloroethane	79-00-5	3.80	32.7	<32.7	ug/kg dry	3.A, 5.L
1,3-Dichloropropane	142-28-9	4.17	32.7	<32.7	ug/kg dry	3.A, 5.L
Dibromochloromethane	124-48-1	4.32	32.7	<32.7	ug/kg dry	3.A, 5.L
Tetrachloroethylene	127-18-4	3.00	32.7	<32.7	ug/kg dry	3.A, 5.L
1,2-Dibromoethane	106-93-4	4.04	32.7	<32.7	ug/kg dry	3.A, 5.L
Chlorobenzene	108-90-7	3.12	32.7	<32.7	ug/kg dry	3.A, 5.L
1,1,1,2-Tetrachloroethane	630-20-6	2.44	32.7	<32.7	ug/kg dry	3.A, 5.L
Ethylbenzene	100-41-4	2.37	32.7	<32.7	ug/kg dry	3.A, 5.L
m,p-Xylenes	108-38-3/106-42-3	4.65	65.3	<65.3	ug/kg dry	3.A, 5.L
Styrene	100-42-5	4.59	32.7	<32.7	ug/kg dry	3.A, 5.L
o-Xylene	95-47-6	2.27	32.7	<32.7	ug/kg dry	3.A, 5.L
Bromoform	75-25-2	5.39	32.7	<32.7	ug/kg dry	3.A, 5.L
1,1,2,2-Tetrachloroethane	79-34-5	3.69	32.7	<32.7	ug/kg dry	3.A, 5.L
Isopropylbenzene (Cumene)	98-82-8	2.04	32.7	<32.7	ug/kg dry	3.A, 5.L
1,2,3-Trichloropropane	96-18-4	3.42	32.7	<32.7	ug/kg dry	3.A, 5.L
Bromobenzene	108-86-1	2.91	32.7	<32.7	ug/kg dry	3.A, 5.L
n-Propylbenzene	103-65-1	2.29	32.7	<32.7	ug/kg dry	3.A, 5.L
2-Chlorotoluene	95-49-8	2.23	32.7	<32.7	ug/kg dry	3.A, 5.L
4-Ethyltoluene	622-96-8	2.89	32.7	<32.7	ug/kg dry	2.B, 3.A, 5.L
4-Chlorotoluene	106-43-4	2.87	32.7	<32.7	ug/kg dry	3.A, 5.L
1,3,5-Trimethylbenzene	108-67-8	2.39	32.7	<32.7	ug/kg dry	3.A, 5.L
tert-Butylbenzene	98-06-6	2.76	32.7	<32.7	ug/kg dry	3.A, 5.L
1,2,4-Trimethylbenzene	95-63-6	2.55	32.7	69.8	ug/kg dry	3.E, 5.L
sec-Butylbenzene	135-98-8	2.50	32.7	<32.7	ug/kg dry	3.A, 5.L
1,3-Dichlorobenzene	541-73-1	2.49	32.7	<32.7	ug/kg dry	3.A, 5.L
4-Isopropyltoluene	99-87-6	18.3	327	2470	ug/kg dry	3.E, 5.L
1,4-Dichlorobenzene	106-46-7	2.29	32.7	<32.7	ug/kg dry	3.A, 5.L
1,2-Dichlorobenzene	95-50-1	2.35	32.7	<32.7	ug/kg dry	3.A, 5.L
1,4-Diethylbenzene	105-05-5	2.20	32.7	<32.7	ug/kg dry	2.B, 3.A, 5.L

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 15:08	Sample ID: MBEP-1
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-03 % Solid:76.53
Matrix: Soil	ELAP: #11693

Volatiles Low Level Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
n-Butylbenzene	104-51-8	2.43	32.7	<32.7	ug/kg dry	3.A, 5.L
1,2-Dibromo-3-chloropropane	96-12-8	4.86	32.7	<32.7	ug/kg dry	3.A, 5.L
1,2,4,5-Tetramethylbenzene	95-93-2	3.44	32.7	91.2	ug/kg dry	2.B, 3.E, 5.L
1,2,4-Trichlorobenzene	120-82-1	3.75	32.7	<32.7	ug/kg dry	3.A, 5.L
Naphthalene	91-20-3	3.21	32.7	<32.7	ug/kg dry	3.A, 5.L
Hexachlorobutadiene	87-68-3	3.01	32.7	<32.7	ug/kg dry	3.A, 5.L
1,2,3-Trichlorobenzene	87-61-6	2.85	32.7	<32.7	ug/kg dry	3.A, 5.L

Surrogate	CAS No.	% Recovery	Rec. Limits	Flag
Dibromofluoromethane	1868-53-7	92	79.4-122	
1,2-Dichloroethane-d4	10706-07-0	91	74.4-131	
Toluene-d8	2037-26-5	102	85-123	
4-Bromofluorobenzene	460-00-4	122	82.3-134	

Internal Standard	CAS No.	% Recovery	Rec. Limits	Flag
Pentafluorobenzene	363-72-4	118	50-200	
1,4-Difluorobenzene	540-36-3	112	50-200	
Chlorobenzene-d5	3114-55-4	102	50-200	
1,4-Dichlorobenzene-d4	3855-82-1	78	50-200	

Date Prepared: 08/19/2015

Date Analyzed: 08/19/2015

Preparation Method: EPA 5035A-L

Analytical Method: EPA 8260 C

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 15:08	Sample ID: MBEP-1
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-03 % Solid:76.53
Matrix: Soil	ELAP: #11693

Semivolatile Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
Naphthalene	91-20-3	84.8	784	<784	ug/kg dry	3.A
Acenaphthene	83-32-9	118	784	<784	ug/kg dry	3.A
Fluorene	86-73-7	109	784	<784	ug/kg dry	3.A
Phenanthrene	85-01-8	84.5	784	<784	ug/kg dry	3.A
Anthracene	120-12-7	83.5	784	<784	ug/kg dry	3.A
Fluoranthene	206-44-0	217	784	<784	ug/kg dry	3.A
Pyrene	129-00-0	244	784	<784	ug/kg dry	3.A
Benzo(a)anthracene	56-55-3	302	784	<784	ug/kg dry	3.A
Chrysene	218-01-9	98.0	784	<784	ug/kg dry	3.A
Benzo(b)fluoranthene	205-99-2	257	784	<784	ug/kg dry	3.A
Benzo(k)fluoranthene	207-08-9	289	784	<784	ug/kg dry	3.A
Benzo(a)pyrene	50-32-8	304	784	<784	ug/kg dry	3.A
Indeno(1,2,3-cd)pyrene	193-39-5	207	784	<784	ug/kg dry	3.A
Dibenzo(a,h)anthracene	53-70-3	141	784	<784	ug/kg dry	3.A
Benzo(g,h,i)perylene	191-24-2	128	784	<784	ug/kg dry	3.A

Surrogate	CAS No.	% Recovery	Rec. Limits	Flag
Nitrobenzene-d5	4165-60-0	114	31-118.25	3.E
2-Fluorobiphenyl	321-60-8	118	34.39-110.73	3.E, 4.L
Terphenyl-d14	1718-51-0	115	41.02-106	3.E, 4.L

Internal Standard	CAS No.	% Recovery	Rec. Limits	Flag
1,4-Dichlorobenzene-d4	3855-82-1	86	50-200	
Naphthalene-d8	1146-65-2	85	50-200	
Acenaphthene-d10	15067-26-2	82	50-200	
Phenanthrene-d10	1517-22-2	80	50-200	
Chrysene-d12	1719-03-5	76	50-200	
Perylene-d12	1520-96-3	75	50-200	

Date Prepared: 08/20/2015

Date Analyzed: 08/24/2015

Preparation Method: EPA 3545 A

Analytical Method: EPA 8270 D

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 15:08	Sample ID: MBEP-1
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-03 % Solid:76.53
Matrix: Soil	ELAP: #11693

Total Metals Analysis

Parameter	Date Analyzed	Method	MDL	LOQ	Result	Units	Flag
Arsenic	08/20/2015	EPA 6010 C	1.12	2.01	<2.01	mg/kg dry	
Barium	08/20/2015	EPA 6010 C	0.82	2.01	36.7	mg/kg dry	
Beryllium	08/20/2015	EPA 6010 C	0.71	2.01	<2.01	mg/kg dry	
Cadmium	08/20/2015	EPA 6010 C	0.23	2.01	<2.01	mg/kg dry	
Chromium	08/20/2015	EPA 6010 C	0.85	2.01	<2.01	mg/kg dry	
Copper	08/20/2015	EPA 6010 C	0.69	2.01	19.9	mg/kg dry	
Lead	08/20/2015	EPA 6010 C	0.83	2.01	9.75	mg/kg dry	
Nickel	08/20/2015	EPA 6010 C	0.82	2.01	<2.01	mg/kg dry	
Selenium	08/20/2015	EPA 6010 C	1.11	2.01	<2.01	mg/kg dry	
Silver	08/20/2015	EPA 6010 C	0.05	2.01	<2.01	mg/kg dry	

Date Prepared: 08/18/2015 Preparation Method: EPA 3050B

Parameter	Date Analyzed	Method	MDL	LOQ	Result	Units	Flag
Mercury	08/19/2015	EPA 7471 B	0.003	0.02	0.27	mg/kg dry	

Date Prepared: 08/19/2015 Preparation Method: EPA 7471 B

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 09:31	Sample ID: CHST-S
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-04 % Solid:66.64
Matrix: Soil	ELAP: #11693

Volatiles Low Level Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
Dichlorodifluoromethane	75-71-8	2.86	37.5	<37.5	ug/kg dry	3.A, 5.L
Chloromethane	74-87-3	3.17	37.5	<37.5	ug/kg dry	4.J, 4.N, 5.L, 3.A
Vinyl chloride	75-01-4	3.83	37.5	<37.5	ug/kg dry	3.A, 5.L
Chloroethane	75-00-3	9.15	37.5	<37.5	ug/kg dry	3.A, 5.L
Trichlorofluoromethane	75-69-4	3.30	37.5	<37.5	ug/kg dry	3.A, 5.L
Acetone	67-64-1	99.8	375	711	ug/kg dry	3.E, 4.K, 4.X, 5.L
1,1-Dichloroethylene	75-35-4	4.90	37.5	<37.5	ug/kg dry	3.A, 5.L
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	3.74	37.5	<37.5	ug/kg dry	3.A, 5.L
Methylene Chloride	75-09-2	22.7	37.5	<37.5	ug/kg dry	3.A, 5.L
Methyl-tert-Butyl Ether	1634-04-4	4.31	37.5	<37.5	ug/kg dry	3.A, 5.L
trans-1,2-Dichloroethylene	156-60-5	4.58	37.5	<37.5	ug/kg dry	3.A, 5.L
1,1-Dichloroethane	75-34-3	3.65	37.5	<37.5	ug/kg dry	3.A, 5.L
Methyl Ethyl Ketone (2-Butanone)	78-93-3	11.0	75.0	329	ug/kg dry	3.E, 5.L
cis-1,2-Dichloroethylene	156-59-2	4.18	37.5	<37.5	ug/kg dry	3.A, 5.L
2,2-Dichloropropane	594-20-7	2.84	37.5	<37.5	ug/kg dry	3.A, 5.L
Bromochloromethane	74-97-5	3.35	37.5	<37.5	ug/kg dry	3.A, 5.L
Chloroform	67-66-3	3.68	37.5	<37.5	ug/kg dry	3.A, 5.L
1,1,1-Trichloroethane	71-55-6	2.39	37.5	<37.5	ug/kg dry	3.A, 5.L
1,2-Dichloroethane	107-06-2	4.72	37.5	<37.5	ug/kg dry	3.A, 5.L
1,1-Dichloropropylene	563-58-6	3.94	37.5	<37.5	ug/kg dry	3.A, 5.L
Carbon Tetrachloride	56-23-5	4.31	37.5	<37.5	ug/kg dry	3.A, 5.L
Benzene	71-43-2	2.99	37.5	<37.5	ug/kg dry	3.A, 5.L
Trichloroethylene	79-01-6	1.90	37.5	<37.5	ug/kg dry	3.A, 5.L
1,2-Dichloropropane	78-87-5	3.20	37.5	<37.5	ug/kg dry	3.A, 5.L
Dibromomethane	74-95-3	4.64	37.5	<37.5	ug/kg dry	3.A, 5.L
Bromodichloromethane	75-27-4	3.96	37.5	<37.5	ug/kg dry	3.A, 5.L
4-Methyl-2-Pentanone	108-10-1	6.14	75.0	<75.0	ug/kg dry	3.A, 5.L
cis-1,3-Dichloropropylene	10061-01-5	3.44	37.5	<37.5	ug/kg dry	3.A, 5.L
Toluene	108-88-3	34.6	375	47100	ug/kg dry	3.E, 4.A, 5.L
trans-1,3-Dichloropropylene	10061-02-6	5.21	37.5	<37.5	ug/kg dry	3.A, 5.L

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 09:31	Sample ID: CHST-S
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-04 % Solid:66.64
Matrix: Soil	ELAP: #11693

Volatiles Low Level Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
1,1,2-Trichloroethane	79-00-5	4.36	37.5	<37.5	ug/kg dry	3.A, 5.L
1,3-Dichloropropane	142-28-9	4.79	37.5	<37.5	ug/kg dry	3.A, 5.L
Dibromochloromethane	124-48-1	4.96	37.5	<37.5	ug/kg dry	3.A, 5.L
Tetrachloroethylene	127-18-4	3.44	37.5	<37.5	ug/kg dry	3.A, 5.L
1,2-Dibromoethane	106-93-4	4.64	37.5	<37.5	ug/kg dry	3.A, 5.L
Chlorobenzene	108-90-7	3.58	37.5	<37.5	ug/kg dry	3.A, 5.L
1,1,1,2-Tetrachloroethane	630-20-6	2.81	37.5	<37.5	ug/kg dry	3.A, 5.L
Ethylbenzene	100-41-4	2.72	37.5	<37.5	ug/kg dry	3.A, 5.L
m,p-Xylenes	108-38-3/106-42-3	5.33	75.0	<75.0	ug/kg dry	3.A, 5.L
Styrene	100-42-5	5.27	37.5	<37.5	ug/kg dry	3.A, 5.L
o-Xylene	95-47-6	2.61	37.5	<37.5	ug/kg dry	3.A, 5.L
Bromoform	75-25-2	6.19	37.5	<37.5	ug/kg dry	3.A, 5.L
1,1,2,2-Tetrachloroethane	79-34-5	4.24	37.5	<37.5	ug/kg dry	3.A, 5.L
Isopropylbenzene (Cumene)	98-82-8	2.34	37.5	<37.5	ug/kg dry	3.A, 5.L
1,2,3-Trichloropropane	96-18-4	3.92	37.5	<37.5	ug/kg dry	3.A, 5.L
Bromobenzene	108-86-1	3.34	37.5	<37.5	ug/kg dry	3.A, 5.L
n-Propylbenzene	103-65-1	2.63	37.5	<37.5	ug/kg dry	3.A, 5.L
2-Chlorotoluene	95-49-8	2.57	37.5	603	ug/kg dry	3.E, 5.L
4-Ethyltoluene	622-96-8	3.32	37.5	53.1	ug/kg dry	2.B, 3.E, 5.L
4-Chlorotoluene	106-43-4	3.29	37.5	<37.5	ug/kg dry	3.A, 5.L
1,3,5-Trimethylbenzene	108-67-8	2.75	37.5	<37.5	ug/kg dry	3.A, 5.L
tert-Butylbenzene	98-06-6	3.17	37.5	<37.5	ug/kg dry	3.A, 5.L
1,2,4-Trimethylbenzene	95-63-6	2.93	37.5	90.4	ug/kg dry	3.E, 5.L
sec-Butylbenzene	135-98-8	2.87	37.5	<37.5	ug/kg dry	3.A, 5.L
1,3-Dichlorobenzene	541-73-1	2.86	37.5	379	ug/kg dry	3.E, 5.L
4-Isopropyltoluene	99-87-6	2.10	37.5	1040	ug/kg dry	3.E, 5.L
1,4-Dichlorobenzene	106-46-7	2.63	37.5	593	ug/kg dry	3.E, 5.L
1,2-Dichlorobenzene	95-50-1	27.0	375	3390	ug/kg dry	3.E, 5.L
1,4-Diethylbenzene	105-05-5	2.53	37.5	104	ug/kg dry	2.B, 3.E, 5.L

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 09:31	Sample ID: CHST-S
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-04 % Solid:66.64
Matrix: Soil	ELAP: #11693

Volatiles Low Level Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
n-Butylbenzene	104-51-8	2.79	37.5	<37.5	ug/kg dry	3.A, 5.L
1,2-Dibromo-3-chloropropane	96-12-8	5.58	37.5	<37.5	ug/kg dry	3.A, 5.L
1,2,4,5-Tetramethylbenzene	95-93-2	3.95	37.5	39.4	ug/kg dry	2.B, 3.E, 5.L
1,2,4-Trichlorobenzene	120-82-1	4.31	37.5	<37.5	ug/kg dry	3.A, 5.L
Naphthalene	91-20-3	3.69	37.5	<37.5	ug/kg dry	3.A, 5.L
Hexachlorobutadiene	87-68-3	3.46	37.5	<37.5	ug/kg dry	3.A, 5.L
1,2,3-Trichlorobenzene	87-61-6	3.28	37.5	<37.5	ug/kg dry	3.A, 5.L

Surrogate	CAS No.	% Recovery	Rec. Limits	Flag
Dibromofluoromethane	1868-53-7	91	79.4-122	
1,2-Dichloroethane-d4	10706-07-0	95	74.4-131	
Toluene-d8	2037-26-5	101	85-123	
4-Bromofluorobenzene	460-00-4	126	82.3-134	

Internal Standard	CAS No.	% Recovery	Rec. Limits	Flag
Pentafluorobenzene	363-72-4	105	50-200	
1,4-Difluorobenzene	540-36-3	94	50-200	
Chlorobenzene-d5	3114-55-4	88	50-200	
1,4-Dichlorobenzene-d4	3855-82-1	65	50-200	

Date Prepared: 08/19/2015

Date Analyzed: 08/19/2015

Preparation Method: EPA 5035A-L

Analytical Method: EPA 8260 C

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 09:31	Sample ID: CHST-S
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-04 % Solid:66.64
Matrix: Soil	ELAP: #11693

Semivolatile Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
Naphthalene	91-20-3	97.4	900	<900	ug/kg dry	3.A
Acenaphthene	83-32-9	136	900	<900	ug/kg dry	3.A
Fluorene	86-73-7	125	900	<900	ug/kg dry	3.A
Phenanthrene	85-01-8	97.1	900	<900	ug/kg dry	3.A
Anthracene	120-12-7	95.9	900	<900	ug/kg dry	3.A
Fluoranthene	206-44-0	249	900	<900	ug/kg dry	3.A
Pyrene	129-00-0	281	900	<900	ug/kg dry	3.A
Benzo(a)anthracene	56-55-3	347	900	<900	ug/kg dry	3.A
Chrysene	218-01-9	113	900	<900	ug/kg dry	3.A
Benzo(b)fluoranthene	205-99-2	295	900	<900	ug/kg dry	3.A
Benzo(k)fluoranthene	207-08-9	332	900	<900	ug/kg dry	3.A
Benzo(a)pyrene	50-32-8	349	900	<900	ug/kg dry	3.A
Indeno(1,2,3-cd)pyrene	193-39-5	238	900	<900	ug/kg dry	3.A
Dibenzo(a,h)anthracene	53-70-3	162	900	<900	ug/kg dry	3.A
Benzo(g,h,i)perylene	191-24-2	147	900	<900	ug/kg dry	3.A

Surrogate	CAS No.	% Recovery	Rec. Limits	Flag
Nitrobenzene-d5	4165-60-0	87	31-118.25	3.E
2-Fluorobiphenyl	321-60-8	85	34.39-110.73	3.E
Terphenyl-d14	1718-51-0	95	41.02-106	3.E

Internal Standard	CAS No.	% Recovery	Rec. Limits	Flag
1,4-Dichlorobenzene-d4	3855-82-1	86	50-200	
Naphthalene-d8	1146-65-2	89	50-200	
Acenaphthene-d10	15067-26-2	85	50-200	
Phenanthrene-d10	1517-22-2	84	50-200	
Chrysene-d12	1719-03-5	75	50-200	
Perylene-d12	1520-96-3	76	50-200	

Date Prepared: 08/20/2015

Preparation Method: EPA 3545 A

Date Analyzed: 08/24/2015

Analytical Method: EPA 8270 D

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 09:31	Sample ID: CHST-S
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-04 % Solid:66.64
Matrix: Soil	ELAP: #11693

Total Metals Analysis

Parameter	Date Analyzed	Method	MDL	LOQ	Result	Units	Flag
Arsenic	08/20/2015	EPA 6010 C	1.18	2.12	<2.12	mg/kg dry	
Barium	08/20/2015	EPA 6010 C	0.86	2.12	46.2	mg/kg dry	
Beryllium	08/20/2015	EPA 6010 C	0.75	2.12	<2.12	mg/kg dry	
Cadmium	08/20/2015	EPA 6010 C	0.24	2.12	<2.12	mg/kg dry	
Chromium	08/20/2015	EPA 6010 C	0.90	2.12	228	mg/kg dry	
Copper	08/20/2015	EPA 6010 C	0.72	2.12	87.8	mg/kg dry	
Lead	08/20/2015	EPA 6010 C	0.88	2.12	83.5	mg/kg dry	
Nickel	08/20/2015	EPA 6010 C	0.86	2.12	40.5	mg/kg dry	
Selenium	08/20/2015	EPA 6010 C	1.17	2.12	<2.12	mg/kg dry	
Silver	08/20/2015	EPA 6010 C	0.05	2.12	<2.12	mg/kg dry	

Date Prepared: 08/18/2015 Preparation Method: EPA 3050B

Parameter	Date Analyzed	Method	MDL	LOQ	Result	Units	Flag
Mercury	08/19/2015	EPA 7471 B	0.003	0.02	0.05	mg/kg dry	

Date Prepared: 08/19/2015 Preparation Method: EPA 7471 B

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 11:09	Sample ID: CH-1N
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-05 % Solid:66.35
Matrix: Soil	ELAP: #11693

Volatiles Low Level Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
Dichlorodifluoromethane	75-71-8	2.87	37.7	<37.7	ug/kg dry	3.A, 5.L
Chloromethane	74-87-3	3.18	37.7	<37.7	ug/kg dry	3.A, 4.J, 4.N, 5.L
Vinyl chloride	75-01-4	3.85	37.7	<37.7	ug/kg dry	3.A, 5.L
Chloroethane	75-00-3	9.19	37.7	<37.7	ug/kg dry	3.A, 5.L
Trichlorofluoromethane	75-69-4	3.32	37.7	<37.7	ug/kg dry	3.A, 5.L
Acetone	67-64-1	100	377	<377	ug/kg dry	3.A, 5.L
1,1-Dichloroethylene	75-35-4	4.92	37.7	<37.7	ug/kg dry	3.A, 5.L
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	3.75	37.7	<37.7	ug/kg dry	3.A, 5.L
Methylene Chloride	75-09-2	22.8	37.7	<37.7	ug/kg dry	3.A, 5.L
Methyl-tert-Butyl Ether	1634-04-4	4.33	37.7	<37.7	ug/kg dry	3.A, 5.L
trans-1,2-Dichloroethylene	156-60-5	4.60	37.7	<37.7	ug/kg dry	3.A, 5.L
1,1-Dichloroethane	75-34-3	3.67	37.7	<37.7	ug/kg dry	3.A, 5.L
Methyl Ethyl Ketone (2-Butanone)	78-93-3	11.0	75.4	<75.4	ug/kg dry	3.A, 5.L
cis-1,2-Dichloroethylene	156-59-2	4.20	37.7	<37.7	ug/kg dry	3.A, 5.L
2,2-Dichloropropane	594-20-7	2.85	37.7	<37.7	ug/kg dry	3.A, 5.L
Bromochloromethane	74-97-5	3.36	37.7	<37.7	ug/kg dry	3.A, 5.L
Chloroform	67-66-3	3.70	37.7	<37.7	ug/kg dry	3.A, 5.L
1,1,1-Trichloroethane	71-55-6	2.40	37.7	<37.7	ug/kg dry	3.A, 5.L
1,2-Dichloroethane	107-06-2	4.74	37.7	<37.7	ug/kg dry	3.A, 5.L
1,1-Dichloropropylene	563-58-6	3.96	37.7	<37.7	ug/kg dry	3.A, 5.L
Carbon Tetrachloride	56-23-5	4.33	37.7	<37.7	ug/kg dry	3.A, 5.L
Benzene	71-43-2	3.01	37.7	<37.7	ug/kg dry	3.A, 5.L
Trichloroethylene	79-01-6	1.91	37.7	<37.7	ug/kg dry	3.A, 5.L
1,2-Dichloropropane	78-87-5	3.22	37.7	<37.7	ug/kg dry	3.A, 5.L
Dibromomethane	74-95-3	4.66	37.7	<37.7	ug/kg dry	3.A, 5.L
Bromodichloromethane	75-27-4	3.98	37.7	<37.7	ug/kg dry	3.A, 5.L
4-Methyl-2-Pentanone	108-10-1	6.16	75.4	<75.4	ug/kg dry	3.A, 5.L
cis-1,3-Dichloropropylene	10061-01-5	3.46	37.7	<37.7	ug/kg dry	3.A, 5.L
Toluene	108-88-3	3.47	37.7	530	ug/kg dry	3.E, 5.L
trans-1,3-Dichloropropylene	10061-02-6	5.24	37.7	<37.7	ug/kg dry	3.A, 5.L

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 11:09	Sample ID: CH-1N
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-05 % Solid:66.35
Matrix: Soil	ELAP: #11693

Volatiles Low Level Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
1,1,2-Trichloroethane	79-00-5	4.38	37.7	<37.7	ug/kg dry	3.A, 5.L
1,3-Dichloropropane	142-28-9	4.82	37.7	<37.7	ug/kg dry	3.A, 5.L
Dibromochloromethane	124-48-1	4.98	37.7	<37.7	ug/kg dry	3.A, 5.L
Tetrachloroethylene	127-18-4	3.46	37.7	<37.7	ug/kg dry	3.A, 5.L
1,2-Dibromoethane	106-93-4	4.66	37.7	<37.7	ug/kg dry	3.A, 5.L
Chlorobenzene	108-90-7	3.59	37.7	48.5	ug/kg dry	3.E, 5.L
1,1,1,2-Tetrachloroethane	630-20-6	2.82	37.7	<37.7	ug/kg dry	3.A, 5.L
Ethylbenzene	100-41-4	2.74	37.7	37.8	ug/kg dry	3.E, 5.L
m,p-Xylenes	108-38-3/106-42-3	5.36	75.4	150	ug/kg dry	3.E, 5.L
Styrene	100-42-5	5.30	37.7	<37.7	ug/kg dry	3.A, 5.L
o-Xylene	95-47-6	2.62	37.7	<37.7	ug/kg dry	3.A, 5.L
Bromoform	75-25-2	6.22	37.7	<37.7	ug/kg dry	3.A, 5.L
1,1,2,2-Tetrachloroethane	79-34-5	4.26	37.7	<37.7	ug/kg dry	3.A, 5.L
Isopropylbenzene (Cumene)	98-82-8	2.35	37.7	<37.7	ug/kg dry	3.A, 5.L
1,2,3-Trichloropropane	96-18-4	3.94	37.7	<37.7	ug/kg dry	3.A, 5.L
Bromobenzene	108-86-1	3.35	37.7	<37.7	ug/kg dry	3.A, 5.L
n-Propylbenzene	103-65-1	2.64	37.7	<37.7	ug/kg dry	3.A, 5.L
2-Chlorotoluene	95-49-8	2.58	37.7	<37.7	ug/kg dry	3.A, 5.L
4-Ethyltoluene	622-96-8	3.34	37.7	88.2	ug/kg dry	2.B, 3.E, 5.L
4-Chlorotoluene	106-43-4	3.31	37.7	<37.7	ug/kg dry	3.A, 5.L
1,3,5-Trimethylbenzene	108-67-8	2.76	37.7	56.9	ug/kg dry	3.E, 5.L
tert-Butylbenzene	98-06-6	3.19	37.7	<37.7	ug/kg dry	3.A, 5.L
1,2,4-Trimethylbenzene	95-63-6	2.95	37.7	147	ug/kg dry	3.E, 5.L
sec-Butylbenzene	135-98-8	2.88	37.7	<37.7	ug/kg dry	3.A, 5.L
1,3-Dichlorobenzene	541-73-1	2.87	37.7	74.7	ug/kg dry	3.E, 5.L
4-Isopropyltoluene	99-87-6	2.11	37.7	296	ug/kg dry	3.E, 5.L
1,4-Dichlorobenzene	106-46-7	2.65	37.7	335	ug/kg dry	3.E, 5.L
1,2-Dichlorobenzene	95-50-1	2.71	37.7	128	ug/kg dry	3.E, 5.L
1,4-Diethylbenzene	105-05-5	2.54	37.7	207	ug/kg dry	2.B, 3.E, 5.L

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 11:09	Sample ID: CH-1N
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-05 % Solid:66.35
Matrix: Soil	ELAP: #11693

Volatiles Low Level Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
n-Butylbenzene	104-51-8	2.80	37.7	<37.7	ug/kg dry	3.A, 5.L
1,2-Dibromo-3-chloropropane	96-12-8	5.61	37.7	<37.7	ug/kg dry	3.A, 5.L
1,2,4,5-Tetramethylbenzene	95-93-2	3.97	37.7	121	ug/kg dry	2.B, 3.E, 5.L
1,2,4-Trichlorobenzene	120-82-1	4.33	37.7	<37.7	ug/kg dry	3.A, 5.L
Naphthalene	91-20-3	3.71	37.7	40.2	ug/kg dry	3.E, 5.L
Hexachlorobutadiene	87-68-3	3.47	37.7	<37.7	ug/kg dry	3.A, 5.L
1,2,3-Trichlorobenzene	87-61-6	3.29	37.7	<37.7	ug/kg dry	3.A, 5.L

Surrogate	CAS No.	% Recovery	Rec. Limits	Flag
Dibromofluoromethane	1868-53-7	95	79.4-122	
1,2-Dichloroethane-d4	10706-07-0	93	74.4-131	
Toluene-d8	2037-26-5	104	85-123	
4-Bromofluorobenzene	460-00-4	134	82.3-134	

Internal Standard	CAS No.	% Recovery	Rec. Limits	Flag
Pentafluorobenzene	363-72-4	112	50-200	
1,4-Difluorobenzene	540-36-3	104	50-200	
Chlorobenzene-d5	3114-55-4	92	50-200	
1,4-Dichlorobenzene-d4	3855-82-1	60	50-200	

Date Prepared: 08/19/2015

Date Analyzed: 08/19/2015

Preparation Method: EPA 5035A-L

Analytical Method: EPA 8260 C

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 11:09	Sample ID: CH-1N
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-05 % Solid:66.35
Matrix: Soil	ELAP: #11693

Semivolatile Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
Naphthalene	91-20-3	97.8	904	<904	ug/kg dry	3.A
Acenaphthene	83-32-9	137	904	<904	ug/kg dry	3.A
Fluorene	86-73-7	126	904	<904	ug/kg dry	3.A
Phenanthrene	85-01-8	97.5	904	<904	ug/kg dry	3.A
Anthracene	120-12-7	96.3	904	<904	ug/kg dry	3.A
Fluoranthene	206-44-0	250	904	<904	ug/kg dry	3.A
Pyrene	129-00-0	282	904	<904	ug/kg dry	3.A
Benzo(a)anthracene	56-55-3	349	904	<904	ug/kg dry	3.A
Chrysene	218-01-9	113	904	<904	ug/kg dry	3.A
Benzo(b)fluoranthene	205-99-2	296	904	<904	ug/kg dry	3.A
Benzo(k)fluoranthene	207-08-9	333	904	<904	ug/kg dry	3.A
Benzo(a)pyrene	50-32-8	351	904	<904	ug/kg dry	3.A
Indeno(1,2,3-cd)pyrene	193-39-5	239	904	<904	ug/kg dry	3.A
Dibenzo(a,h)anthracene	53-70-3	163	904	<904	ug/kg dry	3.A
Benzo(g,h,i)perylene	191-24-2	148	904	<904	ug/kg dry	3.A

Surrogate	CAS No.	% Recovery	Rec. Limits	Flag
Nitrobenzene-d5	4165-60-0	86	31-118.25	3.E
2-Fluorobiphenyl	321-60-8	79	34.39-110.73	3.E
Terphenyl-d14	1718-51-0	92	41.02-106	3.E

Internal Standard	CAS No.	% Recovery	Rec. Limits	Flag
1,4-Dichlorobenzene-d4	3855-82-1	95	50-200	
Naphthalene-d8	1146-65-2	97	50-200	
Acenaphthene-d10	15067-26-2	94	50-200	
Phenanthrene-d10	1517-22-2	90	50-200	
Chrysene-d12	1719-03-5	83	50-200	
Perylene-d12	1520-96-3	82	50-200	

Date Prepared: 08/20/2015

Preparation Method: EPA 3545 A

Date Analyzed: 08/24/2015

Analytical Method: EPA 8270 D

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 11:09	Sample ID: CH-1N
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-05 % Solid:66.35
Matrix: Soil	ELAP: #11693

Total Metals Analysis

Parameter	Date Analyzed	Method	MDL	LOQ	Result	Units	Flag
Arsenic	08/20/2015	EPA 6010 C	1.31	2.36	4.33	mg/kg dry	
Barium	08/20/2015	EPA 6010 C	0.96	2.36	72.4	mg/kg dry	
Beryllium	08/20/2015	EPA 6010 C	0.83	2.36	<2.36	mg/kg dry	
Cadmium	08/20/2015	EPA 6010 C	0.27	2.36	<2.36	mg/kg dry	
Chromium	08/20/2015	EPA 6010 C	1.00	2.36	5.70	mg/kg dry	
Copper	08/20/2015	EPA 6010 C	8.05	23.6	1360	mg/kg dry	3.E
Lead	08/20/2015	EPA 6010 C	0.97	2.36	56.9	mg/kg dry	
Nickel	08/20/2015	EPA 6010 C	0.96	2.36	12.2	mg/kg dry	
Selenium	08/20/2015	EPA 6010 C	1.30	2.36	<2.36	mg/kg dry	
Silver	08/20/2015	EPA 6010 C	0.06	2.36	7.71	mg/kg dry	

Date Prepared: 08/18/2015 Preparation Method: EPA 3050B

Parameter	Date Analyzed	Method	MDL	LOQ	Result	Units	Flag
Mercury	08/19/2015	EPA 7471 B	0.10	0.71	4.52	mg/kg dry	3.E

Date Prepared: 08/19/2015 Preparation Method: EPA 7471 B

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 10:46	Sample ID: CHST-N2
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-06 % Solid:30.18
Matrix: Soil	ELAP: #11693

Volatiles Low Level Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
Dichlorodifluoromethane	75-71-8	12.6	166	<166	ug/kg dry	3.A, 5.L
Chloromethane	74-87-3	14.0	166	<166	ug/kg dry	3.A, 4.J, 4.N, 5.L
Vinyl chloride	75-01-4	16.9	166	<166	ug/kg dry	3.A, 5.L
Chloroethane	75-00-3	40.4	166	<166	ug/kg dry	3.A, 5.L
Trichlorofluoromethane	75-69-4	14.6	166	<166	ug/kg dry	3.A, 5.L
Acetone	67-64-1	441	1660	<1660	ug/kg dry	3.A, 5.L
1,1-Dichloroethylene	75-35-4	21.6	166	<166	ug/kg dry	3.A, 5.L
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	16.5	166	<166	ug/kg dry	3.A, 5.L
Methylene Chloride	75-09-2	100	166	<166	ug/kg dry	3.A, 5.L
Methyl-tert-Butyl Ether	1634-04-4	19.1	166	<166	ug/kg dry	3.A, 5.L
trans-1,2-Dichloroethylene	156-60-5	20.2	166	<166	ug/kg dry	3.A, 5.L
1,1-Dichloroethane	75-34-3	16.1	166	<166	ug/kg dry	3.A, 5.L
Methyl Ethyl Ketone (2-Butanone)	78-93-3	48.4	331	<331	ug/kg dry	3.A, 5.L
cis-1,2-Dichloroethylene	156-59-2	18.5	166	<166	ug/kg dry	3.A, 5.L
2,2-Dichloropropane	594-20-7	12.5	166	<166	ug/kg dry	3.A, 5.L
Bromochloromethane	74-97-5	14.8	166	<166	ug/kg dry	3.A, 5.L
Chloroform	67-66-3	16.3	166	<166	ug/kg dry	3.A, 5.L
1,1,1-Trichloroethane	71-55-6	10.5	166	<166	ug/kg dry	3.A, 5.L
1,2-Dichloroethane	107-06-2	20.8	166	<166	ug/kg dry	3.A, 5.L
1,1-Dichloropropylene	563-58-6	17.4	166	<166	ug/kg dry	3.A, 5.L
Carbon Tetrachloride	56-23-5	19.1	166	<166	ug/kg dry	3.A, 5.L
Benzene	71-43-2	13.2	166	<166	ug/kg dry	3.A, 5.L
Trichloroethylene	79-01-6	8.38	166	<166	ug/kg dry	3.A, 5.L
1,2-Dichloropropane	78-87-5	14.1	166	<166	ug/kg dry	3.A, 5.L
Dibromomethane	74-95-3	20.5	166	<166	ug/kg dry	3.A, 5.L
Bromodichloromethane	75-27-4	17.5	166	<166	ug/kg dry	3.A, 5.L
4-Methyl-2-Pentanone	108-10-1	27.1	331	<331	ug/kg dry	3.A, 5.L
cis-1,3-Dichloropropylene	10061-01-5	15.2	166	<166	ug/kg dry	3.A, 5.L
Toluene	108-88-3	15.3	166	1650	ug/kg dry	3.E, 5.L
trans-1,3-Dichloropropylene	10061-02-6	23.0	166	<166	ug/kg dry	3.A, 5.L

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 10:46	Sample ID: CHST-N2
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-06 % Solid:30.18
Matrix: Soil	ELAP: #11693

Volatiles Low Level Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
1,1,2-Trichloroethane	79-00-5	19.3	166	<166	ug/kg dry	3.A, 5.L
1,3-Dichloropropane	142-28-9	21.2	166	<166	ug/kg dry	3.A, 5.L
Dibromochloromethane	124-48-1	21.9	166	<166	ug/kg dry	5.L, 3.A
Tetrachloroethylene	127-18-4	15.2	166	<166	ug/kg dry	3.A, 5.L
1,2-Dibromoethane	106-93-4	20.5	166	<166	ug/kg dry	3.A, 5.L
Chlorobenzene	108-90-7	15.8	166	1800	ug/kg dry	3.E, 5.L
1,1,1,2-Tetrachloroethane	630-20-6	12.4	166	<166	ug/kg dry	3.A, 5.L
Ethylbenzene	100-41-4	12.0	166	200	ug/kg dry	3.E, 5.L
m,p-Xylenes	108-38-3/106-42-3	23.6	331	809	ug/kg dry	3.E, 5.L
Styrene	100-42-5	23.3	166	<166	ug/kg dry	3.A, 5.L
o-Xylene	95-47-6	11.5	166	188	ug/kg dry	3.E, 5.L
Bromoform	75-25-2	27.3	166	<166	ug/kg dry	3.A, 5.L
1,1,2,2-Tetrachloroethane	79-34-5	18.7	166	<166	ug/kg dry	3.A, 5.L
Isopropylbenzene (Cumene)	98-82-8	10.3	166	<166	ug/kg dry	3.A, 5.L
1,2,3-Trichloropropane	96-18-4	17.3	166	<166	ug/kg dry	3.A, 5.L
Bromobenzene	108-86-1	14.7	166	<166	ug/kg dry	3.A, 5.L
n-Propylbenzene	103-65-1	11.6	166	<166	ug/kg dry	3.A, 5.L
2-Chlorotoluene	95-49-8	11.3	166	<166	ug/kg dry	3.A, 5.L
4-Ethyltoluene	622-96-8	14.7	166	182	ug/kg dry	2.B, 3.E, 5.L
4-Chlorotoluene	106-43-4	14.5	166	<166	ug/kg dry	3.A, 5.L
1,3,5-Trimethylbenzene	108-67-8	12.1	166	179	ug/kg dry	3.E, 5.L
tert-Butylbenzene	98-06-6	14.0	166	<166	ug/kg dry	3.A, 5.L
1,2,4-Trimethylbenzene	95-63-6	13.0	166	459	ug/kg dry	3.E, 5.L
sec-Butylbenzene	135-98-8	12.7	166	<166	ug/kg dry	3.A, 5.L
1,3-Dichlorobenzene	541-73-1	12.6	166	<166	ug/kg dry	3.A, 5.L
4-Isopropyltoluene	99-87-6	9.28	166	<166	ug/kg dry	3.A, 5.L
1,4-Dichlorobenzene	106-46-7	11.6	166	790	ug/kg dry	3.E, 5.L
1,2-Dichlorobenzene	95-50-1	11.9	166	<166	ug/kg dry	3.A, 5.L
1,4-Diethylbenzene	105-05-5	11.2	166	447	ug/kg dry	2.B, 3.E, 5.L

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 10:46	Sample ID: CHST-N2
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-06 % Solid:30.18
Matrix: Soil	ELAP: #11693

Volatiles Low Level Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
n-Butylbenzene	104-51-8	12.3	166	<166	ug/kg dry	3.A, 5.L
1,2-Dibromo-3-chloropropane	96-12-8	24.7	166	<166	ug/kg dry	3.A, 5.L
1,2,4,5-Tetramethylbenzene	95-93-2	17.5	166	<166	ug/kg dry	2.B, 3.A, 5.L
1,2,4-Trichlorobenzene	120-82-1	19.0	166	<166	ug/kg dry	3.A, 5.L
Naphthalene	91-20-3	16.3	166	<166	ug/kg dry	3.A, 5.L
Hexachlorobutadiene	87-68-3	15.3	166	<166	ug/kg dry	3.A, 5.L
1,2,3-Trichlorobenzene	87-61-6	14.5	166	<166	ug/kg dry	3.A, 5.L

Surrogate	CAS No.	% Recovery	Rec. Limits	Flag
Dibromofluoromethane	1868-53-7	92	79.4-122	
1,2-Dichloroethane-d4	10706-07-0	93	74.4-131	
Toluene-d8	2037-26-5	100	85-123	
4-Bromofluorobenzene	460-00-4	109	82.3-134	

Internal Standard	CAS No.	% Recovery	Rec. Limits	Flag
Pentafluorobenzene	363-72-4	118	50-200	
1,4-Difluorobenzene	540-36-3	108	50-200	
Chlorobenzene-d5	3114-55-4	104	50-200	
1,4-Dichlorobenzene-d4	3855-82-1	93	50-200	

Date Prepared: 08/19/2015

Date Analyzed: 08/19/2015

Preparation Method: EPA 5035A-L

Analytical Method: EPA 8260 C

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 10:46	Sample ID: CHST-N2
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-06 % Solid:30.18
Matrix: Soil	ELAP: #11693

Semivolatile Analysis

Parameter	CAS No.	MDL	LOQ	Result	Units	Flag
Naphthalene	91-20-3	215	1990	<1990	ug/kg dry	3.A
Acenaphthene	83-32-9	300	1990	<1990	ug/kg dry	3.A
Fluorene	86-73-7	276	1990	<1990	ug/kg dry	3.A
Phenanthrene	85-01-8	214	1990	<1990	ug/kg dry	3.A
Anthracene	120-12-7	212	1990	<1990	ug/kg dry	3.A
Fluoranthene	206-44-0	549	1990	<1990	ug/kg dry	3.A
Pyrene	129-00-0	620	1990	<1990	ug/kg dry	3.A
Benzo(a)anthracene	56-55-3	766	1990	<1990	ug/kg dry	3.A
Chrysene	218-01-9	249	1990	<1990	ug/kg dry	3.A
Benzo(b)fluoranthene	205-99-2	652	1990	<1990	ug/kg dry	3.A
Benzo(k)fluoranthene	207-08-9	732	1990	<1990	ug/kg dry	3.A
Benzo(a)pyrene	50-32-8	771	1990	<1990	ug/kg dry	3.A
Indeno(1,2,3-cd)pyrene	193-39-5	526	1990	<1990	ug/kg dry	3.A
Dibenzo(a,h)anthracene	53-70-3	359	1990	<1990	ug/kg dry	3.A
Benzo(g,h,i)perylene	191-24-2	324	1990	<1990	ug/kg dry	3.A

Surrogate	CAS No.	% Recovery	Rec. Limits	Flag
Nitrobenzene-d5	4165-60-0	89	31-118.25	3.E
2-Fluorobiphenyl	321-60-8	75	34.39-110.73	3.E
Terphenyl-d14	1718-51-0	94	41.02-106	3.E

Internal Standard	CAS No.	% Recovery	Rec. Limits	Flag
1,4-Dichlorobenzene-d4	3855-82-1	90	50-200	
Naphthalene-d8	1146-65-2	92	50-200	
Acenaphthene-d10	15067-26-2	88	50-200	
Phenanthrene-d10	1517-22-2	86	50-200	
Chrysene-d12	1719-03-5	77	50-200	
Perylene-d12	1520-96-3	76	50-200	

Date Prepared: 08/20/2015

Preparation Method: EPA 3545 A

Date Analyzed: 08/24/2015

Analytical Method: EPA 8270 D

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Country Club Northport
Date (Time) Collected: 08/17/2015 10:46	Sample ID: CHST-N2
Date (Time) Received: 08/18/2015 09:58	Laboratory ID: 5081801-06 % Solid:30.18
Matrix: Soil	ELAP: #11693

Total Metals Analysis

Parameter	Date Analyzed	Method	MDL	LOQ	Result	Units	Flag
Arsenic	08/20/2015	EPA 6010 C	3.02	5.43	12.4	mg/kg dry	
Barium	08/20/2015	EPA 6010 C	2.21	5.43	206	mg/kg dry	
Beryllium	08/20/2015	EPA 6010 C	1.92	5.43	<5.43	mg/kg dry	
Cadmium	08/20/2015	EPA 6010 C	0.62	5.43	9.76	mg/kg dry	
Chromium	08/20/2015	EPA 6010 C	2.31	5.43	64.6	mg/kg dry	
Copper	08/20/2015	EPA 6010 C	18.5	54.3	7520	mg/kg dry	3.E
Lead	08/20/2015	EPA 6010 C	2.24	5.43	372	mg/kg dry	
Nickel	08/20/2015	EPA 6010 C	2.21	5.43	36.2	mg/kg dry	
Selenium	08/20/2015	EPA 6010 C	2.99	5.43	<5.43	mg/kg dry	
Silver	08/20/2015	EPA 6010 C	0.13	5.43	30.9	mg/kg dry	

Date Prepared: 08/18/2015 Preparation Method: EPA 3050B

Parameter	Date Analyzed	Method	MDL	LOQ	Result	Units	Flag
Mercury	08/19/2015	EPA 7471 B	0.24	1.77	12.2	mg/kg dry	3.E

Date Prepared: 08/19/2015 Preparation Method: EPA 7471 B

Data Qualifiers Key Reference:

2.B Parameter not certifiable by ELAP.
3.A Minimum detection limit raised due to matrix interfernce.
3.E Compound reported at a dilution factor.
4.A Estimated concentration, exceeds calibration range.
4.J Continuing Calibration Verification (CCV) quality control levels low, values are considered to be estimated.
4.K Continuing Calibration Verification (CCV) quality control levels high, values are considered to be estimated.
4.L Surrogate recovery is outside the acceptance criteria.
4.N LCS recovery was below QC acceptance limit.
4.X Sample concentration is estimated due to non-target analyte inteference.
5.L Results may be biased low due to the sample not being collected according to 5035A-L/5035A-H low level specifications.
MDL Minimum Detection Limit
LOQ Limit of Quantitation

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CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

5081801

CLIENT NAME/ADDRESS: NPV 572 Walt Whitman Rd Melville, NY 11747

CONTACT: S. McGinn
PHONE: 427-5665
FAX: 427-5620
EMAIL:

PROJECT LOCATION: Indian Hills Country Club, Northport

SAMPLER (SIGNATURE):
SAMPLER NAME (PRINT): Steven J. McGinn
SAMPLE(S) SEALED: YES / NO
CORRECT CONTAINER(S): YES / NO

SAMPLES RECEIVED AT: 1-7 °C

TERMS & CONDITIONS: Accounts are payable in full within thirty days, outstanding balances accrue service charges of 1.5% per month. Tendering of samples to LIAL for analytical testing constitutes agreement by buyer/sampler to LIAL's Standard terms

LABORATORY ID # (For Laboratory Use Only)	MATRIX	TYPE	pH	RES. CHLORINE	PRES.	DATE	TIME	SAMPLE # LOCATION	ANALYSIS REQUIRED: SOP 9-95	# OF CONTAINERS
1. 5081801-01	S	G			1	8/17/15	10:21	CH-1S	X	2
2. 02					1		11:32	HVH-ST	X	2
3. 03					1		3:08	MBEP-1	X	2
4. 04					1		9:31	CHST-S	X	2
5. 05					1		11:09	CH-1N	X	2
6. 06					1		10:46	CHST-N2	X	2
7.										
8.										
9.										
10.										
11.										
12.										
13.										
14.										

MATRIX: S=SOIL; SL=SLUDGE; DW=DRINKING WATER; A=AIR; W=WIPE; PC=PAINT CHIPS; BM= BULK MATERIAL, O=OIL, WW=WASTE WATER
TYPE: G=GRAB; C=COMPOSITE; SS=SPLIT SPOON
PRES: (1) ICE; (2) HCL; (3) H_2SO_4; (4) NAOH; (5) $NA_2S_3O_3$; (6) HNO_3; (7) OTHER

TURNAROUND REQUIRED: ☑ NORMAL ☐ STAT
BY / /

COMMENTS / INSTRUCTIONS

RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY (SIGNATURE)	DATE / TIME	PRINTED NAME
	8/18/15 7:45	Steven J. McGinn		8/18/15 7:45	M. Veraldi
RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY SAMPLE CUSTODIAN	DATE / TIME	PRINTED NAME
				8-18-15 9:57AM	Ben Lamberson

WHITE - OFFICE / CANARY - SAMPLE CUSTODIAN / PINK - CLIENT

AARCO Environmental Services Corp.

HORNER EZY CHECK II

OWNER OR DEALER Indian Hills Country Club

ADDRESS 21 Breeze Hill Rd

CITY AND STATE Northport, NY

TANK INFORMATION

CAPACITY (NOMINAL) 1500

CAPACITY (CHART) 1500

NUMBER OF GALLONS ADDED 5

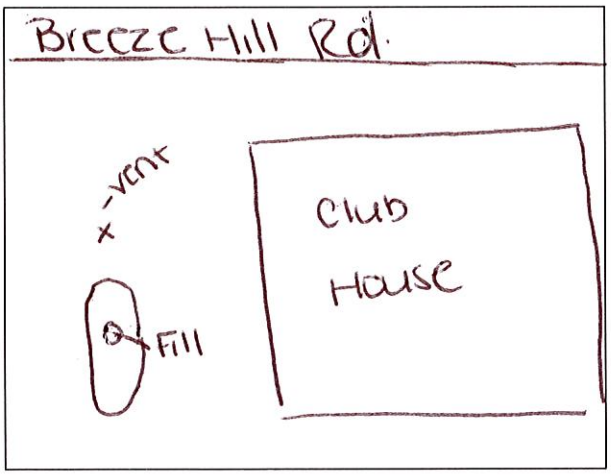
TOTAL CAPACITY 1505

CONTENTS (PRODUCT) #2 Fuel Oil CALIBRATION NUMBER 363

MONITOR MODE RESULTS

TIME	RESULT	CI
0050	-0.017	+/-0.003
0107	-0.021	+/-0.002

TANK LAYOUT



COEFFICIENT CALCULATIONS

MEASURED API GRAVITY 37

PRODUCT TEMPERATURE 53

API SPECIFIC GRAVITY @ 60 F. 37.5 (FROM TABLE A)

COEFFICIENT OF EXPANSION 472 (FROM TABLE B)

50 Gear Avenue, Lindenhurst, NY 11757 Phone (631) 586-5900 Fax (631) 586-5910

AARCO Environmental Services Corp.

HORNER EZY CHECK II TEST LOG

SITE ARRIVAL TIME 6:15 am

ONSITE CONTACT Bob

TIME OF PRODUCT DELIVERY 2 Day Prior

AMOUNT OF PRODUCT TO TOP OFF 3 gal

TIME OF EQUIPMENT SET UP 7:00 am

CHANGES TO TANK SYSTEM None

ESTIMATED AMOUNT OF PRODUCT TO MAINTAIN TEST LEVEL 5 gal

TIME OF .4 PSI DROP 8:30 am

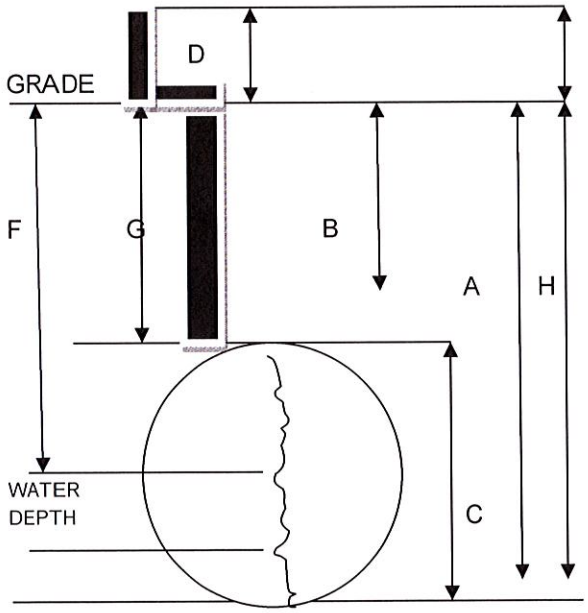
TIME OF CALIBRATION 9:30 am

TIME OF TEST COMPLETION 11:30 am

DEPTH OF WATER TABLE Below Tank Bottom EZY Stick

REMARKS Tank passed test at +/-0.011 GPH +/-0.001

OPERATOR John Bonanno



A. Tank Bot. to grade 81.5 "

B. Tank top to grade 33.5 "

C. Tank Diameter 48 "

D. Test level above grade 72 "

E. Depth of water in tank 0 "

F. Depth for taking sample 57.5 "

G. Temp probe depth (connector) 39.5 "

H. Test level to tank bottom 153.5 "

I. Groundwater above tank bot. 0 "

J. Product pressure per 1" height .031 PSI

Test Pressure Formula

(153.5 x .031) – (0 x .036) = 4.8 PSI

50 Gear Avenue, Lindenhurst, NY 11757 Phone (631) 586-5900 Fax (631) 586-5910

TANK 1 CAPACITY CHANGE GALLONS					TANK 2 CAPACITY CHANGE GALLONS			
TIME	VOLUME	TEMP.	NET	RATE GPH	VOLUME	TEMP.	NET	RATE GPH
00:30	+0.0000	+0.0000	+0.0000	+0.000				
00:31	+0.0000	-0.0000	+0.0001	+0.007				
00:32	+0.000000	-0.000000	+0.000000	+0.00085				

Printer Issues

Date + Time wrong on Computer

5/29/15 J.B.

INDIAN HILLS CC
21 BREEZE HILL RD
NORTHPORT NMORTHPORT NY
DATE: ~~12/21/00~~ 5/29/15 TIME: 00:32
FUEL TYPE: 2 FUEL OIL
CAPACITY TANK 1: 1505 GALLONS
TEST CRITERIA: +0.00 GPH TO +0.00 GPH
TEMPERATURE COEFFICIENT: 472 ppm/deg F
RELATIVE FUEL TEMPERATURE 51.35 deg F
VOLUME CHANGE PER DEG F: 0.71 GALLONS

TANK TESTER VER 2.01

TANK 1 CAPACITY CHANGE GALLONS					TANK 2 CAPACITY CHANGE GALLONS			
TIME	VOLUME	TEMP.	NET	RATE GPH	VOLUME	TEMP.	NET	RATE GPH
00:33	+0.000000	+0.000000	+0.000000	+0.00000				
00:33	-0.000003	+0.000000	-0.000003	-0.00037				
00:34	-0.0005	-0.0000	-0.0005	-0.043				
00:34	-0.0005	-0.0000	-0.0005	-0.045				
00:35	-0.0002	-0.0000	-0.0002	-0.042				
00:36	-0.0006	-0.0000	-0.0006	-0.043				
00:36	-0.0008	-0.0000	-0.0008	-0.048				
00:37	-0.0009	-0.0000	-0.0009	-0.055				
00:37	-0.0008	-0.0000	-0.0008	-0.059				
00:38	+0.0002	-0.0000	+0.0002	-0.057				
00:38	-0.0002	-0.0000	-0.0002	-0.054				
00:39	+0.0001	-0.0000	+0.0001	-0.050				
00:39	+0.0003	-0.0000	+0.0003	-0.044				
00:40	+0.0001	-0.0000	+0.0001	-0.040				
00:41	+0.0003	-0.0000	+0.0003	-0.035				
00:41	+0.0001	-0.0000	+0.0001	-0.030				
00:42	-0.0002	-0.0000	-0.0002	-0.027				
00:42	-0.0004	-0.0000	-0.0004	-0.025				
00:43	-0.0003	-0.0000	-0.0003	-0.024				
00:43	+0.0000	-0.0000	+0.0000	-0.023				
00:44	-0.0001	-0.0000	-0.0001	-0.022				
00:44	+0.0001	-0.0000	+0.0001	-0.020				
00:45	-0.0000	-0.0000	-0.0000	-0.019				
00:46	-0.0004	-0.0000	-0.0004	-0.019				
00:46	-0.0007	-0.0000	-0.0007	-0.019				
00:47	-0.0004	-0.0000	-0.0004	-0.019				
00:47	+0.0001	-0.0000	+0.0001	-0.019				
00:48	+0.0000	-0.0000	+0.0000	-0.018				
00:48	+0.0001	-0.0000	+0.0001	-0.018				
00:49	+0.0001	-0.0000	+0.0001	-0.017				
00:50	-0.0001	-0.0000	-0.0001	-0.017				
00:50	+0.0000	+0.0000	+0.0000	+0.000				
00:51	+0.0002	-0.0000	+0.0002	+0.023				
00:51	-0.0000	-0.0000	-0.0000	+0.011				
00:52	+0.0003	-0.0000	+0.0003	+0.016				
00:52	+0.0000	-0.0000	+0.0001	+0.015				

mon #1

01:26	-0.0000	-0.0000	-0.0000	+0.013
01:27	+0.0005	-0.0000	+0.0005	+0.014
01:28	-0.0001	-0.0000	-0.0001	+0.014
01:28	-0.0001	-0.0000	-0.0001	+0.014
01:29	+0.0000	-0.0000	+0.0000	+0.014
01:29	+0.0007	-0.0000	+0.0007	+0.015
01:30	+0.0002	-0.0000	+0.0002	+0.015
01:30	-0.0000	-0.0000	-0.0000	+0.015
01:31	-0.0001	-0.0000	-0.0001	+0.015
01:32	-0.0001	-0.0000	-0.0001	+0.015
01:32	+0.0006	-0.0000	+0.0006	+0.015
01:33	+0.0007	-0.0000	+0.0007	+0.016
01:33	+0.0003	-0.0000	+0.0003	+0.016
01:34	-0.0002	-0.0000	-0.0002	+0.016
01:34	-0.0003	-0.0000	-0.0003	+0.016
01:35	+0.0000	-0.0000	+0.0000	+0.016
01:35	+0.0002	-0.0000	+0.0002	+0.016
01:36	+0.0001	-0.0000	+0.0001	+0.016
01:37	-0.0003	-0.0000	-0.0003	+0.016
01:37	-0.0002	-0.0000	-0.0002	+0.016
01:38	-0.0001	-0.0000	-0.0001	+0.016
01:38	-0.0002	-0.0000	-0.0002	+0.016
01:39	+0.0001	-0.0000	+0.0001	+0.015
01:39	+0.0002	-0.0000	+0.0002	+0.015
01:40	+0.0005	-0.0000	+0.0005	+0.015
01:40	+0.0004	-0.0000	+0.0004	+0.015
01:41	+0.0001	-0.0000	+0.0001	+0.015

VOLUME RATE OF CHANGE 0.015 GPH
95 % CONFIDENCE INTERVAL: +/-0.001 GPH
RELATIVE FUEL TEMPERATURE: 51.34 deg F

01:42	+0.0002	-0.0000	+0.0002	+0.015
01:42	+0.0004	-0.0000	+0.0004	+0.015
01:43	+0.0005	-0.0000	+0.0005	+0.015
01:43	+0.0003	-0.0000	+0.0003	+0.015
01:44	+0.0004	-0.0000	+0.0004	+0.015
01:44	+0.0003	-0.0000	+0.0003	+0.015
01:45	+0.0004	-0.0000	+0.0004	+0.015
01:46	+0.0004	-0.0000	+0.0004	+0.016
01:46	+0.0004	-0.0000	+0.0004	+0.016
01:47	+0.0001	-0.0000	+0.0001	+0.016
01:47	-0.0004	-0.0000	-0.0003	+0.016
01:48	+0.0000	-0.0000	+0.0000	+0.016
01:48	-0.0002	-0.0000	-0.0002	+0.016
01:49	+0.0001	-0.0000	+0.0001	+0.016
01:49	-0.0001	-0.0000	-0.0000	+0.016
01:50	-0.0005	-0.0000	-0.0005	+0.016
01:51	+0.0002	-0.0000	+0.0002	+0.016
01:51	+0.0003	-0.0000	+0.0003	+0.016
01:52	+0.0000	-0.0000	+0.0000	+0.016
01:52	-0.0003	-0.0000	-0.0003	+0.016
01:53	+0.0002	-0.0000	+0.0002	+0.016
01:53	+0.0004	-0.0000	+0.0004	+0.016
01:54	+0.0000	-0.0000	+0.0000	+0.016
01:54	-0.0002	-0.0000	-0.0002	+0.016
01:55	-0.0002	-0.0000	-0.0002	+0.015
01:56	+0.0002	+0.0000	+0.0002	+0.015
01:56	+0.0000	-0.0000	+0.0000	+0.015
01:57	-0.0001	-0.0000	-0.0001	+0.015

00:53	+0.0003	-0.0000	+0.0003	+0.017
00:53	+0.0001	-0.0000	+0.0001	+0.017
00:54	-0.0004	-0.0000	-0.0004	+0.013
00:55	-0.0001	-0.0000	-0.0001	+0.009
00:55	-0.0002	-0.0000	-0.0002	+0.006
00:56	+0.0002	-0.0000	+0.0002	+0.005
00:56	-0.0002	-0.0000	-0.0002	+0.003
00:57	-0.0006	-0.0000	-0.0006	+0.000
00:57	-0.0006	-0.0000	-0.0006	-0.003
00:58	-0.0005	-0.0000	-0.0005	-0.007
00:58	-0.0005	-0.0000	-0.0005	-0.010
00:59	+0.0002	-0.0000	+0.0002	-0.012
01:00	-0.0005	-0.0000	-0.0005	-0.014
01:00	+0.0003	-0.0000	+0.0003	-0.015
01:01	-0.0003	-0.0000	-0.0003	-0.015
01:01	-0.0004	-0.0000	-0.0004	-0.016
01:02	-0.0005	-0.0000	-0.0005	-0.018
01:02	-0.0004	-0.0000	-0.0004	-0.019
01:03	-0.0000	+0.0000	-0.0000	-0.019
01:04	-0.0002	-0.0000	-0.0002	-0.020
01:04	+0.0001	-0.0000	+0.0001	-0.020
01:05	-0.0003	-0.0000	-0.0003	-0.020
01:05	-0.0004	-0.0000	-0.0004	-0.021
01:06	-0.0002	-0.0000	-0.0002	-0.021
01:06	-0.0002	-0.0000	-0.0001	-0.021
01:07	-0.0001	-0.0000	-0.0001	-0.021
01:07	+0.0000	+0.0000	+0.0000	+0.000 — mon # 2
01:08	+0.0000	+0.0000	+0.0000	+0.000* — start Test
01:09	-0.0001	-0.0000	-0.0001	-0.012
01:09	-0.0001	-0.0000	-0.0001	-0.013
01:10	+0.0005	-0.0000	+0.0005	+0.005
01:10	+0.0005	-0.0000	+0.0005	+0.019
01:11	-0.0002	+0.0000	-0.0002	+0.017
01:11	+0.0006	-0.0000	+0.0006	+0.022
01:12	+0.0001	-0.0000	+0.0001	+0.023
01:12	+0.0000	-0.0000	+0.0000	+0.022
01:13	-0.0002	-0.0000	-0.0002	+0.020
01:14	-0.0001	-0.0000	-0.0001	+0.017
01:14	-0.0001	-0.0000	-0.0001	+0.014
01:15	-0.0000	-0.0000	-0.0000	+0.012
01:15	+0.0003	-0.0000	+0.0003	+0.011
01:16	-0.0001	-0.0000	-0.0000	+0.010
01:16	+0.0000	+0.0000	-0.0000	+0.009
01:17	+0.0004	-0.0000	+0.0004	+0.009
01:18	-0.0001	-0.0000	-0.0001	+0.009
01:18	-0.0001	-0.0000	-0.0001	+0.008
01:19	-0.0001	-0.0000	-0.0001	+0.008
01:19	+0.0002	-0.0000	+0.0002	+0.008
01:20	+0.0000	-0.0000	+0.0000	+0.007
01:20	+0.0006	-0.0000	+0.0006	+0.008
01:21	+0.0003	-0.0000	+0.0003	+0.009
01:21	-0.0001	-0.0000	-0.0000	+0.009
01:22	+0.0000	-0.0000	+0.0001	+0.009
01:23	+0.0005	-0.0000	+0.0005	+0.010
01:23	-0.0001	-0.0000	-0.0001	+0.010
01:24	+0.0000	-0.0000	+0.0000	+0.010
01:24	+0.0006	-0.0000	+0.0006	+0.011
01:25	+0.0005	-0.0000	+0.0005	+0.012
01:25	+0.0005	-0.0000	+0.0006	+0.013

01:58 +0.0003 +0.0000 +0.0003 +0.015
VOLUME RATE OF CHANGE 0.015 GPH
95 % CONFIDENCE INTERVAL: +/-0.001 GPH
RELATIVE FUEL TEMPERATURE: 51.34 deg F

01:58	-0.0000	+0.0000	-0.0001	+0.015
01:59	-0.0006	-0.0000	-0.0006	+0.015
02:00	-0.0004	-0.0000	-0.0004	+0.015
02:00	-0.0004	-0.0000	-0.0004	+0.014
02:01	+0.0006	-0.0000	+0.0007	+0.014
02:01	+0.0003	+0.0000	+0.0003	+0.014
02:02	-0.0004	+0.0000	-0.0004	+0.014
02:02	+0.0002	-0.0000	+0.0002	+0.014
02:03	-0.0000	-0.0000	-0.0000	+0.014
02:03	-0.0004	-0.0000	-0.0004	+0.013
02:04	-0.0002	+0.0000	-0.0002	+0.013
02:05	+0.0002	-0.0000	+0.0002	+0.013
02:05	+0.0003	+0.0000	+0.0003	+0.013
02:06	-0.0000	-0.0000	-0.0000	+0.013
02:06	-0.0001	+0.0000	-0.0001	+0.013
02:07	+0.0001	-0.0000	+0.0001	+0.013
02:07	+0.0002	+0.0000	+0.0002	+0.012
02:08	+0.0001	-0.0000	+0.0001	+0.012
02:08	-0.0003	+0.0000	-0.0003	+0.012
02:09	-0.0003	-0.0000	-0.0003	+0.012
02:10	+0.0000	+0.0000	+0.0000	+0.012
02:10	+0.0004	+0.0000	+0.0004	+0.012
02:11	+0.0001	-0.0000	+0.0001	+0.012
02:11	-0.0003	+0.0000	-0.0003	+0.012
02:12	-0.0003	+0.0000	-0.0003	+0.011
02:12	-0.0003	-0.0000	-0.0003	+0.011
02:13	-0.0001	-0.0000	-0.0001	+0.011
02:14	+0.0002	-0.0000	+0.0002	+0.011
02:14	+0.0001	+0.0000	+0.0001	+0.011
02:15	+0.0001	+0.0000	+0.0001	+0.011

– End Test

VOLUME RATE OF CHANGE 0.011 GPH
95 % CONFIDENCE INTERVAL: +/-0.001 GPH
RELATIVE FUEL TEMPERATURE: 51.34 deg F

INDIAN HILLS CC
21 BREEZE HILL RD
NORTHPORT NY
TANK TESTER VER 2.01
FUEL TYPE: 2 FUEL OIL
CAPACITY TANK 1: 1505 GALLONS
TEMPERATURE COEFFICIENT: 472 ppm/deg F
TEST CRITERIA: +0.000 GPH TO +0.000 GPH
5/29/15 J.B.
~~12/24/00~~ TEST TIME FROM 01:08 TO 02:15
DATA ANALYSIS INDICATES:

A GROSS VOLUME CHANGE OF: +0.009 GALLONS
A VOLUME CHANGE DUE TO TEMPERATURE OF: -0.001 GALLONS

A LIQUID VOLUME RATE OF CHANGE OF: +0.011 GPH
WITH A 95 % CONFIDENCE INTERVAL OF: +/-0.001 GPH
(+0.011 TO +0.010 GPH)

TESTER.....

CUSTOMER.....

APPENDIX E

WATER RESOURCE INFORMATION

Appendix E-1
On-Site Water Quality Data

LONG ISLAND ANALYTICAL LABORATORIES INC.

"TOMORROWS ANALYTICAL SOLUTIONS TODAY"

Laboratory Report

NYSDOH ELAP# 11693
USEPA# NY01273
CTDOH# PH-0284
AIHA# 164456
NJDEP# NY012
PADEP# 68-2943

LIAL# 6050422

May 17, 2016

Nelson, Pope & Voorhis
Eric Arnesen
572 Walt Whitman Road
Melville, NY 11747

Re: Indian Hills

Dear Eric Arnesen,

Enclosed please find the laboratory Analysis Report(s) for sample(s) received on May 04, 2016. Long Island Analytical laboratories analyzed the samples on May 17, 2016 for the following:

SAMPLE ID	ANALYSIS
Well	Ammonia (as N) Analysis, Nitrate, Nitrite and TKN Analysis, Orthophosphate (as P), Phosphorus, Total, Total Nitrogen
Outfall	Ammonia (as N) Analysis, Nitrate, Nitrite and TKN Analysis, Orthophosphate (as P), Phosphorus, Total, Total Nitrogen

Samples received at 1.1 ° C

If you have any questions or require further information, please call at your convenience. Long Island Analytical Laboratories Inc. is a NELAP accredited laboratory. All reported results meet the requirements of the NELAP standards unless noted. Report shall not be reproduced except in full without the written approval of the laboratory. Results related only to items tested. Long Island Analytical Laboratories would like to thank you for the opportunity to be of service to you.

Best Regards,

Long Island Analytical Laboratories, Inc.

Michael Veraldi - Laboratory Director

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills
Date (Time) Collected: 05/04/2016 08:43	Sample ID: Well
Date (Time) Received: 05/04/2016 17:26	Laboratory ID: 6050422-01
Matrix: Non-Potable Water	ELAP: #11693

General Chemistry Parameters

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Total Kjeldahl Nitrogen	05/17/2016 17:37	ASTM D3590-02(06) (A)	1.00	<1.00	mg/L	

Date Prepared: 05/17/2016 Preparation Method: SM4500-Norg B

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Total Nitrogen	05/17/2016 17:37	Calculation	1.20	7.21	mg/L	

Date Prepared: 05/17/2016 Preparation Method: [CALC]

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Nitrate as N	05/05/2016 22:12	EPA 300.0 Rev. 2.1	0.10	7.21	mg/L	4.F
Nitrite as N	05/05/2016 22:12	EPA 300.0 Rev. 2.1	0.10	<0.10	mg/L	4.G
Orthophosphate as P	05/05/2016 22:12	EPA 300.0 Rev. 2.1	0.100	<0.100	mg/L	4.G

Date Prepared: 05/05/2016 Preparation Method: IC Preparation

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Ammonia as N	05/13/2016 15:00	SM 4500 NH3 C-97,-11	1.00	<1.00	mg/L	

Date Prepared: 05/13/2016 Preparation Method: SM4500-NH3 B-97,-11

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Phosphorus-Total	05/11/2016 15:12	SM 4500-P E-99,-11	0.100	<0.100	mg/L	

Date Prepared: 05/11/2016 Preparation Method: No Preparation

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills
Date (Time) Collected: 05/04/2016 08:39	Sample ID: Outfall
Date (Time) Received: 05/04/2016 17:26	Laboratory ID: 6050422-02
Matrix: Non-Potable Water	ELAP: #11693

General Chemistry Parameters

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Total Kjeldahl Nitrogen	05/17/2016 17:37	ASTM D3590-02(06) (A)	1.00	1.50	mg/L	

Date Prepared: 05/17/2016 Preparation Method: SM4500-Norg B

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Total Nitrogen	05/17/2016 17:37	Calculation	1.20	1.73	mg/L	

Date Prepared: 05/17/2016 Preparation Method: [CALC]

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Nitrate as N	05/05/2016 22:27	EPA 300.0 Rev. 2.1	0.10	0.23	mg/L	
Nitrite as N	05/05/2016 22:27	EPA 300.0 Rev. 2.1	0.10	<0.10	mg/L	
Orthophosphate as P	05/05/2016 22:27	EPA 300.0 Rev. 2.1	0.100	<0.100	mg/L	

Date Prepared: 05/05/2016 Preparation Method: IC Preparation

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Ammonia as N	05/13/2016 15:00	SM 4500 NH3 C-97,-11	1.00	<1.00	mg/L	

Date Prepared: 05/13/2016 Preparation Method: SM4500-NH3 B-97,-11

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Phosphorus-Total	05/11/2016 15:12	SM 4500-P E-99,-11	0.100	<0.100	mg/L	

Date Prepared: 05/11/2016 Preparation Method: No Preparation

Data Qualifiers Key Reference:

4.F Spike recovery does not meet QC criteria due to high target compound concentration.

4.G Spike recovery out of range due to matrix interference.

MDL Minimum Detection Limit

LOQ Limit of Quantitation

LONG ISLAND ANALYTICAL LABORATORIES INC.
"TOMORROWS ANALYTICAL SOLUTIONS TODAY"
110 Colin Drive • Holbrook, New York 11741 • Phone (631) 472-3400 • Fax (631) 472-8505 • Email: LIAL@lialinc.com

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

(10)

CLIENT NAME/ADDRESS: NPV, 577 WEST WHITMAN RD, MELVILLE NY 11747

CONTACT: Eric Anderson

PHONE: 427-5665

FAX:

EMAIL:

PROJECT LOCATION: Indian Hills

SAMPLER (SIGNATURE): Eric A

SAMPLER NAME (PRINT): Eric Anderson

SAMPLE(S) SEALED: YES / NO

CORRECT CONTAINER(S): YES / NO

6050422

SAMPLES RECEIVED AT: 1.1 °C

TERMS & CONDITIONS: Accounts are payable in full within thirty days, outstanding balances accrue service charges of 1.5% per month. Tendering of samples to LIAL for analytical testing constitutes agreement by buyer/sampler to LIAL's Standard terms

LABORATORY ID # (For Laboratory Use Only)	MATRIX	TYPE	pH	RES. CHLORINE	PRES.	DATE	TIME	SAMPLE # LOCATION	ANALYSIS REQUIRED: Total N	Phosphorous	Orthophosphate	Ammonia									# OF CONTAINERS
1. 6050422-01	L	G	—	—	ICE	5/4/16	8:43	WELL	X	X	X	X									3
2. 02	L	G	—	—	ICE	5/4/16	8:39	OUTFALL	X	X	X	X									3
3.																					
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					
11.																					
12.																					
13.																					
14.																					

Sample Preserved w/H2SO4 By: CLIENT

MATRIX: S=SOIL; SL=SLUDGE; DW=DRINKING WATER; A=AIR; W=WIPE; PC=PAINT CHIPS; BM= BULK MATERIAL, O=OIL, WW=WASTE WATER
TYPE: G=GRAB; C=COMPOSITE; SS=SPLIT SPOON
PRES: (1) ICE; (2) HCL; (3) H_2SO_4; (4) NAOH; (5) $NA_2S_3O_3$; (6) HNO_3; (7) OTHER

TURNAROUND REQUIRED: ☒ NORMAL ☐ STAT
BY / /

COMMENTS / INSTRUCTIONS

RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY (SIGNATURE)	DATE / TIME	PRINTED NAME
Eric A	5/4/16 5:20	Eric Anderson	[signature]	5-4-16 5:40	Ben Lamberson
RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY SAMPLE CUSTODIAN	DATE / TIME	PRINTED NAME
			[signature]	5-4-16 6:37	Ben Lamberson

WHITE - OFFICE / CANARY - SAMPLE CUSTODIAN / PINK - CLIENT

LONG ISLAND ANALYTICAL LABORATORIES INC.

"TOMORROWS ANALYTICAL SOLUTIONS TODAY"

Laboratory Report

NYSDOH ELAP# 11693
USEPA# NY01273
CTDOH# PH-0284
AIHA# 164456
NJDEP# NY012
PADEP# 68-2943

LIAL# 6081932

August 25, 2016

Nelson, Pope & Voorhis
Steve McGinn
572 Walt Whitman Road
Melville, NY 11747

Re: Indian Hills CC

Dear Steve McGinn,

Enclosed please find the laboratory Analysis Report(s) for sample(s) received on August 19, 2016. Long Island Analytical laboratories analyzed the samples on August 24, 2016 for the following:

SAMPLE ID	ANALYSIS
Outfall	Ammonia (as N) Analysis, Nitrate, Nitrite and TKN Analysis, Orthophosphate (as P), Phosphorus, Total, Total Nitrogen
Well	Ammonia (as N) Analysis, Nitrate, Nitrite and TKN Analysis, Orthophosphate (as P), Phosphorus, Total, Total Nitrogen

Samples received at 2.4 ° C

If you have any questions or require further information, please call at your convenience. Long Island Analytical Laboratories Inc. is a NELAP accredited laboratory. All reported results meet the requirements of the NELAP standards unless noted. Report shall not be reproduced except in full without the written approval of the laboratory. Results related only to items tested. Long Island Analytical Laboratories would like to thank you for the opportunity to be of service to you.

Best Regards,

Long Island Analytical Laboratories, Inc.

Michael Veraldi - Laboratory Director

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills CC
Date (Time) Collected: 08/19/2016 11:30	Sample ID: Outfall
Date (Time) Received: 08/19/2016 16:56	Laboratory ID: 6081932-01
Matrix: Non-Potable Water	ELAP: #11693

General Chemistry Parameters

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Total Kjeldahl Nitrogen	08/23/2016 10:53	ASTM D3590-02(06) (A)	1.00	5.90	mg/L	

Date Prepared: 08/22/2016 Preparation Method: SM4500-Norg B

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Total Nitrogen	08/23/2016 10:53	Calculation	1.20	6.03	mg/L	

Date Prepared: 08/22/2016 Preparation Method: [CALC]

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Nitrate as N	08/19/2016 23:11	EPA 300.0 Rev. 2.1	0.10	0.13	mg/L	
Nitrite as N	08/19/2016 23:11	EPA 300.0 Rev. 2.1	0.10	<0.10	mg/L	
Orthophosphate as P	08/19/2016 23:11	EPA 300.0 Rev. 2.1	0.100	<0.100	mg/L	

Date Prepared: 08/19/2016 Preparation Method: IC PW Prep

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Ammonia as N	08/22/2016 13:50	SM 4500 NH3 C-97,-11	1.00	<1.00	mg/L	

Date Prepared: 08/22/2016 Preparation Method: SM4500-NH3 B-97,-11

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Phosphorus-Total	08/24/2016 23:08	SM 4500-P E-99,-11	0.500	1.75	mg/L	3.E

Date Prepared: 08/24/2016 Preparation Method: No Preparation

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills CC
Date (Time) Collected: 08/19/2016 11:35	Sample ID: Well
Date (Time) Received: 08/19/2016 16:56	Laboratory ID: 6081932-02
Matrix: Non-Potable Water	ELAP: #11693

General Chemistry Parameters

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Total Kjeldahl Nitrogen	08/23/2016 10:53	ASTM D3590-02(06) (A)	1.00	<1.00	mg/L	

Date Prepared: 08/22/2016 Preparation Method: SM4500-Norg B

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Total Nitrogen	08/23/2016 10:53	Calculation	1.20	7.56	mg/L	

Date Prepared: 08/22/2016 Preparation Method: [CALC]

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Nitrate as N	08/19/2016 23:26	EPA 300.0 Rev. 2.1	0.10	7.56	mg/L	
Nitrite as N	08/19/2016 23:26	EPA 300.0 Rev. 2.1	0.10	<0.10	mg/L	
Orthophosphate as P	08/19/2016 23:26	EPA 300.0 Rev. 2.1	0.100	<0.100	mg/L	

Date Prepared: 08/19/2016 Preparation Method: IC PW Prep

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Ammonia as N	08/22/2016 13:50	SM 4500 NH3 C-97,-11	1.00	<1.00	mg/L	

Date Prepared: 08/22/2016 Preparation Method: SM4500-NH3 B-97,-11

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Phosphorus-Total	08/24/2016 23:08	SM 4500-P E-99,-11	0.500	2.04	mg/L	3.E

Date Prepared: 08/24/2016 Preparation Method: No Preparation

Data Qualifiers Key Reference:

3.E Compound reported at a dilution factor.
MDL Minimum Detection Limit
LOQ Limit of Quantitation

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CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

CLIENT NAME/ADDRESS: NPV, 572 WALT WHITMAN RD., MELVILLE, NY 11747

PROJECT LOCATION: INDIAN HILLS CC

CONTACT: Eric Anderson
PHONE: 631-427-5665
FAX:
EMAIL:

SAMPLER (SIGNATURE): Eric
SAMPLER NAME (PRINT): Eric Anderson

SAMPLE(S) SEALED: YES / NO
CORRECT CONTAINER(S): YES / NO

6081932

SAMPLES RECEIVED AT: 2.4 °C

TERMS & CONDITIONS: Accounts are payable in full within thirty days, outstanding balances accrue service charges of 1.5% per month. Tendering of samples to LIAL for analytical testing constitutes agreement by buyer/sampler to LIAL's Standard terms

LABORATORY ID # (For Laboratory Use Only)	MATRIX	TYPE	pH	RES. CHLORINE	PRES.	DATE	TIME	SAMPLE # LOCATION	TOTAL N	PHOSPHORUS ORTHOPHOSPHATE	Ammonia	# OF CONTAINERS
6081932-01	L	G	–	–	ICE	8/19/16	11:30	OUTFALL	X	X	X	3
2. 02	L	G	–	–	ICE	8/19/16	11:35	WELL	X	X	X	3
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												
11.												
12.												
13.												
14.												

Sample Preserved w/H2SO4 By: CLIENT

MATRIX: S=SOIL; SL=SLUDGE; DW=DRINKING WATER; A=AIR; W=WIPE; PC=PAINT CHIPS; BM= BULK MATERIAL, O=OIL, WW=WASTE WATER
TYPE: G=GRAB; C=COMPOSITE; SS=SPLIT SPOON
PRES: (1) ICE; (2) HCL; (3) H_2SO_4; (4) NAOH; (5) $NA_2S_3O_3$; (6) HNO_3; (7) OTHER

TURNAROUND REQUIRED: ☒ NORMAL ☐ STAT
BY / /

COMMENTS / INSTRUCTIONS

RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY (SIGNATURE)	DATE / TIME	PRINTED NAME
Eric	DATE 8/19/16 TIME 4:56	Eric Anderson		DATE 8-19-16 TIME 4:56	Ben Lamberson
RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY SAMPLE CUSTODIAN	DATE 8-19-16 TIME 5:51	PRINTED NAME Ben Lamberson

WHITE - OFFICE / CANARY - SAMPLE CUSTODIAN / PINK - CLIENT

NYSDOH ELAP# 11693 USEPA# NY01273 CTDOH# PH-0284 NJDEP# NY012 PADEP# 68-2943

Appendix E-2
SONIR Model User's Guide

SONIR MODEL USER'S GUIDE

Simulation of Nitrogen in Recharge (SONIR)
Nelson, Pope & Voorhis, LLC Microcomputer Model

October 10, 2016

INTRODUCTION

SONIR is a microcomputer model developed by Charles J. Voorhis, CEP, AICP for exclusive use by Nelson, Pope & Voorhis, LLC (NP&V) in order to simulate the hydrologic water budget of a site and determine total nitrogen and nitrogen present in recharge in connection with land use projects. The model was developed on the Microsoft Excel Spreadsheet (trademark of Microsoft Products) for IBM (trademark of International Business Machines, Inc.) or compatible Personal Computers capable of running Excel. SONIR has been updated by NP&V to account for updated references and data in keeping with industry standards and environmental changes. NP&V is a professional environmental planning consulting firm with expertise in water resource management and impact assessment, nitrogen budget modeling, watershed management plans, and groundwater, soil and air sampling and environmental monitoring. Firm qualifications are provided in **Attachment A**.

Nitrogen has been identified as a source of contamination primarily from sanitary discharge and lawn fertilization. Nitrogen is of concern as a drinking water contaminant, and there is an established health limit of 10 milligrams per liter (mg/l) in drinking water. Nitrogen is also of concern in surface water, as it is a nutrient that when present in high concentrations can cause algal blooms, resulting in biological oxygen demand as algae is biologically decomposed. Depleted oxygen in surface waters causes conditions unfavorable to fish species and can result in extremely undesirable aesthetic impacts, primarily related to odors. Accordingly, it is necessary to understand the concentration of nitrogen recharge as related to a proposed site development.

Utilizing a mass-balance concept, and applying known hydrologic facts and basic assumptions, it is possible to predict the concentration of nitrogen in recharge to the shallow aquifer underlying a given site. This prediction can in turn be used to determine impacts and significance of impacts in consideration of hydrogeologic factors. Similar techniques have been used to simulate nitrogen in recharge as published by the New York State Water Resources Institute, Center for Environmental Research at Cornell University, Ithaca, New York (**Hughes and Pacenka, 1985**). SONIR is intended to provide a more versatile model based upon the BURBS Mass-Balance concept. SONIR allows for use of the model to predict nitrogen impact from many sources including sewage treatment plants, and further allows for determination of a wider variety site recharge components under the hydrologic water budget section. SONIR has more versatility in the input of information, and also provides a printout of each step performed by the model, in order for regulatory agencies and review entities to understand how values are derived.

This text describes in detail the definition of terms, supported by referenced information regarding input of data for the simulation. The concept of determining the concentration of nitrogen in recharge involves a predication of the weight of nitrogen introduced to the site, as compared to the quantity of recharge resulting from precipitation and wastewater water discharge. Losses due to evapotranspiration and runoff must be accounted for in the simulation. The values and relationship associated with these parameters determines the quantity of recharge which enters the site. The prediction is generally annualized due to the availability of average annual hydrologic data; however, data input can be determined on a seasonal basis if information is available.

The model includes four (4) data sheets identified as follows:

Data Input Field - Sheet 1
Site Recharge Computations - Sheet 2
Site Nitrogen Budget - Sheet 3
Nitrogen in Recharge Output Field - Sheet 4

All information required by the model is input in Sheet 1- Data Input Field. Sheets 2 and 3 utilize data from Sheet 1 to compute the Site Recharge and the Site Nitrogen Budget. Sheet 4 utilizes the total values from Sheets 2 and 3 to perform the final Nitrogen in Recharge computations. Sheet 4 also includes tabulations of all conversion factors utilized in the model.

It should be noted that the simulation is only as accurate as the data which is input into the model. An understanding of hydrologic principles is necessary to determine and justify much of the data inputs used for water budget parameters. Further principles of environmental science and engineering are applied in determining nitrogen sources, application and discharge rates, degradation and losses, and final recharge. Users must apply caution in arriving at assumptions in order to ensure justifiable results.

SITE RECHARGE COMPUTATIONS

Overview

SONIR utilizes the basic hydrologic equation for determining the quantity of recharge anticipated by subtracting recharge losses from total precipitation. The quantity of recharge resulting from a given site is determined using the hydrologic budget equation **(Koszalka, 1984; p. 19):**

$$R = P - (E + Q)$$

where:
R = recharge
P = precipitation
E = evapotranspiration
Q = overland runoff

The quantity of recharge must be determined for each type of land use existing on a site, in order to determine the resultant site recharge. Surfaces commonly considered include: impervious surfaces; turfed areas; and natural areas; however, SONIR allows for a variety of land cover types to be considered in the model. In addition, site recharge occurs as a result of irrigation and wastewater discharge. In cases where water is imported to a site via a public water system, this quantity of recharge must be considered as additional water recharged on site. SONIR allows for all of these recharge components to be included in the simulation. Many sites have fresh surface water in the form of lakes and ponds. Precipitation falls upon these surfaces; however, such features generally act as a mechanism for water loss as a result of evaporation. SONIR includes a Water Area Loss component in determining the site Hydrologic Water Budget and in computing recharge nitrogen.

Data Input - Sheet 1

The following provides a discussion of data sources and assumptions associated with the hydrologic water budget, corresponding to the Data Input Field in Sheet 1 of SONIR:

1. *Area of Site* - The total area of the site (in acres) that is capable of recharging precipitation is entered in this data cell. For sites that include tidal wetlands, the area that is inundated by tidal waters should be excluded, as recharge from these areas should not be considered in the context of nitrogen simulation. For sites that include surface water, the area can be included, provided evaporative water loss from surface water is considered by entering the acreage of surface water in Data Cell 15 noted below.

2. *Precipitation Rate* - Precipitation in the form of rainfall and snowmelt is determined using long-term recorded values from local weather stations. Cornell University maintains the Northeast Regional Climate Center, from which long-term precipitation data for Long Island weather stations is available. Monthly precipitation averages are published for the period 1951-1980 in Thornthwaite and Mather's Climatic Water Budget Method **(Snowden and Pacenka, 1985).** Additional precipitation data for longer term averages can be obtained from http://longisland.about.com/od/neighborhoods/a/Long-Island-Ny-Climate.htm for the weather station at Mineola, NY, and/or the NOAA National Climatic Data Center for the period 1981 to 2010 (http://www.currentresults.com/Weather/New-York/average-yearly-precipitation.php). The long term average precipitation for Mineola is listed at 46.1 inches/year. Data entry is in inches.

3. *Acreage of Fertilized (SONIR allows multiple categories of fertilizer dependent vegetation to be entered)* - The total area fertilized (in acres) is entered in this Data Cell. This area includes all lawn/turf area that is irrigated and fertilized. If there is no lawn area, a value of zero (0) is entered.

4. *Fraction of Land in Fertilized* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land in Fertilized by dividing the lawn area by total area.

5. *Evapotranspiration from Fertilized* - Evapotranspiration is the natural water loss attributed to evaporation and plant utilization. Rainwater that is evaporated and transpired by plants is returned to the atmosphere as vapor. There are various methods for determining evapotranspiration, including direct measure and calculation. A commonly recognized method is the Thornthwaite and Mather Climatic Water Budget Method. Evapotranspiration rates for various locations on Long Island have been determined by the U.S. Geological Survey, as documented in: "Ground-Water-Recharge Rates in Nassau and Suffolk Counties, New York" **(Peterson, 1987; p. 10).** The following general rates as a percent of total precipitation are excerpted from that reference:

Location	Soil Type	Vegetation	ET (in)	ET (%)
Bridgehampton	sandy loam	shallow root	21.2	46.6
	silt loam	shallow root	21.4	47.2
LaGuardia	sand	shallow root	24.2	52.9
	clay loam	shallow root	25.4	55.5
	sandy loam	moderate root	26.2	57.2
JFK Airport	sand	shallow root	22.5	53.8
	clay loam	shallow root	23.9	57.3
	sandy loam	moderate root	25.0	60.0
Mineola	sand	shallow root	22.4	47.8
	sand-silt	shallow root	23.8	51.0
	sandy loam	moderate root	25.1	53.7
	sandy loam	orchards	25.5	54.5
Patchogue	fine sand	mature forest	25.5	53.5
Riverhead	sandy loam	shallow root	22.4	49.3
		orchards	24.8	54.7
Setauket	sandy loam	mature forest	26.8	57.9
Upton	silt loam	deep root	23.9	48.4
	sandy loam	moderate root	23.0	46.5

6. *Runoff from Fertilized* - Runoff is the quantity of water that travels overland during a precipitation event. Soil infiltration capacity is the critical factor in determining runoff; however, factors such as slope and vegetation also determine runoff characteristics to a lesser extent on Long Island because of soil conditions. Less urbanized areas of Long Island with characteristically dry soils with groundcover will have a low runoff percentage as a function of total precipitation, as compared to the more urbanized portions of western Long Island. Peterson **(1984; p. 14)** estimates runoff as a percent of total precipitation for Nassau County (2.1 %); Suffolk County (0.7 %), and Long Island in general (1.0 %). If an average precipitation rate of 45 inches per year is assumed, runoff will vary from 0.31 to 0.94 inches. Fertilized areas would be expected to be in the lower

end of the range. Judgements of higher and lower runoff can be made on a site-specific basis depending upon slope and groundcover types.

7. *Acreage of Other Area* - This is a general category which can be used to include additional groundcover types in the simulation. Acreage of Other Area is entered (in acres). This Data Cell can be used to include site recharge considerations from a portion of the site that has different hydrologic properties as a placeholder to customize data input/analysis.

8. *Fraction of Land in Other Area* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land in Other Area by dividing the land in other area by total area.

9. *Evapotranspiration from Other Area* - Evapotranspiration from Other areas is determined in the same manner as described for Data Cell 5 above. Value can be varied depending upon the hydrologic properties of the groundcover type.

10. *Runoff from Other Area* - The runoff coefficients noted in the discussion for Data Cell 6 above, are applied to Other Areas on a site-specific basis. Value can be varied depending upon the hydrologic properties of the groundcover type.

11. *Acreage of Unvegetated* - The total acreage of unvegetated area is entered in this Data Cell. This area includes sand, barren soils, and porous drives and trails. If there is no unvegetated area, a value of zero (0) is used.

12. *Fraction of Land Unvegetated* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land Unvegetated by dividing the unvegetated area by total area.

13. *Evapotranspiration from Unvegetated* - Evapotranspiration from Unvegetated areas is determined in the same manner as described for Data Cell 5 above.

14. *Runoff from Unvegetated* - The runoff coefficients noted in the discussion for Data Cell 6 above, are applied to unvegetated areas on a site-specific basis. Runoff in the middle to the higher end of the range (2.1% of precipitation) is expected due to lack of groundcover vegetation.

15. *Acreage of Water (this category could include irrigation ponds and/or other surface water features)* - SONIR considers evaporation from surface water in the computation of site recharge. Surface water, particularly groundwater fed lakes and ponds are a source of water loss in the water budget. The quantity of fresh surface water (in acres) is entered in this Data Cell.

16. *Fraction of Land in Water* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Water on the site by dividing the water area by total area.

17. *Evaporation from Water* - Surface water features will cause evaporation of water in excess of normal evapotranspiration as documented by **Warren et al, 1968,** Hydrology of Brookhaven National Laboratory and Vicinity Suffolk County, New York. It is estimated that the upper limit of evaporation from a large free-water surface is approximately 30.00 inches per year **(Warren et al, 1968; p. 26).** This value is entered in Data Cell 17 as the most accurate approximation.

18. *Makeup Water* - SONIR allows for consideration of the impact of man-made lakes on site recharge. Lakes are generally lined with an impermeable material. Evaporation occurs from the surface of the lake at a rate of 30.00 inches per year. In order to maintain a constant water level, an on-site well is generally installed to provide make-up water to the lake or pond. The quantity of make-up water is equivalent to the quantity of evaporation, given the fact that the function of the well is to replace water that is evaporated. Therefore, for cases where make-up water is used to maintain a constant water level, a value of 30.00 inches per year is entered in Data Cell 18.

19. *Acreage of Natural* - The total quantity of natural area (in acres) is entered in this Data Cell. This area includes naturally vegetated areas such as woodland, meadow, etc. If there is no natural area, a value of zero (0) is entered.

20. *Fraction of Land Natural* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land Natural by dividing the natural area by total area.

21. *Evapotranspiration from Natural* - Evapotranspiration from Natural areas is determined in the same manner as described for Data Cell 5 above.

22. *Runoff from Natural* - The runoff coefficients noted in the discussion for Data Cell 6 above, are applied to natural areas on a site specific basis. Generally lower values in the range of 0.7 % of precipitation are expected due to groundcover and canopy vegetation.

23. *Acreage of Impervious* - The total area of impervious surface (in acres) is entered in this Data Cell. This area includes paved driveways, parking areas, roofs, roads, etc. If there are no impervious surfaces, a value of zero (0) is entered.

24. *Fraction of Land Impervious* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land in Impervious by dividing the impervious area by total area.

25. *Evaporation from Impervious* - Impervious surfaces will allow water to evaporate, particularly during summer months. There is no vegetation; therefore there is no transpiration by plants. Evaporation from Impervious is estimated to be approximately 10 % of total precipitation **(Hughes and Porter, 1983; p. 10).** This value accounts for evaporation from parking lots and other surfaces during summer months, averaged over the entire year. This indicates that recharge/runoff would comprise the remaining 90% of precipitation. This assumption coincides with most drainage computations required by Code Subdivision Regulations for determined leaching pool capacity.

26. *Runoff from Impervious* - The approximation of Evaporation from Impervious would indicate that recharge/runoff would comprise the remaining 90 % of precipitation, as there are no other losses from impervious surfaces. In consideration of paved areas, runoff is not transported off the site or to surface water as a loss. Runoff is diverted to leaching pools and allowed to re-enter the hydrologic system beneath a given site. Therefore, in terms of site recharge computations, the value for Runoff from Impervious is zero (0).

27. *Acreage of Wetlands (this category would include wetlands that contain little surface water such as vegetated wetlands and vernal ponds. Such features would not be considered surface water, yet would not have the same leaching properties as other natural)* - SONIR considers evaporation from surface water in the computation of site recharge. Surface water, particularly groundwater fed lakes and ponds are a source of water loss in the water budget. The area of fresh surface water (in acres) is entered in this Data Cell.

28. *Fraction of Land in Wetlands* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Water on the site by dividing the water area by total area.

29. *Evaporation from Wetlands* – Abtew and Melesse **(2013)** report that evaportranspiration from wetlands is much greater than from surface water. It is estimated that the upper limit of evaporation from a large free-water surface is approximately 30.00 inches per year **(Warren et al, 1968; p. 26).** This value is increased to 40 inches per year for wetlands and the value is entered in Data Cell 25 as the most accurate approximation.

30. *Runoff from Wetlands* – The value inserted here would typically be zero (0). Adjustments can be made for site specific conditions if warranted.

31. *Acreage of Land Irrigated* – Use of water for irrigation purposes is an additional site recharge component not considered in any of the Data Cells above. The quantity of land irrigated on a given site is entered in this Data Cell (in acres).

32. *Fraction of Land Irrigated* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land Irrigated by dividing the Land Irrigated area by total area.

33. *Irrigation Rate* - The rate of irrigation must be entered in this Data Cell (in inches). Hughes and Porter **(1983; p. 19)** indicated that lawn irrigation is estimated to be about 5.5 inches per year; however, many sources recommend that irrigation be used to supplement natural rainfall to ensure that at least 1 inch of water is applied per week (http://www.gardening.cornell.edu/homegardening/scene7866.html). Assuming a growing season after spring when rainfall is more abundant and summer is hotter with typically less rainfall than spring, a 16 to 24 week period from May through August, or May through October is recommended, with an irrigation rate of 1 inch per week. This value (24 inches) is entered in Data Cell 29 as the most accurate approximation.

34. *Number of Dwellings* - The number of dwellings is entered in this Data Cell in order to allow for computation of wastewater disposal from residential use. Wastewater imported to a site, or even withdrawn from on-site wells and recharged through sanitary effluent is an additional recharge component that must be considered. If the project is for a commercial use or utilizes a denitrification system, the number of dwellings should not be entered in the Data Entry Field, as the wastewater flow will include recharge and nitrogen components.

35. *Water Use per Dwelling* - The water use should correspond to the total site non-irrigation water use, divided by the number of units, or a design flow factor for sanitary wastewater per dwelling can be inserted.

36. *Wastewater Design Flow (units)* - No entry need be made in this Data Cell. SONIR will compute the Wastewater Design Flow by multiplying the Number of Dwellings by the Water Use per Dwelling.

37. *Wastewater Design Flow* - SONIR permits the consideration of recharge and nitrogen input based on wastewater design flow if this is more appropriate than a determination based on number of units. This could include residential wastewater flow (e.g., combined units and clubhouse), commercial projects, denitrification systems and sewage treatment plants. SCDHS design flow factors are typically used to determine wastewater design flow. Once computed, the anticipated wastewater flow is entered in this Data Cell.

38. *Adjusted Wastewater Design Flow* – If units or space are not occupied on a year-round basis, or if for some other reason a flow adjustment is warranted, this cell is used to establish this flow reduction.

Site Recharge Computations - Sheet 2

Once data entry is complete for Site Recharge Parameters, SONIR will complete a series of detailed Water Budget computations for the overall site. The following describes the computations that are performed by the model:

A. *Fertilizer Area Recharge* - Fertilizer Area Recharge is determined by use of the basic Hydrologic Budget Equation [R = P - (E + Q)] as defined previously. The quantity of recharge determined by this method is then multiplied by that portion of the site occupied by Lawn Area to determine the component of Lawn Area Recharge in overall site recharge.

B. *Other Area Recharge* – Other Area Recharge is determined by use of the basic Hydrologic Budget Equation. The quantity of recharge determined by this method is then multiplied by that portion of the site occupied by Unvegetated Area to determine the component of Unvegetated Area Recharge in overall site recharge.

C. *Unvegetated Area Recharge* - Unvegetated Area Recharge is determined by use of the basic Hydrologic Budget Equation. The quantity of recharge determined by this method is then multiplied by that portion of the site occupied by Natural Area to determine the component of Natural Area Recharge in overall site recharge. This area can also include land that is revegetated to natural conditions.

D. *Water Area Loss* - The Hydrologic Budget Equation is modified to consider Water Area Loss. This is particularly useful in water quantity stressed areas of Long Island. If runoff (Q) is considered be zero (0), then lake storage/recharge without make-up water would be Precipitation minus Evaporation (P - E). The resultant quantity of lake storage/recharge is then reduced by the amount of make-up water (M). The final quantity of loss is then multiplied by that portion of the site occupied by water to determine the component of water loss as related to the overall site water budget.

E. *Natural Area Recharge* – Natural Area Recharge is determined by use of the basic Hydrologic Budget Equation. The quantity of recharge determined by this method is then multiplied by that portion of the site occupied by Other Area to determine the component of Other Area Recharge in overall site recharge.

F. *Impervious Area Recharge* - Impervious area recharge is also determined using the Hydrologic Budget Equation; however, the value for runoff is zero (0) due to the fact that runoff is controlled by conveyance to on site leaching facilities or is allowed to runoff into depressions where runoff is recharged on site.

G. *Wetlands Area Recharge* – Wetlands area recharge is determined using the Hydrologic Budget Equation; however, the value for runoff is zero (0) due to the fact that runoff is is assumed to not occur, and evapotranspiration is assumed to be increased as compared to water area loss.

H. *Irrigation Recharge* - Irrigation recharge is an additional recharge component artificially added on sites where irrigation occurs. This quantity is determined in the same manner as the Hydrologic Water Budget except that the irrigation rate (in inches) is substituted for precipitation. The resultant recharge is multiplied by the area of the site that is irrigated, in order to determine the Irrigation Recharge in overall site recharge. For golf course sites where evapotranspiration is monitored, irrigation can be used to replace plant water loss due to evapotranspiration. In these cases, plant uptake of irrigation water may be near 100% and little or no irrigation recharge is expected.

I. *Wastewater Recharge* - Wastewater is also a recharge component artificially added to a site. SONIR annualizes the wastewater design flow and assumes it is applied over the entire by multiplying Wastewater Design Flow by the Area of the Site, resulting in a per foot measure of wastewater over the site. This is converted to inches to be included in overall site recharge.

J. Runoff Recharge – Runoff occurs and is accounted for as part of the Hydrologic Budget Equation; however, for the purpose of SONIR, it is assumed to ultimately recharge somewhere on the site. This calculation totals the quantity of runoff from the other recharge calculations, so it is accounted for as recharge.

Once the nine (9) series of Site Recharge Computations are complete, SONIR totals each individual component to determine Total Site Recharge. The sum of these recharge contributions, is that quantity of water that is expected to enter the site on an annual basis due to precipitation, after the development is completed. This value is important in determining the concentration of nitrogen in recharge, and is important as a means of determining hydrologic impacts of a project in terms of changes to site recharge.

SITE NITROGEN BUDGET

Overview

The total nitrogen released on a given site must be determined in order to provide a means of simulating nitrogen in recharge. Nitrogen sources include: sanitary nitrogen; fertilizer nitrogen; pet waste nitrogen; precipitation nitrogen; and water supply nitrogen (wastewater and irrigation). The total of these quantities represents total site nitrogen.

Data Input - Sheet 1

The following provides a discussion of data sources and assumptions associated with the nitrogen budget, corresponding to the Data Input Field in Sheet 1 of SONIR:

1. *Persons per Dwelling* - The number of persons per dwelling is a demographic multiplier used in the determination of human population of a site. The US Census Bureau publishes data for household population. A value of 4.23 persons per dwelling is used for this analysis.

2. *Nitrogen per Person per Year* - Annual nitrogen per person is a function of nitrogen bearing waste in wastewater. For residential land use the population of the development is determined and the nitrogen generated is assumed to be 10 pounds per capita per year **(Hughes and Porter, 1983; p. 8).**

3. *Sanitary Nitrogen Leaching Rate* - Conventional sanitary systems have a leaching rate of approximately 50% **(Hughes and Porter, 1983; p. 14)**. Valiela **(1997)** estimates even greater nitrogen loss in the vadose zone and within groundwater up to 200 meters from the source. For conventional sanitary systems on small to medium sized sites, 50% leaching/loss rate should be applied to simulate nitrogen in recharge at the property line. For sewage treatment plants, effluent discharge concentration is assumed to be 10 mg/l or less (depending on treatment goals). Effluent is typically recharged via subsurface leaching pools and further loss may occur in the leaching pool, in the vadose zone, and in

shallow groundwater **(Thomas et al., 2003; p. 243)**. Thomas monitored a sewage treatment plant discharge and found losses dissolved inorganic nitrogen of 60% between the point of discharge and the first monitoring well; most loss was believed to occur within the vadose zone, aquifer interface and/or the initial 100 meters of travel in the aquifer. Given the variability attributed to where the loss occurs and the intent of SONIR to compute nitrogen at the property line, a conservative value of 10% loss is applied to STP effluent.

4. *Area of Land Fertilized 1* - The area of land fertilized is input in Data Cell 4. This value may correspond to the Acreage of Lawn and/or the Acreage of Land Irrigated, but is not necessarily the same value. This entry should be determined on a site-specific basis.

5. *Fertilizer Application Rate 1* - Fertilizer nitrogen is determined by a fertilizer application rate over a specified area of the site. The fertilizer application rates vary depending upon the type of use. The following table indicates the rate of fertilization as a function of use as excerpted from the Non-Point Source Management Handbook **(Koppelman, 1984; Chapter 5, p.6):**

Residential (contract)	1.5 lbs/1000 sq ft
Residential (unmanaged)	2.3 lbs/1000 sq ft
Commercial	3.5 lbs/1000 sq ft
Golf Course	3.5 lbs/1000 sq ft
Sod Farms	4.0 lbs/1000 sq ft
Recreational Lands	0.2 lbs/1000 sq ft

If a golf course has an Integrated Turf Health Management Plan (ITHM), then the ITHM should be consulted for application rates. In addition, a commercial landscaping firm has been interviewed to determine trends in commercial fertilizer application. Various fertilizer formulations are used including 10-6-4, 16-4-8 and 20-10-5 (nitrogen-phosphate-potash) depending upon season. Heavier nitrogen application rates are generally used in the spring. Fertilizer used is 50% organic nitrogen. This is applied in a dry form approximately 2-3 times per year, and a 50-pound bag is applied over approximately 16,000 square feet. Based on this rate if 20- 10-5 nitrogen were applied in the spring, and 16-4-8 were applied during summer and fall, this would result in an application rate of 1.5-2.1 pounds per 1000 square feet. The high of this range is a conservative value based on three applications of relatively high nitrogen fertilizer. Judgment must be used to determine the application rates per above and further review of references as appropriate or for specific instances.

6. *Fertilizer Nitrogen Leaching Rate 1* - Nitrogen applied as fertilizer is subject to plant uptake (20 to 80%; 50% on average) and storage in thatch and soils (36 to 47%), thereby reducing the total amount of nitrogen leached. The percentage of plant uptake and storage are based on studies cited in the LIRPB's Special Groundwater Protection Area Plan. Those studies estimated a conservative nitrogen leaching rate of 14%. Further work by the Cornell University School of Integrative Plant Science, Horticulture Section was consulted as well as references from A. Martin Petrovic, Ph.D. at Cornell University.

References specifically note that nitrogen leaching from turfgrass ranges were generally less than 10% **(1990, Petrovic, A.M.).** Further review of references from this source finds a useful comparison of turfgrass fertilizer leaching rates from various land cover types including golf courses and lawns. When considering four (4) field studies of golf course fertilizer nitrogen leaching, the leaching rates ranged from 0.02% to 13.2% and averaged 3%. When considering field studies for lawn nitrogen leaching rates, the average was 9.61% **(2008, Petrovic, A.M.)**. The purpose of the document was to advise the Massachusetts Estuary Program on appropriate turfgrass leaching rates for the Pleasant Bay Region on Cape Cod.[1] A previously used leaching rate of 20% was found to be excessive by a factor of 2. Though lawn and golf course leaching rates were not substantially different, results reported identified lawns as having a higher leaching average leaching rate based on field studies. Local conditions should be considered in terms of the level of detail needed for nitrogen budget analysis. For conservative analysis recommended values are 10% for turf under golf management and 15% for general lawn turf.

7. *Area of Land Fertilized 2* - More than one fertilizer nitrogen input is provided in order allow consideration of mixed use and/or golf course projects where land is fertilized at different rates.

8. *Fertilizer Application Rate 2* - Fertilizer Application Rates for this entry can be determined based upon Data Cell 5 above.

9. *Fertilizer Nitrogen Leaching Rate 2* - Fertilizer Nitrogen Leaching Rates can be determined based upon Data Cell 6 above.

10. *Pet Waste Application Rate* - Pet Waste Nitrogen results from the excretion of domestic pets in the outside environment. There is relatively little definitive information concerning this nitrogen source; however, several references were located and are analyzed herein. The 208 Study provides a table of nitrogen concentration in manure for various animals, not including dogs or cats. Total nitrogen values in the range of 0.30-0.43 lbs/day/1000 lbs live weight are reported for cattle, sheep and horses **(Koppelman, 1978; Animal Waste report p. 3).** It is assumed that dogs constitute the major source of animal waste that would be present in the yards of residential developments. Cat waste would be significantly less due to the lesser live weight of cats and the fact that many cat owners dispose of cat waste in solid waste by using an indoor litter box. If an average of 0.35 lbs of nitrogen is assumed for dogs, and an average of 25 pounds live weight is assumed per dog, then the total annual nitrogen per pet would be 3.19 lbs/year. The only other reference located that approximates nitrogen in pet waste is Land Use and Ground-Water Quality in the Pine Barrens of Southampton **(Hughes and Porter, 1983; p. 10).** This reference assumed an application rate of 6.5 lbs/acre of nitrogen. Pet waste was assumed to be deposited evenly over all turf. This assumption was not correlated to population density or pet density, but only to turfed acreage. In comparison of the two

[1] Hydrogeologic conditions on Cape Cod are similar to Long Island due to glacial origin, bays and estuaries.

values, the per pet value corresponds to approximately 2 turfed acres. For the purpose of this model, the value of 3.19 lbs/pet/year is considered to be the most justifiable value for pet waste and is entered in this Data Cell.

11. *Pet Waste Nitrogen Leaching Rate* - Pet waste is also subject to a leaching rate factor. Pet waste is generally found to be a minor contributor of nitrogen in an overall nitrogen budget. A conservative leaching rate of 50% of the nitrogen applied to the ground is assumed to be removed through N reduction processes.

12. *Area of Land Irrigated* - No entry need be made in this Data Cell. This value is the same as Data Cell 27 of the Site Recharge Parameters and SONIR will transfer the data entry to this Cell.

13. *Irrigation Rate* - No entry need be made in this Data Cell. This value is the same as Data Cell 29 of the Site Recharge Parameters and SONIR will transfer the data entry to this Cell.

14. *Irrigation Nitrogen Leaching Rate* - Hughes and Porter **(1983; p. 10)** states "plant uptake and gaseous losses are assumed to remove at least 85% of the nitrogen entering in precipitation." Irrigation nitrogen would be expected to be subject to the same losses as applied to fertilizer leaching; therefore, a leaching rate in the range of 5-10% can be assumed and entered in this Data Cell.

15 *Nitrogen in Precipitation* - Groundwater nitrogen is partially derived from rainwater. Nitrate-nitrogen concentrations in precipitation have been reported to be on the order of 1-2 mg/l in Nassau and Suffolk Counties **(SCDHS, 1987; p. 6-4)**, with some evidence of decrease since preparation of the SCCWRMP. A conservative value of 0.75 mg/l was used.

16. *Precipitation Nitrogen Leaching Rate* – A slightly higher nitrogen leaching rate may be appropriate for precipitation which falls generally on natural as well as turfed surfaces. While turfgrass leaching has been extensively documented and found to reduce leaching as a result of plant uptake and thatch/root zone processes, natural areas in sandy soils may result in less uptake. A factor of 15% is applied to precipitation nitrogen as based on Hughes and Porter) **(1983; p. 10)**.

17. *Nitrogen in Water Supply* - The concentration of Nitrogen in Water Supply determines the quantity of nitrogen that enters the site as a result of irrigation nitrogen and wastewater flow. Local water supply data should be utilized if available, otherwise a value of between 1 and 2 mg/l could be utilized.

18. *Nitrogen in Sanitary Flow -1* - This data entry allows SONIR to compute the quantity of nitrogen resulting from commercial discharge, denitrification systems and/or sewage treatment plants. Total nitrogen in community wastewater is identified as having a total nitrogen concentration of 20 mg/l in weak effluent; 40 mg/l in medium strength effluent,

and 85 mg/l in strong effluent **(Metcalf & Eddy, Inc, 1991).** It is recommended that a value of 60 mg/l be used for total nitrogen concentration in sanitary systems. Properly functioning denitrification systems and sewage treatment plants are capable of reducing total nitrogen to less than 10 mg/l in accordance with discharge limitations. A value of 10 mg/l can be entered in this data cell for such systems or other applicable value dependent on specific treatment efficiencies. The SONIR model computes the number of pounds of nitrogen in sanitary discharge as a function of concentration. The absolute nitrogen is utilized in the model; however, it must recognized that from the discharge point, nitrogen is nitrified through conversion of ammonia to nitrate in the leaching area beneath the discharge point. Further, natural transformation in the form of denitrification occurs as a result of bacteria. This causes release of nitrogen gas and may account for further reduction of 50% or more subsequent to discharge **(Canter and Knox, 1979; pp. 77-78; Hughes and Porter, 1983; p. 14).** As a result SONIR is conservative in predicting the concentration of nitrogen in recharge, and when natural denitrification of sanitary effluent is considered, actual concentration would be less.

19. Nitrogen in Sanitary Flow – 2 – SONIR allows for multiple concentrations of nitrogen in sanitary flow. This cell can be used to enter an additional concentration which will then be used for the nitrogen budget calculations. Innovative/Advanced On-site Wastewater Treatment Systems (I/A OWTS) are being analyzed and listed by the Suffolk County Department of Health Services for installation in residential and some commercial applications. These systems will treat to 19 mg/l or less. This cell can be used to evaluate such systems.

20. Fertilized Area – 3 – For additional flexibility, SONIR provides for an additional fertilizer area entry. This is particularly useful for golf course analyses and/or other types of projects that have different levels of managed turf.

21. *Fertilizer Application Rate 2* - Fertilizer Application Rates for this entry can be determined based upon the SONIR User Manual as indicted for Data Cell 5 above.

22. *Fertilizer Nitrogen Leaching Rate 2* - Fertilizer Nitrogen Leaching Rates can be determined based on the SONIR User Manual as indicated for Data Cell 6 above.

Site Nitrogen Budget - Sheet 3

Once data entry is complete for Nitrogen Budget Parameters, SONIR will complete a series of detailed computations to determine the individual component of nitrogen from each source and the total nitrogen for the overall site and use. The following describes the computations that are performed by the model:

A. *Sanitary Nitrogen - Residential* - SONIR establishes the site population using the number of units on the site, and the demographic multiplier. The nitrogen load factor is then applied and reduced by the leaching rate, resulting in the total

residential nitrogen component. If the project is for a commercial use or residential sanitary wastewater flow is used to determine nitrogen from residential, then the resultant value should be zero (0).

B. *Pet Waste Nitrogen* - The pet waste nitrogen was determined on a per pet basis; however, the number of pets for a given residential project must be determined. In order to correlate the number of pets to human population, a ratio was determined using information contained in the 208 Study, wherein it was estimated that there is 1 dog per 5 residents in suburban areas and 1 dog per 7 residents in urban areas **(Koppelman, 1978; Animal Waste Report, pp. 6).** This results in an average number of dogs based upon of 17% of the human population. Accordingly, this multiplier is used based upon the population of a land use project in order to estimate the nitrogen waste from pets. The pet waste nitrogen is subject to reduction as a function of the leaching rate, leading to the total pet waste nitrogen in pounds.

C. *Sanitary Nitrogen (Wastewater Design Flow)* - SONIR utilizes the Commercial/STP Flow that is converted to liters and multiplied by the nitrogen concentration in waste. This provides a weight of nitrogen in milligrams, which is converted to pounds for the total nitrogen from this component.

D. *Water Supply Nitrogen* - SONIR utilizes the residential wastewater design flow to compute the weight of nitrogen contributed from the water supply. The method of calculation is the same as Sanitary Nitrogen (Commercial/STP). For commercial projects, this value is accounted for in the Commercial/STP Flow.

E. *Fertilizer Nitrogen 1* - This calculation utilizes data entry from the Area of Land Fertilized 1, in the Data Input Field, to determine the weight of fertilizer nitrogen applied to the area. The area is multiplied by the application rate and reduced by the leaching rate documented previously to arrive at total weight.

F1. *Fertilizer Nitrogen 2* - If fertilization rates vary, the Area of Land Fertilized 2, is utilized to determine nitrogen from this source.

F2 *Fertilizer Nitrogen 3* - If fertilization rates vary, the Area of Land Fertilized 3, is utilized to determine nitrogen from this source.

G. *Precipitation Nitrogen* - Nitrogen in precipitation is considered by determining the liters of Natural Recharge entering the site, multiplied by the concentration of nitrogen in precipitation. SONIR uses the sum of natural recharge components from the Site Recharge Computations to establish the natural recharge. A precipitation nitrogen leaching rate of 15% is utilized as referenced above.

H. *Irrigation Nitrogen* - Although a very small component, the Irrigation Nitrogen is determined using the Irrigation Recharge R(irr) computed in the Site Recharge

Computations, over the irrigated area of the site to produce a volume of irrigation recharge. The Irrigation Recharge value is used in order to account for reduction of recharge due to evapotranspiration, since this component is only intended to determine nitrogen leaching into soil as a result of irrigation nitrogen in the water supply. This value is converted to liters and multiplied by the concentration of nitrogen in irrigation water supply. The Irrigation Nitrogen Leaching Rate (expected to the same as for precipitation) is applied to the weight to determine the total nitrogen from this source.

Once the eight (8) series of Site Nitrogen Budget computations are complete, SONIR totals each individual component to determine the Total Site Nitrogen. This value is used in determining the weight per volume ratio of nitrogen in recharge as computed in Sheet 4 of the SONIR model.

FINAL COMPUTATIONS, SUMMARY AND MITIGATION

SONIR utilizes data generated in Sheets 2 and 3 of the model to compute a mass/volume ratio for nitrogen in recharge. Nitrogen in recharge is converted from pounds to milligrams in order to provide units compatible for mass/volume concentration. Likewise, the quantity of site recharge is applied over the site in order to determine an overall volume number for site recharge. This is then converted to liters. The final computation divides the total weight of nitrogen in milligrams, by the total volume of recharge in liters, to arrive at the Nitrogen in Recharge ratio in milligrams per liter (mg/l). This concentration represents the Final Concentration of Nitrogen in Recharge, which is highlighted on Sheet 4.

Sheet 4 also provides a site recharge summary in order to compare recharge between natural conditions, a proposed project and/or alternatives. Total Site Recharge is presented in both inches, and as a volume in cubic feet/year, gallons/year and million gallons/year (MGY). The final sheet also summarizes the Conversions Used in SONIR. Conversions are standard conversion multipliers as found in standard engineering references.

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SONIR is a valuable tool allowing for versatile determination of site recharge as determined from many components of site recharge. SONIR determines the weight of nitrogen applied to a site from a variety of sources as well. SONIR is a fully referenced model utilizing basic hydrologic and engineering principals, in a simulation of nitrogen in recharge. Input data should be carefully justified in order to achieve best results. SONIR can be used effectively in comparing land use alternatives and relative impact upon groundwater due to nitrogen. By running the model for Existing Conditions, Proposed Project conditions and/or alternative land uses, comparison of impacts can be made and mitigation can be evaluated for consideration in land use decision-making. Questions, comments or suggestions concerning this model should be addressed to: Nelson, Pope & Voorhis, LLC, 572 Walt Whitman Road, Melville, New York 11747.

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

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Appendix E-3
SONIR Model Results, Existing Conditions

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

SHEET 1

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

Existing Conditions
The Preserve at Indian Hills

DATA INPUT FIELD

A	Site Recharge Parameters	Value	Units
1	Area of Site	137.86	acres
2	Precipitation Rate	46.10	inches
3	Acreage of Fertilized	27.91	acres
4	Fraction of Land in above	0.202	fraction
5	Evapotranspiration from above	25.50	inches
6	Runoff from above	0.32	inches
7	Acreage of Other Area (mowed)	65.47	acres
8	Fraction of above	0.475	fraction
9	Evapotranspiration from above	25.50	inches
10	Runoff from above	0.32	inches
11	Acreage of Unvegetated	1.78	acres
12	Fraction of above	0.013	fraction
13	Evapotranspiration from above	21.20	inches
14	Runoff from above	0.97	inches
15	Acreage of Water	3.20	acres
16	Fraction of Site in above	0.023	fraction
17	Evaporation from above	30.00	inches
18	Makeup Water (if applicable)	0.00	inches
19	Acreage of Natural	31.84	acres
20	Fraction of above	0.231	fraction
21	Evapotranspiration from above	26.80	inches
22	Runoff from above	0.32	inches
23	Acreage of Impervious	7.16	acres
24	Fraction of Land in above	0.052	fraction
25	Evapotrans. from above	4.61	inches
26	Runoff from Impervious	0.00	inches
27	Acreage of Wetlands	0.50	acres
28	Fraction of Land in above	0.004	fraction
29	Evapotrans. from above	40.00	inches
30	Runoff from above	0.00	inches
31	Acreage of Land Irrigated	27.91	acres
32	Fraction of Land Irrigated	0.202	fraction
33	Irrigation Rate	2.36	inches
34	Number of Dwellings	0	units
35	Water Use per Dwelling	0	gal/day
36	Wastewater Design Flow (units)	3,950	gal/day
37	Wastewater Design Flow (total)	0	gal/day
38	Adjusted WW Design Flow (total)	0	gal/day

B	Nitrogen Budget Parameters	Value	Units
1	Persons per Dwelling	1.75	persons
2	Nitrogen per Person per Year	10.0	lbs
3	a. Sanitary Nitrogen Leaching Rate	50%	percent
3	b. Treated Sanitary Nitrogen Leaching Rate	90%	percent
4	Fertilized Land - 1 (fairways)	23.90	acres
5	Fertilizer Application Rate (for above)	1.50	lbs/1000 sq ft
6	Fertilizer Nitrogen Leaching Rate (for above)	15%	percent
7	Fertilized Land - 2 (rough, mowed)	65.47	acres
8	Fertilizer Application Rate (for above)	0.75	lbs/1000 sq ft
9	Fertilizer Nitrogen Leaching Rate (for above)	15%	percent
10	Pet Waste Application Rate	3.19	lbs/pet
11	Pet Waste Nitrogen Leaching Rate	50%	percent
12	Area of Land Irrigated	27.91	acres
13	Irrigation Rate	2.36	inches
14	Irrigation Nitrogen Leaching Rate	15%	percent
15	Nitrogen in Precipitation	0.75	mg/l
16	Precipitation Nitrogen Leaching Rate	15%	percent
17	Nitrogen in Water Supply	2.00	mg/l
18	Nitrogen in Sanitary Flow -1	60.00	mg/l
19	Nitrogen in Sanitary Flow -2	19.00	mg/l
20	Fertilized Land - 3 (greens, tees)	4.01	acres
21	Fertilizer Application Rate (for above)	3.00	lbs/1000 sq ft
22	Fertilizer Nitrogen Leaching Rate (for above)	15%	percent

C	Comments
1)	Please refer to SONIR User Manual for data input instructions.
2)	Site size of 145.32 adjusted to remove 7.46 arces of beach and tidal water for SONIR.
3)	Acreage of Other Area (A7) is Mowed Landscaped (minimal fertilization,, no irrigation).
4)	Fertilized Land -2 (B7) is Mowed Landscaped (minimal fertilization, no irrigation.)
5)	Irrigation Rate (A33) determined by actual pumpage and area fertilized, computed for inches/year. 10 year annual average water use is 21,503,242; fertilized area is 27.91 acres.

Total Acreage Check 137.86 100%

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

SHEET 2

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

The Preserve at Indian Hills

SITE RECHARGE COMPUTATIONS

A	*Fertilized Landscape*	*Value*	*Units*
1	A = Fraction of Land in Cover Type	0.202	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evapotranspiration Rate	25.50	inches
4	Q = Runoff Rate	0.32	inches
5	R(a) = P - (E + Q)	20.28	inches
6	R(A) = R(a) x A	4.11	inches

B	*Other Area*	*Value*	*Units*
1	A = Fraction of Land in Cover Type	0.475	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evapotranspiration Rate	25.50	inches
4	Q = Runoff Rate	0.32	inches
5	R(b) = P - (E + Q)	20.28	inches
6	R(B) = R(b) x A	9.63	inches

C	*Unvegetated Area*	*Value*	*Units*
1	A = Fraction of Land in Cover Type	0.013	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evapotranspiration Rate	21.20	inches
4	Q = Runoff Rate	0.97	inches
5	R(c) = P - (E + Q)	23.93	inches
6	R(C) = R(c) x A	0.31	inches

D	*Water Area Loss*		
1	A = Fraction of Site in Water	0.023	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evaporation Rate	30.00	inches
4	Q = Runoff Rate	0.00	inches
5	M = Makeup Water	0.00	inches
6	R(d) = {P - (E+Q)} - M	16.10	inches
7	R(D) = R(d) x A	0.37	inches

E	*Natural*		
1	A = Fraction of Land in Cover Type	0.231	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evapotranspiration Rate	26.80	inches
4	Q = Runoff Rate	0.32	inches
5	R(e) = P - (E + Q)	18.98	inches
6	R(E) = R(e) x A	4.38	inches

F	*Impervious*	*Value*	*Units*
1	A = Fraction of Land in Cover Type	0.052	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evapotranspiration Rate	4.61	inches
4	Q = Runoff Rate	0.00	inches
5	R(f) = P - (E + Q)	41.49	inches
6	R(F) = R(f) x A	2.15	inches

G	*Wetlands*		
1	A = Fraction of Land in Cover Type	0.004	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evapotranspiration Rate	40.00	inches
4	Q = Runoff Rate	0.00	inches
5	R(g) = P - (E + Q)	6.10	inches
6	R(G) = R(g) x A	0.02	inches

H	*Land Irrigated*		
1	A = Fraction of Land Irrigated	0.202	fraction
2	I = Irrigation Rate	2.36	inches
3	E = Evaptranspiration Rate	25.50	inches
4	Q = Runoff Rate	0.32	inches
5	R(h) = I - (E + Q)	-23.46	inches
6	R(H) = R(H) x A	-4.75	inches

I	*Wastewater Recharge*		
1	WDF = Wastewater Design Flow	3,950	gal/day
2	WDF = Wastewater Design Flow	192,762	cu ft/yr
3	A = Area of Site	6,005,182	sq ft
4	R(j) = WDF/A	0.03	feet
5	R(I) = Wastewater Recharge	0.39	inches

J	*Runoff Recharge*		
1	Q(A) = Runoff from Landscaped	0.065	inches
2	Q(B) = Runoff from Other Area	0.153	inches
3	Q(C) = Runoff from Unvegetated	0.012	inches
4	Q(E) = Runoff from Natural	0.075	inches
5	Q(H) = Runoff from Irrigated	0.065	inches
6	Q(I) = Runoff from Other (if applicable)	0.07	inches
7	Q(tot) = Q(A)+Q(B)+Q(C)+Q(E)+Q(H)+Q(I)	0.44	inches

Total Site Recharge		
R(T) =	R(A)+R(B)+R(C)+R(D)+R(E)+R(F)+R(G)+R(H)+R(I)+R(J)+Q(tot)	
R(T) =	**17.05**	**inches**

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

SHEET 3

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

The Preserve at Indian Hills

SITE NITROGEN BUDGET

A	Sanitary Nitrogen-Residential	Value	Units
1	Number of Dwellings	0	units
2	Persons per Dwelling	1.75	capita
3	P = Population	0.00	capita
4	N = Nitrogen per person	10	lbs
6	N = (total; pre loss/removal)	0	lbs
7	LR = Leaching Rate	50%	percent
8	N(S) = P x N x LR	0.00	lbs
9	N = loss/removed	0.00	lbs

B	Pet Waste Nitrogen	Value	Units
1	AR = Application Rate	3.19	lbs/pet
2	Human Population	0	capita
3	Pets = 17 percent of capita	0	pets
4	N(p) = AR x pets	0.00	lbs
5	LR = Leaching Rate	50%	percent
6	N(P) = N(p) x LR	0.00	lbs
7	N = (loss/removed)	0.00	lbs

C	Sanitary Nitrogen (Wastewater Design Flow)		
1	CF = Commercial/STP Flow	3,950	gal/day
2	CF = Commercial/STP Flow	5,457,024	liters/yr
3	N = Nitrogen (1)	60.00	mg/l
4	N = Nitrogen (1)	721.96	lbs
5	N =Nitrogen (2)	60.00	mg/l
6	N = Nitrogen (2)	721.96	lbs
7	LR = Leaching Rate	50%	percent
8	N(S) = CF x N x LR	163,710,713	milligrams
9	N(S) = Sanitary Nitrogen	360.98	lbs
10	N = loss/removed	360.98	lbs

D	Water Supply Nitrogen (other than wastewater, if applicable)		
1	WDF = Wastewater Design Flow	0	gal/day
2	WDF = Wastewater Design Flow	0	liters/yr
3	N = Nitrogen in Water Supply	2.00	mg/l
4	N(WW) = WDF x N	0	milligrams
5	N(WW) = Wastewater Nitrogen	0.00	lbs

F1	Fertilizer Nitrogen - 2		
1	A = Area of Land Fertilized 2	2,851,873	sq ft
2	AR = Application Rate	0.75	lbs/1000 sf
3	N(T) = Nitrogen (total applied)	2138.90	lbs
4	LR = Leaching Rate	15%	percent
5	N(F2) = A x AR x LR	320.84	lbs
6	N = loss/removed	1818.07	lbs

E	Fertilizer Nitrogen - 1		
1	A = Area of Land Fertilized 1	1,041,084	sq ft
2	AR = Application Rate	1.50	lbs/1000 sf
3	N(T) = Nitrogen (total applied)	1561.63	lbs
4	LR = Leaching Rate	15%	percent
5	N(F1) = A x AR x LR	234.24	lbs
6	N = loss/removed	1327.38	lbs

F2	Fertilizer Nitrogen - 3		
1	A = Area of Land Fertilized 2	174,676	sq ft
2	AR = Application Rate	3.00	lbs/1000 sf
3	N(T) = Nitrogen (total applied)	524.03	lbs
4	LR = Leaching Rate	15%	percent
5	N(F2) = A x AR x LR	78.60	lbs
6	N = loss/removed	445.42	lbs

G	Precipitation Nitrogen (existing condition)		
1	R(n) = Natural Recharge (feet)	0.67	feet
2	A = Area of Site (sq ft)	6,005,182	sq ft
3	R(N) = R(n) x A	4,048,984	cu ft
4	R(N) = Natural Recharge (liters)	114,667,230	liters
5	N = Nitrogen in Precipitation	0.75	mg/l
6	N(T) = Nitrogen (total)	190	lbs
7	LR = Leaching Rate	15%	percent
8	N(ppt) = R(N) x N x LR	12,900,063.33	milligrams
10	N(irr) = Irrigation Nitrogen	28.44	lbs
9	N = loss/removed	161.19	lbs

H	Irrigation Nitrogen		
1	R = Irrigation Recharge (inches)	-4.75	inches
2	R = Irrigation Rate (feet)	-0.40	feet
3	A = Area of Land Irrigated	1,215,760	sq ft
4	R(I) = R(irr) x A	0	cu ft
5	R(I) = Site Precipitation (liters)	0	liters
6	N = Nitrogen in Water Supply	2.00	mg/l
7	N(T) = Nitrogen (total applied)	0.00	lbs
8	LR = Leaching Rate	15%	percent
9	N(irr) = R(I) x N x LR	0	milligrams
10	N(irr) = Irrigation Nitrogen	0.00	lbs
11	N = loss/removed	0.00	lbs

Total Site Nitrogen		
N=	N(S) + N(P) + N(WW) + N(F1) + N(F2) + N(ppt) + N(irr)	
N=	**1,023.11**	lbs

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

SHEET 4

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

Existing Conditions
The Preserve at Indian Hills

FINAL COMPUTATIONS

A	*Nitrogen in Recharge*	*Value*	*Units*
1	N = Total Nitrogen (lbs)	1,023.11	lbs
2	N = Total Nitrogen (milligrams)	464,492,129	milligrams
3	R(T) = Total Recharge (inches)	17.05	inches
4	R(T) = Total Recharge (feet)	1.42	feet
5	A = Area of Site	6,005,182	sq ft
6	R = R(T) x A	8,531,850	cu ft
7	R = Site Recharge Volume	241,622,005	liters
9	NR = N/R	1.92	mg/l

CONCENTRATION OF NITROGEN IN RECHARGE **1.92**

B	*Site Recharge Summary*	*Value*	*Units*
1	R(T) = Total Site Recharge	17.05	inches/yr
2	R = Site Recharge Volume	8,531,850	cu ft/yr
3	R = Site Recharge Volume	63,822,678	gal/yr
4	R = Site Recharge Volume	63.82	MG/yr

Conversions used in SONIR
Acres x 43,560 = Square Feet
Cubic Feet x 7.48052 = Gallons
Cubic Feet x 28.32 = Liters
Days x 365 = Years
Feet x 12 = Inches
Gallons x 0.1337 = Cubic Feet
Gallons x 3.785 = Liters
Grams / 1,000 = Milligrams
Grams x 0.002205 = Pounds
Milligrams / 1,000 = Grams

Appendix E-4
SONIR Model Results, Proposed Project

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT — **Proposed Project**

The Preserve at Indian Hills

DATA INPUT FIELD

A	*Site Recharge Parameters*	*Value*	*Units*
1	Area of Site	137.86	acres
2	Precipitation Rate	46.10	inches
3	Acreage of Fertilized	28.01	acres
4	Fraction of Land in above	0.203	fraction
5	Evapotranspiration from above	25.50	inches
6	Runoff from above	0.32	inches
7	Acreage of Other Area (mowed)	71.25	acres
8	Fraction of above	0.517	fraction
9	Evapotranspiration from above	25.50	inches
10	Runoff from above	0.32	inches
11	Acreage of Unvegetated	1.32	acres
12	Fraction of above	0.010	fraction
13	Evapotranspiration from above	21.20	inches
14	Runoff from above	0.97	inches
15	Acreage of Water	3.49	acres
16	Fraction of Site in above	0.025	fraction
17	Evaporation from above	30.00	inches
18	Makeup Water (if applicable)	0.00	inches
19	Acreage of Natural	18.88	acres
20	Fraction of above	0.137	fraction
21	Evapotranspiration from above	26.80	inches
22	Runoff from above	0.32	inches
23	Acreage of Impervious	14.41	acres
24	Fraction of Land in above	0.105	fraction
25	Evapotrans. from above	4.61	inches
26	Runoff from Impervious	0.00	inches
27	Acreage of Wetlands	0.50	acres
28	Fraction of Land in above	0.004	fraction
29	Evapotrans. from above	40.00	inches
30	Runoff from above	0.00	inches
31	Acreage of Land Irrigated	28.01	acres
32	Fraction of Land Irrigated	0.203	fraction
33	Irrigation Rate	2.36	inches
34	Number of Dwellings	2	units
35	Water Use per Dwelling	0	gal/day
36	Wastewater Design Flow (units)	37,250	gal/day
37	Wastewater Design Flow (total)	0	gal/day
38	Adjusted WW Design Flow (total)	0	gal/day

B	*Nitrogen Budget Parameters*	*Value*	*Units*
1	Persons per Dwelling	1.75	persons
2	Nitrogen per Person per Year	10.0	lbs
3	a. Sanitary Nitrogen Leaching Rate	50%	percent
3	b. Treated Sanitary Nitrogen Leaching Rate	90%	percent
4	Fertilized Land - 1 (fairways)	23.95	acres
5	Fertilizer Application Rate (for above)	1.50	lbs/1000 sq ft
6	Fertilizer Nitrogen Leaching Rate (for above)	15%	percent
7	Fertilized Land - 2 (rough, mowed)	71.25	acres
8	Fertilizer Application Rate (for above)	0.75	lbs/1000 sq ft
9	Fertilizer Nitrogen Leaching Rate (for above)	15%	percent
10	Pet Waste Application Rate	3.19	lbs/pet
11	Pet Waste Nitrogen Leaching Rate	50%	percent
12	Area of Land Irrigated	28.01	acres
13	Irrigation Rate	2.36	inches
14	Irrigation Nitrogen Leaching Rate	15%	percent
15	Nitrogen in Precipitation	0.75	mg/l
16	Precipitation Nitrogen Leaching Rate	15%	percent
17	Nitrogen in Water Supply	2.00	mg/l
18	Nitrogen in Sanitary Flow -1	60.00	mg/l
19	Nitrogen in Sanitary Flow -2	19.00	mg/l
20	Fertilized Land - 3 (greens, tees)	4.06	acres
21	Fertilizer Application Rate (for above)	3.00	lbs/1000 sq ft
22	Fertilizer Nitrogen Leaching Rate (for above)	15%	percent

C	*Comments*
1)	Please refer to SONIR User Manual for data input instructions.
2)	Site size of 145.32 adjusted to remove 7.46 arces of beach and tidal water for SONIR.
3)	Acreage of Other Area (A7) is Mowed Landscaped (minimal fertilization,, no irrigation).
4)	Fertilized Land -2 (B7) is Mowed Landscaped (minimal fertilization, no irrigation.)
5)	Irrigation Rate (A33) determined by actual pumpage and area fertilized, computed for inches/year. 10 year annual average water use is 21,503,242; fertilized area is 27.91 acres.

Total Acreage Check 137.86 100%

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

The Preserve at Indian Hills

SITE RECHARGE COMPUTATIONS

A	*Fertilized Landscape*	*Value*	*Units*
1	A = Fraction of Land in Cover Type	0.203	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evapotranspiration Rate	25.50	inches
4	Q = Runoff Rate	0.32	inches
5	R(a) = P - (E + Q)	20.28	inches
6	R(A) = R(a) x A	4.12	inches

B	*Other Area*	*Value*	*Units*
1	A = Fraction of Land in Cover Type	0.517	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evapotranspiration Rate	25.50	inches
4	Q = Runoff Rate	0.32	inches
5	R(b) = P - (E + Q)	20.28	inches
6	R(B) = R(b) x A	10.48	inches

C	*Unvegetated Area*	*Value*	*Units*
1	A = Fraction of Land in Cover Type	0.010	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evapotranspiration Rate	21.20	inches
4	Q = Runoff Rate	0.97	inches
5	R(c) = P - (E + Q)	23.93	inches
6	R(C) = R(c) x A	0.23	inches

D	*Water Area Loss*		
1	A = Fraction of Site in Water	0.025	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evaporation Rate	30.00	inches
4	Q = Runoff Rate	0.00	inches
5	M = Makeup Water	0.00	inches
6	R(d) = {P - (E+Q)} - M	16.10	inches
7	R(D) = R(d) x A	0.41	inches

E	*Natural*		
1	A = Fraction of Land in Cover Type	0.137	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evapotranspiration Rate	26.80	inches
4	Q = Runoff Rate	0.32	inches
5	R(e) = P - (E + Q)	18.98	inches
6	R(E) = R(e) x A	2.60	inches

F	*Impervious*	*Value*	*Units*
1	A = Fraction of Land in Cover Type	0.105	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evapotranspiration Rate	4.61	inches
4	Q = Runoff Rate	0.00	inches
5	R(f) = P - (E + Q)	41.49	inches
6	R(F) = R(f) x A	4.34	inches

G	*Wetlands*		
1	A = Fraction of Land in Cover Type	0.004	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evapotranspiration Rate	40.00	inches
4	Q = Runoff Rate	0.00	inches
5	R(g) = P - (E + Q)	6.10	inches
6	R(G) = R(g) x A	0.02	inches

H	*Land Irrigated*		
1	A = Fraction of Land Irrigated	0.203	fraction
2	I = Irrigation Rate	2.36	inches
3	E = Evaptranspiration Rate	25.50	inches
4	Q = Runoff Rate	0.32	inches
5	R(h) = I - (E + Q)	-23.46	inches
6	R(H) = R(H) x A	-4.77	inches

I	*Wastewater Recharge*		
1	WDF = Wastewater Design Flow	37,250	gal/day
2	WDF = Wastewater Design Flow	1,817,819	cu ft/yr
3	A = Area of Site	6,005,182	sq ft
4	R(j) = WDF/A	0.30	feet
5	R(I) = Wastewater Recharge	3.63	inches

J	*Runoff Recharge*		
1	Q(A) = Runoff from Landscaped	0.066	inches
2	Q(B) = Runoff from Other Area	0.167	inches
3	Q(C) = Runoff from Unvegetated	0.009	inches
4	Q(E) = Runoff from Natural	0.044	inches
5	Q(H) = Runoff from Irrigated	0.066	inches
6	Q(I) = Runoff from Other (if applicable)	0.07	inches
7	Q(tot) = Q(A)+Q(B)+Q(C)+Q(E)+Q(H)+Q(I)	0.42	inches

Total Site Recharge		
R(T) =	R(A)+R(B)+R(C)+R(D)+R(E)+R(F)+R(G)+R(H)+R(I)+R(J)+Q(tot)	
R(T) =	**21.48**	**inches**

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

The Preserve at Indian Hills

SITE NITROGEN BUDGET

A	*Sanitary Nitrogen-Residential*	*Value*	*Units*
1	Number of Dwellings	2	units
2	Persons per Dwelling	1.75	capita
3	P = Population	3.50	capita
4	N = Nitrogen per person	10	lbs
6	N = (total; pre loss/removal)	35	lbs
7	LR = Leaching Rate	50%	percent
8	N(S) = P x N x LR	17.50	lbs
9	N = loss/removed	17.50	lbs

B	*Pet Waste Nitrogen*	*Value*	*Units*
1	AR = Application Rate	3.19	lbs/pet
2	Human Population	1	capita
3	Pets = 17 percent of capita	0	pets
4	N(p) = AR x pets	0.32	lbs
5	LR = Leaching Rate	50%	percent
6	N(P) = N(p) x LR	0.16	lbs
7	N = (loss/removed)	0.16	lbs

C	*Sanitary Nitrogen (Wastewater Design Flow)*		
1	CF = Commercial/STP Flow	37,250	gal/day
2	CF = Commercial/STP Flow	51,461,806	liters/yr
3	N = Nitrogen (1)	19.00	mg/l
4	N = Nitrogen (1)	2155.99	lbs
5	N =Nitrogen (2)	19.00	mg/l
6	N = Nitrogen (2)	2155.99	lbs
7	LR = Leaching Rate	50%	percent
8	N(S) = CF x N x LR	488,887,159	milligrams
9	N(S) = Sanitary Nitrogen	1078.00	lbs
10	N = loss/removed	1078.00	lbs

D	*Water Supply Nitrogen (other than wastewater, if applicable)*		
1	WDF = Wastewater Design Flow	0	gal/day
2	WDF = Wastewater Design Flow	0	liters/yr
3	N = Nitrogen in Water Supply	2.00	mg/l
4	N(WW) = WDF x N	0	milligrams
5	N(WW) = Wastewater Nitrogen	0.00	lbs

F1	*Fertilizer Nitrogen - 2*		
1	A = Area of Land Fertilized 2	3,103,650	sq ft
2	AR = Application Rate	0.75	lbs/1000 sf
3	N(T) = Nitrogen (total applied)	2327.74	lbs
4	LR = Leaching Rate	15%	percent
5	N(F2) = A x AR x LR	349.16	lbs
6	N = loss/removed	1978.58	lbs

E	*Fertilizer Nitrogen - 1*		
1	A = Area of Land Fertilized 1	1,043,262	sq ft
2	AR = Application Rate	1.50	lbs/1000 sf
3	N(T) = Nitrogen (total applied)	1564.89	lbs
4	LR = Leaching Rate	15%	percent
5	N(F1) = A x AR x LR	234.73	lbs
6	N = loss/removed	1330.16	lbs

F2	*Fertilizer Nitrogen - 3*		
1	A = Area of Land Fertilized 2	176,854	sq ft
2	AR = Application Rate	3.00	lbs/1000 sf
3	N(T) = Nitrogen (total applied)	530.56	lbs
4	LR = Leaching Rate	15%	percent
5	N(F2) = A x AR x LR	79.58	lbs
6	N = loss/removed	450.98	lbs

G	*Precipitation Nitrogen (existing condition)*		
1	R(n) = Natural Recharge (feet)	0.45	feet
2	A = Area of Site (sq ft)	6,005,182	sq ft
3	R(N) = R(n) x A	2,676,663	cu ft
4	R(N) = Natural Recharge (liters)	75,803,095	liters
5	N = Nitrogen in Precipitation	0.75	mg/l
6	N(T) = Nitrogen (total)	125	lbs
7	LR = Leaching Rate	15%	percent
8	N(ppt) = R(N) x N x LR	8,527,848.23	milligrams
10	N(irr) = Irrigation Nitrogen	18.80	lbs
9	N = loss/removed	106.56	lbs

H	*Irrigation Nitrogen*		
1	R = Irrigation Recharge (inches)	-4.77	inches
2	R = Irrigation Rate (feet)	-0.40	feet
3	A = Area of Land Irrigated	1,220,116	sq ft
4	R(I) = R(irr) x A	0	cu ft
5	R(I) = Site Precipitation (liters)	0	liters
6	N = Nitrogen in Water Supply	2.00	mg/l
7	N(T) = Nitrogen (total applied)	0.00	lbs
8	LR = Leaching Rate	15%	percent
9	N(irr) = R(I) x N x LR	0	milligrams
10	N(irr) = Irrigation Nitrogen	0.00	lbs
11	N = loss/removed	0.00	lbs

Total Site Nitrogen	
N=	N(S) + N(P) + N(WW) + N(F1) + N(F2) + N(ppt) + N(irr)
N=	**1,777.94** lbs

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT **Proposed Project**

The Preserve at Indian Hills

FINAL COMPUTATIONS

A	*Nitrogen in Recharge*	*Value*	*Units*
1	N = Total Nitrogen (lbs)	1,777.94	lbs
2	N = Total Nitrogen (milligrams)	807,183,379	milligrams
3	R(T) = Total Recharge (inches)	21.48	inches
4	R(T) = Total Recharge (feet)	1.79	feet
5	A = Area of Site	6,005,182	sq ft
6	R = R(T) x A	10,747,638	cu ft
7	R = Site Recharge Volume	304,373,107	liters
9	NR = N/R	2.65	mg/l

CONCENTRATION OF NITROGEN IN RECHARGE **2.65**

B	*Site Recharge Summary*	*Value*	*Units*
1	R(T) = Total Site Recharge	21.48	inches/yr
2	R = Site Recharge Volume	10,747,638	cu ft/yr
3	R = Site Recharge Volume	80,397,921	gal/yr
4	R = Site Recharge Volume	80.40	MG/yr

Conversions used in SONIR
Acres x 43,560 = Square Feet
Cubic Feet x 7.48052 = Gallons
Cubic Feet x 28.32 = Liters
Days x 365 = Years
Feet x 12 = Inches
Gallons x 0.1337 = Cubic Feet
Gallons x 3.785 = Liters
Grams / 1,000 = Milligrams
Grams x 0.002205 = Pounds
Milligrams / 1,000 = Grams

Appendix E-5
SONIR Model Results, Alternative 2, R-40 Zoning

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT — **Alternative 2 - R-40 Subdivision**

The Preserve at Indian Hills

DATA INPUT FIELD

A	*Site Recharge Parameters*	*Value*	*Units*
1	Area of Site	137.86	acres
2	Precipitation Rate	46.10	inches
3	Acreage of Fertilized	23.64	acres
4	Fraction of Land in above	0.171	fraction
5	Evapotranspiration from above	25.50	inches
6	Runoff from above	0.32	inches
7	Acreage of Other Area	85.88	acres
8	Fraction of above	0.623	fraction
9	Evapotranspiration from above	25.50	inches
10	Runoff from above	0.32	inches
11	Acreage of Unvegetated	0.00	acres
12	Fraction of above	0.000	fraction
13	Evapotranspiration from above	21.20	inches
14	Runoff from above	0.97	inches
15	Acreage of Water	11.16	acres
16	Fraction of Site in above	0.081	fraction
17	Evaporation from above	30.00	inches
18	Makeup Water (if applicable)	0.00	inches
19	Acreage of Natural	0.00	acres
20	Fraction of above	0.000	fraction
21	Evapotranspiration from above	26.80	inches
22	Runoff from above	0.32	inches
23	Acreage of Impervious	16.68	acres
24	Fraction of Land in above	0.121	fraction
25	Evapotrans. from above	4.61	inches
26	Runoff from Impervious	0.00	inches
27	Acreage of Wetlands	0.50	acres
28	Fraction of Land in above	0.004	fraction
29	Evapotrans. from above	40.00	inches
30	Runoff from above	0.00	inches
31	Acreage of Land Irrigated	23.64	acres
32	Fraction of Land Irrigated	0.171	fraction
33	Irrigation Rate	16.00	inches
34	Number of Dwellings	103	units
35	Water Use per Dwelling	300	gal/day
36	Wastewater Design Flow (units)	0	gal/day
37	Wastewater Design Flow (total)	0	gal/day
38	Adjusted WW Design Flow (total)	0	gal/day

B	*Nitrogen Budget Parameters*	*Value*	*Units*
1	Persons per Dwelling	4.43	persons
2	Nitrogen per Person per Year	10.0	lbs
3	a. Sanitary Nitrogen Leaching Rate	50%	percent
3	b. Treated Sanitary Nitrogen Leaching Rate	90%	percent
4	Fertilized Land - 1	23.95	acres
5	Fertilizer Application Rate (for above)	2.30	lbs/1000 sq ft
6	Fertilizer Nitrogen Leaching Rate (for above)	15%	percent
7	Fertilized Land - 2 (rough, mowed)	0.00	acres
8	Fertilizer Application Rate (for above)	0.75	lbs/1000 sq ft
9	Fertilizer Nitrogen Leaching Rate (for above)	15%	percent
10	Pet Waste Application Rate	3.19	lbs/pet
11	Pet Waste Nitrogen Leaching Rate	50%	percent
12	Area of Land Irrigated	23.64	acres
13	Irrigation Rate	16.00	inches
14	Irrigation Nitrogen Leaching Rate	15%	percent
15	Nitrogen in Precipitation	0.75	mg/l
16	Precipitation Nitrogen Leaching Rate	15%	percent
17	Nitrogen in Water Supply	2.00	mg/l
18	Nitrogen in Sanitary Flow -1	60.00	mg/l
19	Nitrogen in Sanitary Flow -2	19.00	mg/l
20	Fertilized Land - 3 (greens, tees)	0	acres
21	Fertilizer Application Rate (for above)	3.00	lbs/1000 sq ft
22	Fertilizer Nitrogen Leaching Rate (for above)	15%	percent

C	*Comments*
1)	Please refer to SONIR User Manual for data input instructions.
2)	Site size of 145.32 adjusted to remove 7.46 arces of beach and tidal water for SONIR.
3)	Acreage of Other Area is: successional, natural and bluff.

Total Acreage Check 137.86 100%

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

The Preserve at Indian Hills

SITE RECHARGE COMPUTATIONS

A	*Fertilized Landscape*	*Value*	*Units*
1	A = Fraction of Land in Cover Type	0.171	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evapotranspiration Rate	25.50	inches
4	Q = Runoff Rate	0.32	inches
5	R(a) = P - (E + Q)	20.28	inches
6	R(A) = R(a) x A	3.48	inches

B	*Other Area*	*Value*	*Units*
1	A = Fraction of Land in Cover Type	0.623	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evapotranspiration Rate	25.50	inches
4	Q = Runoff Rate	0.32	inches
5	R(b) = P - (E + Q)	20.28	inches
6	R(B) = R(b) x A	12.63	inches

C	*Unvegetated Area*	*Value*	*Units*
1	A = Fraction of Land in Cover Type	0.000	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evapotranspiration Rate	21.20	inches
4	Q = Runoff Rate	0.97	inches
5	R(c) = P - (E + Q)	23.93	inches
6	R(C) = R(c) x A	0.00	inches

D	*Water Area Loss*		
1	A = Fraction of Site in Water	0.081	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evaporation Rate	30.00	inches
4	Q = Runoff Rate	0.00	inches
5	M = Makeup Water	0.00	inches
6	R(d) = {P - (E+Q)} - M	16.10	inches
7	R(D) = R(d) x A	1.30	inches

E	*Natural*		
1	A = Fraction of Land in Cover Type	0.000	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evapotranspiration Rate	26.80	inches
4	Q = Runoff Rate	0.32	inches
5	R(e) = P - (E + Q)	18.98	inches
6	R(E) = R(e) x A	0.00	inches

F	*Impervious*	*Value*	*Units*
1	A = Fraction of Land in Cover Type	0.121	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evapotranspiration Rate	4.61	inches
4	Q = Runoff Rate	0.00	inches
5	R(f) = P - (E + Q)	41.49	inches
6	R(F) = R(f) x A	5.02	inches

G	*Wetlands*		
1	A = Fraction of Land in Cover Type	0.004	fraction
2	P = Precipitation Rate	46.10	inches
3	E = Evapotranspiration Rate	40.00	inches
4	Q = Runoff Rate	0.00	inches
5	R(g) = P - (E + Q)	6.10	inches
6	R(G) = R(g) x A	0.02	inches

H	*Land Irrigated*		
1	A = Fraction of Land Irrigated	0.171	fraction
2	I = Irrigation Rate	16.00	inches
3	E = Evaptranspiration Rate	25.50	inches
4	Q = Runoff Rate	0.32	inches
5	R(h) = I - (E + Q)	-9.82	inches
6	R(H) = R(H) x A	-1.68	inches

I	*Wastewater Recharge*		
1	WDF = Wastewater Design Flow	0	gal/day
2	WDF = Wastewater Design Flow	0	cu ft/yr
3	A = Area of Site	6,005,182	sq ft
4	R(j) = WDF/A	0.00	feet
5	R(I) = Wastewater Recharge	0.00	inches

J	*Runoff Recharge*		
1	Q(A) = Runoff from Landscaped	0.055	inches
2	Q(B) = Runoff from Other Area	0.201	inches
3	Q(C) = Runoff from Unvegetated	0.000	inches
4	Q(E) = Runoff from Natural	0.000	inches
5	Q(H) = Runoff from Irrigated	0.055	inches
6	Q(I) = Runoff from Other (if applicable)	0.06	inches
7	Q(tot) = Q(A)+Q(B)+Q(C)+Q(E)+Q(H)+Q(I)	0.37	inches

Total Site Recharge	
R(T) =	R(A)+R(B)+R(C)+R(D)+R(E)+R(F)+R(G)+R(H)+R(I)+R(J)+Q(tot)
R(T) =	**21.14 inches**

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

The Preserve at Indian Hills

SITE NITROGEN BUDGET

A	*Sanitary Nitrogen-Residential*	*Value*	*Units*
1	Number of Dwellings	103	units
2	Persons per Dwelling	4.43	capita
3	P = Population	456.29	capita
4	N = Nitrogen per person	10	lbs
6	N = (total; pre loss/removal)	4562.9	lbs
7	LR = Leaching Rate	50%	percent
8	N(S) = P x N x LR	2281.45	lbs
9	N = loss/removed	2281.45	lbs

B	*Pet Waste Nitrogen*	*Value*	*Units*
1	AR = Application Rate	3.19	lbs/pet
2	Human Population	76	capita
3	Pets = 17 percent of capita	13	pets
4	N(p) = AR x pets	41.24	lbs
5	LR = Leaching Rate	50%	percent
6	N(P) = N(p) x LR	20.62	lbs
7	N = (loss/removed)	20.62	lbs

C	*Sanitary Nitrogen (Wastewater Design Flow)*		
1	CF = Commercial/STP Flow	0	gal/day
2	CF = Commercial/STP Flow	0	liters/yr
3	N = Nitrogen (1)	19.00	mg/l
4	N = Nitrogen (1)	0.00	lbs
5	N =Nitrogen (2)	19.00	mg/l
6	N = Nitrogen (2)	0.00	lbs
7	LR = Leaching Rate	50%	percent
8	N(S) = CF x N x LR	0	milligrams
9	N(S) = Sanitary Nitrogen	0.00	lbs
10	N = loss/removed	0.00	lbs

D	*Water Supply Nitrogen (other than wastewater, if applicable)*		
1	WDF = Wastewater Design Flow	0	gal/day
2	WDF = Wastewater Design Flow	0	liters/yr
3	N = Nitrogen in Water Supply	2.00	mg/l
4	N(WW) = WDF x N	0	milligrams
5	N(WW) = Wastewater Nitrogen	0.00	lbs

F1	*Fertilizer Nitrogen - 2*		
1	A = Area of Land Fertilized 2	0	sq ft
2	AR = Application Rate	0.75	lbs/1000 sf
3	N(T) = Nitrogen (total applied)	0.00	lbs
4	LR = Leaching Rate	15%	percent
5	N(F2) = A x AR x LR	0.00	lbs
6	N = loss/removed	0.00	lbs

E	*Fertilizer Nitrogen - 1*		
1	A = Area of Land Fertilized 1	1,043,262	sq ft
2	AR = Application Rate	2.30	lbs/1000 sf
3	N(T) = Nitrogen (total applied)	2399.50	lbs
4	LR = Leaching Rate	15%	percent
5	N(F1) = A x AR x LR	359.93	lbs
6	N = loss/removed	2039.58	lbs

F2	*Fertilizer Nitrogen - 3*		
1	A = Area of Land Fertilized 2	0	sq ft
2	AR = Application Rate	3.00	lbs/1000 sf
3	N(T) = Nitrogen (total applied)	0.00	lbs
4	LR = Leaching Rate	15%	percent
5	N(F2) = A x AR x LR	0.00	lbs
6	N = loss/removed	0.00	lbs

G	*Precipitation Nitrogen (existing condition)*		
1	R(n) = Natural Recharge (feet)	0.00	feet
2	A = Area of Site (sq ft)	6,005,182	sq ft
3	R(N) = R(n) x A	0	cu ft
4	R(N) = Natural Recharge (liters)	0	liters
5	N = Nitrogen in Precipitation	0.75	mg/l
6	N(T) = Nitrogen (total)	0	lbs
7	LR = Leaching Rate	15%	percent
8	N(ppt) = R(N) x N x LR	0.00	milligrams
10	N(irr) = Irrigation Nitrogen	0.00	lbs
9	N = loss/removed	0.00	lbs

H	*Irrigation Nitrogen*		
1	R = Irrigation Recharge (inches)	-1.68	inches
2	R = Irrigation Rate (feet)	-0.14	feet
3	A = Area of Land Irrigated	1,029,758	sq ft
4	R(I) = R(irr) x A	0	cu ft
5	R(I) = Site Precipitation (liters)	0	liters
6	N = Nitrogen in Water Supply	2.00	mg/l
7	N(T) = Nitrogen (total applied)	0.00	lbs
8	LR = Leaching Rate	15%	percent
9	N(irr) = R(I) x N x LR	0	milligrams
10	N(irr) = Irrigation Nitrogen	0.00	lbs
11	N = loss/removed	0.00	lbs

Total Site Nitrogen		
N=	N(S) + N(P) + N(WW) + N(F1) + N(F2) + N(ppt) + N(irr)	
N=	**2,662.00**	lbs

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT **Alternative 2 - R-40 Subdivision**

The Preserve at Indian Hills

FINAL COMPUTATIONS

A	*Nitrogen in Recharge*	*Value*	*Units*
1	N = Total Nitrogen (lbs)	2,662.00	lbs
2	N = Total Nitrogen (milligrams)	1,208,546,137	milligrams
3	R(T) = Total Recharge (inches)	21.14	inches
4	R(T) = Total Recharge (feet)	1.76	feet
5	A = Area of Site	6,005,182	sq ft
6	R = R(T) x A	10,577,602	cu ft
7	R = Site Recharge Volume	299,557,677	liters
9	NR = N/R	4.03	mg/l

CONCENTRATION OF NITROGEN IN RECHARGE **4.03**

B	*Site Recharge Summary*	*Value*	*Units*
1	R(T) = Total Site Recharge	21.14	inches/yr
2	R = Site Recharge Volume	10,577,602	cu ft/yr
3	R = Site Recharge Volume	79,125,960	gal/yr
4	R = Site Recharge Volume	79.13	MG/yr

Conversions used in SONIR
Acres x 43,560 = Square Feet
Cubic Feet x 7.48052 = Gallons
Cubic Feet x 28.32 = Liters
Days x 365 = Years
Feet x 12 = Inches
Gallons x 0.1337 = Cubic Feet
Gallons x 3.785 = Liters
Grams / 1,000 = Milligrams
Grams x 0.002205 = Pounds
Milligrams / 1,000 = Grams

APPENDIX F

WILDLIFE INFORMATION

Appendix F-1
Resumes of Key Personnel

Lara H. Urbat
Certified Ecologist, ESA

NELSON, POPE & VOORHIS, LLC
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Title
Project Manager/Environmental Scientist

Education & Training
- M.A. Stony Brook University, Department of Ecology and Evolution, December 2006
- B.S. Stony Brook University, Department of Biology, June 2005

Professional Affiliations, Certifications & Training
- Ecological Society of America, Certified Ecologist
- Society for Conservation Biology
- Long Island Geographic Information Systems Group (LIGIS)
- Long Island Invasive Species Management Area (LIISMA)
- Northeast ARC Users Group (NEARC)

Professional Experience
Lara Urbat holds a Master's Degree in Applied Ecology and a Bachelor's Degree in Biology with a focus in Environmental Science and has training and experience in field methods for terrestrial and marine environmental monitoring, ecological modeling and field assessments and GIS analysis. Ms. Urbat conducts environmental impact analysis and has participated in a number of ecological and land use management plans, including the Shelter Island Watershed Management Plan, Lake Montauk Watershed Management Plan, the assessment of barriers to fish passage on six south shore streams and Beaver Dam Creek Watershed Management Plan under grants from the NYS Department State. Ms. Urbat was the prime author of the LWRP Section II – Inventory and Analysis for the Town of Oyster Bay LWRP.

Project Experience
- Long Island Natural History Conference Invasive Species Presentation, March 2016
- Longwood Public Library Restoration Plan
- Longwood Public Library Invasive Species Presentation, July 2016
- EPCAL Grassland Restoration
- Willow Wood at Coram Revegetation Plan
- Manorhaven Beach/Sheets Creek Wetlands Permitting and Restoration Plan Revisions
- NEIWPCC GI/LID Assessment and Conceptual Design for Long Island Sound Study Stewardship Sites
- Tuthill's Creek Watershed Management Plan
- Lake Montauk Watershed Management Plan
- Shelter Island Watershed Management Plan
- Great Cove Watershed Management Plan, Town of Islip
- Beaverdam Creek, Watershed Management Plan, Town of Brookhaven
- Inventory and Analysis of Barriers to Fish Passage for Six Long Island South Shore Estuary Reserve Tributaries
- NEERS Presentation—A Method for Mapping and Prioritizing Diadramous Fish Passage Restoration, May 2011
- Town of Oyster Bay Local Waterfront Revitalization Plan
- Goldsmith's Inlet Draft EIS, Habitat Assessment, Endangered/Threatened Species Assessment
- Artist Lake RTE Species Investigation
- Cold Spring Pond Park Ecological Investigation
- Cenacle Sisters Convent Expanded EAF, Endangered Species Permit, Wetlands Permits
- Sandy Hills, Middle Island, Draft & Final SEIS
- Competition Toyota Draft & final SEIS
- North Manor Estates, Expanded EAF, ACOE Wetland Delineation

Hannah Emouna

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

Title
Environmental Scientist
Division of Environmental Wetlands & Resource Assessment

Education & Training
- Bachelor of Science in Wildlife Science, cum laude, State University of New York College of Environmental Science and Forestry
- Advanced Graduate Certificate in Geospatial Science, Stony Brook University- State of New York
- Master of Arts in Biology- Concentration in Applied Ecology, Stony Brook University- State of New York

Professional Experience
Hannah Emouna holds a Master's Degree in Biology with a concentration in Applied Ecology, an Advanced Graduate Certificate in Geospatial Science and a Bachelor's Degree in Wildlife Science. Her extensive training in geospatial science includes the use of remote sensing programs and GIS mapping across multiple platforms. Ms. Emouna is trained to perform environmental monitoring and assessment of both wildlife and plant populations. She regularly performs environmental monitoring that includes habitat composition, analysis, and delineation, ecological modeling and field assessments and for a variety of terrestrial and marine habitats.

Ms. Emouna serves as a point of contact for NP&V and oversees wetland permit applications with the NYSDEC, Army Corps of Engineers (ACOE), NYS Department of State (DOS), and Towns and Villages for several projects across Long Island.

Professional Affiliations & Certifications
- New York State GIS Association (NYSGIS)
- Long Island GIS Association (LIGIS)
- Huntington-Oyster Bay Audubon Society (HOBAS)

Prior Experience
- Threatened Species Monitor – MB Environmental Consulting Inc., Fire Island, New York
  - Monitor breeding activity of threatened Peregrine Falcons
  - Complete tri-weekly assessments of chick health and survival
  - Record daily activities of breeding adults and offspring
  - Assess impact of construction activities on nest success and overall bird health
  - Compose and distribute tri-weekly reports, as well as weekly summaries to multiple departments including the NYS Department of Transportation, New York Department of Environmental conservation.
- Field Researcher – White Sea Biological Station, Russia
  - Collected, classified, and analyzed marine invertebrates
  - Completed avian species surveys and point counts
  - Classified and analyzed lichens and their growth rates to determine the time of last substrate disturbance
- Wildlife Rehabilitation Intern – Sweetbriar Nature Center Smithtown, NY
  - Provided rehabilitative care to various native species (mammalian and avian species)
  - Assisted in wildlife intake assessments and the creation and implementation of care plans
  - Responsible for small group tour operations
- Field Researcher – Cranberry Lake Biological Station, Cranberry Lake, New York
  - Analyzed native and non-native minnow populations to determine relative abundance and distributions using seine nets
  - Participated in a small mammal population survey that utilized Sherman traps to determine distribution and abundance. Assisted in mist netting, measuring, and collecting blood samples for genetic analysis of the white-throated sparrow as part of an ongoing project run by Indiana State University

Appendix F-2
Historic Aerials

NELSON, POPE & VOORHIS, LLC
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FIGURE
1938 AERIAL PHOTOGRAPHY

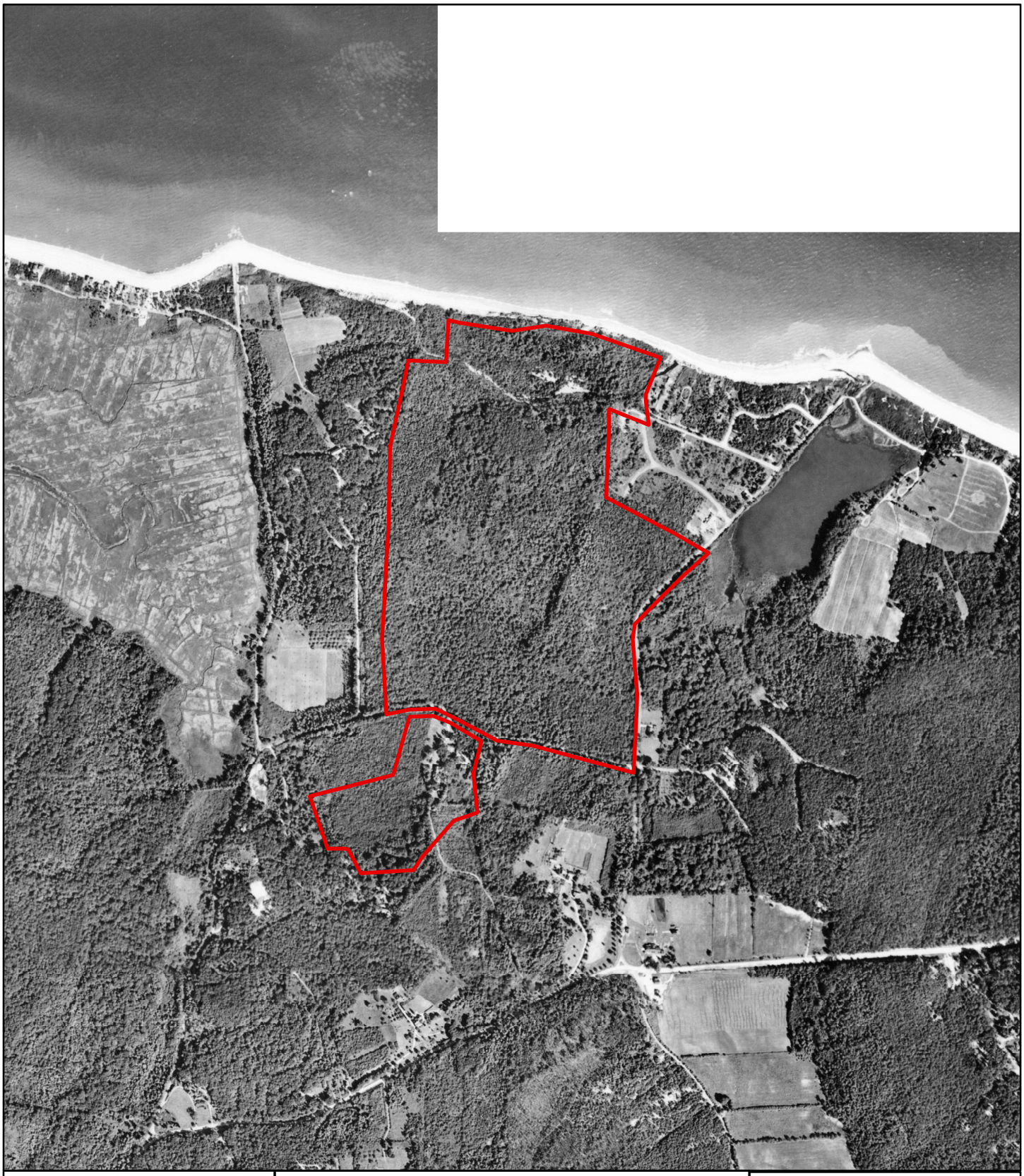
Source: SUNY Stony Brook digital archives

Scale: 1 inch = 1,000 feet

N

Indian Hills Golf Club Northport

Voluntary DEIS



NELSON, POPE & VOORHIS, LLC
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FIGURE
1947 AERIAL PHOTOGRAPHY

Source: Suffolk County GIS

Scale: 1 inch = 1,000 feet

N

Indian Hills Golf Club Northport

Voluntary DEIS

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

FIGURE
1962 AERIAL PHOTOGRAPHY

Source: Suffolk County GIS

Scale: 1 inch = 1,000 feet

N

Indian Hills Golf Club Northport

Voluntary DEIS

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

FIGURE
1978 AERIAL PHOTOGRAPHY

Source: Suffolk County GIS

Scale: 1 inch = 1,000 feet

N

Indian Hills Golf Club Northport

Voluntary DEIS

NELSON, POPE & VOORHIS, LLC
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FIGURE
1984 AERIAL PHOTOGRAPHY

Source: Suffolk County GIS

Scale: 1 inch = 1,000 feet

N

Indian Hills Golf Club Northport

Voluntary DEIS

NELSON, POPE & VOORHIS, LLC
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FIGURE
2001 AERIAL PHOTOGRAPHY

Source: Suffolk County GIS

Scale: 1 inch = 1,000 feet

N

Indian Hills Golf Club Northport

Voluntary DEIS

NELSON, POPE & VOORHIS, LLC
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FIGURE
2004 AERIAL PHOTOGRAPHY

Source: Suffolk County GIS

Scale: 1 inch = 1,000 feet

N

Indian Hills Golf Club Northport

Voluntary DEIS

NELSON, POPE & VOORHIS, LLC
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FIGURE
2007 AERIAL PHOTOGRAPHY

Source: Suffolk County GIS

Scale: 1 inch = 1,000 feet

N

Indian Hills Golf Club Northport

Voluntary DEIS

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

FIGURE
2010 AERIAL PHOTOGRAPHY

Source: Suffolk County GIS

Scale: 1 inch = 1,000 feet

N

Indian Hills Golf Club Northport

Voluntary DEIS

NELSON, POPE & VOORHIS, LLC
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FIGURE
2013 AERIAL PHOTOGRAPHY

Source: NYS Orthoimagery Program, 2013.

Scale: 1 inch = 1,000 feet

N

Indian Hills Golf Club Northport

Voluntary DEIS

Appendix F-3
Projection of Wildlife Ecological Response (POWER) Model

PROJECTION OF WILDLIFE ECOLOGICAL RESPONSE (POWER)

NELSON, POPE & VOORHIS, LLC, MICROCOMPUTER MODEL

SPECIES LIST

INTRODUCTION

This appendix has been included to present the results of a computer model used to investigate the various wildlife species which can be expected to be found on the site considering the habitats established. This model was developed by and for the use of Nelson, Pope & Voorhis, LLC using available information and references for the various species. The model utilizes Excel spreadsheets to identify wildlife species commonly found in various Long Island habitats, based upon thorough research of available literature. The habitats investigated consisted of Pine Barren, Successional Woodland, Successional Shrubland, Successional Field, Wooded Swamp, and Terrestrial Cultural (agricultural). Some of the species listed in this model would not be expected on the property given the surrounding development, but are present in similar habitats.

The first column identifies the common name of the species, presented with the main common name in alphabetical order (for example: red-tailed hawk would come before blue jay). The scientific name of particular species is in the second column. The third column shows the legal status of the species, of which there are four possible entries (Endangered, Threatened, Special Concern and Local Concern). The fourth column indicates the seasons during which the species might be expected to be present and the fifth column, of particular importance to the environmental setting, contains information on frequency of the species in the habitat (abundant, common, rare and non expected); the species activity in the habitat (nesting, hunting and resting). References are provided with the reference list provided at the end of the appendix. The printout contained in this appendix, coupled with the discussions provided in the main body of the report, provides significant information of the wildlife found, or expected to be found on site.

Successional Woodland Species - Inventory and Characteristics

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency / Habitat Use	References
Birds	**Birds**							
gray catbird	*Dumetella carolinensis*	none		Late	X		C / N,F	4 9
black capped chickadee	*Parus atricapillus*	none	X	X	X	X	A / N,F	4 11
brown-headed cowbird	*Molothrus ater*	none		X	X	Early	A / N,F	4 6
brown creeper	*Certhia familiaris*	none		X	X	Early	C / N,F	4 9
American crow	*Corvus brachyrhynchos*	none	X	X	X	X	A / N,H	4 11
yellow-billed cuckoo	*Coccyzus americanus*	none		Late	X		C / N,F	4 12
mourning dove	*Zenaida macroura*	none	X	X	X	X	C / N,H	4 8
rock dove	*Columba livia*	none	X	X	X	X	C / N,F	4 8
house finch	*Carpodacus mexicanus*	none		X	X	X	A / N,F	4 20
common flicker	*Colaptus auratus*	none	X	X	X	X	A / N,F	4 14
common grackle	*Quiscalus quiscula*	none	X	X	X	X	A / N,F	4 6
ruffed grouse	*Bonasa umbellus*	none	X	X	X	X	R / N,F	4 8
rose-breasted grosbeak	*Pheucticus ludovicianus*	none		Late	X	Early	R / N,F	4 20
Cooper's hawk	*Accipiter cooperii*	special concern		X	X		N / N,H	4 17
red-tailed hawk	*Buteo jamaicensis*	none	X	X	X	X	C / H	4 16
sharp-shinned hawk	*Accipiter striatus*	special concern	X	X	X	X	N / N,F	4 16
blue jay	*Cyanocitta cristatta*	none	X	X	X	X	A / N,F	4 10
Northern (dark-eyed) junco	*Junco hyemalis*	none	X			Late	C / N,F	4 21
American kestrel	*Falco sparverius*	none	X	X	X	X	C / N,H	4 17
Eastern kingbird	*Tyrannus tyrannus*	none		X	X	Early	C / N,F	4 15
golden-crowned kinglet	*Regulus satrapa*	none	X	X		X	R / N,H	4 7
ruby-crowned kinglet	*Regulus calendula*	none	X	X		X	R / N,H	4 7
Northern mockingbird	*Mimus polyglottos*	none	X	X	X	X	C / N,F	4 9
great-horned owl	*Bubo virginianus*	none	X	X	X	X	C / N,H	4 17
long-eared owl	*Asio otus*	none	X	X	X	X	C / N,H	4 17
American redstart	*Setophaga ruticilla*	none		Late	X	X	C / N,F	4 19
American robin	*Turdus migratorius*	none		X	X	Early	A / N,F	4 7
yellow-bellied sapsucker	*Sphyrapicus varius*	none		Late	X	Early	C / N,F	14
fox sparrow	*Passerella iliaca*	none	X	X		X	R / F	20 21
house sparrow	*Passer domesticus*	none	X	X	X	X	C / N,F	4 20
song sparrow	*Melospiza melodia*	none	X	X	X	X	A / N,F	4 22

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency / Habitat Use	References
white-throated sparrow	*Zonotrichia albicollis*	none	X	X	X	X	C / N,F	4 22
European starling	*Sturnus vulgaris*	none	X	X	X	X	A / N,F	4 23
barn swallow	*Hirundo rustica*	none		Late	X		C / N,F	4 15
brown thrasher	*Toxostoma rufum*	none		X	X	Early	C / N,F	4 9
hermit thrush	*Catharus guttatus*	none	X	X	X	X	R / N,F	4 7
wood thrush	*Hylocichla mustelina*	none		X	X	Early	C / N,F	4 7
rufous-sided towhee	*Pipilo erythrophthalmus*	none		Late	X	Early	A / N,F	4 20
red-eyed vireo	*Vireo olivaceus*	none		Late	X		C / N,F	4 23
black-and-white warbler	*Mniotilta varia*	none		X	X		C / N,F	4 18
blue-winged warbler	*Vermivora pinus*	none		Late	X		C / N,F	4 14
chestnut-sided warbler	*Dendroica pensylvanica*	none		Late	X		C / N,F	4 19
cedar waxwing	*Bombycilla cedrorum*	none		X	X	Early	C / N,F	4 23 32
whip-poor-will	*Caprimulgus vociferous*	special concern		Late	X		C / N	4 12
Eastern wood-peewee	*Contopus virens*	none		X	X		C / N,F	4 15
American woodcock	*Philhela minor*	none		X	X	X	R / N,F	4 30
downy woodpecker	*Picoides pubescens*	none	X	X	X	X	A / N,F	4 14
hairy woodpecker	*Picoides villosus*	none	X	X	X	X	R / N,F	4 14
red-bellied woodpecker	*Melanerpes carolinus*	none	X	X	X	X	R / N,F	4 14
Carolina wren	*Thryothorus ludovicianus*	none	X	X	X	X	C / N,F	4 9
house wren	*Troglodytes aedon*	none		Late	X	Early	C / N,F	4 9
big-brown bat	*Eptesicus fuscus*	none	X	X	X	X	C / N,F	1 29
hoary bat	*Lasiurus borealis*	none			Late	Early	C / N,F	45
Keen's bat	*Myotis keenii*	none			X	Early	R / N	1 29
Mammals								
little-brown bat	*Myotis lucifugus*	none	X	X	X	X	C / N,F	1 29
red bat	*Lasiurus borealis*	none		Late	X	Early	C / N,F	1 29
silver-haired bat	*Lasionycteris noctivagans*	none			X		R / N,F	1 29
Eastern chipmunk	*Tamis striatus*	none	X	X	X	X	C / N,F	1 29
Eastern cottontail	*Sylvilagus floridanus*	none	X	X	X	X	A / N,F	1 29
white-tailed deer	*Odocoileus virginianus*	none	X	X	X	X	C / F	1 25 29
red fox	*Vulpes vulpes*	none	X	X	X	X	C / N,H	1 29
Eastern mole	*Scalopus aquaticus*	none	X	X	X	X	C / N,F	1 29
meadow-jumping mouse	*Zapus hudsonicus*	none	X	X	X	X	R / N,F	1 29
white-footed mouse	*Peromyscus leucopus*	none	X	X	X	X	C / N,F	1 29

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency / Habitat Use	References
Virginia opossum	*Didelphis virginiana*	none	X	X	X	X	C / N,F	1 29
racoon	*Procyon lotor*	none	X	X	X	X	C / N,F	1 29
masked shrew	*Sorex cinereus*	none	X	X	X	X	C / N,F	1 29
short-tailed shrew	*Blarina breuicauda*	none	X	X	X	X	A / N,F	1 29
striped skunk	*Mephitis mephitis*	none	X	X	X	X	N / N,F	1 29
Eastern gray squirrel	*Sciurus carolinensis*	none	X	X	X	X	C / N,F	1 29
meadow vole	*Microtus pennsylvanicus*	none	X	X	X	X	R / N,F	29 45
pine vole	*Microtus pinetorum*	none	X	X	X	X	C / N,F	1 29
long-tailed weasel	*Mustela frenata*	none	X	X	X	X	R / N,H	1 29
woodchuck	*Marmota monax*	none	X	X	X	X	R / N,F	1 29
Herptiles								
Eastern garter snake	*Thamnophis sirtalis*	none	X	X	X	X	C / N,F	38 40
eastern hognose snake	*Heterodon platyrhinos*	special concern	X	X	X	X	R / N,H	38
eastern milk snake	*Lampropettis d. triangulum*	none	X	X	X	X	C / N,F	38 39

KEY:

Frequency:	Activity:
A- abundant	N- nesting
C- common	H- hunting
R- rare	R- resting
N- not expected	F- foraging

Dry Oak Forest Species - Inventory and Characteristics

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Refernces
gray catbird	*Dumetella carolinensis*	none		**Late**	**X**		R / N,F	4 9
black capped chickadee	*Parus atricapillus*	none	**X**	**X**	**X**	**X**	A / N,F	4 11
brown-headed cowbird	*Molothrus ater*	none		**X**	**X**	**Early**	A / N,F	4 6
brown creeper	*Certhia familiaris*	none		**X**	**X**	**Early**	C / N,F	4 9
American crow	*Corvus brachyrhynchos*	none	**X**	**X**	**X**	**X**	A / N,H	4 11
yellow-billed cuckoo	*Coccyzus americanus*	none		**Late**	**X**		R / N,F	4 12
house finch	*Carpodacus mexicanus*	none		**X**	**X**	**X**	A / N,F	4 20
common flicker	*Colaptus auratus*	none	**X**	**X**	**X**	**X**	C / N,F	4 14
Acadian flycatcher	*Empidonax virescens*	none		**Late**	**X**		N / N,F	4 15
great-crested flycatcher	*Myiarchus crinitus*	none		**Late**	**X**		C / N,F	4 15
common grackle	*Quiscalus quiscula*	none	**X**	**X**	**X**	**X**	C / N,F	4 6
ruffed grouse	*Bonasa umbellus*	none	**X**	**X**	**X**	**X**	C / N,F	4 8
broad-winged hawk	*Buteo platypterus*	none		**X**	**X**		R / N,H	4 16
Cooper's hawk	*Accipiter cooperii*	special concern		**X**	**X**		N / N,H	4 17
red-tailed hawk	*Buteo jamaicensis*	none	**X**	**X**	**X**	**X**	C / N,H	4 16
sharp-shinned hawk	*Accipiter striatus*	special concern	**X**	**X**	**X**	**X**	N / N,F	4 16
blue jay	*Cyanocitta cristatta*	none	**X**	**X**	**X**	**X**	A / N,F	4 10
Northern (dark-eyed) junco	*Junco hyemalis*	none		**X**	**X**	**Early**	R / N,F	4 21
Eastern kingbird	*Tyrannus tyrannus*	none		**X**	**X**	**Early**	C / N,F	4 15
golden-crowned kinglet	*Regulus satrapa*	none	**X**	**X**		**X**	R / N,H	4 7
ruby-crowned kinglet	*Regulus calendula*	none	**X**	**X**		**X**	R / N,H	4 7
purple martin	*Progne subis*	none		**Late**	**X**		R / N,F	4 15
Northern mockingbird	*Mimus polyglottos*	none	**X**	**X**	**X**	**X**	C / N,F	4 9
white-breasted nuthatch	*Sitta carolinensis*	none	**X**	**X**	**X**	**X**	A / N,F	4 9
northern oriole	*Icterus galbula*	none		**Late**	**X**		C / N,F	4 6
ovenbird	*Seiurus aurocapillus*	none		**Late**	**X**	**Early**	C / N,F	4 19
common screech owl	*Otus asio*	none	**X**	**X**	**X**	**X**	C / N	4 17
great-horned owl	*Bubo virginianus*	none	**X**	**X**	**X**	**X**	C / N,H	4 17
long-eared owl	*Asio otus*	none	**X**	**X**	**X**	**X**	C / N,H	4 17
American robin	*Turdus migratorius*	none		**X**	**X**	**Early**	A / N,F	4 7
yellow-bellied sapsucker	*Sphyrapicus varius*	none		**Late**	**X**	**Early**	C / N,F	14
fox sparrow	*Passerella iliaca*	none	**X**	**X**		**X**	R / F	20 21

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Refernces
house sparrow	*Passer domesticus*	none	**X**	**X**	**X**	**X**	C / N,F	4 20
song sparrow	*Melospiza melodia*	none	**X**	**X**	**X**	**X**	C / N,F	4 22
European starling	*Sturnus vulgaris*	none	**X**	**X**	**X**	**X**	C / N,F	4 23
scarlet tanager	*Piranga olivacea*	none		**X**	**X**		C / N,F	4
brown thrasher	*Toxostoma rufum*	none		**X**	**X**	**Early**	R / N,F	4 9
hermit thrush	*Catharus guttatus*	none	**X**	**X**	**X**	**X**	C / N,F	4 7
wood thrush	*Hylocichla mustelina*	none		**X**	**X**	**Early**	C / N,F	4 7
tufted titmouse	*Parus bicolor*	none	**X**	**X**	**X**	**X**	C / N,F	4 11
veery	*Catharus fuscescens*	none		**Late**	**X**		R / N,F	4 7
red-eyed vireo	*Vireo olivaceus*	none		**Late**	**X**		C / N,F	4 23
yellow throated vireo	*Vireo flavifrons*	none		**Late**	**X**		R / N,F	4 23
black-and-white warbler	*Mniotilta varia*	none		**X**	**X**		C / N,F	4 18
black-throated blue warbler	*Dendroica caerulescens*	none		**Late**	**X**	**Early**	C / N,F	18
blue-winged warbler	*Vermivora pinus*	none		**Late**	**X**		R / N,F	4 14
cedar waxwing	*Bombycilla cedrorum*	none		**X**	**X**	**Early**	C / N,F	4 23 32
whip-poor-will	*Caprimulgus vociferous*	special concern		**Late**	**X**		C / N	4 12
Eastern wood-peewee	*Contopus virens*	none		**X**	**X**		C / N,F	4 15
downy woodpecker	*Picoides pubescens*	none	**X**	**X**	**X**	**X**	A / N,F	4 14
hairy woodpecker	*Picoides villosus*	none	**X**	**X**	**X**	**X**	C / N,F	4 14
red-bellied woodpecker	*Melanerpes carolinus*	none	**X**	**X**	**X**	**X**	C / N,F	4 14
house wren	*Troglodytes aedon*	none		**Late**	**X**	**Early**	R / N,F	4 9
Mammals								
big-brown bat	*Eptesicus fuscus*	none	**X**	**X**	**X**	**X**	C / N,F	1 29
hoary bat	*Lasiurus borealis*	none			**Late**	**Early**	C / N,F	45
Keen's bat	*Myotis keenii*	none			**X**	**Early**	R / N	1 29
little-brown bat	*Myotis lucifugus*	none	**X**	**X**	**X**	**X**	C / N,F	1 29
red bat	*Lasiurus borealis*	none		**Late**	**X**	**Early**	C / N,F	1 29
Eastern pipistrelle	*Pipistrellus subflavus*	none		**X**	**X**	**Early**	R / N,F	1 29
silver-haired bat	*Lasionycteris noctivagans*	none			**X**		R / N,F	1 29
Eastern chipmunk	*Tamis striatus*	none	**X**	**X**	**X**	**X**	C / N,F	1 29
Eastern cottontail	*Sylvilagus floridanus*	none	**X**	**X**	**X**	**X**	C / N,F	1 29
white-tailed deer	*Odocoileus virginianus*	none	**X**	**X**	**X**	**X**	C / N,F	1 25 29
red fox	*Vulpes vulpes*	none	**X**	**X**	**X**	**X**	C / N,H	1 29
Eastern mole	*Scalopus aquaticus*	none	**X**	**X**	**X**	**X**	C / N,F	1 29

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Refernces
house mouse	*Mus musculus*	none	X	X	X	X	N / N,F	1 29
meadow-jumping mouse	*Zapus hudsonicus*	none	X	X	X	X	R / N,F	1 29
white-footed mouse	*Peromyscus leucopus*	none	X	X	X	X	C / N,F	1 29
Virginia opossum	*Didelphis virginiana*	none	X	X	X	X	C / N,F	1 29
racoon	*Procyon lotor*	none	X	X	X	X	C / N,F	1 29
masked shrew	*Sorex cinereus*	none	X	X	X	X	C / N,F	1 29
short-tailed shrew	*Blarina breuicauda*	none	X	X	X	X	A / N,F	1 29
striped skunk	*Mephitis mephitis*	none	X	X	X	X	N / N,F	1 29
Eastern gray squirrel	*Sciurus carolinensis*	none	X	X	X	X	A / N,F	1 29
southern-flying squirrel	*Glaucimys volans*	none	X	X	X	X	C / N,F	1 29
pine vole	*Microtus pinetorum*	none	X	X	X	X	C / N,F	1 29
long-tailed weasel	*Mustela frenata*	none	X	X	X	X	R / N,H	1 29
Herptiles								
spring peeper	*Hyla crucifer*	none	X	X	X	X	R / N,F	33 35 38
red-backed salamander	*Plethodon cinerus cinerus*	none	X	X	X	X	R / N,F	34 36
marbled salamander	*Ambystoma opacum*	special concern	X	X	X	X	R / N,F	34 36 38
Eastern garter snake	*Thamnophis sirtalis*	none	X	X	X	X	C / N,F	38 40
eastern milk snake	*Lampropettis d. triangulu*	none	X	X	X	X	C / N,F	38 39
Eastern spadefoot toad	*Scaphiopus holbrooki*	special concern	X	X	X	X	C / N,F	33

KEY:

Frequency:	Activity:
A- abundant	N- nesting
C- common	H- hunting
R- rare	R- resting
N- not expected	F- foraging

Wooded Swamp Species: Inventory and Characteristics

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Reference
Birds								
red-winged blackbird	*Agelaius phoeniceus*	none		X	X	Early	A / N,F	4 6
Northern cardinal	*Cardinalis cardinalis*	none	X	X	X	X	C / N,F	4 20
wood duck	*Aix sponsa*	none		X	X	Early	C / N,F	4 27
great-crested flycatcher	*Myiarchus crinitus*	none		Late	X		C / N,F	4 15
blue-grey gnatcatcher	*Polioptila caerulea*	none		X	X		R / N,F	4 7
rose-breasted grosbeak	*Pheucticus ludovicianus*	none		Late	X	Early	R / N,F	4 20
yellow-crowned night-heron	*Nycticorax violaceus*	none	X	X	X	X	C / N,H	4 26
mallard	*Anas platyrhynchos*	none		X	X	X	C / N,F	4 27
white-breasted nuthatch	*Sitta carolinensis*	none	X	X	X	X	A / N,F	4 9
osprey	*Pandion haliaetus*	special concern		X	X	Early	C / N,H	4 16
great-horned owl	*Bubo virginianus*	none	X	X	X	X	C / N,H	4 17
saw-whet owl	*Aegolius acadicus*	none	X	X	X	X	C / N,H	4 17
Eastern phoebe	*Sayornis phoebe*	none		X	X	Early	C / N,F	4 15
spotted sandpiper	*Actitus macularia*	none		X	X	Early	R / N,F	4 31 32
swamp sparrow	*Melospiza georgiana*	none	X	X	X	X	C / N,F	4 22
European starling	*Sturnus vulgaris*	none	X	X	X	X	R / N,F	4 23
tree swallow	*Tachycineta bicolor*	none		X	X		C / N,F	4 15
tufted titmouse	*Parus bicolor*	none	X	X	X	X	C / N,F	4 11
veery	*Catharus fuscescens*	none		Late	X		C / N,F	4 7
yellow warbler	*Dendrocica petchia*	none		Late	X		C / N,F	4 18
American woodcock	*Philhela minor*	none		X	X	X	C / N,F	4 30
downy woodpecker	*Picoides pubescens*	none	X	X	X	X	A / N,F	4 14
hairy woodpecker	*Picoides villosus*	none	X	X	X	X	C / N,F	4 14
red-bellied woodpecker	*Melanerpes carolinus*	none	X	X	X	X	C / N,F	4 14
Mammals								
big-brown bat	*Eptesicus fuscus*	none	X	X	X	X	R / H	1 29
little-brown bat	*Myotis lucifugus*	none	X	X	X	X	R / H	1 29
Eastern cottontail	*Sylvilagus floridanus*	none	X	X	X	X	A / F	1 29
white-tailed deer	*Odocoileus virginianus*	none	X	X	X	X	C / F	1 25 29
red fox	*Vulpes vulpes*	none	X	X	X	X	C / H	1 29
mink	*Mustela vison*	none	X	X	X	X	C / N,F	1

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Reference
star-nosed mole	*Condylura cristata*	none	X	X	X	X	R / N,F	1 29
meadow-jumping mouse	*Zapus hudsonicus*	none	X	X	X	X	R / N,F	1 29
white-footed mouse	*Peromyscus leucopus*	none	X	X	X	X	C / N,F	1 29
muskrat	*Ondarta zibethicus*	none	X	X	X	X	C / N,F	1 29
Virginia opossum	*Didelphis virginiana*	none	X	X	X	X	C / N,F	1 29
racoon	*Procyon lotor*	none	X	X	X	X	C / N,F	1 29
Norway rat	*Rattus norvegicus*	none	X	X	X	X	C / N,F	1 29
masked shrew	*Sorex cinereus*	none	X	X	X	X	C / N,F	1 29
short-tailed shrew	*Blarina breuicauda*	none	X	X	X	X	A / N,F	1 29
Eastern gray squirrel	*Sciurus carolinensis*	none	X	X	X	X	A / N,F	1 29
southern-flying squirrel	*Glaucimys volans*	none	X	X	X	X	C / N,F	1 29
meadow vole	*Microtus pennsylvanicus*	none	X	X	X	X	R / N,F	29 45
pine vole	*Microtus pinetorum*	none	X	X	X	X	R / N,F	1 29
long-tailed weasel	*Mustela frenata*	none	X	X	X	X	R / N,H	1 29
Herptiles								
bull frog	*Rana catesbeiana*	none	X	X	X	X	C / N,H	33 34 35 37
common gray treefrog	*Hyla versicolor*	none	X	X	X	X	C / N,F	33 37
green frog	*Rana clamitans*	none	X	X	X	X	C / N,H	33 35 37
Southern leopard frog	*Rana pipiens sphenocephala*	special concern	X	X	X	X	R / N,F	35 37 38
wood frog	*Rana sylvatica*	none	X	X	X	X	C / N,F	33 37
red-spotted newt	*Notophthalmus viridescens*	none	X	X	X	X	C / N,F	36 38
spring peeper	*Hyla crucifer*	none	X	X	X	X	A / N,F	33 35 38
spotted salamander	*Ambystoma maculatum*	none	X	X	X	X	C / N,F	34 36 38
Eastern tiger salamander	*Ambystoma tigrinum tigrinum*	endangered	X	X	X	X	R / N,F	36 38
marbled salamander	*Ambystoma opacum*	special concern	X	X	X	X	R / N,F	34 36 38
Eastern garter snake	*Thamnophis sirtalis*	none	X	X	X	X	C / N,F	38 40
eastern milk snake	*Lampropettis d. triangulum*	none	X	X	X	X	C / N,F	38 39
Eastern ribbon snake	*Thamnophis s. sauritus*	none	X	X	X	X	C / N,F	38 40
Northern brown snake	*Storeria dekayi*	none	X	X	X	X	C / N,H	38
Northern ringneck snake	*Diadophis punctatus*	none	X	X	X	X	C / H	38
Northern water snake	*Natrix sipedon sipedon*	none	X	X	X	X	C / N,F	38 39
painted turtle	*Chrysemys picta*	none	X	X	X	X	N / N,F	38 40

KEY:

Frequency:	Activity:
A- abundant	N- nesting
C- common	H- hunting
R- rare	R- resting
N- not expected	F- foraging

Fresh Water Pond Species - Inventory and Characteristics

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Reference Numbers
Birds								
red-winged blackbird	*Agelaius phoeniceus*	none		X	X	Early	A / N,F	4 6
canvasback	*Aythya valisineria*	none	X			Late	R / F	4 27
American coot	*Fulica americana*	none		X	X	Early	R / N,F	4 26
American black duck	*Anas rubripes*	none	X	X	X	X	R / N,F	4 27
ring-necked duck	*Aythya collaris*	none	X			X	C / F	4 27
wood duck	*Aix sponsa*	none		X	X	Early	C / N	4 27
great egret	*Casmerodius albus*	none		X	X		C / N,F	4 26
gadwall	*Anas strepera*	none		Late	X	X	C / N,F	4 27
blue-grey gnatcatcher	*Polioptila caerulea*	none		X	X		R / N,F	4 7
Canada goose	*Branta canadensis*	none	X	X	X	X	C / N,F	4 28
horned grebe	*Podiceps auritus*	none	X	Early		X	C / N,F	32 42
pied-billed grebe	*Podilymbus podiceps*	none		X		Early	R / F	32
great blue heron	*Ardea herodias*	none		Late	X		R / M	4 26
green heron	*Butorides striatus*	none		X	X	Early	C / N,F	4 26
Eastern kingbird	*Tyrannus tyrannus*	none		X	X	Early	A / N,F	4 15
belted kingfisher	*Megaceryle alcyon*	none	X	X	X	X	C / N,F	4 12
mallard	*Anas platyrhynchos*	none		X	X	X	C / N,F	4 27
hooded merganser	*Lophodytes cucullatus*	none	X	X	X	X	C / N,F	4 27
common screech owl	*Otus asio*	none	X	X	X	X	C / N,H	4 17
semipalmated plover	*Charadrius semipalmatus*	none		Late	X	Early	R / F	31 32
least sandpiper	*Calidris minutilla*	none			X		R / F	32
spotted sandpiper	*Actitus macularia*	none		X	X	Early	R / N,F	4 31 32
greater scaup	*Aythya marila*	none	X			X	C / F	32 44
lesser scaup	*Aythya affinis*	none	X			X	C / F	32 44
fox sparrow	*Passerella iliaca*	none	X	X		X	R / F	20 21
European starling	*Sturnus vulgaris*	none	X	X	X	X	R / N,F	4 23
barn swallow	*Hirundo rustica*	none		Late	X		C / N,F	4 15
rough-winged swallow	*Stelgidopteryx ruficollis*	none		Late	X		R / N,F	4 15
tree swallow	*Tachycineta bicolor*	none		X	X		C / N,F	4 15
mute swan	*Cygnus olor*	none	X	X	X	X	C / N,F	4
green-winged teal	*Anas crecca*	none		X	X	X	C / N,F	4 27

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Reference Numbers
common tern	*Sterna hirundo*	threatened		Late	X		R /N,F	4 24
American widgeon	*Anas americana*	none		X	X		C / N,F	4 27
lesser yellowlegs	*Triniga flavipes*	none	X	Early		X	R / F	30 32
Mammals								
big-brown bat	*Eptesicus fuscus*	none	X	X	X	X	R / H	1 29
Keen's bat	*Myotis keenii*	none			X	Early	R / N	1 29
little-brown bat	*Myotis lucifugus*	none	X	X	X	X	C / H	1 29
red bat	*Lasiurus borealis*	none		Late	X	Early	R / F	1 29
Eastern pipistrelle	*Pipistrellus subflavus*	none		X	X	Early	R / F	1 29
silver-haired bat	*Lasionycteris noctivagans*	none			X		R / N,F	1 29
white-tailed deer	*Odocoileus virginianus*	none	X	X	X	X	C / F	1 25 29
red fox	*Vulpes vulpes*	none	X	X	X	X	C / H	1 29
mink	*Mustela vison*	none	X	X	X	X	C / N,F	1
meadow-jumping mouse	*Zapus hudsonicus*	none	X	X	X	X	R / N,F	1 29
white-footed mouse	*Peromyscus leucopus*	none	X	X	X	X	C / N,F	1 29
muskrat	*Ondarta zibethicus*	none	X	X	X	X	C / N,F	1 29
Virginia opossum	*Didelphis virginiana*	none	X	X	X	X	C / F	1 29
racoon	*Procyon lotor*	none	X	X	X	X	C / N,F	1 29
Norway rat	*Rattus norvegicus*	none	X	X	X	X	C / N,F	1 29
striped skunk	*Mephitis mephitis*	none	X	X	X	X	N / F	1 29
meadow vole	*Microtus pennsylvanicus*	none	X	X	X	X	R / N,F	29 45
long-tailed weasel	*Mustela frenata*	none	X	X	X	X	R / N,H	1 29
bull frog	*Rana catesbeiana*	none	X	X	X	X	C / N,H	33 34 35 37
Herptiles								
common gray treefrog	*Hyla versicolor*	none	X	X	X	X	C / N,F	33 37
green frog	*Rana clamitans*	none	X	X	X	X	C / N,H	33 35 37
wood frog	*Rana sylvatica*	none	X	X	X	X	C / N,F	33 37
red-spotted newt	*Notophthalmus viridescens*	none	X	X	X	X	C / N,F	36 38
spring peeper	*Hyla crucifer*	none	X	X	X	X	R / N,F	33 35 38
spotted salamander	*Ambystoma maculatum*	none	X	X	X	X	R / N	34 36 38
Eastern tiger salamander	*Ambystoma tigrinum tigrinum*	endangered	X	X	X	X	R / N,F	36 38
marbled salamander	*Ambystoma opacum*	special concern	X	X	X	X	R / F	34 36 38
Eastern garter snake	*Thamnophis sirtalis*	none	X	X	X	X	C / N,F	38 40
Eastern ribbon snake	*Thamnophis s. sauritus*	none	X	X	X	X	C / N,F	38 40
eastern milk snake	*Lampropettis d. triangulum*	none	X	X	X	X	C / N,F	38 39

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Reference Numbers
Northern ringneck snake	*Diadophis punctatus*	none	X	X	X	X	C / H	38
Northern water snake	*Natrix sipedon sipedon*	none	X	X	X	X	C / N,F	38 39
stink pot	*Sternotherus odoratue*	none	**X**	**X**	**X**	**X**	C / N,F	38
Fowler's toad	*Bufo woodhousei fowleri*	none	**X**	**X**	**X**	**X**	C / N,F	33 37
Eastern box turtle	*Terrepene carolina*	special concern	**X**	**X**	**X**	**X**	C / N,F	41
painted turtle	*Chrysemys picta*	none	**X**	**X**	**X**	**X**	C / N,F	38
snapping turtle	*Chelydra serpentina*	none	**X**	**X**	**X**	**X**	C / N,F	38 41
spotted turtle	*Chlemys guttata*	special concern	**X**	**X**	**X**	**X**	R / N,F	38 41

KEY:

Frequency:	Activity:
A- abundant	N- nesting
C- common	H- hunting
R- rare	R- resting
N- not expected	F- foraging

Beach Species : Inventory and Characteristics

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Reference
Birds								
fish crow	*Corvus ossifragus*	none	X	X	X	X	C / H	4 11
short-billed dowitcher	*Limnodromus griseus*	none		X	X	Early	R / F	32
gadwall	*Anas strepera*	none		Late	X	X	N / N,F	4 27
Bonaparte's gull	*Larus philadelphia*	none	X	X		X	R / F	24
great-black-backed gull	*Larus marinus*	none	X	X	X	X	C / N,F	4 24
herring gull	*Larus argentatus*	none	X	X	X	X	C / N,F	4 24
ring-billed gull	*Larus delawarensis*	none	X	X	X	X	N / N,F	4 24
little-blue heron	*Egretta caerulea*	none		Late	X		R / N,F	4 26
yellow-crowned night-heron	*Nycticorax violaceus*	none	X	X	X	X	C / H	4 26
common loon	*Gavia immer*	special concern	X			X	C / N,F	31 32
red-throated loon	*Gavia stellata*	none	X			X	R / N,F	32 42
red-breasted merganser	*Mergus serrator*	none	X	X	X	X	R / N,F	4 27
merlin	*Falco columbarius*	none				X	R / H	32 17
osprey	*Pandion haliaetus*	special concern		X	X	Early	C / N	4 16
short-eared owl	*Asio flammeus*	endangered	X	X	X	X	N / N,H	4 17
American oystercatcher	*Haematopus palliatus*	none	X	X	X	X	C / N,F	4 31
black-bellied plover	*Pluvialis squatarola*	none		Early	X	Early	N / F	31 32
piping plover	*Charadrius melodus*	endangered		X	X		C / N,F	4 31 32
semipalmated plover	*Charadrius semipalmatus*	none		Late	X	Early	C / F	31 32
sanderling	*Calidris alba*	none	X		Late	X	C / F	30 32
semipalmated sandpiper	*Calidris pusilla*	none		X	X	Early	C / F	32
spotted sandpiper	*Actitus macularia*	none		X	X	Early	C / N,F	4 31 32
black skimmer	*Rynchops niger*	special concern		Late	X		C / N	4 24
Savannah sparrow	*Passerculus sandwichens*	none		X	X	Early	C / N,F	4 21
seaside sparrow	*Ammodramus maritimus*	special concern	X	X	X	X	C / F	4 21
European starling	*Sturnus vulgaris*	none	X	X	X	X	R / N,F	4 23
common tern	*Sterna hirundo*	threatened		Late	X		C / N,F	4 24
least tern	*Sterna antillarum*	threatened		Late	X		C / N,F	4 24
roseate tern	*Sterna dougallii*	endangered		Late	X	Early	R / N,F	4 24
ruddy turnstone	*Arenaria interpres*	none	X				C / F	31 32
willet	*Catoptrophorus semipalm*	none		X	X	Early	C / F	4 31

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Reference
Mammals								
Keen's bat	*Myotis keenii*	none			X	Early	R / N	1 29
little-brown bat	*Myotis lucifugus*	none	X	X	X	X	C / H	1 29
red bat	*Lasiurus borealis*	none		Late	X	Early	R / F	1 29
silver-haired bat	*Lasionycteris noctivagans*	none			X		R / N,F	1 29
Eastern cottontail	*Sylvilagus floridanus*	none	X	X	X	X	R / F	1 29
white-tailed deer	*Odocoileus virginianus*	none	X	X	X	X	C / F	1 25 29
red fox	*Vulpes vulpes*	none	X	X	X	X	C / N,H	1 29
mink	*Mustela vison*	none	X	X	X	X	C / N,F	1
Eastern mole	*Scalopus aquaticus*	none	X	X	X	X	R / N,F	1 29
house mouse	*Mus musculus*	none	X	X	X	X	R / N,F	1 29
meadow-jumping mouse	*Zapus hudsonicus*	none	X	X	X	X	R / N,F	1 29
white-footed mouse	*Peromyscus leucopus*	none	X	X	X	X	R / F	1 29
Virginia opossum	*Didelphis virginiana*	none	X	X	X	X	C / F	1 29
racoon	*Procyon lotor*	none	X	X	X	X	R / N,F	1 29
Norway rat	*Rattus norvegicus*	none	X	X	X	X	C / N,F	1 29
masked shrew	*Sorex cinereus*	none	X	X	X	X	C / N,F	1 29
Eastern gray squirrel	*Sciurus carolinensis*	none	X	X	X	X	N / F	1 29
pine vole	*Microtus pinetorum*	none	X	X	X	X	R / N,F	1 29
long-tailed weasel	*Mustela frenata*	none	X	X	X	X	R / N,H	1 29
Herptiles							\	
Fowler's toad	*Bufo woodhousei fowleri*	none	X	X	X	X	C / F	33 37

KEY:

Frequency:	Activity:
A- abundant	N- nesting
C- common	H- hunting
R- rare	R- resting
N- not expected	F- foraging

PROJECTION OF WILDLIFE ECOLOGICAL RESPONSE (POWER)

NELSON, POPE & VOORHIS, LLC, MICROCOMPUTER MODEL

SPECIES ADAPTABILITY

This portion of the appendix has been included to present the results of a computer program to identify "Species Adaptability." This list is another component of the program developed for use by Nelson, Pope & Voorhis, LLC to determine potential impacts of the proposed project on wildlife. In this application the "Adaptability" of the observed and expected species are shown. The "adaptability" as indicated in the table, refers to whether an individual species may potentially benefit from (+) a habitat change from natural to urban/suburban setting; or, be impacted (-), or remain constant (=), as a result of this change. These values are not intended to represent the dynamics of actual species on the subject site under post-development conditions. The column entitled “Comments” provides relevant information which was obtained from the literature, as regards special habits of the particular species, such as adaptability, nesting, food, etc. This column is particularly important in assessing the potential impacts to the species as a result of the proposed project. The preceding text considers the site specific aspects of the proposed development in regard to individual species. This appendix is included to provide the reader with the benefit of what the literature which was consulted in connection with the Habitat Suitability Model suggests, in terms of generalized species dynamics resulting from land use. References are the same as those cited in the previous Species List portion of the appendix.

Successional Woodland Species - Adaptability and Comments

Common Name	Scientific Name	Adapt.	Comments	References
Birds				
American crow	Corvus brachyrhynchos	=	extremely adaptable; omnivorous	4 11
American kestrel	Falco sparverius	-	adaptable; prefers open areas and parks; will nest near humans	4 17
American redstart	Setophaga ruticilla	-	urbanization and agriculture have negative effects	4 19
American robin	Turdus migratorius	=	very adaptable; abundant in parks; nests in man-made structures	4 7
American woodcock	Philhela minor	-	prefers moist woodland and thicket near open fields	4 30
barn swallow	Hirundo rustica	+	nests almost entirely on buildings	4 15
black capped chickadee	Parus atricapillus	=	abundant around parks, urban and suburban areas	4 11
black-and-white warbler	Mniotilta varia	-	builds nests under shrubs and/or trees	4 18
blue jay	Cyanocitta cristatta	=	extremely adaptable to human activity and other stresses	4 10
blue-winged warbler	Vermivora pinus	-	primarily abandoned and overgrown field, and thickets	4 14
brown creeper	Certhia familiaris	-	prefers predominantly deciduous wooded areas	4 9
brown thrasher	Toxostoma rufum	=	common in parks,suburban areas, wooded edges, dry open areas	4 9
brown-headed cowbird	Molothrus ater	=	lays eggs in other bird's nests; some stay during winter	4 6
Carolina wren	Thryothorus ludovicianus	=	associated with woodland thickets and brushy areas, often near water	4 9
cedar waxwing	Bombycilla cedrorum	+	prefers open woodlands, orchards and residential areas	4 23 32
chestnut-sided warbler	Dendroica pensylvanica	-	prefers first growth woods, with some open brush area	4 19
common flicker	Colaptus auratus	=	abundant around parks, suburban and urban areas	4 14
common grackle	Quiscalus quiscula	=	adapts well to urban and suburban habitats	4 6
Cooper's hawk	Accipiter cooperii	-	needs extensive woodland	4 17
downy woodpecker	Picoides pubescens	=	found in parks and suburban areas	4 14
Eastern kingbird	Tyrannus tyrannus	=	very adaptable to human activities; prefers open areas	4 15
Eastern wood-peewee	Contopus virens	=	prefers suburban areas, parks and villages with shade trees	4 15
European starling	Sturnus vulgaris	+	extremely adaptable to human activity; considered a pest	4 23
fox sparrow	Passerella iliaca	-	boreal species, winters here in edge, thickets, brushy areas	20 21
golden-crowned kinglet	Regulus satrapa	-	prefers spruce vegetation; no atlas sightings on Long Island	4 7
gray catbird	Dumetella carolinensis	=	abundant around parks, urban and suburban areas	4 9
great-horned owl	Bubo virginianus	-	nocturnal; rare in wooded areas of less than 20 acres	4 17
hairy woodpecker	Picoides villosus	=	found mainly in deciduous forests	4 14
hermit thrush	Catharus guttatus	=	not common on Long Island; when present, prefers pine barrens	4 7
house finch	Carpodacus mexicanus	+	nests almost entirely on buildings; considered a pest species	4 20
house sparrow	Passer domesticus	+	prefers buildings, urban, suburban, gardens; considered a pest	4 20
house wren	Troglodytes aedon	=	found in suburban areas and gardens; nests in crevices of buildings	4 9
long-eared owl	Asio otus	-	nocturnal; prefers dense forested areas near water	4 17
mourning dove	Zenaida macroura	=	abundant around parks, urban and suburban areas	4 8
Northern (dark-eyed) junco	Junco hyemalis	-	prefers forested area with elevation >300 meters; no LI atlas record	4 21
Northern mockingbird	Mimus polyglottos	+	prefers to nest near humans	4 9

Common Name	Scientific Name	Adapt.	Comments	References
red-bellied woodpecker	Melanerpes carolinus	=	prefers forest openings; mostly found on Long Island north shore	4 14
red-eyed vireo	Vireo olivaceus	=	found in parks and suburban areas with shade trees and undergrowth	4 23
red-tailed hawk	Buteo jamaicensis	-	needs 100 foot radius undisturbed area for nest	4 16
rock dove	Columba livia	+	nests almost entirely on buildings; considered a pest species	4 8
rose-breasted grosbeak	Pheucticus ludovicianus	=	mainly found on north shore	4 20
ruby-crowned kinglet	Regulus calendula	-	occurs as non-breeding species; present during migration	4 7
ruffed grouse	Bonasa umbellus	-	prefers dense cover, thick woods; avoids humans	4 8
rufous-sided towhee	Pipilo erythrophthalmus	-	may be present year round on Long Island	4 20
sharp-shinned hawk	Accipiter striatus	-	avoids humans; nests in heavily forested areas	4 16
song sparrow	Melospiza melodia	=	common to most habitats except deep forest, open field and marsh	4 22
whip-poor-will	Caprimulgus vociferous	-	nocturnal; prefers open woods with adjacent fields	4 12
white-throated sparrow	Zonotrichia albicollis	-	prefers brushy areas and thick undergrowth	4 22
wood thrush	Hylocichla mustelina	=	prefers vacant wood (trees >40 feet); may adapt of wooded suburban	4 7
yellow-bellied sapsucker	Sphyrapicus varius	=	nests in tree cavity; found in parks, yards and gardens	14
yellow-billed cuckoo	Coccyzus americanus	-	avoids heavy urban areas; prefers wooded open or edges for nests	4 12
Mammals				
big-brown bat	Eptesicus fuscus	+	roosts in structures; found throughout LI; hunts over water	1 29
hoary bat	Lasiurus borealis	=	roosts in trees, sometimes found in parks	45
Keen's bat	Myotis keenii	+	roosts in buildings, crevices and bark; more common on eastern LI	1 29
little-brown bat	Myotis lucifugus	+	roosts in buildings and man made structures; hunts over water	1 29
red bat	Lasiurus borealis	-	feeds in marsh area; nests within 1000 yards of marsh in trees	1 29
silver-haired bat	Lasionycteris noctivagans	-	prefers wooded areas near water, primarily during summer months	1 29
Eastern chipmunk	Tamis striatus	=	prefers open woods, thickets, and rocky areas	1 29
Eastern cottontail	Sylvilagus floridanus	=	will adapt to suburban areas, if there is sufficient cover	1 29
white-tailed deer	Odocoileus virginianus	-	requires range of one-half square mile	1 25 29
red fox	Vulpes vulpes	-	builds den in wooded areas with loose-sandy soil and good drainage	1 29
Eastern mole	Scalopus aquaticus	=	tunnels underground	1 29
meadow-jumping mouse	Zapus hudsonicus	=	found around water in pine barrens; prefers open areas with grasses	1 29
white-footed mouse	Peromyscus leucopus	=	common to most all habitats; does not adapt well to human activity	1 29
Virginia opossum	Didelphis virginiana	=	common in suburban areas, woods, marsh and coastal areas	1 29
racoon	Procyon lotor	+	nocturnal; very adaptive; found in urban and forest areas	1 29
masked shrew	Sorex cinereus	=	tunnels underground; common in wood and wet habitats	1 29
short-tailed shrew	Blarina breuicauda	=	tunnels underground; abundant in a variety of habitats	1 29
striped skunk	Mephitis mephitis	=	prefers mixed wood & brush within 2 miles of water; not expected on LI	1 29
Eastern gray squirrel	Sciurus carolinensis	=	found in parks, urban and suburban areas; very adaptable	1 29
meadow vole	Microtus pennsylvanicus	=	tunnels underground; prefers open woodland	29 45
pine vole	Microtus pinetorum	=	tunnels underground; prefers sandy soil in woods and field; can swim	1 29
long-tailed weasel	Mustela frenata	-	prefers dense wood, but may appear in all land habitats near water	1 29

Common Name	Scientific Name	Adapt.	Comments	References
woodchuck	Marmota monax	-	appears primarily in scrub woods and brushy areas; not common on LI	1 29
Herptiles				
Eastern garter snake	Thamnophis sirtalis	=	occupies a variety of habitats	38 40
eastern hognose snake	Heterodon platyrhinos	=	sandy soil and sunny roadside; feeds on herptiles and insects	38
eastern milk snake	Lampropettis d. triangulum	=	occupies a variety of habitats	38 39

Dry Oak Forest Species - Adaptability and Comments

Common Name	Scientific Name	Adapt.	Comments	References
Birds				
Acadian flycatcher	Empidonax virescens	-	prefers cool, damp, mature hardwood forests	4 15
American crow	Corvus brachyrhynchos	=	extremely adaptable; omnivorous	4 11
American robin	Turdus migratorius	=	very adaptable; abundant in parks; nests in man-made structures	4 7
black capped chickadee	Parus atricapillus	=	abundant around parks, urban and suburban areas	4 11
black-and-white warbler	Mniotilta varia	-	builds nests under shrubs and/or trees	4 18
black-throated blue warbler	Dendroica caerulescens	=	migratory, large range; forest interior specie; can adapt to suburb	18
blue jay	Cyanocitta cristatta	=	extremely adaptable to human activity and other stresses	4 10
blue-winged warbler	Vermivora pinus	-	primarily abandoned and overgrown field, and thickets	4 14
broad-winged hawk	Buteo platypterus	-	avoids humans; nests only in dense forests; prefers to be near water	4 16
brown creeper	Certhia familiaris	-	prefers predominantly deciduous wooded areas	4 9
brown thrasher	Toxostoma rufum	=	common in parks, suburban areas, wooded edges, dry open areas	4 9
brown-headed cowbird	Molothrus ater	=	lays eggs in other bird's nests; some stay during winter	4 6
cedar waxwing	Bombycilla cedrorum	+	prefers open woodlands, orchards and residential areas	4 23 32
common flicker	Colaptus auratus	=	abundant around parks, suburban and urban areas	4 14
common grackle	Quiscalus quiscula	=	adapts well to urban and suburban habitats	4 6
common screech owl	Otus asio	=	nocturnal; nests in hollow trees, abandoned buildings, nest boxes	4 17
Cooper's hawk	Accipiter cooperii	-	needs extensive woodland	4 17
downy woodpecker	Picoides pubescens	=	found in parks and suburban areas	4 14
Eastern kingbird	Tyrannus tyrannus	=	very adaptable to human activities; prefers open areas	4 15
Eastern wood-peewee	Contopus virens	=	prefers suburban areas, parks and villages with shade trees	4 15
European starling	Sturnus vulgaris	+	extremely adaptable to human activity; considered a pest	4 23
fox sparrow	Passerella iliaca	-	boreal species, winters here in edge, thickets, brushy areas	20 21
golden-crowned kinglet	Regulus satrapa	-	prefers spruce vegetation; no atlas sightings on Long Island	4 7
gray catbird	Dumetella carolinensis	=	abundant around parks, urban and suburban areas	4 9
great-crested flycatcher	Myiarchus crinitus	-	prefers deciduous forests and deciduous open woodland	4 15
great-horned owl	Bubo virginianus	-	nocturnal; rare in wooded areas of less than 20 acres	4 17
hairy woodpecker	Picoides villosus	=	found mainly in deciduous forests	4 14
hermit thrush	Catharus guttatus	=	not common on Long Island; when present, prefers pine barrens	4 7
house finch	Carpodacus mexicanus	+	nests almost entirely on buildings; considered a pest species	4 20
house sparrow	Passer domesticus	+	prefers buildings, urban, suburban, gardens; considered a pest	4 20
house wren	Troglodytes aedon	=	found in suburban areas and gardens; nests in crevices of buildings	4 9
long-eared owl	Asio otus	-	nocturnal; prefers dense forested areas near water	4 17

Common Name	Scientific Name	Adapt.	Comments	References
Northern (dark-eyed) junco	Junco hyemalis	-	prefers forested area with elevation >300 meters; no LI atlas record	4 21
Northern mockingbird	Mimus polyglottos	+	prefers to nest near humans	4 9
northern oriole	Icterus galbula	=	prefers deciduous woodland and shade trees	4 6
ovenbird	Seiurus aurocapillus	-	prefers open forest floor and woodlot greater than 35 acres	4 19
purple martin	Progne subis	-	found in parks, suburbs, cities and open woods; nests in nest boxes	4 15
red-bellied woodpecker	Melanerpes carolinus	=	prefers forest openings; mostly found on Long Island north shore	4 14
red-eyed vireo	Vireo olivaceus	=	found in parks and suburban areas with shade trees and undergrowth	4 23
red-tailed hawk	Buteo jamaicensis	-	needs 100 foot radius undisturbed area for nest	4 16
ruby-crowned kinglet	Regulus calendula	-	occurs as non-breeding species; present during migration	4 7
ruffed grouse	Bonasa umbellus	-	prefers dense cover, thick woods; avoids humans	4 8
scarlet tanager	Piranga olivacea	-	rare in wooded area of less than 50 acres; affected by fragmentation	4
sharp-shinned hawk	Accipiter striatus	-	avoids humans; nests in heavily forested areas	4 16
song sparrow	Melospiza melodia	=	common to most habitats except deep forest, open field and marsh	4 22
tufted titmouse	Parus bicolor	=	common in suburban areas	4 11
veery	Catharus fuscescens	-	prefers damp forest with undergrowth; affected by fragmentation	4 7
whip-poor-will	Caprimulgus vociferous	-	nocturnal; prefers open woods with adjacent fields	4 12
white-breasted nuthatch	Sitta carolinensis	=	abundant in parks, urban and suburban areas	4 9
wood thrush	Hylocichla mustelina	=	prefers vacant wood (trees >40 feet); may adapt of wooded suburban	4 7
yellow throated vireo	Vireo flavifrons	-	sensitive to fragmentation and urbanization	4 23
yellow-bellied sapsucker	Sphyrapicus varius	=	nests in tree cavity; found in parks, yards and gardens	14
yellow-billed cuckoo	Coccyzus americanus	-	avoids heavy urban areas; prefers wooded open or edges for nests	4 12
Mammals				
big-brown bat	Eptesicus fuscus	+	roosts in structures; found throughout LI; hunts over water	1 29
hoary bat	Lasiurus borealis	=	roosts in trees, sometimes found in parks	45
Keen's bat	Myotis keenii	+	roosts in buildings, crevices and bark; more common on eastern LI	1 29
little-brown bat	Myotis lucifugus	+	roosts in buildings and man made structures; hunts over water	1 29
red bat	Lasiurus borealis	-	feeds in marsh area; nests within 1000 yards of marsh in trees	1 29
Eastern pipistrelle	Pipistrellus subflavus	=	found near water in open woods, also found in buildings	1 29
silver-haired bat	Lasionycteris noctivagans	-	prefers wooded areas near water, primarily during summer months	1 29
Eastern chipmunk	Tamis striatus	=	prefers open woods, thickets, and rocky areas	1 29
Eastern cottontail	Sylvilagus floridanus	=	will adapt to suburban areas, if there is sufficient cover	1 29
white-tailed deer	Odocoileus virginianus	-	requires range of one-half square mile	1 25 29
red fox	Vulpes vulpes	-	builds den in wooded areas with loose-sandy soil and good drainage	1 29
Eastern mole	Scalopus aquaticus	=	tunnels underground	1 29
house mouse	Mus musculus	+	lives in association with man, not expected away from buildings	1 29

Common Name	Scientific Name	Adapt.	Comments	References
meadow-jumping mouse	Zapus hudsonicus	=	found around water in pine barrens; prefers open areas with grasses	1 29
white-footed mouse	Peromyscus leucopus	=	common to most all habitats; does not adapt well to human activity	1 29
Virginia opossum	Didelphis virginiana	=	common in suburban areas, woods, marsh and coastal areas	1 29
racoon	Procyon lotor	+	nocturnal; very adaptive; found in urban and forest areas	1 29
masked shrew	Sorex cinereus	=	tunnels underground; common in wood and wet habitats	1 29
short-tailed shrew	Blarina breuicauda	=	tunnels underground; abundant in a variety of habitats	1 29
striped skunk	Mephitis mephitis	=	prefers mixed wood & brush within 2 miles of water; not expected on LI	1 29
Eastern gray squirrel	Sciurus carolinensis	=	found in parks, urban and suburban areas; very adaptable	1 29
southern-flying squirrel	Glaucimys volans	-	common in deep mixed, deciduous and coniferous woods	1 29
pine vole	Microtus pinetorum	=	tunnels underground; prefers sandy soil in woods and field; can swim	1 29
long-tailed weasel	Mustela frenata	-	prefers dense wood, but may appear in all land habitats near water	1 29
Herptiles				
spring peeper	Hyla crucifer	=	prefers pools/marsh near woodland; found high in trees in summer	33 35 38
red-backed salamander	Plethodon cinerus cinerus	-	terrestrial, prevelent in moist situations	34 36
marbled salamander	Ambystoma opacum	=	moist to sandy areas; lays eggs in fall in low spots wet by rain	34 36 38
Eastern garter snake	Thamnophis sirtalis	=	occupies a variety of habitats	38 40
eastern milk snake	Lampropettis d. triangulum	=	occupies a variety of habitats	38 39
Eastern spadefoot toad	Scaphiopus holbrooki	-	nocturnal; burrows in sandy soil; eats insects, worms; gardens, etc.	33

Wooded Swamp Species : Adaptability and Comments

Common Name	Scientific Name	Adapt.	Comments	References
Birds				
red-winged blackbird	Agelaius phoeniceus	=	needs water	4 6
Northern cardinal	Cardinalis cardinalis	=	found around gardens, yards, parks	4 20
wood duck	Aix sponsa	-	prefers wooded rivers and ponds, and wooded swamps	4 27
great-crested flycatcher	Myiarchus crinitus	-	prefers deciduous forests and deciduous open woodland	4 15
blue-grey gnatcatcher	Polioptila caerulea	=	prefers dense foliated trees along water ways	4 7
rose-breasted grosbeak	Pheucticus ludovicianus	=	mainly found on north shore	4 20
yellow-crowned night-heron	Nycticorax violaceus	-	nests in low coastal shrubbery; prefers islands	4 26
mallard	Anas platyrhynchos	-	adaptable to human activity	4 27
white-breasted nuthatch	Sitta carolinensis	=	abundant in parks, urban and suburban areas	4 9
osprey	Pandion haliaetus	-	associated with seacoast, sometimes lakes and rivers	4 16
great-horned owl	Bubo virginianus	-	nocturnal; rare in wooded areas of less than 20 acres	4 17
saw-whet owl	Aegolius acadicus	-	nocuturnal; low moist coniferous; winter in parks, yards, thickets	4 17
Eastern phoebe	Sayornis phoebe	=	prefers open wood near stream; nests in log, building, bridge, cliff	4 15
spotted sandpiper	Actitus macularia	-	nests on ground in grassy areas	4 31 32
swamp sparrow	Melospiza georgiana	-	prefers fresh water marshes; may be found in weedy fields, parks	4 22
European starling	Sturnus vulgaris	+	extremely adaptable to human activity; considered a pest	4 23
tree swallow	Tachycineta bicolor	=	always nests near water	4 15
tufted titmouse	Parus bicolor	=	common in suburban areas	4 11
veery	Catharus fuscescens	-	prefers damp forest with undergrowth; affected by fragmentation	4 7
yellow warbler	Dendrocica petchia	=	rare breeder on LI, winter sps, abundant in parks & yards	4 18
American woodcock	Philhela minor	-	prefers moist woodland and thicket near open fields	4 30
downy woodpecker	Picoides pubescens	=	found in parks and suburban areas	4 14
hairy woodpecker	Picoides villosus	=	found mainly in deciduous forests	4 14
red-bellied woodpecker	Melanerpes carolinus	=	prefers forest openings; mostly found on Long Island north shore	4 14
Mammals				
big-brown bat	Eptesicus fuscus	+	roosts in structures; found throughout LI; hunts over water	1 29
little-brown bat	Myotis lucifugus	+	roosts in buildings and man made structures; hunts over water	1 29
Eastern cottontail	Sylvilagus floridanus	=	will adapt to suburban areas, if there is sufficient cover	1 29
white-tailed deer	Odocoileus virginianus	-	requires range of one-half square mile	1 25 29
red fox	Vulpes vulpes	-	builds den in wooded areas with loose-sandy soil and good drainag	1 29
mink	Mustela vison	-	prefers wetlands surrounded by forested areas	1
star-nosed mole	Condylura cristata	-	prefers wet, black, soil with earthworms	1 29

Common Name	Scientific Name	Adapt.	Comments	References
meadow-jumping mouse	Zapus hudsonicus	=	found around water in pine barrens; prefers open areas with grasse	1 29
white-footed mouse	Peromyscus leucopus	=	common to most all habitats; does not adapt well to human activity	1 29
muskrat	Ondarta zibethicus	-	prefers damp and marshy fresh and salt water habitats	1 29
Virginia opossum	Didelphis virginiana	=	common in suburban areas, woods, marsh and coastal areas	1 29
racoon	Procyon lotor	+	nocturnal; very adaptive; found in urban and forest areas	1 29
Norway rat	Rattus norvegicus	+	nocturnal; usually associated with human activity	1 29
masked shrew	Sorex cinereus	=	tunnels underground; common in wood and wet habitats	1 29
short-tailed shrew	Blarina breuicauda	=	tunnels underground; abundant in a variety of habitats	1 29
Eastern gray squirrel	Sciurus carolinensis	=	found in parks, urban and suburban areas; very adaptable	1 29
southern-flying squirrel	Glaucimys volans	-	common in deep mixed, deciduous and coniferous woods	1 29
meadow vole	Microtus pennsylvanicus	=	tunnels underground; prefers open woodland	29 45
pine vole	Microtus pinetorum	=	tunnels underground; prefers sandy soil in woods and field; can swi	1 29
long-tailed weasel	Mustela frenata	-	prefers dense wood, but may appear in all land habitats near water	1 29
Herptiles				
bull frog	Rana catesbeiana	-	strictly aquatic, wooded lakes	33 34 35 37
common gray treefrog	Hyla versicolor	-	prefer mossy trees near ponds	33 37
green frog	Rana clamitans	-	mainly aquatic species	33 35 37
Southern leopard frog	Rana pipiens sphenocephala	-	prefers shallow fresh to brackish pond; may be in meadow in summ	35 37 38
wood frog	Rana sylvatica	-	prefers leafy pools and transient pools in wooded areas	33 37
red-spotted newt	Notophthalmus viridescens	-	prefers shallow ponds in wooded areas; open moist woods	36 38
spring peeper	Hyla crucifer	=	prefers pools/marsh near woodland; found high in trees in summer	33 35 38
spotted salamander	Ambystoma maculatum	-	will breed in pond or vernal ponds in late March, early April	34 36 38
Eastern tiger salamander	Ambystoma tigrinum tigrinum	-	needs fishless pond or vernal pond with 500' vacant radius to breed	36 38
marbled salamander	Ambystoma opacum	=	moist to sandy areas; lays eggs in fall in low spots wet by rain	34 36 38
Eastern garter snake	Thamnophis sirtalis	=	occupies a variety of habitats	38 40
eastern milk snake	Lampropettis d. triangulum	=	occupies a variety of habitats	38 39
Eastern ribbon snake	Thamnophis s. sauritus	=	semi-aquatic specie seldom wanders far from wet areas	38 40
Northern brown snake	Storeria dekayi	=	prefers fresh marsh, moist woods, but, adapts to urban environmen	38
Northern ringneck snake	Diadophis punctatus	=	prefers secluded moist areas under logs/stones; can adapt to subur	38
Northern water snake	Natrix sipedon sipedon	-	common in swamp, bog, marsh, stream, pond and lake environmen	38 39
painted turtle	Chrysemys picta	-	prefers small bodies of water	38

Freshwater Pond Species : Adaptability and Comments

Common Name	Scientific Name	Adapt.	Comments	References
Birds				
red-winged blackbird	Agelaius phoeniceus	=	needs water	4 6
canvasback	Aythya valisineria	-	rarely winters in the area	4 27
American coot	Fulica americana	-	winters occasionally in area	4 26
American black duck	Anas rubripes	-	nests in thick vegetation within 1.2 meters of water	4 27
ring-necked duck	Aythya collaris	-	does not nest on Long Island	4 27
wood duck	Aix sponsa	-	prefers wooded rivers and ponds, and wooded swamps	4 27
great egret	Casmerodius albus	-	common in south shore bays; nests in tall vegetation	4 26
gadwall	Anas strepera	-	observed in south shore bays; may occupy pond and river areas	4 27
blue-grey gnatcatcher	Polioptila caerulea	=	prefers dense foliated trees along water ways	4 7
Canada goose	Branta canadensis	=	prefers lakes, rivers, bays and marshes	4 28
horned grebe	Podiceps auritus	-	prefers southeast shores, oceans, and bays	32 42
pied-billed grebe	Podilymbus podiceps	-	prefers brackish water in Long Island area	32
great blue heron	Ardea herodias	-	occurs as non-breeding species; present during migration	4 26
green heron	Butorides striatus	-	may be found near lakes, streams, ponds and marshes	4 26
Eastern kingbird	Tyrannus tyrannus	=	very adaptable to human activities; prefers open areas	4 15
belted kingfisher	Megaceryle alcyon	-	nests in banks (rarely in trees), up to a mile from fishing area	4 12
mallard	Anas platyrhynchos	-	adaptable to human activity	4 27
hooded merganser	Lophodytes cucullatus	-	not expected on Long Island	4 27
common screech owl	Otus asio	=	nocturnal; nests in hollow trees, abandoned buildings, nest boxes	4 17
semipalmated plover	Charadrius semipalmatus	-	non-breeder on LI; may forage during summer, occasionally winter	31 32
least sandpiper	Calidris minutilla	-	may occasionally winter on Long Island	32
spotted sandpiper	Actitus macularia	-	nests on ground in grassy areas	4 31 32
greater scaup	Aythya marila	-	winters in bay areas	32 44
lesser scaup	Aythya affinis	-	prefers ponds, lakes, rivers and sometimes marshes	32 44
fox sparrow	Passerella iliaca	-	boreal species, winters here in edge, thickets, brushy areas	20 21
European starling	Sturnus vulgaris	+	extremely adaptable to human activity; considered a pest	4 23
barn swallow	Hirundo rustica	+	nests almost entirely on buildings	4 15
rough-winged swallow	Stelgidopteryx ruficollis	=	common to streams & rivers; nests in low banks, buildings, cavities	4 15
tree swallow	Tachycineta bicolor	=	always nests near water	4 15
mute swan	Cygnus olor	=	common in bays, very adaptable	4
green-winged teal	Anas crecca	-	nests in upland areas in proximity to water	4 27
American widgeon	Anas americana	-	rare on Long Island; some may be found during winter months	4 27

Common Name	Scientific Name	Adapt.	Comments	References
lesser yellowlegs	Triniga flavipes	-	does not nest on Long Island; considered a migratory shorebird	30 32
Mammals				
big-brown bat	Eptesicus fuscus	+	roosts in structures; found throughout LI; hunts over water	1 29
Keen's bat	Myotis keenii	+	roosts in buildings, crevices and bark; more common on eastern LI	1 29
little-brown bat	Myotis lucifugus	+	roosts in buildings and man made structures; hunts over water	1 29
red bat	Lasiurus borealis	-	feeds in marsh area; nests within 1000 yards of marsh in trees	1 29
Eastern pipistrelle	Pipistrellus subflavus	=	found near water in open woods, also found in buildings	1 29
silver-haired bat	Lasionycteris noctivagans	-	prefers wooded areas near water, primarily during summer months	1 29
white-tailed deer	Odocoileus virginianus	-	requires range of one-half square mile	1 25 29
red fox	Vulpes vulpes	-	builds den in wooded areas with loose-sandy soil and good drainage	1 29
mink	Mustela vison	-	prefers wetlands surrounded by forested areas	1
meadow-jumping mouse	Zapus hudsonicus	=	found around water in pine barrens; prefers open areas with grasses	1 29
white-footed mouse	Peromyscus leucopus	=	common to most all habitats; does not adapt well to human activity	1 29
muskrat	Ondarta zibethicus	-	prefers damp and marshy fresh and salt water habitats	1 29
Virginia opossum	Didelphis virginiana	=	common in suburban areas, woods, marsh and coastal areas	1 29
racoon	Procyon lotor	+	nocturnal; very adaptive; found in urban and forest areas	1 29
Norway rat	Rattus norvegicus	+	nocturnal; usually associated with human activity	1 29
meadow vole	Microtus pennsylvanicus	=	tunnels underground; prefers open woodland	29 45
long-tailed weasel	Mustela frenata	-	prefers dense wood, but may appear in all land habitats near water	1 29
Herptiles				
bull frog	Rana catesbeiana	-	strictly aquatic, wooded lakes	33 34 35 37
common gray treefrog	Hyla versicolor	-	prefer mossy trees near ponds	33 37
green frog	Rana clamitans	-	mainly aquatic species	33 35 37
wood frog	Rana sylvatica	-	prefers leafy pools and transient pools in wooded areas	33 37
red-spotted newt	Notophthalmus viridescens	-	prefers shallow ponds in wooded areas; open moist woods	36 38
spring peeper	Hyla crucifer	=	prefers pools/marsh near woodland; found high in trees in summer	33 35 38
spotted salamander	Ambystoma maculatum	-	will breed in pond or vernal ponds in late March, early April	34 36 38
Eastern tiger salamander	Ambystoma tigrinum tigrinum	-	needs fishless pond or vernal pond with 500' vacant radius to breed	36 38
marbled salamander	Ambystoma opacum	=	moist to sandy areas; lays eggs in fall in low spots wet by rain	34 36 38
Eastern garter snake	Thamnophis sirtalis	=	occupies a variety of habitats	38 40
eastern milk snake	Lampropettis d. triangulum	=	occupies a variety of habitats	38 39
Eastern ribbon snake	Thamnophis s. sauritus	=	semi-aquatic specie seldom wanders far from wet areas	38 40
Northern ringneck snake	Diadophis punctatus	=	prefers secluded moist areas under logs/stones; can adapt to suburb	38
Northern water snake	Natrix sipedon sipedon	-	common in swamp, bog, marsh, stream, pond and lake environments	38 39
stink pot	Sternotherus odoratue	-	not common on LI; prefers lake, pond and sluggish streams	38
Fowler's toad	Bufo woodhousei fowleri	-	found in suburban areas, gardens; breeds in shallow permanent ponds	33 37

Common Name	Scientific Name	Adapt.	Comments	References
Eastern box turtle	Terrepene carolina	-	terrestrial based species	41
painted turtle	Chrysemys picta	-	prefers small bodies of water	38
snapping turtle	Chelydra serpentina	-	sometimes found on land near water	38 41
spotted turtle	Chlemys guttata	-	found in bogs and ponds; may be in brooks and pools	38 41

Beach Species : Adaptability and Comments

Common Name	Scientific Name	Adapt.	Comments	References
Birds				
fish crow	Corvus ossifragus	=	maritime species; prefers coniferous vegetation; less often inland	4 11
short-billed dowitcher	Limnodromus griseus	-	on-breeding species found in summer; some during winter months	32
gadwall	Anas strepera	-	observed in south shore bays; may occupy pond and river areas	4 27
Bonaparte's gull	Larus philadelphia	=	occurs as non-breeding species during winters	24
great-black-backed gull	Larus marinus	=	prefers to nest in impacted & dredge spoil areas; rare on north shore	4 24
herring gull	Larus argentatus	-	prefers to nest in impacted & dredge spoil areas; rare on north shore	4 24
ring-billed gull	Larus delawarensis	=	no breeding records for Long Island; generally not expected in locale	4 24
little-blue heron	Egretta caerulea	-	prefers protected areas without human activity (sanctuaries, islands)	4 26
yellow-crowned night-heron	Nycticorax violaceus	-	nests in low coastal shrubbery; prefers islands	4 26
common loon	Gavia immer	-	prefers bay and ocean areas	31 32
red-throated loon	Gavia stellata	-	rarely winters on eastern LI; prefers oceans rather than bay area	32 42
red-breasted merganser	Mergus serrator	-	nests in shrubs and/or under driftwood, close to water	4 27
merlin	Falco columbarius	-	migrates in fall through coastal areas	32 17
osprey	Pandion haliaetus	-	associated with seacoast, sometimes lakes and rivers	4 16
short-eared owl	Asio flammeus	-	coastal species; nests on sand beaches and beach grass, south shore	4 17
American oystercatcher	Haematopus palliatus	-	prefers salt marsh islands, dredge spoil islands, high sandbars	4 31
black-bellied plover	Pluvialis squatarola	-	non-breeder on LI; may forage during summer, occasionally winter	31 32
piping plover	Charadrius melodus	-	found in dry, bare sandy areas; nests in sand and beach grass	4 31 32
semipalmated plover	Charadrius semipalmatus	-	non-breeder on LI; may forage during summer, occasionally winter	31 32
sanderling	Calidris alba	-	more pronounced in ocean beach and sandbar areas	30 32
semipalmated sandpiper	Calidris pusilla	-	prefers south shore of Long Island	32
spotted sandpiper	Actitus macularia	-	nests on ground in grassy areas	4 31 32
black skimmer	Rynchops niger	-	not expected on north shore, feeds in bays and inlets	4 24
Savannah sparrow	Passerculus sandwichensis	-	found in shore areas; not expected inland	4 21
seaside sparrow	Ammodramus maritimus	-	not expected on Long Island north shore	4 21
European starling	Sturnus vulgaris	+	extremely adaptable to human activity; considered a pest	4 23
common tern	Sterna hirundo	-	prefers to nest on islands, locally common on north shore	4 24
least tern	Sterna antillarum	-	prefers to nest on islands, locally common on north shore	4 24
roseate tern	Sterna dougallii	-	very fragile, not very adaptable, prefers isolated areas	4 24
ruddy turnstone	Arenaria interpres	-	more abundant during autumn months	31 32
willet	Catoptrophorus semipalmatus	-	common on Long Island south shore	4 31
ruddy turnstone	Arenaria interpres	-	more abundant during autumn months	31 32

Common Name	Scientific Name	Adapt.	Comments	References
Mammals				
Keen's bat	Myotis keenii	+	roosts in buildings, crevices and bark; more common on eastern LI	1 29
little-brown bat	Myotis lucifugus	+	roosts in buildings and man made structures; hunts over water	1 29
red bat	Lasiurus borealis	-	feeds in marsh area; nests within 1000 yards of marsh in trees	1 29
silver-haired bat	Lasionycteris noctivagans	-	prefers wooded areas near water, primarily during summer months	1 29
Eastern cottontail	Sylvilagus floridanus	=	will adapt to suburban areas, if there is sufficient cover	1 29
white-tailed deer	Odocoileus virginianus	-	requires range of one-half square mile	1 25 29
red fox	Vulpes vulpes	-	builds den in wooded areas with loose-sandy soil and good drainage	1 29
mink	Mustela vison	-	prefers wetlands surrounded by forested areas	1
Eastern mole	Scalopus aquaticus	=	tunnels underground	1 29
house mouse	Mus musculus	+	lives in association with man, not expected away from buildings	1 29
meadow-jumping mouse	Zapus hudsonicus	=	found around water in pine barrens; prefers open areas with grasses	1 29
white-footed mouse	Peromyscus leucopus	=	common to most all habitats; does not adapt well to human activity	1 29
Virginia opossum	Didelphis virginiana	=	common in suburban areas, woods, marsh and coastal areas	1 29
racoon	Procyon lotor	+	nocturnal; very adaptive; found in urban and forest areas	1 29
Norway rat	Rattus norvegicus	+	nocturnal; usually associated with human activity	1 29
masked shrew	Sorex cinereus	=	tunnels underground; common in wood and wet habitats	1 29
Eastern gray squirrel	Sciurus carolinensis	=	found in parks, urban and suburban areas; very adaptable	1 29
pine vole	Microtus pinetorum	=	tunnels underground; prefers sandy soil in woods and field; can swim	1 29
long-tailed weasel	Mustela frenata	-	prefers dense wood, but may appear in all land habitats near water	1 29
Herptiles				
Fowler's toad	Bufo woodhousei fowleri	-	found in suburban areas, gardens; breeds in shallow permanent ponds	33 37

REFERENCES FOR WILDLIFE MATRIX

Refer.	Publication
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Appendix F-4
Breeding Bird Atlas

NYSDEC Breeding Bird Atlas
Atlas Block 6353D
2000-2005

Common Name	Scientific Name	Behavior Code	Date	NY Legal Status
Red-winged Blackbird	*Agelaius phoeniceus*	FY	5/31/2000	Protected
Wood Duck	*Aix sponsa*	FL	7/11/2000	Game Species
Saltmarsh Sparrow	*Ammodramus caudacutus*	FY	6/5/2001	Protected
Mallard	*Anas platyrhynchos*	NY	6/6/2003	Game Species
American Black Duck	*Anas rubripes*	X1	5/20/2004	Game Species
Gadwall	*Anas strepera*	X1	6/5/2001	Game Species
Great Egret	*Ardea alba*	P2	6/7/2004	Protected
Tufted Titmouse	*Baeolophus bicolor*	FL	6/9/2000	Protected
Cedar Waxwing	*Bombycilla cedrorum*	T2	7/20/2004	Protected
Canada Goose	*Branta canadensis*	NY	5/19/2003	Game Species
Great Horned Owl	*Bubo virginianus*	NE	3/31/2001	Protected
Red-tailed Hawk	*Buteo jamaicensis*	FL	6/7/2004	Protected
Green Heron	*Butorides virescens*	T2	6/7/2004	Protected
Northern Cardinal	*Cardinalis cardinalis*	FL	6/9/2000	Protected
House Finch	*Carpodacus mexicanus*	FL	6/7/2004	Protected
Veery	*Catharus fuscescens*	X1	6/15/2001	Protected
Chimney Swift	*Chaetura pelagica*	D2	6/4/2002	Protected
Piping Plover	*Charadrius melodus*	NE	5/2/2000	Endangered
Killdeer	*Charadrius vociferus*	DD	5/25/2004	Protected
Northern Harrier	*Circus cyaneus*	X1	5/27/2002	Threatened
Marsh Wren	*Cistothorus palustris*	S2	6/30/2000	Protected
Yellow-billed Cuckoo	*Coccyzus americanus*	T2	6/15/2001	Protected
Black-billed Cuckoo	*Coccyzus erythropthalmus*	S2	7/11/2000	Protected
Northern Flicker	*Colaptes auratus*	FL	7/13/2000	Protected
Northern Bobwhite	*Colinus virginianus*	X1	5/26/2000	Game Species
Rock Pigeon	*Columba livia*	NE	4/19/2001	Unprotected
Eastern Wood-Pewee	*Contopus virens*	T2	6/18/2001	Protected
American Crow	*Corvus brachyrhynchos*	NE	4/13/2000	Game Species
Fish Crow	*Corvus ossifragus*	NE	5/1/2001	Protected
Blue Jay	*Cyanocitta cristata*	NE	5/5/2000	Protected
Mute Swan	*Cygnus olor*	NE	4/19/2001	Protected
Chestnut-sided Warbler	*Dendroica pensylvanica*	S2	6/25/2001	Protected
Yellow Warbler	*Dendroica petechia*	FY	6/9/2000	Protected
Black-throated Green Warbler	*Dendroica virens*	X1	6/25/2001	Protected
Gray Catbird	*Dumetella carolinensis*	FY	6/9/2000	Protected
Willow Flycatcher	*Empidonax traillii*	FY	7/12/2001	Protected
Common Yellowthroat	*Geothlypis trichas*	FY	6/9/2000	Protected
Barn Swallow	*Hirundo rustica*	NE	6/9/2000	Protected
Wood Thrush	*Hylocichla mustelina*	NY	6/29/2002	Protected
Baltimore Oriole	*Icterus galbula*	ON	5/15/2004	Protected
Orchard Oriole	*Icterus spurius*	FY	7/11/2000	Protected
Belted Kingfisher	*Megaceryle alcyon*	B2	6/11/2002	Protected
Eastern Screech-Owl	*Megascops asio*	X1	1/12/2002	Protected
Red-bellied Woodpecker	*Melanerpes carolinus*	FY	5/22/2000	Protected
Swamp Sparrow	*Melospiza georgiana*	T2	6/7/2004	Protected
Song Sparrow	*Melospiza melodia*	FY	6/9/2000	Protected
Northern Mockingbird	*Mimus polyglottos*	FY	6/30/2000	Protected
Black-and-white Warbler	*Mniotilta varia*	S2	6/17/2002	Protected
Brown-headed Cowbird	*Molothrus ater*	NE	//2002	Protected
Great Crested Flycatcher	*Myiarchus crinitus*	N2	6/7/2004	Protected
Black-crowned Night-Heron	*Nycticorax nycticorax*	P2	6/7/2004	Protected
Osprey	*Pandion haliaetus*	NE	4/20/2000	Protected-Special Concern
House Sparrow	*Passer domesticus*	ON	4/13/2000	Unprotected
Indigo Bunting	*Passerina cyanea*	FL	6/25/2004	Protected
Ring-necked Pheasant	*Phasianus colchicus*	S2	6/9/2000	Game Species
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	T2	6/7/2004	Protected

Common Name	Scientific Name	Behavior Code	Date	NY Legal Status
Downy Woodpecker	*Picoides pubescens*	FY	5/30/2001	Protected
Hairy Woodpecker	*Picoides villosus*	FY	5/17/2000	Protected
Eastern Towhee	*Pipilo erythrophthalmus*	FL	6/20/2003	Protected
Scarlet Tanager	*Piranga olivacea*	FL	7/13/2000	Protected
Black-capped Chickadee	*Poecile atricapillus*	FY	6/9/2000	Protected
Blue-gray Gnatcatcher	*Polioptila caerulea*	T2	6/18/2001	Protected
Common Grackle	*Quiscalus quiscula*	FL	5/26/2000	Protected
Virginia Rail	*Rallus limicola*	X1	6/4/2002	Game Species
Clapper Rail	*Rallus longirostris*	X1	5/27/2002	Protected
Bank Swallow	*Riparia riparia*	FY	6/29/2002	Protected
Eastern Phoebe	*Sayornis phoebe*	S2	5/15/2004	Protected
American Woodcock	*Scolopax minor*	X1	6/11/2002	Game Species
Ovenbird	*Seiurus aurocapilla*	T2	6/4/2002	Protected
American Redstart	*Setophaga ruticilla*	S2	6/30/2000	Protected
White-breasted Nuthatch	*Sitta carolinensis*	FY	6/30/2000	Protected
American Goldfinch	*Spinus tristis*	FY	8/11/2000	Protected
Chipping Sparrow	*Spizella passerina*	FL	7/12/2001	Protected
Northern Rough-winged	*Stelgidopteryx serripennis*	FY	6/29/2002	Protected
Common Tern	*Sterna hirundo*	X1	6/9/2000	Threatened
Least Tern	*Sternula antillarum*	NE	5/26/2000	Threatened
European Starling	*Sturnus vulgaris*	ON	3/31/2000	Unprotected
Tree Swallow	*Tachycineta bicolor*	ON	6/18/2001	Protected
Carolina Wren	*Thryothorus ludovicianus*	FY	5/17/2000	Protected
Brown Thrasher	*Toxostoma rufum*	T2	6/4/2002	Protected
House Wren	*Troglodytes aedon*	ON	6/7/2004	Protected
American Robin	*Turdus migratorius*	FY	5/17/2000	Protected
Eastern Kingbird	*Tyrannus tyrannus*	NY	6/23/2000	Protected
Blue-winged Warbler	*Vermivora pinus*	DD	6/25/2004	Protected
Yellow-throated Vireo	*Vireo flavifrons*	T2	6/18/2001	Protected
Warbling Vireo	*Vireo gilvus*	FL	6/18/2001	Protected
White-eyed Vireo	*Vireo griseus*	S2	7/11/2000	Protected
Red-eyed Vireo	*Vireo olivaceus*	FY	7/13/2000	Protected
Mourning Dove	*Zenaida macroura*	ON	4/19/2001	Protected

Block 6353D Summary	
Total Species:	89
Possible:	11
Probable:	23
Confirmed:	55

Current Date: 9/14/2016
Source: http://www.dec.state.ny.us/cfmx/extapps/bba/

NYSDEC Breeding Bird Atlas
Atlas Block 6453C
2000-2005

Common Name	Scientific Name	Behavior Code	Date	NY Legal Status
Red-winged Blackbird	*Agelaius phoeniceus*	FY	5/24/2001	Protected
Mallard	*Anas platyrhynchos*	FL	6/4/2002	Game Species
Tufted Titmouse	*Baeolophus bicolor*	FL	7/9/2000	Protected
Cedar Waxwing	*Bombycilla cedrorum*	S2	7/9/2000	Protected
Northern Cardinal	*Cardinalis cardinalis*	FY	6/26/2000	Protected
House Finch	*Carpodacus mexicanus*	P2	9/5/2002	Protected
Veery	*Catharus fuscescens*	X1	6/11/2005	Protected
Killdeer	*Charadrius vociferus*	DD	6/28/2000	Protected
Marsh Wren	*Cistothorus palustris*	T2	6/4/2002	Protected
Yellow-billed Cuckoo	*Coccyzus americanus*	T2	6/11/2005	Protected
Black-billed Cuckoo	*Coccyzus erythropthalmus*	X1	6/3/2003	Protected
Northern Flicker	*Colaptes auratus*	FL	7/5/2002	Protected
Northern Bobwhite	*Colinus virginianus*	X1	5/28/2005	Game Species
Rock Pigeon	*Columba livia*	P2	6/19/2000	Unprotected
Eastern Wood-Pewee	*Contopus virens*	X1	6/28/2000	Protected
American Crow	*Corvus brachyrhynchos*	FL	7/9/2000	Game Species
Fish Crow	*Corvus ossifragus*	P2	6/28/2000	Protected
Blue Jay	*Cyanocitta cristata*	FL	7/9/2000	Protected
Mute Swan	*Cygnus olor*	FL	7/9/2000	Protected
Prairie Warbler	*Dendroica discolor*	S2	7/9/2000	Protected
Yellow Warbler	*Dendroica petechia*	FY	7/9/2000	Protected
Gray Catbird	*Dumetella carolinensis*	FY	6/19/2000	Protected
Willow Flycatcher	*Empidonax traillii*	X1	5/30/2005	Protected
Common Yellowthroat	*Geothlypis trichas*	DD	6/4/2002	Protected
Wood Thrush	*Hylocichla mustelina*	D2	6/28/2000	Protected
Baltimore Oriole	*Icterus galbula*	FL	6/17/2002	Protected
Orchard Oriole	*Icterus spurius*	P2	6/28/2000	Protected
Red-bellied Woodpecker	*Melanerpes carolinus*	FY	7/9/2000	Protected
Red-headed Woodpecker	*Melanerpes erythrocephalus*	P2	6/15/2002	Protected-Special Concern
Song Sparrow	*Melospiza melodia*	FL	6/4/2002	Protected
Northern Mockingbird	*Mimus polyglottos*	FY	6/28/2000	Protected
Brown-headed Cowbird	*Molothrus ater*	FL	7/9/2000	Protected
Great Crested Flycatcher	*Myiarchus crinitus*	S2	7/9/2000	Protected
House Sparrow	*Passer domesticus*	NY	6/17/2000	Unprotected
Indigo Bunting	*Passerina cyanea*	T2	6/8/2005	Protected
Downy Woodpecker	*Picoides pubescens*	FL	7/5/2002	Protected
Hairy Woodpecker	*Picoides villosus*	X1	6/4/2002	Protected
Black-capped Chickadee	*Poecile atricapillus*	FL	6/17/2002	Protected
Common Grackle	*Quiscalus quiscula*	FY	6/19/2000	Protected
Bank Swallow	*Riparia riparia*	ON	6/19/2000	Protected
American Redstart	*Setophaga ruticilla*	T2	6/4/2002	Protected
Eastern Bluebird	*Sialia sialis*	P2	6/17/2002	Protected
White-breasted Nuthatch	*Sitta carolinensis*	S2	7/9/2000	Protected
American Goldfinch	*Spinus tristis*	S2	7/9/2000	Protected
Chipping Sparrow	*Spizella passerina*	FL	6/19/2000	Protected
Northern Rough-winged	*Stelgidopteryx serripennis*	P2	7/9/2000	Protected
European Starling	*Sturnus vulgaris*	FL	6/19/2000	Unprotected
Carolina Wren	*Thryothorus ludovicianus*	FY	7/9/2000	Protected
Brown Thrasher	*Toxostoma rufum*	FY	7/12/2002	Protected
House Wren	*Troglodytes aedon*	S2	6/28/2000	Protected
American Robin	*Turdus migratorius*	FY	6/19/2000	Protected
Eastern Kingbird	*Tyrannus tyrannus*	FY	7/9/2000	Protected
Blue-winged Warbler	*Vermivora pinus*	X1	5/30/2005	Protected
Warbling Vireo	*Vireo gilvus*	S2	7/9/2000	Protected

Common Name	Scientific Name	Behavior Code	Date	NY Legal Status
White-eyed Vireo	*Vireo griseus*	T2	7/1/2003	Protected
Red-eyed Vireo	*Vireo olivaceus*	P2	7/9/2000	Protected
Mourning Dove	*Zenaida macroura*	P2	6/28/2000	Protected

Block 6453C Summary	
Total Species:	57
Possible:	7
Probable:	22
Confirmed:	28

Current Date: 9/14/2016
Source: http://www.dec.state.ny.us/cfmx/extapps/bba/

NYSDEC Breeding Bird Atlas
Atlas Block 6452A
2000-2005

Common Name	Scientific Name	Behavior Code	Date	NY Legal Status
Red-winged Blackbird	*Agelaius phoeniceus*	FY	5/24/2001	Protected
Wood Duck	*Aix sponsa*	FL	7/11/2001	Game Species
Mallard	*Anas platyrhynchos*	NE	5/1/2001	Game Species
American Black Duck	*Anas rubripes*	P2	6/3/2002	Game Species
Gadwall	*Anas strepera*	P2	6/5/2001	Game Species
Great Egret	*Ardea alba*	X1	7/5/2002	Protected
Tufted Titmouse	*Baeolophus bicolor*	FL	6/14/2001	Protected
Cedar Waxwing	*Bombycilla cedrorum*	D2	6/14/2001	Protected
Canada Goose	*Branta canadensis*	NE	4/24/2001	Game Species
Great Horned Owl	*Bubo virginianus*	T2	1/19/2002	Protected
Red-tailed Hawk	*Buteo jamaicensis*	T2	5/17/2001	Protected
Green Heron	*Butorides virescens*	NE	6/11/2001	Protected
Northern Cardinal	*Cardinalis cardinalis*	FY	5/24/2001	Protected
House Finch	*Carpodacus mexicanus*	P2	5/24/2001	Protected
Chimney Swift	*Chaetura pelagica*	ON	7/2/2001	Protected
Piping Plover	*Charadrius melodus*	NY	5/28/2002	Endangered
Killdeer	*Charadrius vociferus*	ON	6/9/2003	Protected
Marsh Wren	*Cistothorus palustris*	ON	7/11/2001	Protected
Yellow-billed Cuckoo	*Coccyzus americanus*	T2	5/31/2002	Protected
Black-billed Cuckoo	*Coccyzus erythropthalmus*	FY	6/17/2003	Protected
Northern Flicker	*Colaptes auratus*	N2	7/8/2000	Protected
Northern Bobwhite	*Colinus virginianus*	T2	6/27/2004	Game Species
Rock Pigeon	*Columba livia*	ON	3/17/2001	Unprotected
American Crow	*Corvus brachyrhynchos*	FY	6/11/2001	Game Species
Fish Crow	*Corvus ossifragus*	FL	6/14/2001	Protected
Blue Jay	*Cyanocitta cristata*	FL	7/11/2001	Protected
Mute Swan	*Cygnus olor*	NE	4/30/2000	Protected
Prairie Warbler	*Dendroica discolor*	T2	6/14/2001	Protected
Yellow Warbler	*Dendroica petechia*	FY	5/31/2001	Protected
Gray Catbird	*Dumetella carolinensis*	FY	6/5/2001	Protected
Snowy Egret	*Egretta thula*	X1	6/3/2002	Protected
Horned Lark	*Eremophila alpestris*	NE	5/21/2002	Protected-Special Concern
Common Yellowthroat	*Geothlypis trichas*	T2	6/14/2001	Protected
American Oystercatcher	*Haematopus palliatus*	P2	6/17/2003	Protected
Worm-eating Warbler	*Helmitheros vermivorum*	T2	6/11/2005	Protected
Barn Swallow	*Hirundo rustica*	NE	5/10/2001	Protected
Wood Thrush	*Hylocichla mustelina*	T2	6/28/2001	Protected
Baltimore Oriole	*Icterus galbula*	FL	6/11/2001	Protected
Orchard Oriole	*Icterus spurius*	FS	6/18/2001	Protected
Belted Kingfisher	*Megaceryle alcyon*	P2	7/11/2001	Protected
Eastern Screech-Owl	*Megascops asio*	T2	4/15/2001	Protected
Red-bellied Woodpecker	*Melanerpes carolinus*	FL	7/11/2001	Protected
Wild Turkey	*Meleagris gallopavo*	X1	6/28/2004	Game Species
Swamp Sparrow	*Melospiza georgiana*	T2	7/5/2002	Protected
Song Sparrow	*Melospiza melodia*	FY	6/18/2001	Protected
Northern Mockingbird	*Mimus polyglottos*	FL	6/14/2001	Protected
Black-and-white Warbler	*Mniotilta varia*	T2	6/14/2001	Protected
Brown-headed Cowbird	*Molothrus ater*	FL	7/11/2001	Protected
Great Crested Flycatcher	*Myiarchus crinitus*	D2	7/1/2000	Protected
Yellow-crowned Night-Heron	*Nyctanassa violacea*	FL	6/9/2003	Protected
Black-crowned Night-Heron	*Nycticorax nycticorax*	X1	6/3/2002	Protected
Osprey	*Pandion haliaetus*	NE	4/30/2000	Protected-Special Concern
House Sparrow	*Passer domesticus*	ON	3/17/2001	Unprotected
Indigo Bunting	*Passerina cyanea*	T2	6/28/2001	Protected
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	T2	6/5/2001	Protected
Downy Woodpecker	*Picoides pubescens*	NY	6/6/2001	Protected

Common Name	Scientific Name	Behavior Code	Date	NY Legal Status
Hairy Woodpecker	*Picoides villosus*	FY	5/31/2001	Protected
Eastern Towhee	*Pipilo erythrophthalmus*	FL	6/14/2001	Protected
Black-capped Chickadee	*Poecile atricapillus*	FY	6/6/2001	Protected
Blue-gray Gnatcatcher	*Polioptila caerulea*	P2	4/24/2001	Protected
Common Grackle	*Quiscalus quiscula*	FY	5/24/2001	Protected
Virginia Rail	*Rallus limicola*	T2	6/4/2002	Game Species
Bank Swallow	*Riparia riparia*	P2	5/24/2001	Protected
Eastern Phoebe	*Sayornis phoebe*	ON	6/28/2001	Protected
American Woodcock	*Scolopax minor*	D2	3/16/2001	Game Species
Ovenbird	*Seiurus aurocapilla*	T2	7/5/2001	Protected
American Redstart	*Setophaga ruticilla*	FY	7/11/2001	Protected
White-breasted Nuthatch	*Sitta carolinensis*	P2	3/17/2001	Protected
American Goldfinch	*Spinus tristis*	D2	7/11/2001	Protected
Chipping Sparrow	*Spizella passerina*	FY	6/14/2001	Protected
Northern Rough-winged	*Stelgidopteryx serripennis*	FL	6/28/2001	Protected
Common Tern	*Sterna hirundo*	P2	6//2003	Threatened
Least Tern	*Sternula antillarum*	NE	6/5/2001	Threatened
European Starling	*Sturnus vulgaris*	ON	4/24/2001	Unprotected
Tree Swallow	*Tachycineta bicolor*	NE	5/10/2001	Protected
Carolina Wren	*Thryothorus ludovicianus*	NE	7/8/2000	Protected
Brown Thrasher	*Toxostoma rufum*	FY	6/14/2001	Protected
House Wren	*Troglodytes aedon*	FL	6/5/2001	Protected
American Robin	*Turdus migratorius*	FL	6/14/2001	Protected
Eastern Kingbird	*Tyrannus tyrannus*	NE	6/11/2001	Protected
Lawrence's Warbler	*Vermivora chrysoptera x V.*	FY	7/4/2002	Protected
Blue-winged Warbler	*Vermivora pinus*	FL	6/14/2001	Protected
Warbling Vireo	*Vireo gilvus*	FY	6/14/2001	Protected
White-eyed Vireo	*Vireo griseus*	T2	5/31/2001	Protected
Red-eyed Vireo	*Vireo olivaceus*	T2	5/31/2001	Protected
Mourning Dove	*Zenaida macroura*	D2	4/24/2001	Protected

Block 6452A Summary	
Total Species:	86
Possible:	4
Probable:	32
Confirmed:	50

Current Date: 9/14/2016
Source: http://www.dec.state.ny.us/cfmx/extapps/bba/

NYSDEC Breeding Bird Atlas
Atlas Block 6352B
2000-2005

Common Name	Scientific Name	Behavior Code	Date	NY Legal Status
Cooper's Hawk	*Accipiter cooperii*	T2	5/4/2005	Protected-Special Concern
Red-winged Blackbird	*Agelaius phoeniceus*	FY	6/2/2000	Protected
Mallard	*Anas platyrhynchos*	FL	6/16/2000	Game Species
Tufted Titmouse	*Baeolophus bicolor*	FY	6/2/2000	Protected
Cedar Waxwing	*Bombycilla cedrorum*	P2	7/9/2001	Protected
Canada Goose	*Branta canadensis*	FL	6/12/2000	Game Species
Red-tailed Hawk	*Buteo jamaicensis*	FL	6/12/2000	Protected
Green Heron	*Butorides virescens*	X1	7/2/2002	Protected
Northern Cardinal	*Cardinalis cardinalis*	FY	7/7/2000	Protected
House Finch	*Carpodacus mexicanus*	FY	7/7/2000	Protected
Veery	*Catharus fuscescens*	T2	6/18/2000	Protected
Chimney Swift	*Chaetura pelagica*	FY	7/15/2004	Protected
Killdeer	*Charadrius vociferus*	NE	6/17/2000	Protected
Yellow-billed Cuckoo	*Coccyzus americanus*	T2	6/5/2000	Protected
Black-billed Cuckoo	*Coccyzus erythropthalmus*	X1	5/17/2005	Protected
Northern Flicker	*Colaptes auratus*	FY	6/5/2001	Protected
Northern Bobwhite	*Colinus virginianus*	S2	5/28/2000	Game Species
Rock Pigeon	*Columba livia*	ON	5/7/2000	Unprotected
Eastern Wood-Pewee	*Contopus virens*	T2	5/31/2001	Protected
American Crow	*Corvus brachyrhynchos*	FY	6/15/2004	Game Species
Fish Crow	*Corvus ossifragus*	FL	6/5/2001	Protected
Blue Jay	*Cyanocitta cristata*	FY	6/14/2003	Protected
Yellow Warbler	*Dendroica petechia*	FL	6/28/2000	Protected
Pine Warbler	*Dendroica pinus*	P2	6/2/2003	Protected
Gray Catbird	*Dumetella carolinensis*	FY	6/2/2000	Protected
American Kestrel	*Falco sparverius*	P2	6/5/2000	Protected
Common Yellowthroat	*Geothlypis trichas*	FY	7/7/2000	Protected
Barn Swallow	*Hirundo rustica*	FY	7/23/2001	Protected
Wood Thrush	*Hylocichla mustelina*	FY	7/9/2001	Protected
Baltimore Oriole	*Icterus galbula*	ON	5/15/2004	Protected
Orchard Oriole	*Icterus spurius*	S2	5/15/2004	Protected
Eastern Screech-Owl	*Megascops asio*	NY	6/15/2002	Protected
Red-bellied Woodpecker	*Melanerpes carolinus*	FY	6/15/2004	Protected
Song Sparrow	*Melospiza melodia*	FL	6/20/2000	Protected
Northern Mockingbird	*Mimus polyglottos*	FY	6/15/2004	Protected
Black-and-white Warbler	*Mniotilta varia*	P2	6/12/2000	Protected
Brown-headed Cowbird	*Molothrus ater*	FL	8/9/2001	Protected
Great Crested Flycatcher	*Myiarchus crinitus*	FY	7/7/2000	Protected
House Sparrow	*Passer domesticus*	NY	5/28/2000	Unprotected
Savannah Sparrow	*Passerculus sandwichensis*	FL	7/10/2003	Protected
Indigo Bunting	*Passerina cyanea*	FY	7/15/2004	Protected
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	S2	6/19/2003	Protected
Downy Woodpecker	*Picoides pubescens*	FY	6/2/2000	Protected
Hairy Woodpecker	*Picoides villosus*	FY	6/3/2000	Protected
Eastern Towhee	*Pipilo erythrophthalmus*	FY	//2004	Protected
Scarlet Tanager	*Piranga olivacea*	T2	6/18/2000	Protected
Black-capped Chickadee	*Poecile atricapillus*	FY	7/5/2000	Protected
Blue-gray Gnatcatcher	*Polioptila caerulea*	P2	5/6/2004	Protected
Common Grackle	*Quiscalus quiscula*	FY	6/23/2000	Protected
Bank Swallow	*Riparia riparia*	FY	7/14/2000	Protected
Eastern Phoebe	*Sayornis phoebe*	T2	5/3/2002	Protected
Ovenbird	*Seiurus aurocapilla*	T2	6/12/2000	Protected
American Redstart	*Setophaga ruticilla*	D2	6/18/2000	Protected
White-breasted Nuthatch	*Sitta carolinensis*	FY	6/15/2004	Protected
American Goldfinch	*Spinus tristis*	FY	7/25/2001	Protected
Chipping Sparrow	*Spizella passerina*	FL	6/14/2003	Protected

Common Name	Scientific Name	Behavior Code	Date	NY Legal Status
Field Sparrow	*Spizella pusilla*	FL	6/16/2000	Protected
Northern Rough-winged	*Stelgidopteryx serripennis*	FY	7/14/2000	Protected
European Starling	*Sturnus vulgaris*	NE	5/5/2000	Unprotected
Tree Swallow	*Tachycineta bicolor*	NE	6/17/2000	Protected
Carolina Wren	*Thryothorus ludovicianus*	FY	6/2/2000	Protected
Brown Thrasher	*Toxostoma rufum*	FY	6/5/2001	Protected
House Wren	*Troglodytes aedon*	NY	6/8/2000	Protected
American Robin	*Turdus migratorius*	FY	5/1/2001	Protected
Eastern Kingbird	*Tyrannus tyrannus*	FY	7/15/2004	Protected
Blue-winged Warbler	*Vermivora pinus*	FY	7/7/2000	Protected
Warbling Vireo	*Vireo gilvus*	S2	6/15/2004	Protected
White-eyed Vireo	*Vireo griseus*	S2	6/18/2000	Protected
Red-eyed Vireo	*Vireo olivaceus*	T2	6/15/2004	Protected
Mourning Dove	*Zenaida macroura*	FL	6/17/2000	Protected

Block 6352B Summary	
Total Species:	70
Possible:	2
Probable:	19
Confirmed:	49

Current Date: 9/14/2016
Source: http://www.dec.state.ny.us/cfmx/extapps/bba/

Appendix F-5
New York State Natural Heritage Program Correspondence

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th Floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **Fax:** (518) 402-8925
Website: www.dec.ny.gov

January 22, 2016

Patricia Aitken
Nelson, Pope & Voorhis, LLC
572 Walt Whitman Road
Melville, NY 11747

Re: Proposed residential development at 21 Breeze Hill Road, Northport
Town/City: Huntington. County: Suffolk.

Dear Patricia Aitken:

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

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

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

Our database is continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

Sincerely,

Andrea Chaloux

Andrea Chaloux
Environmental Review Specialist
New York Natural Heritage Program

The following rare plants, rare animals, and significant natural communities have been documented in the vicinity of your project site.

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

The following significant natural communities are considered significant from a statewide perspective by the NY Natural Heritage Program. They are either occurrences of a community type that is rare in the state, or a high-quality example of a more common community type. By meeting specific, documented criteria, the NY Natural Heritage Program considers these community occurrences to have high ecological and conservation value.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*
Wetland/Aquatic Communities			
High Salt Marsh			High-quality Occurrence of Uncommon Community Type
Crab Meadow Marsh: This is a large 242-acre occurrence within a 250-acre salt marsh complex. The marsh appears to be increasing in size. The community is a well-developed high marsh in a meso-tidal setting, but it is impacted by nearby suburban development.			2313

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

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

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

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

APPENDIX G

SITE PHOTOGRAPHS OF EXISTING CONDITIONS

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

PHOTO LOCATION KEY

Source: NYS Orthophotography, 2013
Scale: 1 inch = 400 feet

N

The Preserve at Indian Hills

Voluntary Draft EIS

1: View from golf course maintenance yard to Thornton Drive.

2: View of Fairway 5 looking north outside entrance to maintenance yard.

3: Looking east along Fairway 12. Long Island Sound in background.

4. Looking west into tap end of Mystic Lane.

5: View of home on Hayes Hill Drive from golf course trail.

6: View of home on Hayes Hill Drive.

7: View of home on Hayes Hill Drive.

8: Looking southwest at golf course cart path and pond intersection.

9: Looking south towards clubhouse (right-side) and golf cart barn (left side)

10: Looking west along Breeze Hill Road to Golf Club entrance.

11: Looking east along Breeze Hill Road to Golf Club entrance. Crosswalk in foreground/cart path

12: Looking north along golf course trail

13: Looking west towards Mystic Lane.

14: Looking towards Fairway 13.

15: Looking west to southern end of driving range.

16: Looking south from end of driving range.

17: Looking southwest from end of driving range.

18: Looking northwest from end of driving range.

19: Looking north to top of driving range.

20: Fairway 2

21: Disturbed area west of Fairway 2

22. Fairway 4

23: Fairway area west of Fresh Pond Road.

24: Golf cart path along Fairway 3

25: Looking north along Fresh Pond Road. Golf course well pump house on left.

26: Looking south along Fresh Pond Road.

27: View of private road entrance from Breeze Hill Road. Makamah Road intersection in background

28: Private road entrance from Breeze Hill Road.

APPENDIX H

COMMUNITY SERVICES-RELATED CORRESPONDENCE

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING
572 WALT WHITMAN ROAD, MELVILLE, NY 11747 - 2188
(631) 427-5665 FAX (631) 427-5620
www.nelsonpopevoorhis.com

July 28, 2016

Northport Fire Department
204 Main Street
Northport, NY
Attn: Philip Weber, Chairman

Re: The Preserve at Indian Hills
SCTM # #0400-14-04 1 & 2 and
#0400-15-01-11, 12 & 16
NPV #86047

Dear Chairman Weber:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently preparing a Voluntary Draft Environmental Impact Statement (VDEIS) for a proposed rezoning of a golf course property, known as Indian Hills Country Club from R-40 (minimum one acre) Residence District to R-OSC Open Space Cluster District in order to construct residential housing while preserving the existing recreational land use.

The overall project involves five (5) tax parcels, totaling 149.15 acres located on the north and south sides of Breeze Hill Road, west of Fresh Pond Road in the hamlet of Fort Salonga in the Town of Huntington (*see enclosed location map and concept plan*). The residential development will include 108 town homes to be located in 54 structures and 2 single family cottages. The residences will generally be sited in areas where there is existing access and clustered for preserving open space as a single contiguous block. Access to the 46 town homes south of Breeze Hill Road will be provided via tax lot #0400-15-01-16, part of which is proposed to remain zoned R-40 and part will be subject to a lot-line change and included in the rezoning. Access will also be provided from Fresh Pond Road for 16 town homes and Mystic Lane for 46 town homes. Each of the proposed dwellings will be served by public water and individual on-site sanitary systems.

I am writing to obtain information in regard to the Northport Fire Department's facilities, services, and capabilities which may be pertinent to the project. Specifically, I am requesting the following:

- Confirmation that the Department would serve the site;
- The location of the stations and/or substation(s) which would serve the site;
- A listing of the major pieces of firefighting equipment at each facility;
- The number of firefighters assigned to each facility;
- Indicate any specialized firefighting capabilities of the District;
- Indicate whether the firefighters are volunteers or full-time; and
- Whether the Department provides ambulance and/or EMT services to the sites and, if so, information on those services, such as location, equipment, personnel and usage.

If you have any input regarding the Department's ability to provide services, please provide an explanation so that this may be considered in the review process. Your responses will be included in the VDEIS, and reviewed by the Town of Huntington. If you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or cvoorhis@nelsonpopevoorhis.com.

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Charles J. Voorhis, CEP, AICP

Enc. Location Map and Concept Plan

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

LOCATION MAP

Source: ESRI Web Mapping Service; Huntington Plan 2020, 2006

Scale: 1 inch = 600 feet

N

Indian Hills Golf Club Northport

Voluntary Draft EIS

THE PRESERVE AT INDIAN HILLS

INDIAN HILLS C.C.

SITE DATA:
AREA OF SITE: ___ ACRES
ZONE: R-40
S.C.T.M.: 0400-014-04-1, 2
0400-015-01-11, 12
SCHOOL DISTRICT: NORTHPORT
WATER DISTRICT: SUFFOLK COUNTY WATER AUTHORITY
FIRE DISTRICT: NORTHPORT
REFUSE DISTRICT: No. 02 - ALPHA CARTING
POST OFFICE: NORTHPORT
NUMBER OF UNITS: 108

OWNER:
I.H.C.C., INC.
21 BREEZE HILL ROAD
NORTHPORT, NY, 11768

BOUNDARY INFORMATION WAS COMPILED FROM A TOPOGRAPHIC SURVEY PREPARED BY O'CONNOR-PETITO, LLP DATED JUNE 11, 2012 AND IS SUBJECT TO ANY STATE OF FACTS AN ACTUAL SURVEY MAY FIND.

NO.	DATE:	REVISIONS:	BY:
-	-	-	-

CONCEPT SKETCH
FOR
THE PRESERVE AT INDIAN HILLS
SITUATED AT
NORTHPORT
TOWN OF HUNTINGTON, SUFFOLK COUNTY, NEW YORK
S.C.T.M.: DISTRICT: 0400, SECT. 014, BLK. 04, LOTS 1, 2
DISTRICT 0400, SECT. 015, BLK. 01, LOTS 11, 12

P.E. SEAL AND SIGNATURE

NELSON & POPE
ENGINEERS & SURVEYORS
572 WALT WHITMAN ROAD, MELVILLE, N.Y. 11747
PHONE (631) 427-5665 FAX (631) 427-5620
WWW.NELSONPOPE.COM

PROJECT NO.:	86047
DRAWN BY:	GEO
CHECKED BY:	RC
DATE:	APRIL, 2016
SCALE:	1"=120'
FILE NO.:	400-014-
CADD:	84067 CP 9
DRAWING NO.:	101
SHEET NO.:	1 OF 1

G:\projects\86047\dwg\86047 CP19.dwg, 7/19/2016 9:28:25 AM, NP_DWG To PDF.pc3

Dear Mr. Voorhis,

Questions regarding The Preserve at Indian Hills.

Yes the Northport Fire Department serves this area it is located in Fire Protection area #1.

Our headquarters is located at 204 Main St. Northport and our substation is located at 22 Waterside Rd. Northport

Headquarters has 2- Class “A” pumpers (1 being 4x4) 1- ALS ambulance 1- heavy rescue 1- High Water Rescue truck . 2 – pick ups both 4x4. 1- First Responder car 4x4 with ALS capability. Inflatable boat

Substation- 1 -93’ Tower Ladder, 2- Class “A” pumpers. 1- fire police van 1- 4x4 ALS ambulance

Also we have a fire boat located in Northport Harbor

We have a total of 119 members on the active rolls . 63 interior firefighters, 32 EMT’s 5 being ALS.

Headquarters has 59 members Station #1 Has 60.

Our department is all volunteer. With the exception of a paid Paramedic Monday thru Friday 6am – 10pm. Headquarters is manned 24/7 with a dispatcher and Monday thru Friday with a second houseman from 7-3pm.

We do provide ambulance service both ambulances are ALS capable. The personnel would be responding out of our substation. All crews have minimum of a driver, EMT and a crew member. If needed a ALS provider.

I hope this answers your questions. Please free to reach out if you have any additional questions.

Sincerely,

Chief Brad Wine

Northport Fire Department

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING
572 WALT WHITMAN ROAD, MELVILLE, NY 11747 - 2188
(631) 427-5665 FAX (631) 427-5620
www.nelsonpopevoorhis.com

July 28, 2016

National Grid
8302-8624 Ditmas Avenue
Building #31
Brooklyn, NY 11236
Attn: Dianna Manteria

Re: The Preserve at Indian Hills
SCTM # #0400-14-041 &2 and
#0400-15-01- 11 & 12 & 16
NPV #86047

Dear Ms. Manteria:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently preparing a Voluntary Draft Environmental Impact Statement (VDEIS) for a proposed rezoning of a golf course property, known as Indian Hills Country Club from R-40 (minimum one acre) Residence District to R-OSC Open Space Cluster District in order to construct residential housing while preserving the existing recreational land use.

The overall project involves five (5) tax parcels, totaling 149.15 acres located on the north and south sides of Breeze Hill Road, west of Fresh Pond Road in the hamlet of Fort Salonga in the Town of Huntington (*see enclosed location map and concept plan*). The residential development will include 108 town homes to be located in 54 structures and 2 single family cottages. The residences will generally be sited in areas where there is existing access and clustered for preserving open space as a single contiguous block. Access to the 46 town homes south of Breeze Hill Road will be provided via tax lot #0400-15-01-16, part of which is proposed to remain zoned R-40 and part will be subject to a lot-line change and included in the rezoning. Access will also be provided from Fresh Pond Road for 16 town homes and Mystic Lane for 46 town homes. Each of the proposed dwellings will be served by public water and individual on-site sanitary systems. Specifically, I am requesting the following:

- Whether natural gas can be supplied to the site;
- If natural gas can be supplied, the location(s) and sizes of the supply line(s) which would be used;
- Whether the amount of usage would significantly impact the ability of National Grid to supply services to its other customers in the area; and
- If natural gas can be provided, please send a letter to my attention confirming that such service can be provided.

If you have any further input with regard to the ability to provide services to this project, please provide an explanation so that this may be considered in the review process. Your responses will be included in the VDEIS submitted for review by the Town of Huntington.

If you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or cvoorhis@nelsonpopevoorhis.com.

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Charles J. Voorhis, CEP, AICP

Enc. Location Map & Concept Plan

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING
572 WALT WHITMAN ROAD, MELVILLE, NY 11747 - 2188
(631) 427-5665 FAX (631) 427-5620
www.nelsonpopevoorhis.com

July 28, 2016

PSE&G, Long Island
175 East Old Country Road
Hicksville, NY 11801
Attn: Carolyn Mackin, Manager
Customer Order Fulfillment Dept.

Re: The Preserve at Indian Hills
SCTM # #0400-14-041 &2 and
#0400-15-01-11, 12, 16
NPV #86047

Dear Ms. Mackin:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently preparing a Voluntary Draft Environmental Impact Statement (VDEIS) for a proposed rezoning of a golf course property, known as Indian Hills Country Club from R-40 (minimum one acre) Residence District to R-OSC Open Space Cluster District in order to construct residential housing while preserving the existing recreational land use.

The overall project involves five (5) tax parcels, totaling 149.15 acres located on the north and south sides of Breeze Hill Road, west of Fresh Pond Road in the hamlet of Fort Salonga in the Town of Huntington (*see enclosed location map and concept plan*). The residential development will include 108 town homes to be located in 54 structures and 2 single family cottages. The residences will generally be sited in areas where there is existing access and clustered for preserving open space as a single contiguous block. Access to the 46 town homes south of Breeze Hill Road will be provided via tax lot #0400-15-01-16, part of which is proposed to remain zoned R-40 and part will be subject to a lot-line change and included in the rezoning. Access will also be provided from Fresh Pond Road for 16 town homes and Mystic Lane for 46 town homes. Each of the proposed dwellings will be served by public water and individual on-site sanitary systems. I am writing to obtain information in regard to electric service. Specifically, I am requesting the following:

- Whether electricity can be supplied to the site;
- If electricity can be supplied, the location(s) and sizes of the supply line(s) which would be used;
- Whether the amount of usage would significantly impact the ability of PSE&G to supply services to its other customers in the area; and
- If electricity can be provided, please send a letter to my attention confirming that such service can be provided.

If you have any input regarding the ability to provide services to this project, please provide an explanation so that this may be considered in the review process. Your responses will be included in the VDEIS, and reviewed by the Town of Huntington. If you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or cvoorhis@nelsonpopevoorhis.com.

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Charles J. Voorhis, CEP, AICP

Enc. Location Map & Concept Plan

NELSON, POPE & VOORHIS, LLC
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572 WALT WHITMAN ROAD, MELVILLE, NY 11747 - 2188
(631) 427-5665 FAX (631) 427-5620
www.nelsonpopevoorhis.com

July 28, 2016

Northport – East Northport School District
158 Laurel Avenue
Northport, NY 11768
Attn.: Kathleen Molander, Assistant Superintendent for Business

Re: The Preserve at Indian Hills
SCTM # #0400-14-041 & 2 and
#0400-15-01-11, 12 & 16
NPV #86047

Dear Assistant Superintendent Molander:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently preparing a Voluntary Draft Environmental Impact Statement (VDEIS) for a proposed rezoning of a golf course property, known as Indian Hills Country Club from R-40 (minimum one acre) Residence District to R-OSC Open Space Cluster District in order to construct residential housing while preserving the existing recreational land use.

The overall project involves five (5) tax parcels, totaling 149.15 acres located on the north and south sides of Breeze Hill Road, west of Fresh Pond Road in the hamlet of Fort Salonga in the Town of Huntington (*see enclosed location map and concept plan*). The residential development will include 108 town homes to be located in 54 structures and 2 single family cottages. The residences will generally be sited in areas where there is existing access and clustered for preserving open space as a single contiguous block. Access to the 46 town homes south of Breeze Hill Road will be provided via tax lot #0400-15-01-16, part of which is proposed to remain zoned R-40 and part will be subject to a lot-line change and included in the rezoning. Access will also be provided from Fresh Pond Road for 16 town homes and Mystic Lane for 46 town homes. Each of the proposed dwellings will be served by public water and individual on-site sanitary systems.

<u>As the proposed project will include senior housing only, no school age children will be added to the school district.</u>

I am writing to obtain information in regard to any input the Northport School District may have in regard to the project. Your responses will be included in the VDEIS for review by the Town of Huntington.

If you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or cvoorhis@nelsonpopevoorhis.com.

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Charles J. Voorhis, CEP, AICP

Enc. Location Map & Concept Plan

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING
572 WALT WHITMAN ROAD, MELVILLE, NY 11747 - 2188
(631) 427-5665 FAX (631) 427-5620
www.nelsonpopevoorhis.com

July 28, 2016

Suffolk County Police Department (SCPD)
2nd Precinct
1071 Park Avenue
Huntington, NY 11743
Attn: Inspector Hatton, Commanding Officer

Re: The Preserve at Indian Hills
SCTM # #0400-14-041 &2 and
#0400-15-01-11, 12 & 16
NPV #86047

Dear Inspector Hatton:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently preparing a Voluntary Draft Environmental Impact Statement (VDEIS) for a proposed rezoning of a golf course property, known as Indian Hills Country Club from R-40 (minimum one acre) Residence District to R-OSC Open Space Cluster District in order to construct residential housing while preserving the existing recreational land use.

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I am writing to obtain information regarding SCPD facilities and services which may be pertinent to the project. Specifically, I am requesting the following:

- The location of the stationhouse that would serve the site;
- The Patrol Sector assigned to the site; and
- Information on any concerns the SCPD may have regarding provision of services (e.g., the site location, the area, or the nature of the project).

If you have any input regarding the Department's ability to provide services, please provide an explanation so that this may be considered in the review process. Your responses will be included in the VDEIS, and reviewed by the Town of Huntington. If you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or cvoorhis@nelsonpopevoorhis.com.

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Charles J. Voorhis, CEP, AICP

Enc. Location Map & Concept Plan

RECEIVED
AUG 05 2016
NELSON & POPE

C.V.
AM
SR.

COUNTY OF SUFFOLK

STEVEN BELLONE
COUNTY EXECUTIVE

TIMOTHY D. SINI
POLICE COMMISSIONER

POLICE DEPARTMENT

August 2, 2016

Mr. Charles J. Voorhis, CEP, AICP
Nelson, Pope & Voorhis, LLC
572 Walt Whitman Road
Melville, NY 11746

Dear Mr. Voorhis:

I am in receipt of your letter dated July 28, 2016 regarding a Voluntary Draft Environmental Impact Statement for a proposed rezoning of Indian Hills Country Club.

The location of the stationhouse that would serve this site: 1071 Park Avenue, Huntington, NY 11743.

The Patrol Sector assigned to the site: 205.

The Suffolk County Police Department has no concerns at this time regarding provision of services.

Sincerely,

C Hatton Insp/200

Christopher Hatton, Inspector
Commanding Officer, 2nd Precinct

CH:pd

July 28, 2016

Ms. Lisa Cetta, New Service Manager
Suffolk County Water Authority
PO Box 38
Oakdale, New York 11769-0901

Re: The Preserve at Indian Hills
SCTM # #0400-14-041 &2 and
#0400-15-01-11, 12 &16
NPV #86047

Dear Ms. Cetta:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently preparing a Voluntary Draft Environmental Impact Statement (VDEIS) for a proposed rezoning of a golf course property, known as Indian Hills Country Club from R-40 (minimum one acre) Residence District to R-OSC Open Space Cluster District in order to construct residential housing while preserving the existing recreational land use.

The overall project involves five (5) tax parcels, totaling 149.15 acres located on the north and south sides of Breeze Hill Road, west of Fresh Pond Road in the hamlet of Fort Salonga in the Town of Huntington (*see enclosed location map and concept plan*). The residential development will include 108 town homes to be located in 54 structures and 2 single family cottages. The residences will generally be sited in areas where there is existing access and clustered for preserving open space as a single contiguous block. Access to the 46 town homes south of Breeze Hill Road will be provided via tax lot #0400-15-01-16, part of which is proposed to remain zoned R-40 and part will be subject to a lot-line change and included in the rezoning. Access will also be provided from Fresh Pond Road for 16 town homes and Mystic Lane for 46 town homes. Each of the proposed dwellings will be served by public water and individual on-site sanitary systems.

Assuming the Suffolk County Department of Health Services design rates for sanitary flow for the proposed use, the estimated total daily water usage (including the clubhouse, maintenance building and irrigation for new landscaping) for the project is approximately 25,425 gallons/day. It is noted the water generation estimates do not account for irrigation or reductions in water use from use of "green development" options such as use of low-flow showers and toilet tanks and rainwater recycling.

I am requesting the following information:

- Confirmation that the parcel is within SWCA Distribution Area;
- The names of the wellfield(s) nearest the parcel;
- The aquifer from which the above-named wellfields pump;
- If the projected water demand would require extensions or upgrades to supply lines; and
- If water can be provided, please send a letter to my attention to that effect.

If you have any input regarding SCWD's ability to provide services, please provide an explanation so that this may be considered in the review process. Your responses will be included in the VDEIS, and reviewed by the Town of Huntington. If you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or cvoorhis@nelsonpopevoorhis.com.

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Charles J. Voorhis, CEP, AICP

Enc. Location Map and Concept Plan

SUFFOLK COUNTY WATER AUTHORITY

Timothy J. Hopkins
General Counsel

Administrative Offices: 4060 Sunrise Highway, Oakdale, New York 11769-0901
(631) 563-0236
Fax (631) 563-0370

RECEIVED
SEP 06 2016
NELSON & POPE
C.V.
AM.

September 2, 2016

Charles J. Voorhis, AICP
Nelson, Pope & Voorhis, LLC
572 Walt Whitman Road
Melville, NY 11747

RE: FOIL Request - Identify Three Closest SCWA Well Fields, Preserve at Indian Hills SCTM# 0400-15-1-11,12,16

Dear Mr. Voorhis:

Pursuant to your Freedom of Information Law request please find enclosed a map representing the location of the (3) three closest public supply well fields as they relate to the captioned project.

SCWA's Wayne Court facility is screened in the Raritian Clay; Middleville Road is a Magothy well and Waterside Road well # 1 is Glacial with well # 2 being the Magothy.

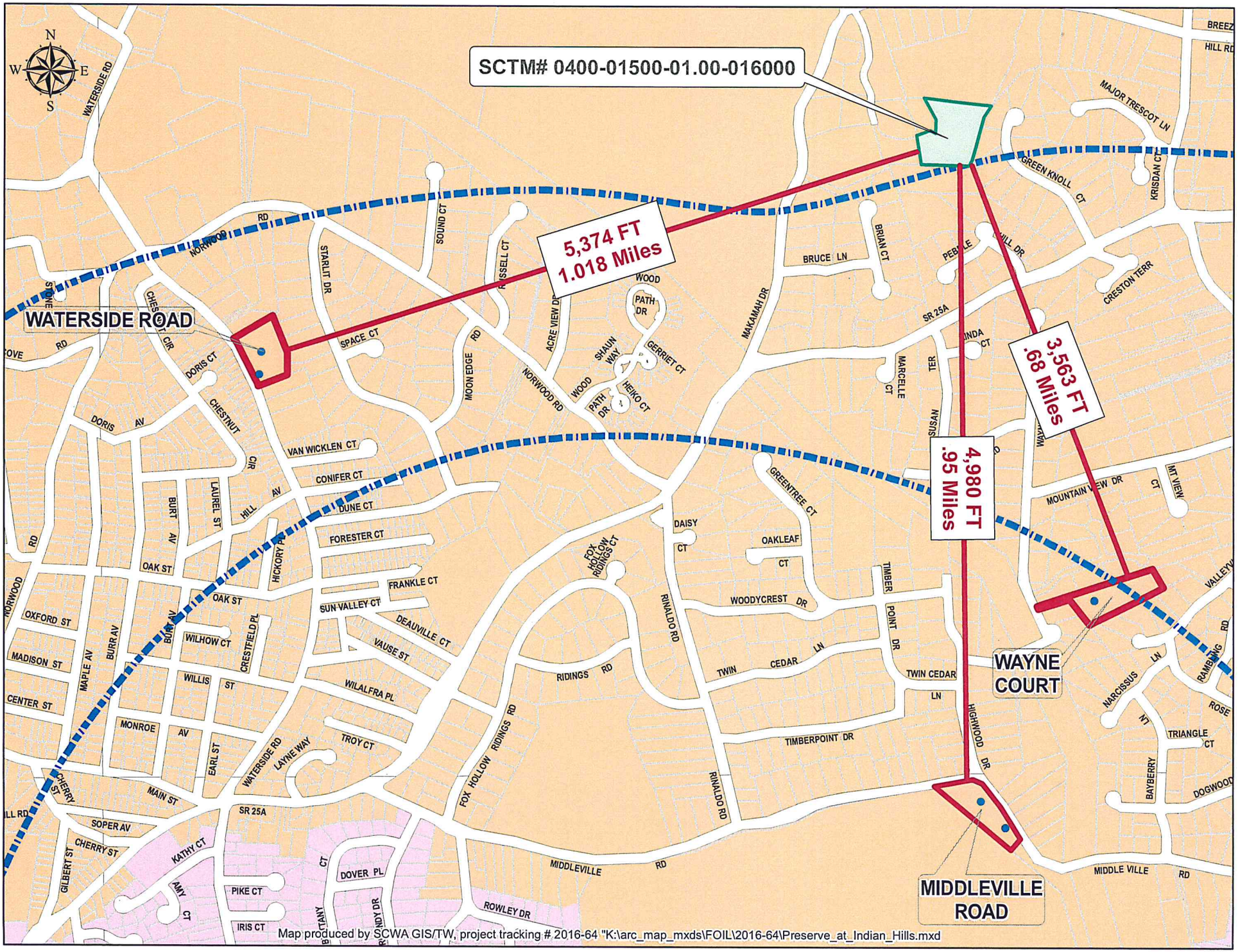
The other items in your request regarding water availability will be addressed by SCWA's New Service Manager Lisa Cetta. (631-563-5672).

If you have any questions on this matter, please give me a call at 631-563-0375.

Very truly yours,

Kimberly Kennedy
Assistant to General Counsel

Enc.



Map produced by SCWA GIS/TW, project tracking # 2016-64 "K:\arc_map_mxds\FOIL\2016-64\Preserve_at_Indian_Hills.mxd

0 0.125 0.25 0.5 Miles

SUFFOLK COUNTY WATER AUTHORITY
SCWA

4060 Sunrise Highway, Oakdale, New York 11769-0901

RECEIVED
SEP 09 2016
NELSON & POPE O.V. AM.

September 7, 2016

Charles J. Voorhis, CEP, AICP
Nelson, Pope & Voorhis LLC
572 Walt Whitman Rd
Melville NY 11747

Re: Water Availability – The Preserve at Indian Hills
SCTM# 0400-14-4-1 & 2; 0400-15-1-11, 12 & 16
SCWA# 2000388595

Dear Mr. Voorhis:

Reference is made to your request for information regarding availability of public water service to the above referenced property.

There is an existing water main available to the above captioned property from Breeze Hill Road, Mystic Lane and Fresh Pond Road.

Accordingly, public water service for the parcels will be provided, in accordance with the rates and charges applicable at the time of hook-up. If a main extension is required, you are responsible for paying the costs of the extension and if appropriate, an easement must be provided to SCWA.

This letter is not to be considered an action by SCWA as defined by the New York State Quality Review Act regulations or a determination that the parcel is approved for building. You are responsible for obtaining any other permits or approvals that may be required for the proposed project. SCWA shall not be required to provide water for the project until all required approvals have been obtained.

In response to your request for information on our well fields Kim Kennedy of our Legal Department will be responding under separate cover.

If you have any further questions, please feel free to contact the undersigned at (631) 563-5672 or by email at lcetta@scwa.com.

Sincerely,

Lisa Cetta
Manager

LC/lap

Existing Water Main_State Quality Review

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING
572 WALT WHITMAN ROAD, MELVILLE, NY 11747 - 2188
(631) 427-5665 FAX (631) 427-5620
www.nelsonpopevoorhis.com

July 28, 2016

Town of Huntington
Environmental Waste Management Department
100 Main Street
Huntington, New York 11743
Attn.: Mr. Matt Laux, Interim Director

Re: The Preserve at Indian Hills
SCTM # #0400-14-041 &2 and
#0400-15-01-11, 12 & 16
NPV #86047

Dear Mr. Laux:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently preparing a Voluntary Draft Environmental Impact Statement (VDEIS) for a proposed rezoning of a golf course property, known as Indian Hills Country Club from R-40 (minimum one acre) Residence District to R-OSC Open Space Cluster District in order to construct residential housing while preserving the existing recreational land use.

The overall project involves five (5) tax parcels, totaling 149.15 acres located on the north and south sides of Breeze Hill Road, west of Fresh Pond Road in the hamlet of Fort Salonga in the Town of Huntington (*see enclosed location map and concept plan*). The residential development will include 108 town homes to be located in 54 structures and 2 single family cottages. The residences will generally be sited in areas where there is existing access and clustered for preserving open space as a single contiguous block. Access to the 46 town homes south of Breeze Hill Road will be provided via tax lot #0400-15-01-16, part of which is proposed to remain zoned R-40 and part will be subject to a lot-line change and included in the rezoning. Access will also be provided from Fresh Pond Road for 16 town homes and Mystic Lane for 46 town homes. Each of the proposed dwellings will be served by public water and individual on-site sanitary systems. We are writing to obtain information in regard to the solid waste facilities which may be pertinent to the project. Specifically, I am requesting the following:

- Confirmation that the parcel is within or outside the Town Refuse District;
- Information as to the entity that would remove the solid wastes generated on the sites (i.e., would it be serviced by the Town or a private carter?);
- The name and location of the facility to which the solid waste from the sites would be taken; the total tonnage and breakdown (by tons or percent of the total) of wastes disposed at this facility (i.e. recycled, incinerated, landfilled), and the destination of each waste stream; and
- If any waste regulations specific to these uses which should be considered?

If you have any input regarding the ability to provide services to this project, please provide an explanation so that this may be considered in the review process. Your responses will be included in the VDEIS. If you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or cvoorhis@nelsonpopevoorhis.com.

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Charles J. Voorhis, CEP, AICP

Enc. Location Map and Concept Plan

NELSON, POPE & VOORHIS, LLC
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572 WALT WHITMAN ROAD, MELVILLE, NY 11747 - 2188
(631) 427-5665 FAX (631) 427-5620
www.nelsonpopevoorhis.com

July 28, 2016

Town of Huntington, Town Hall
Assessor's Office (Room 100)
100 Main Street
Huntington, New York 11743
Attn.: Mr. Roger Ramme, Town Assessor

Re: The Preserve at Indian Hills
SCTM # #0400-14-041 &2 and
#0400-15-01-11, 12 & 16
NPV #86047

Dear Mr. Ramme:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently preparing a Voluntary Draft Environmental Impact Statement (VDEIS) for a proposed rezoning of a golf course property, known as Indian Hills Country Club from R-40 (minimum one acre) Residence District to R-OSC Open Space Cluster District in order to construct residential housing while preserving the existing recreational land use.

The overall project involves five (5) tax parcels, totaling 149.15 acres located on the north and south sides of Breeze Hill Road, west of Fresh Pond Road in the hamlet of Fort Salonga in the Town of Huntington (*see enclosed location map and concept plan*). The residential development will include 108 town homes to be located in 54 structures and 2 single family cottages. The residences will generally be sited in areas where there is existing access and clustered for preserving open space as a single contiguous block. Access to the 46 town homes south of Breeze Hill Road will be provided via tax lot #0400-15-01-16, part of which is proposed to remain zoned R-40 and part will be subject to a lot-line change and included in the rezoning. Access will also be provided from Fresh Pond Road for 16 town homes and Mystic Lane for 46 town homes. Each of the proposed dwellings will be served by public water and individual on-site sanitary systems.

Please provide any comments you may have regarding the proposed project. Your responses will be included in the VDEIS. If you should have any questions or require additional information, please do not hesitate to contact me at (631) 427-5665 or cvoorhis@nelsonpopevoorhis.com.

Very truly yours,
NELSON, POPE AND VOORHIS, LLC

Charles J. Voorhis, CEP, AICP

Enc. Location Map & Concept Plan

APPENDIX I

TRAFFIC IMPACT STATEMENT

Nelson & Pope, PLLC

Revised September 2016
(appendices on accompanying CD, in front pocket of DEIS)

TRAFFIC IMPACT STUDY

INDIAN HILLS

Fort Salonga

Town of Huntington

September 2016

N & P JOB NO. 86047

NELSON & POPE
ENGINEERS & SURVEYORS
572 WALT WHITMAN ROAD, MELVILLE, NY 11747-2188 . (631)427-5665 . FAX(631)427-5620 . www.nelsonpope.com

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PURPOSE OF REPORT

Nelson & Pope has investigated the potential traffic impacts associated with the proposed application for the addition of 110 senior housing units to be situated on the existing Indian Hills Country Club property, which is located on the north side of Breeze Hill Road between Makamah Road and Fresh Pond Road in Fort Salonga, Town of Huntington, Suffolk County, New York. The proposed project will be comprised of a total of 110 detached senior housing units, divided into 3 locations; northwest, northeast and southwest quadrants. The northwest quadrant will be comprised of 48 senior housing units and access will be provided via an easterly extension of Mystic Lane. The northeast quadrant will be comprised of 16 senior housing units and access will be provided via a newly constructed access extending west from Fresh Pond Road approximately 1,250 feet north of Breeze Hill Road. The southwest quadrant will be comprised of 46 senior housing units and access will be provided via an existing full access unnamed roadway which extends to the south from Breeze Hill Road approximately 65 feet east of Makamah Road.

This report summarizes the results of a detailed investigation of the traffic impacts associated with the proposed senior housing development by reviewing the area's existing roadway characteristics and traffic conditions, estimating the vehicular volume and pattern that the proposed project will generate during peak hours, and analyzing the effect of the additional volume on the surrounding roadway network. Figure 1 shows the overall study area and Figure 2 shows the study intersections.

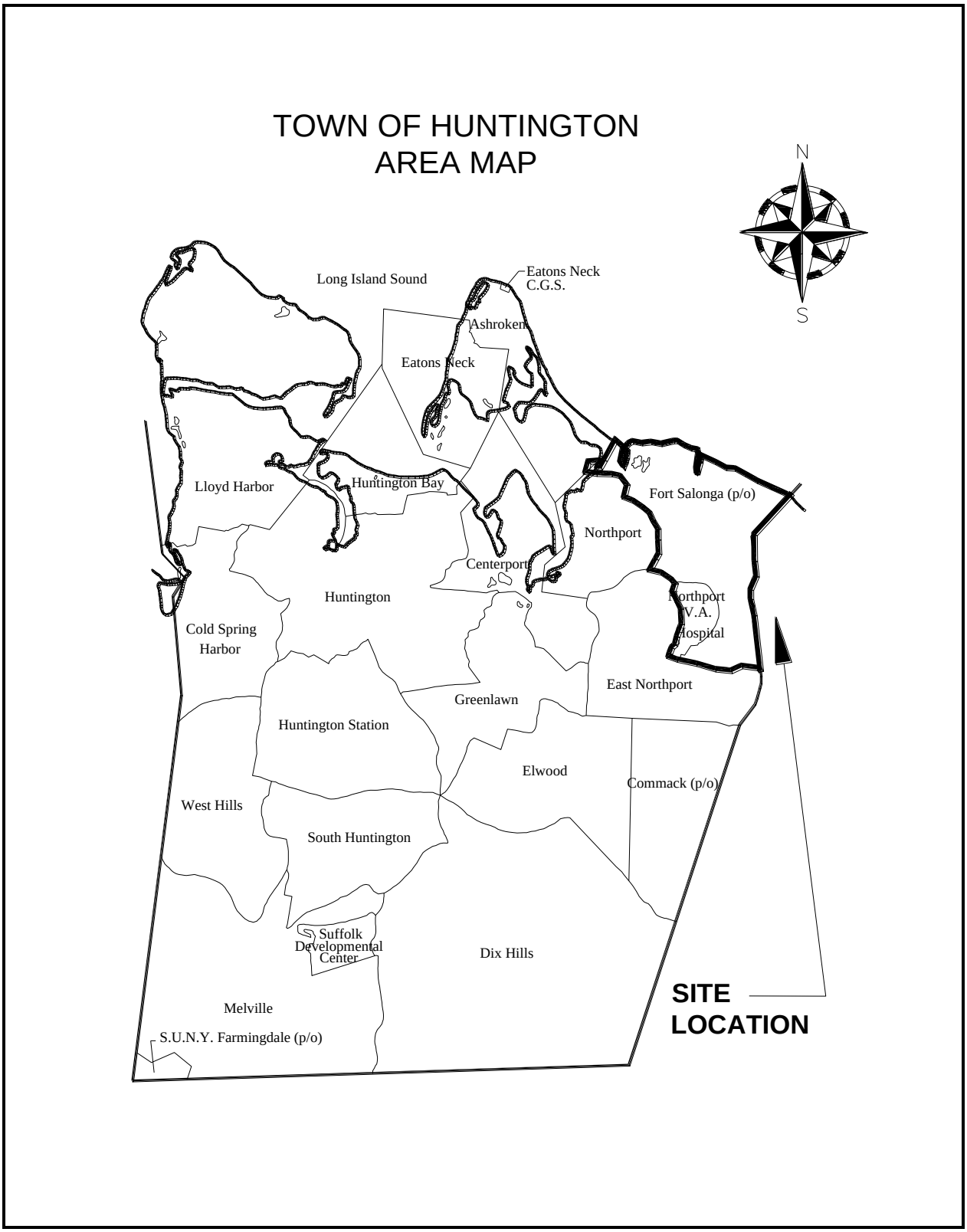
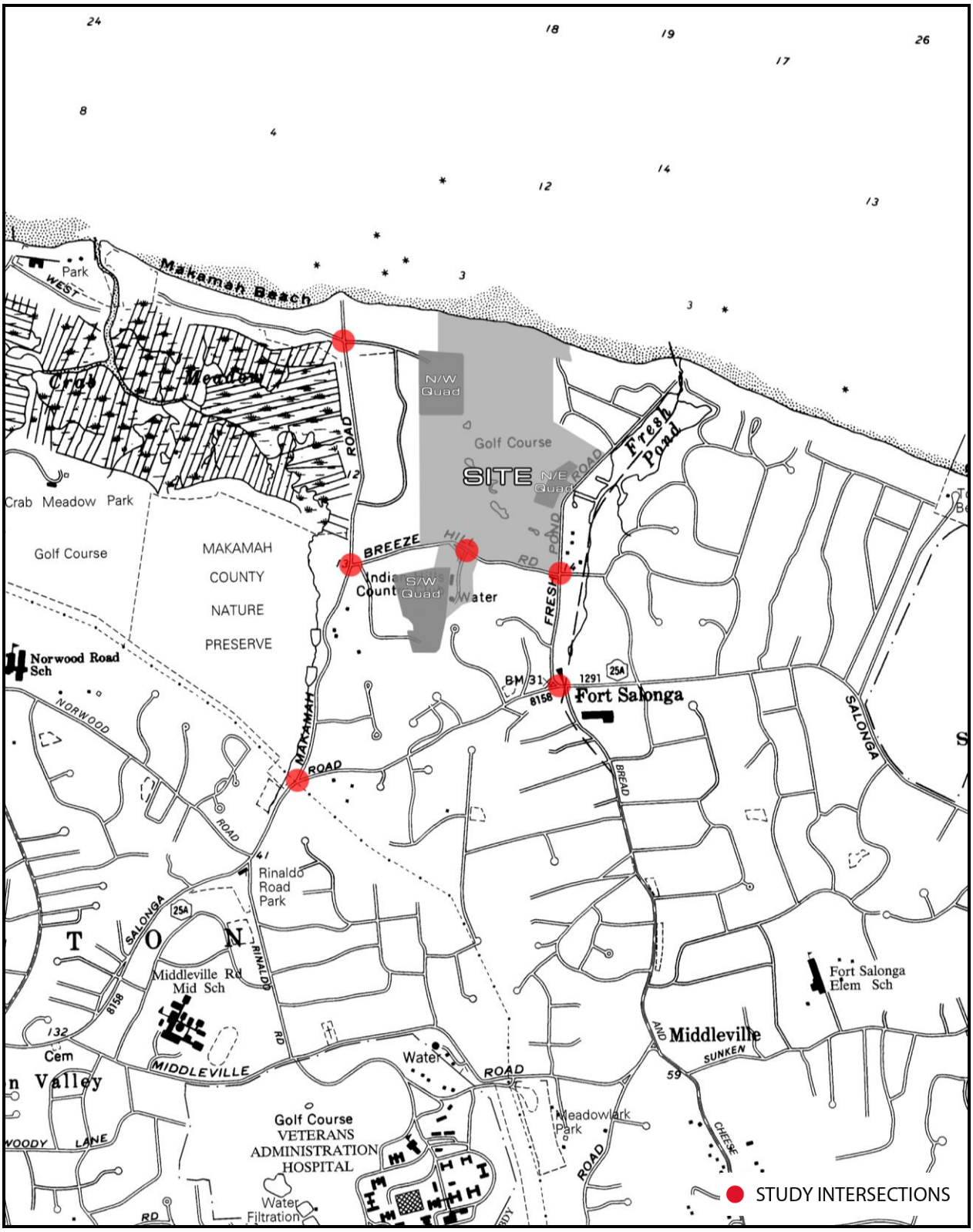


Figure 1: Area Map



SOURCE: USGS NORTHPORT 1991

Figure 2: Location Map

STUDY METHODOLOGY

The study assesses the traffic impacts associated with the proposed senior housing development and identifies appropriate mitigation, if necessary. In executing the scope of work, the following steps were undertaken.

- A detailed field inspection was conducted to obtain an inventory of existing roadway geometry, location/geometry of existing driveways and intersections along with signing, signal timings, phasing and cycle lengths.

- Turning movement traffic counts were conducted during the weekday morning (7:00 AM to 9:00AM), weekday evening (4:00 PM to 6:00 PM) and Saturday midday (11:00 AM to 2:00 PM) peak periods at the following intersections:

    - Fort Salonga Road (NYS 25A) at Makamah Road
    - Fort Salonga Road (NYS 25A) at Fresh Pond Road/Bread and Cheese Hollow Road
    - Makamah Road and Breeze Hill Road
    - Makamah Road and Makamah Beach Road/Mystic Lane
    - Fresh Pond Road and Breeze Hill Road
    - Breeze Hill Road and Indian Hills Country Club Access

- The most recent 3-years of accident data for the study intersections and roadways in the vicinity of the site was obtained from NYSDOT. The data was tabulated and summarized.

- The turning movement counts collected at each intersection was tabulated for each time period. Peak hours were identified and peak hour factors calculated for each approach.

- An Estimated Time of Completion (ETC) year of 2018 (2 years) is anticipated for this project. Therefore, a horizon year of 2018 was utilized for No Build and Build conditions to determine the impacts that may be created by the construction of this project.

- An annual growth factor of 1.0% obtained from the NYSDOT LITP2000 Study for the Town of Huntington was applied to the existing traffic volumes to estimate the increase in

background traffic that would occur in 2018. These volumes are referred to as the Ambient No Build Volumes.

- The Towns of Huntington and Smithtown were contacted to obtain information on other planned projects in the nearby area that may affect the study intersections. At the time this study was conducted there were no significant planned projects in the vicinity of the proposed project provided by either municipality.

- Estimates of traffic that would be generated by the proposed senior housing development were prepared utilizing trip generation data published by the Institute of Transportation Engineers (ITE) publication, *Trip Generation, Ninth Edition*. The site-generated traffic volumes were assigned to the adjacent street system based upon the anticipated directional trip distribution forecasted by Nelson & Pope.

- The 2018 Build Condition volumes for the proposed senior residential development were developed by adding the site generated traffic volumes to the 2018 No Build Condition volumes.

- Capacity analyses were performed at the study intersections for the Existing Condition, No Build Condition and Build Condition for weekday AM, PM and Saturday midday peak hours.

- The results of the analyses for the 2018 No Build Conditions and 2018 Build Conditions were compared to identify any significant impact associated with the proposed senior housing development.

EXISTING CONDITION

Land Use

As previously discussed the proposed application for the addition of 110 senior housing units to be situated on the existing Indian Hills Country Club property, which is located on the north side of Breeze Hill Road between Makamah Road and Fresh Pond Road in Fort Saonga, Town of Huntington, Suffolk County, New York. The proposed project will be comprised of a total of 110 detached senior housing units, divided into 3 locations; northwest, northeast and southwest quadrants. The northwest quadrant will be comprised of 48 senior housing units and access will be provided via an easterly extension of Mystic Lane. The northeast quadrant will be comprised of 16 senior housing units and access will be provided via a newly constructed access extending west from Fresh Pond Road approximately 1,250 feet north of Breeze Hill. The southwest quadrant will be comprised of 46 senior housing units and access will be provided via an existing full access unnamed roadway which extends to the south from Breeze Hill Road approximately 65 feet east of Makamah Road.

Roadway Conditions

The following is a list of roadways included in the study network surrounding the site. The traffic generated by the proposed residential development will be distributed throughout the network. The general descriptions listed here refer only to the sections of the roadways that exist near the site. Their cross-section may vary further away from the site. The Average Annual Daily Traffic (AADT) is listed for each roadway where available in the most recent New York State Department of Transportation (NYSDOT) Local Highway Traffic Volumes Report.

Fort Salonga Road (NYS Route 25A) is an east/west minor arterial roadway under the jurisdiction of New York State Department of Transportation (NYSDOT). It provides one travel lane in each direction with exclusive turn lanes at key intersections in the vicinity of the study area. Fort Salonga Road has an Average Annual Daily Traffic (AADT) volume of approximately 15,125 vehicles per day in the vicinity of the proposed project. The roadway is fronted by a mix of commercial and residential properties. The posted speed limit is 35 mph.

Makamah Road is a north/south collector roadway under the jurisdiction of the Town of Huntington. In the vicinity of the study area it provides one travel lane in each direction. The roadway is fronted by residential properties on the east and the Makamah Nature Preserve on the west. It extends north from Fort Salonga Road with its northern terminus at Geisslers Beach Park/Long Island Sound. The posted speed limit is 30 mph.

Fresh Pond Road is a north/south roadway under the jurisdiction of the Town of Huntington which provides one travel lane in each direction. The roadway is primarily fronted by residential properties. It extends north from Fort Salonga Road with its northern terminus at Long Island Sound. The posted speed limit is 30 mph.

Bread and Cheese Hollow Road (CR4) is a north/south roadway under the jurisdiction of the Suffolk County Department of Public Works (SCDPW) which provides one travel lane in each direction. The roadway is primarily fronted by residential properties. Bread and Cheese Hollow Road is a continuation of Commack Road and Town Line Road and becomes Bread and Cheese Hollow Road north of Pulaski Road (CR 11) with its northern terminus at Fort Salonga Road. The posted speed limit is 30 mph.

Breeze Hill Road is an east/west local roadway under the jurisdiction of the Town of Huntington which provides one travel lane in each direction. The roadway is primarily fronted by residential properties and the Indian Hills Country Club. It extends east from Makamah Road with its eastern terminus at the intersection of Brookfield Doad and Woodmere Drive just east of Fresh Pond Road. The posted speed limit is 30 mph.

Table 1: Intersection Geometry

Intersection	Approach	Lane Designation*	Traffic Control
Fort Salonga Road (NYS 25A) at Fresh Pond Road/Bread & Cheese Hollow Road	EB WB NB SB	L-T-R L-TR LTR LT-R	Traffic Signal
Fort Salonga Road (NYS 25A) at Makamah Road	EB WB SB	LT TR LR	Stop Control SB
Makamah Road at Breeze Hill Road	WB NB SB	LR TR LT	Stop Control WB
Makamah Road at Makamah Beach Road/Mystic Lane	EB WB NB SB	LTR LTR LTR LTR	Stop Control EB/WB
Fresh Pond Road at Breeze Hill Road	EB WB NB SB	LTR LTR LTR LTR	Stop Control EB/WB
Breeze Hill Road at Indian Hills Country Club Access	EB WB NB	TR LT LR	Stop Control NB

** L = Left turn lane; T = through lane; R = Right turn lane*

Traffic Volume Data

Turning movement counts were collected at the following study intersections on Thursday, January 7, 2016 during the weekday AM (7:00-9:00 AM) and PM (4:00-6:00 PM) peak periods and on Saturday, January 9, 2016 during the Saturday midday peak period (11:00 AM – 2:00 PM).

- NYS 25A (Fort Salonga Road) at Makamah Road
- NYS 25A ((Fort Salonga Road) at Fresh Pond Road/Bread and Cheese Hollow Road
- Makamah Road and Breeze Hill Road
- Makamah Road and Makamah Beach Road/Mystic Lane
- Fresh Pond Road and Breeze Hill Road
- Fresh Pond Road and Claymore Road
- Breeze Hill Road and Indian Hills Country Club Access

Seasonal adjustment factors of 0.941 and 0.796 were obtained from the 2015 NYSDOT Traffic Data Report for the weekday and weekend counts respectively during the month of January. These seasonal adjustment factors were developed from NYSDOT continuous data collected for a three-year period. Applying the weekday and weekend normalization factor will increase the existing traffic volumes, therefore the weekday and weekend counts were normalized to account for seasonal fluctuation. The seasonally adjusted peak hour volumes are shown on Figures 3, 4, and 5 and detailed data are contained in Appendix A.

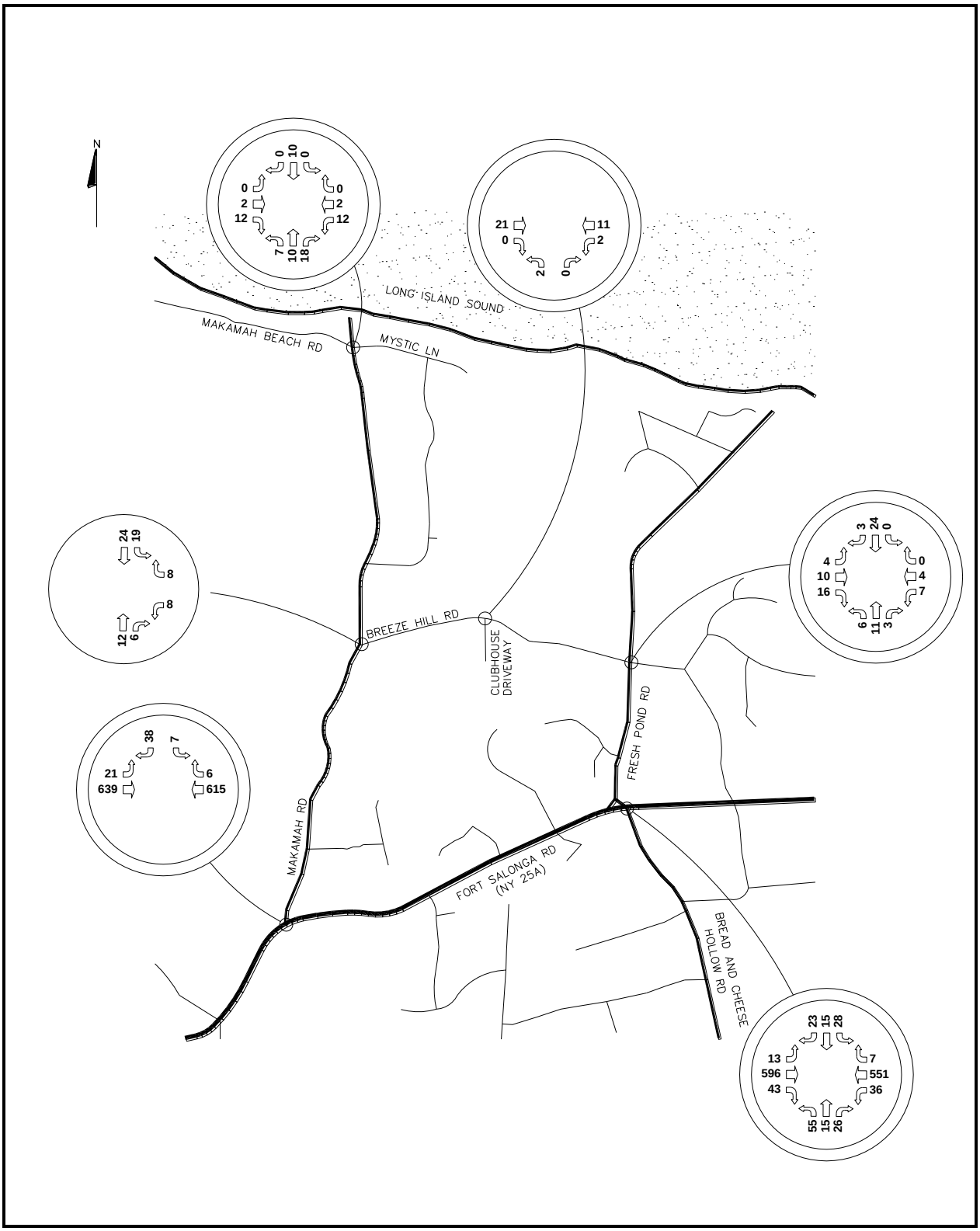


Figure 3: Existing AM Peak Hour Traffic Volumes

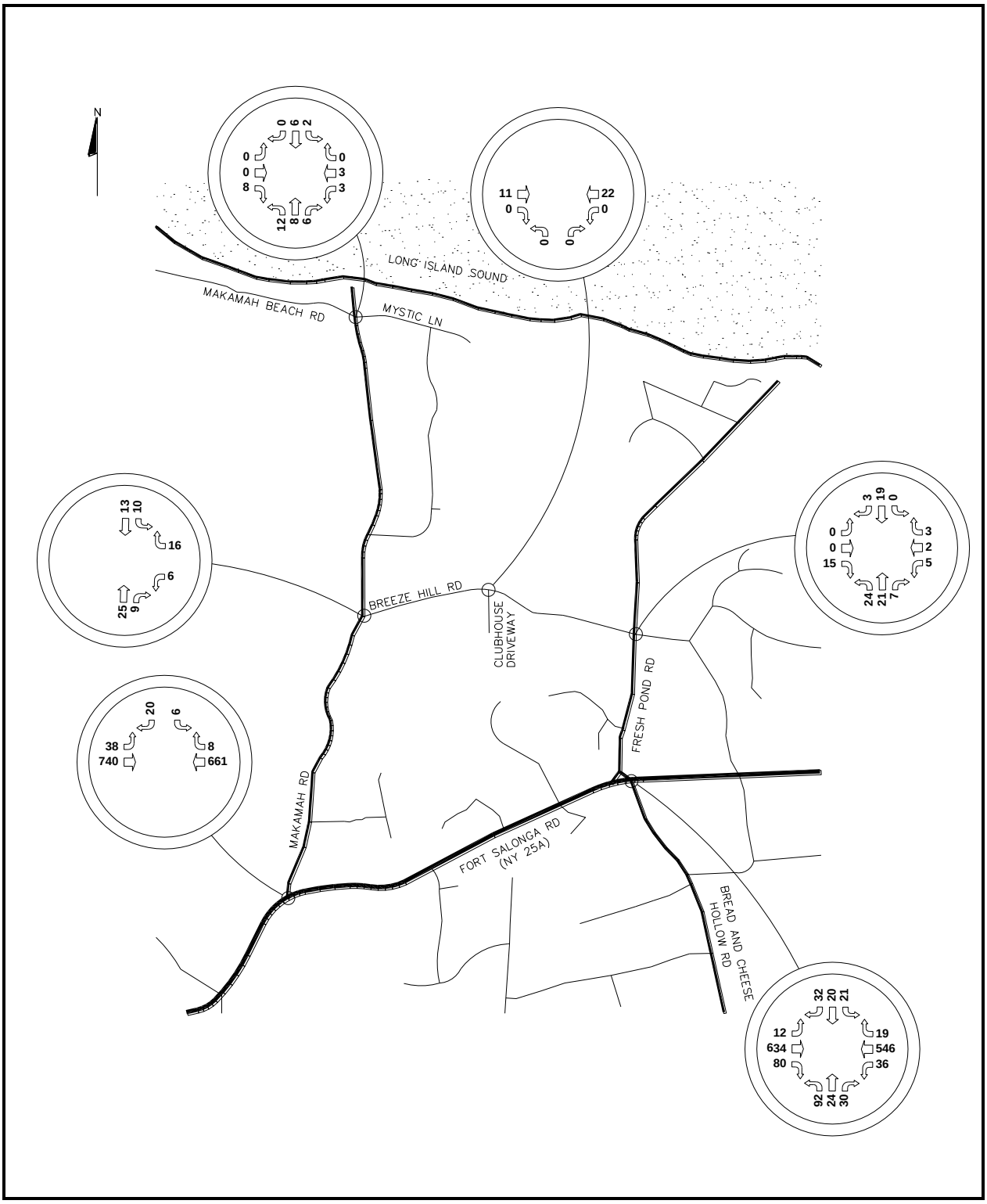


Figure 4: Existing PM Peak Hour Traffic Volumes

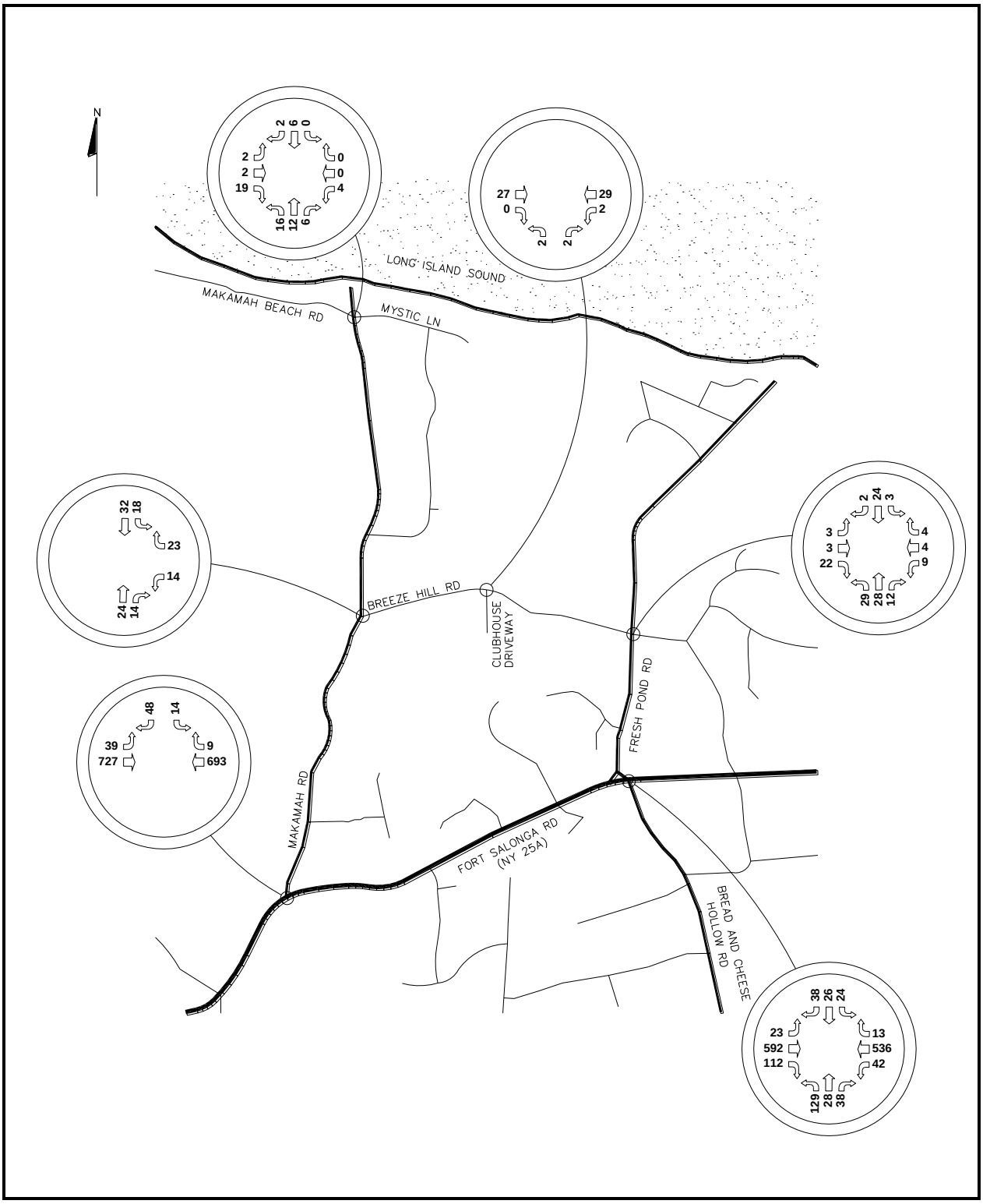


Figure 5: Existing Saturday Peak Hour Traffic Volumes

Accident History

Accident data for the sections of roadways and intersections in the vicinity of the site was obtained from the NYSDOT. The most recent data available was from September 1, 2012 to August 31, 2015 (3-year period). The data was reviewed and summarized in the following tables.

Table 2: Accident Summary by Severity

Location	Accident Severity			
	Fatality	Injury	Property Damage	TOTAL
Fort Solanga Road (25A) at Makamah Road	0	1	1	2
Fort Solanga Road (25A) at Fresh Pond Road/Bread and Cheese Hollow Road	0	3	6	9
Breeze Hill Road at Makamah Road	0	0	0	0
Breeze Hill Road at Indian Hills Country Club Driveway	0	0	0	0
Breeze Hill Road at Fresh Pond Road	0	0	2	2
Mystic Lane at Makamah Road	0	0	0	0
Total	0 *0%*	4 *31%*	9 *69%*	13 *100%*

Table 2 indicates a total of 13 accidents occurred at or in the vicinity of the study intersections during the analysis period. The majority of the accidents resulted in property damage (69%). The location with the greatest number of accidents is the intersection of Fort Salonga Road (25A) and Fresh Pond Road/Bread and Cheese Hollow Road with a total of 9 accidents (69% of total accidents). There were no fatal accidents during the study period.

Table 3: Accident Summary by Type of Collision

Location	Accident Type											
	Right Angle	Rear End	Head On	Left Turn	Right Turn	Fixed Object	Ped/ Bicycle	Overtk	Parked	Backing	Other/ Unknown	Total
Fort Solanga Road (25A) at Makamah Road	0	1	0	0	0	1	0	0	0	0	0	2
Fort Solanga Road (25A) at Fresh Pond Road/Bread and Cheese Hollow Road	1	3	0	1	0	2	0	0	1	0	1	9
Breeze Hill Road at Makamah Road	0	0	0	0	0	0	0	0	0	0	0	0
Breeze Hill Road at Indian Hill Country Club Driveway	0	0	0	0	0	0	0	0	0	0	0	0
Breeze Hill Road at Fresh Pond Road	2	0	0	0	0	0	0	0	0	0	0	2
Mystic Lane at Makamah Road	0	0	0	0	0	0	0	0	0	0	0	0
Total	3 *24%*	4 *31%*	0 *0%*	1 *7%*	0 *0%*	3 *24%*	0 *0%*	0 *0%*	1 *7%*	0 *0%*	1 *7%*	13 *100%*

A review of Table 3 indicates that a plurality of the accidents (31%) were rear end accidents, which may be attributed to traffic congestion at signalized locations and/or driver inattention. The second most frequent type of accidents were right angle accidents and fixed object accidents, both with 24%.

LEVEL OF SERVICE DESCRIPTION

In order to identify the operational characteristics of the study intersections, level of service and capacity analyses for the study intersections were performed using *SYNCHRO Version 9* Software. *SYNCHRO*, in conjunction with *SimTraffic*, is a software package that allows for an interactive analysis of a single intersection or a network of intersections and can also be used for modeling and optimizing traffic signal timings. The *SimTraffic* component provides simulations of operations with animation features. *SYNCHRO* implements the Intersection Capacity Utilization (ICU) 2003 method for determining intersection capacity. This method compares the current volume to the intersections ultimate capacity. *SYNCHRO* also implements the methods of the 2010 Highway Capacity Manual (HCM) for Urban Streets, Signalized intersections, and unsignalized intersections for determining intersection capacity analyses. The *HCM* contains procedures and methodologies for estimating capacity and determining level of service for many transportation facilities and modes including signalized and unsignalized intersections.

An intersection's level of service (LOS) describes its quality of traffic flow. It ranges in grade from LOS "A" (relatively congestion-free) to LOS "F" (very congested). The level of service definition, as well as the threshold values for each level, varies according to whether the intersection is controlled by a signal or a stop sign. A brief description is given here and a more detailed definition is found in Appendix C.

The capacity of a signalized intersection is evaluated in terms of the ratio of demand flow rate to capacity (V/C ratio). The capacity for each approach represents the maximum rate of flow (for the subject approach) which may pass through the intersection under prevailing traffic, roadway and signal conditions. The level of service of a signalized intersection is evaluated on the basis of average control-delay measured in seconds per vehicle (sec/veh). The control-delay is calculated using an equation that combines the stopped-delay with the vehicle acceleration/deceleration delay that is caused by the signalized intersection. At the signalized intersections, factors that affect the various approach capacities include width of approach, number of lanes, signal "green time", turning percentages, truck volumes, etc. However, delay cannot be related to capacity in a simple one-to-one fashion. For example, it is possible to have delays in the Level of Service "F" range without exceeding roadway capacity. Substantial delays can exist without exceeding

capacity if one or more of the following conditions exist: long signal cycle length; a particular traffic movement experiences a long red time; or progressive movements for a particular lane are poor.

The flow at a two-way stop-controlled (TWSC) intersection is gauged in terms of LOS and capacity. The capacity of a stop-controlled leg is based on the distribution of gaps in the major street traffic, driver judgment in selecting a gap, and the follow-up time required by each driver in a queue. The LOS for a TWSC intersection is determined by the control-delay, and is defined for each movement rather than for the overall intersection. As with signalized intersections, SYNCHRO quantifies only the average control-delay, which is a function of the approach and the degree of saturation for any particular minor movement.

EXISTING CONDITION ANALYSIS

The 2016 existing peak hour traffic volumes depicted in Figures 3, 4 and 5 were used to determine the existing capacity and LOS of the study intersections. Tables 4 and 5 contain the LOS summary for signalized and unsignalized intersections, respectively, for the Existing Condition calculated through SYNCHRO software described previously. The detailed analysis worksheets are in Appendix D.

Table 4: Existing Condition LOS Summary – Signalized Intersection

			AM Peak		PM Peak		Saturday Peak	
Signalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
Fort Salonga Rd (NYS 25A) at Bread and Cheese Hollow Rd/ Fresh Pond Rd	EB	L	6.5	A	7.2	A	9.4	A
		T	10.2	B	13.6	B	15.4	B
		R	3.6	A	5.0	A	5.8	A
	WB	L	7.6	A	9.6	A	11.9	B
		TR	10.2	B	12.6	B	14.9	B
	NB	LTR	23.4	C	28.0	C	29.3	C
	SB	LT	18.6	B	20.6	C	19.2	B
		R	6.2	A	8.2	A	6.9	A
	Intersection		11.1	B	14.1	B	16.0	B

Table 5: Existing Condition LOS Summary – Unsignalized Intersections

			AM Peak		PM Peak		Saturday Peak	
Unsignalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
NYS 25A at Makamah Rd	EB	LT	0.7	A	1.5	A	1.5	A
	SB	LR	18.0	C	23.9	C	32.0	D
Makamah Rd at Breeze Hill Rd	WB	LR	8.8	A	8.8	A	9.1	A
	SB	LT	3.3	A	3.2	A	2.7	A
Makamah Rd at Makamah Beach Rd/Mystic Ln	EB	LTR	8.6	A	8.5	A	8.7	A
	WB	LTR	9.3	A	9.3	A	9.3	A
	NB	LTR	1.4	A	3.5	A	3.5	A
	SB	LTR	0.0	A	1.8	A	0.0	A
Fresh Pond Rd at Breeze Hill Rd	EB	LTR	9.1	A	8.6	A	9.1	A
	WB	LTR	9.5	A	9.4	A	10.1	B
	NB	LTR	2.2	A	3.5	A	3.2	A
	SB	LTR	0.0	A	0.0	A	0.8	A
Breeze Hill Rd at Country Club Access	WB	LR	1.2	A	0.0	A	0.5	A
	NB	LT	8.8	A	0.0	A	8.8	A

Fort Salonga Road (NYS 25A) and Bread and Cheese Hollow Road/Fresh Pond Road

The signalized intersection of Fort Salonga Road and Bread and Cheese Hollow Road/Fresh Pond Road, from an overall perspective, currently operates at LOS B during the weekday AM and PM peak hours and during the Saturday midday peak hours.

Fort Salonga Road (NYS 25A) and Makamah Road

The eastbound left-turn/through movement of this unsignalized intersection currently operates at LOS A during the weekday AM and PM peak hours and during the Saturday midday peak hours.

The stop-controlled southbound approach currently operates at LOS C during the weekday AM and PM peak hours and at LOS D during the Saturday midday peak hour.

Makamah Road and Breeze Hill Road

The southbound left-turn/through movement of this unsignalized intersection currently operates at LOS A during the weekday AM and PM peak hours and during the Saturday midday peak hours. The stop-controlled westbound approach currently operates at LOS A during the weekday AM and PM peak hours and during the Saturday midday peak hours.

Makamah Road and Makamah Beach Road/Mystic Lane

The eastbound and westbound stop-controlled approaches currently operate at LOS A during the weekday AM and PM peak hours and during the Saturday midday peak hours. The northbound and southbound left-turn/through/right-turn movements currently operate at LOS A during the weekday AM and PM peak hours and during the Saturday midday peak hours.

Fresh Pond Road and Breeze Hill Road

The northbound left-turn/through movement of this unsignalized intersection currently operates at LOS A during the weekday AM and PM peak hours and during the Saturday midday peak hours. The stop-controlled eastbound and westbound approaches currently operate at LOS A during the weekday AM and PM peak hours and during the Saturday midday peak hours.

Fresh Pond Road and Claymore Road

The northbound left-turn/through movement of this unsignalized intersection currently operates at LOS A during the weekday AM and PM peak hours and during the Saturday midday peak hours. The stop-controlled eastbound approach currently operates at LOS A during the weekday AM and PM peak hours and during the Saturday midday peak hours.

Breeze Hill Road and Indian Hills Country Club Access

The westbound left-turn/through movement of this unsignalized intersection currently operates at LOS A during the weekday AM and PM peak hours and during the Saturday midday peak hours. The stop-controlled northbound approach currently operates at LOS A during the weekday AM and PM peak hours and during the Saturday midday peak hours.

NO BUILD CONDITION

The No Build Condition represents traffic conditions expected at the study intersections in the future year 2018 without the construction of the proposed project. The No Build Condition traffic volumes are estimated based on two factors as follows:

- Increases in traffic due to general population growth and developments outside of the immediate project area. This traffic increase is referred to as ambient growth.
- Other planned projects located near the project site that may affect traffic levels and patterns at the study intersections in this report.

Traffic Growth

A 1.0% annual growth factor was obtained from the New York State Department of Transportation (NYSDOT) Long Island Transportation Plan 2000 Study (LITP2000) for the Town of Huntington. The existing traffic volumes were increased by this factor for a period of two (2) years to project volumes to the year 2018.

Other Planned Projects

"Other Planned Projects" is a term that refers to developments located near the project site that are currently under construction or in the planning stages. Traffic generated by these projects may significantly influence the operations of the study intersections and would not be represented in the field data collected. The Town of Huntington and the Town of Smithtown were contacted to obtain information on any planned projects in the area. At the time this study was conducted, it was determined that there were no significant planned projects in the vicinity of the proposed project.

The No Build traffic volumes are depicted in Figures 6, 7 and 8.

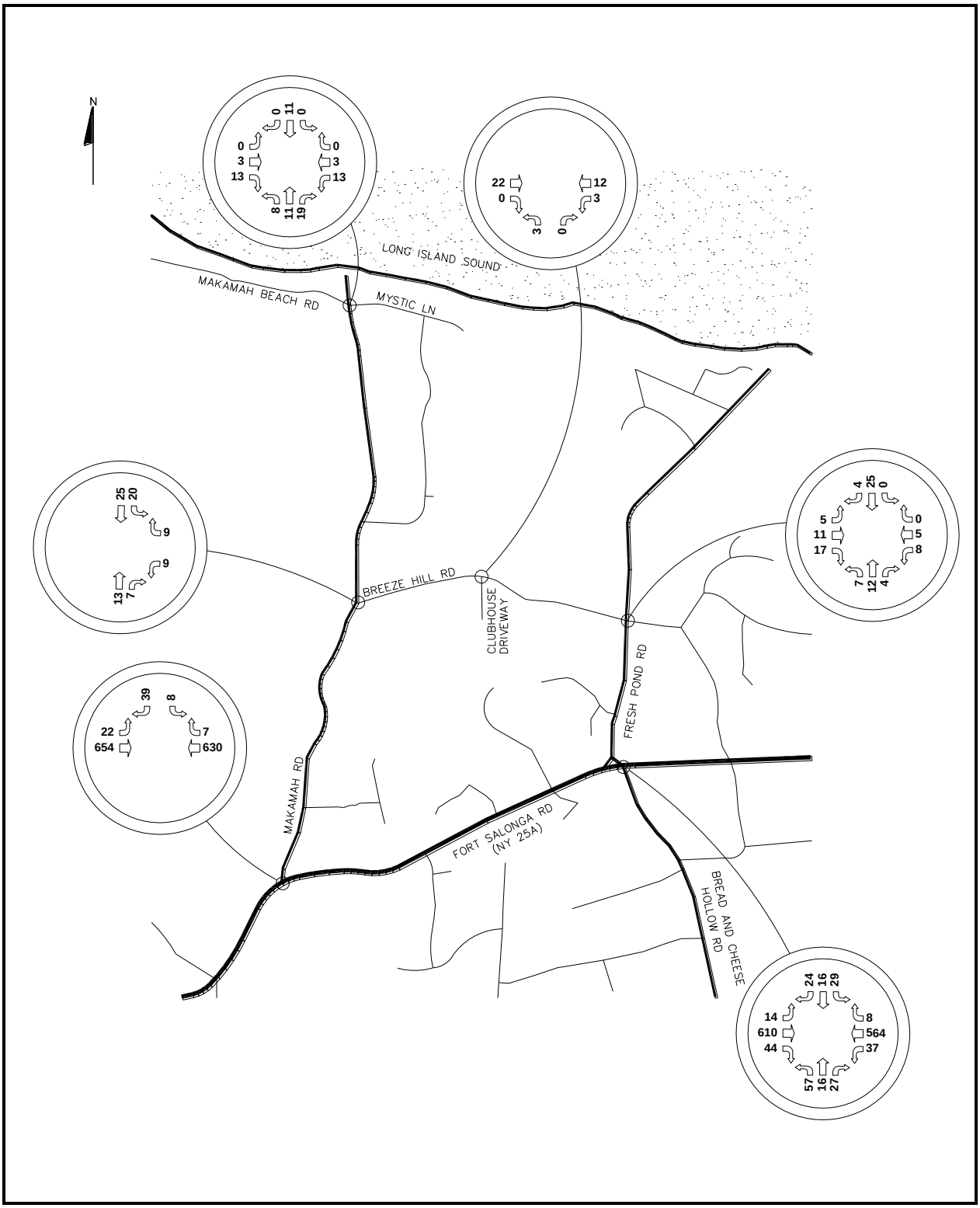


Figure 6: 2018 No Build AM Peak Hour Traffic Volumes

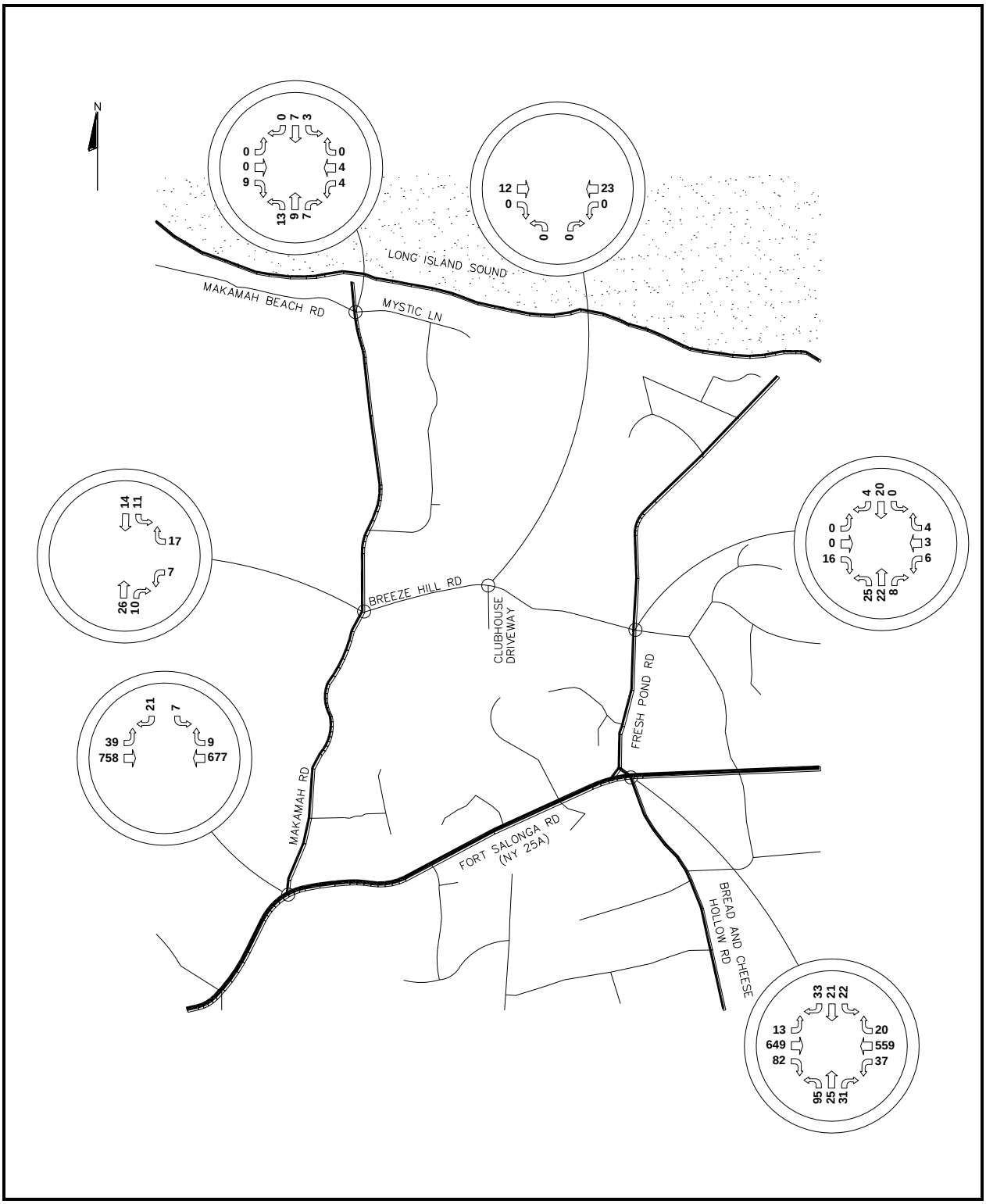


Figure 7: 2018 No Build PM Peak Hour Traffic Volumes

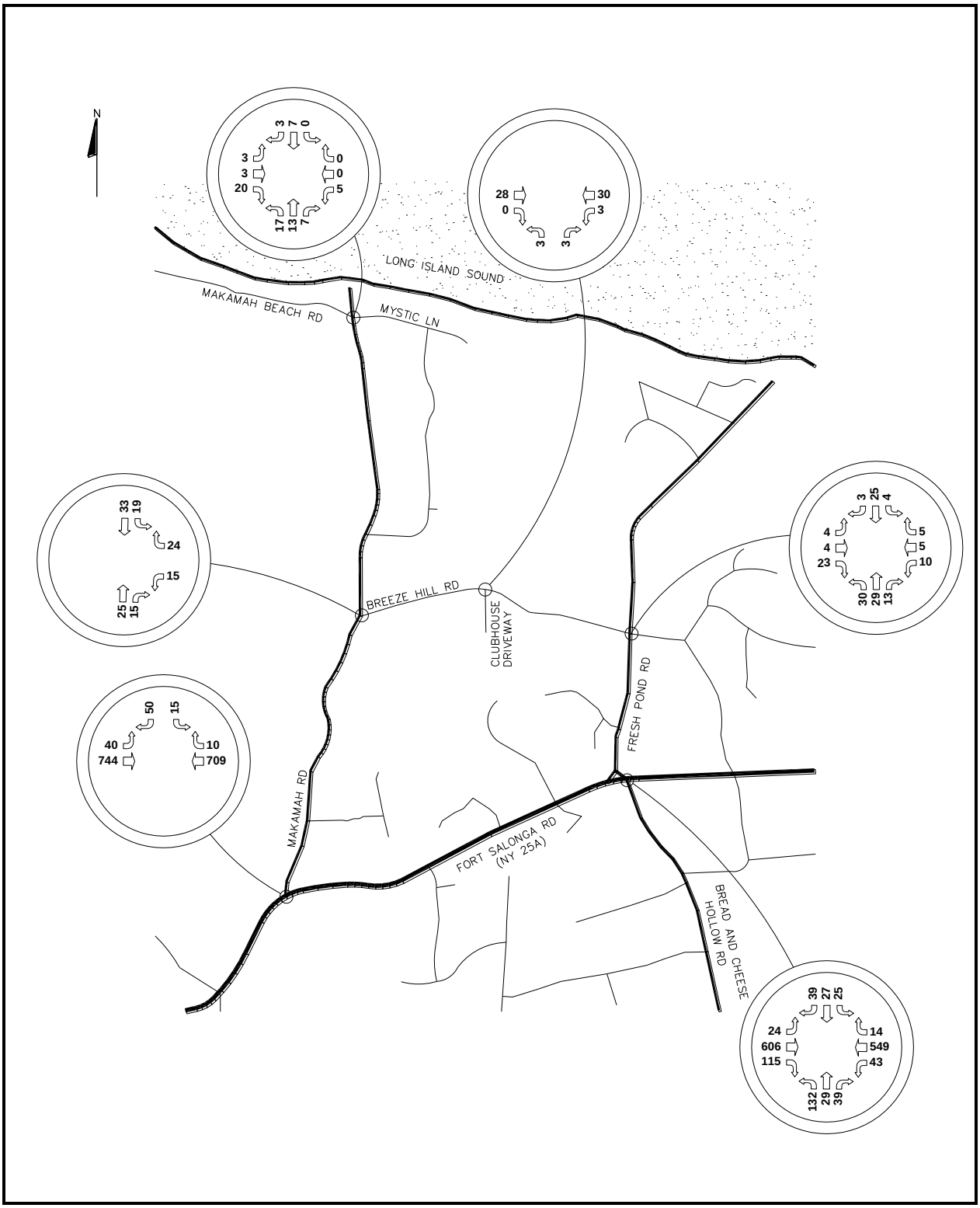


Figure 8: 2018 No Build Saturday Peak Hour Traffic Volumes

PROPOSED DEVELOPMENT

Site Access – Sr Housing

As depicted on the site plan prepared by Nelson & Pope, the proposed project will be comprised of three different locations within the Indian Hills Country Club property and will be located on different quadrants of the site. Access to the proposed senior housing development on the northwest quadrant will be provided via an easterly extension of Mystic Lane. Access to the northeast quadrant will be provided via a newly constructed access driveway which will extend in a westerly direction from Fresh Pond Road approximately 1,250 feet north of Breeze Hill Road. Access to the southwest quadrant will be provided via an existing full access unnamed roadway which extends to the south from Breeze Hill Road approximately 65 feet east of Makamah Road.

Site Access – Sr Housing

An existing access to the Indian Hills Country Club Clubhouse is provided on Breeze Hill Road. Breeze Hill Road is a local roadway with relatively low traffic volumes. Breeze Hill Road is approximately 30 feet in width on the eastern/western sections, but narrows to approximately 22 feet in the vicinity of the Indian Hills Country Club driveway. The northbound approach of the Indian Hills Country Club driveway produces minimal traffic volume during the peak hours of the roadway. There is a pedestrian crosswalk on the eastbound approach of Breeze Hill Road that is utilized by golfers crossing the road via golf cart or on foot. This location has limited sight distance due to horizontal and vertical curvature of the roadway and is not easily correctible. Although traffic volumes will not satisfy the installation of Stop signs, their application is justified with regard to sight distance. Therefore, to improve safety at this location for motorists and pedestrians alike, we are recommending that this intersection be changed to all-way stop control. Stop signs with “All Way” plaques should be installed on all approaches of the intersection and Stop Ahead signs should be installed for eastbound and westbound traffic on Breeze Hill Road to notify motorists they are approaching a stop-controlled intersection.

Trip Generation

In order to identify the potential impacts the proposed senior housing development may have on the adjacent street system, it is necessary to estimate the magnitude of traffic volume generated during the peak hours and to estimate the directional distribution of the site traffic when entering and exiting the subject property. The trip generation estimates for the proposed development were prepared utilizing data within the Institute of Transportation Engineers' (ITE) publication, *Trip Generation, Ninth Edition*. This publication sets forth trip generation data obtained by traffic counts conducted at sites throughout the country. The Land Use Code within the ITE trip generation manual corresponding to the proposed use is Land Use Code # 251, Senior Housing Detached. The following Table summarizes the trip generation estimates for the proposed development. Appendix B contains the trip generation worksheets.

Table 6: Trip Generation

Time Period	Distribution	Senior Housing 48 Units (ITE LUC 251) NW Quadrant	Senior Housing 16 Units (ITE LUC 251) NE Quadrant	Senior Housing 46 Units (ITE LUC 251) SW Quadrant	**TOTAL** (110 Units)
Weekday AM Peak Hour	Enter	13	12	13	38
	Exit	25	21	25	71
	Total	**38**	**33**	**38**	**109**
Weekday PM Peak Hour	Enter	16	7	15	38
	Exit	10	4	10	24
	Total	**26**	**11**	**25**	**62**
Saturday Midday Peak Hour	Enter	13	5	12	30
	Exit	13	6	13	32
	Total	**26**	**11**	**25**	**62**

Source: Trip Generation, 9th Edition, published by ITE

As can be seen from Table 6 above, the three locations of proposed senior housing development are projected to generate 109 trips (38 entering and 71 exiting) during the weekday AM peak hour, 62 trips (38 entering and 24 exiting) during the weekday PM peak hour and 62 trips (30 entering and 32 exiting) during the Saturday midday peak hour.

Trip Distribution and Assignment

The volume of site traffic anticipated to be generated by the proposed senior housing development during peak hours was distributed and assigned to each intersection movement based on existing roadway volumes and travel patterns. The nature of the proposed land use and its associated travel patterns were considered as well. Due to the fact that the project will be developed in three different quadrants, a percent distribution was prepared for each. Figures 9, 10 and 11 depict the trip distributions for the proposed senior housing development for the three quadrants. Figures 12, 13 and 14 depict the total site generated traffic volumes for the weekday AM, PM, and Saturday midday peak hours. The site generated traffic volumes were then added to the weekday AM, PM and Saturday midday No Build Condition volumes resulting in the Build Condition volumes. The Build volumes are depicted in Figures 15, 16 and 17.

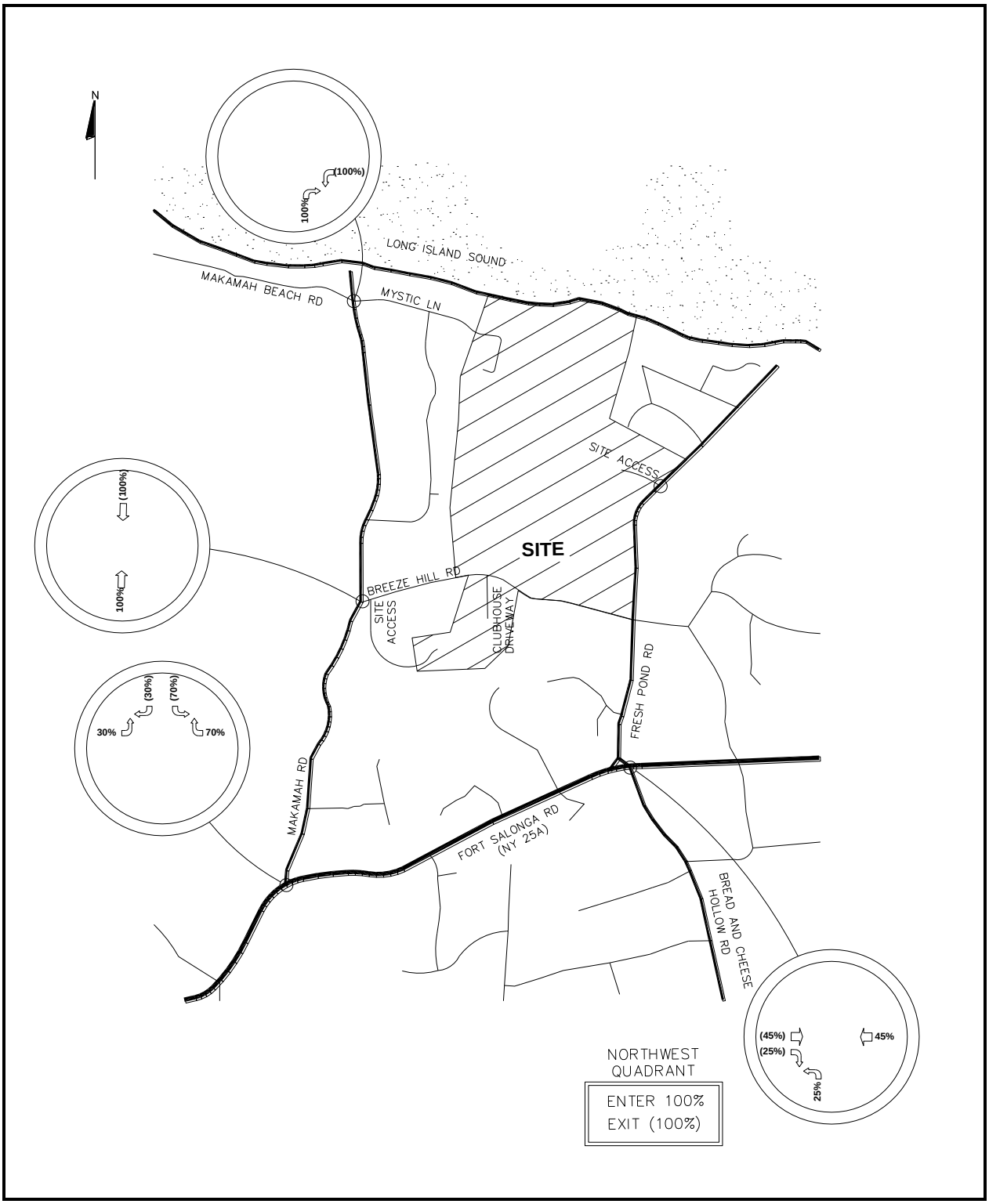


Figure 9: Site Generated Trip Distribution N/W Quadrant

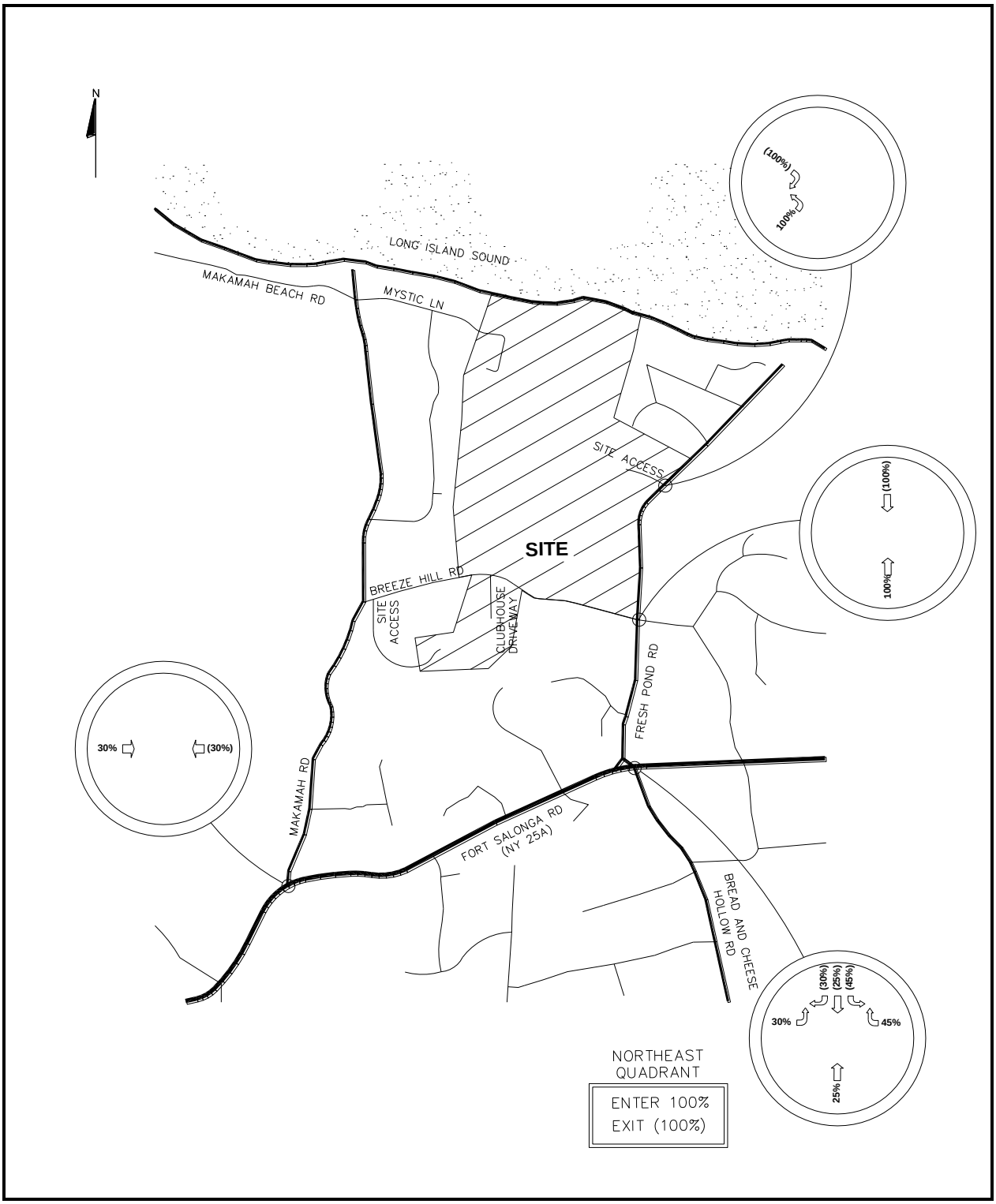


Figure 10: Site Generated Trip Distribution N/E Quadrant

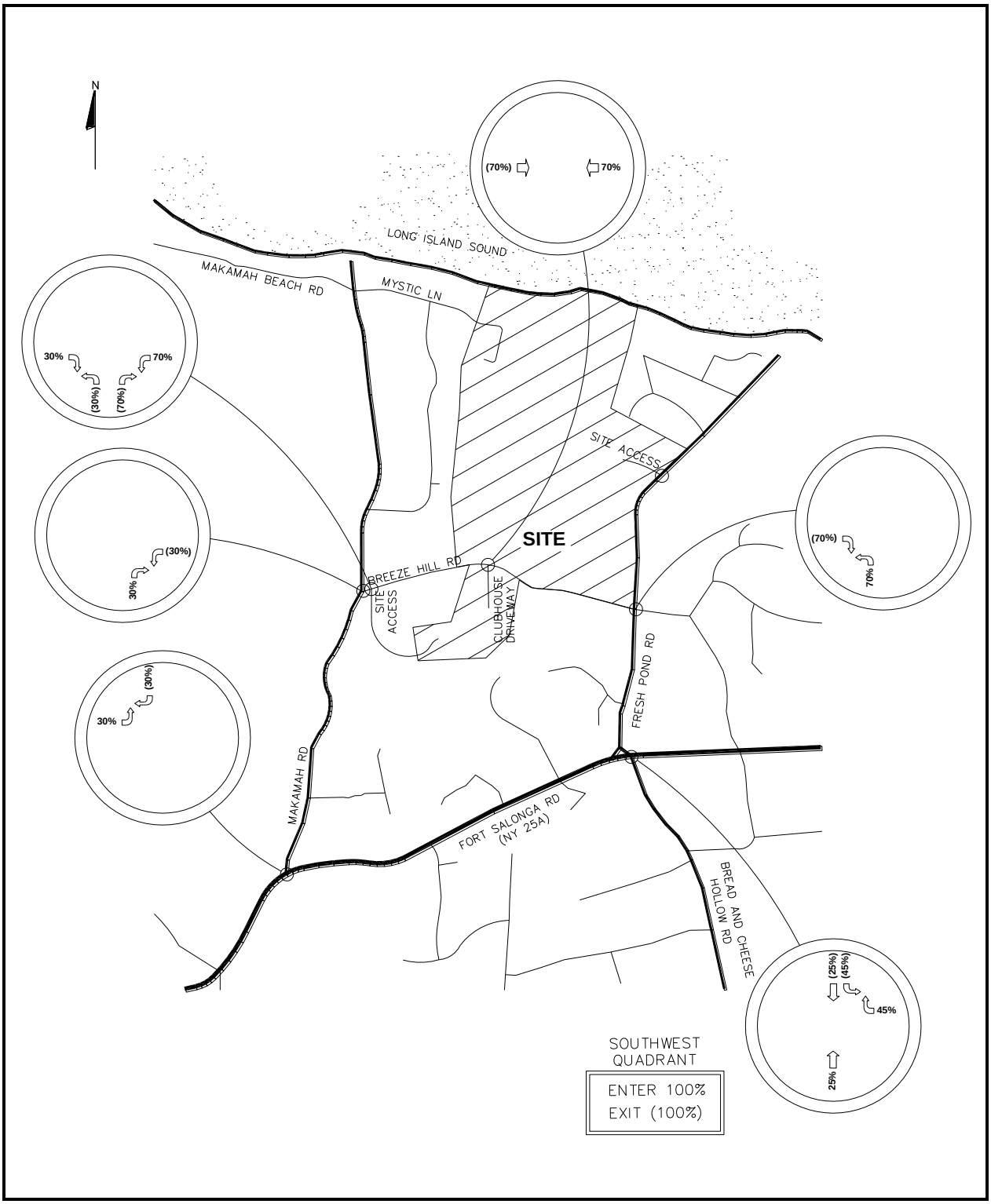


Figure 11: Site Generated Trip Distribution S/W Quadrant

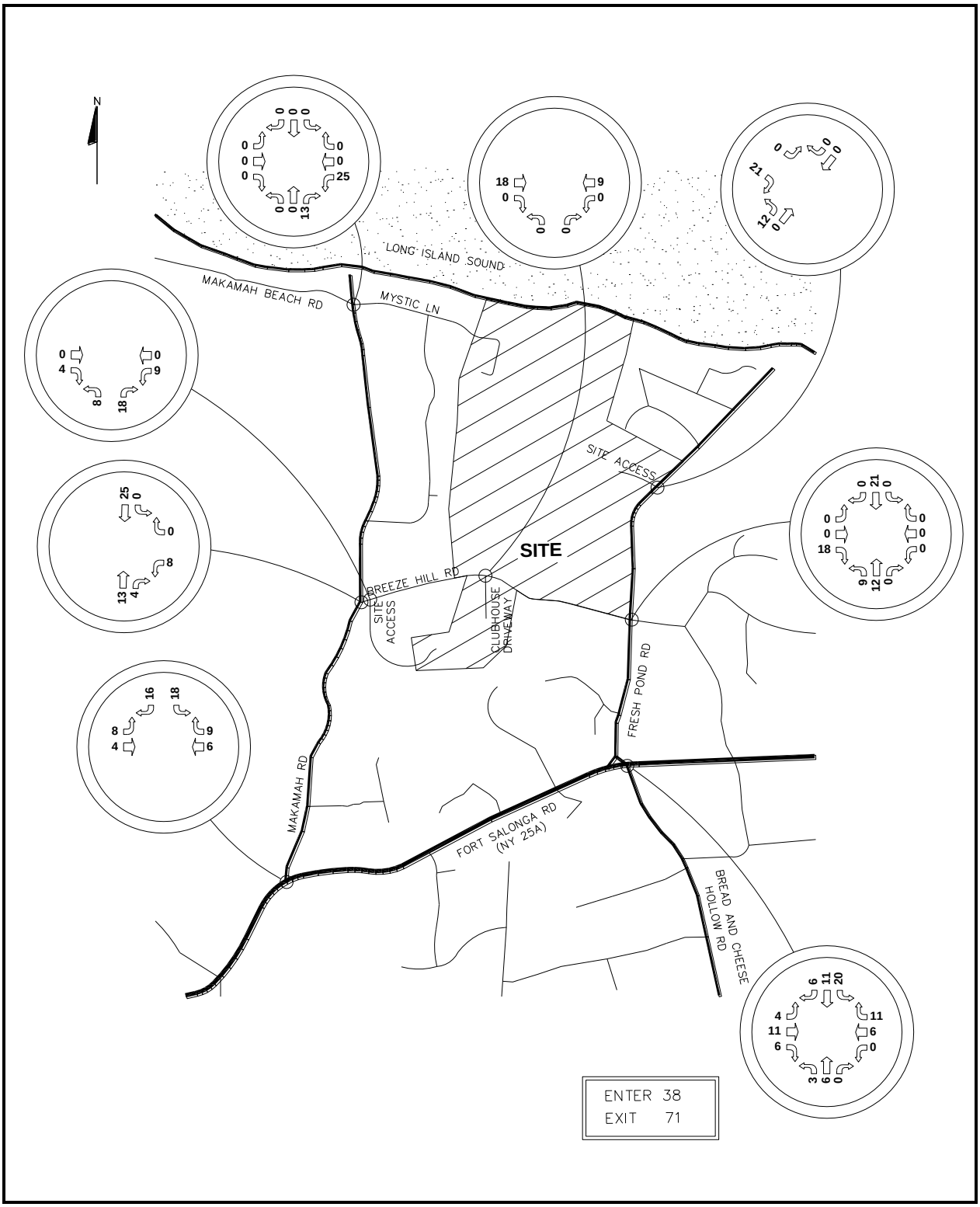


Figure 12: Site Generated AM Peak Hour Traffic Volumes

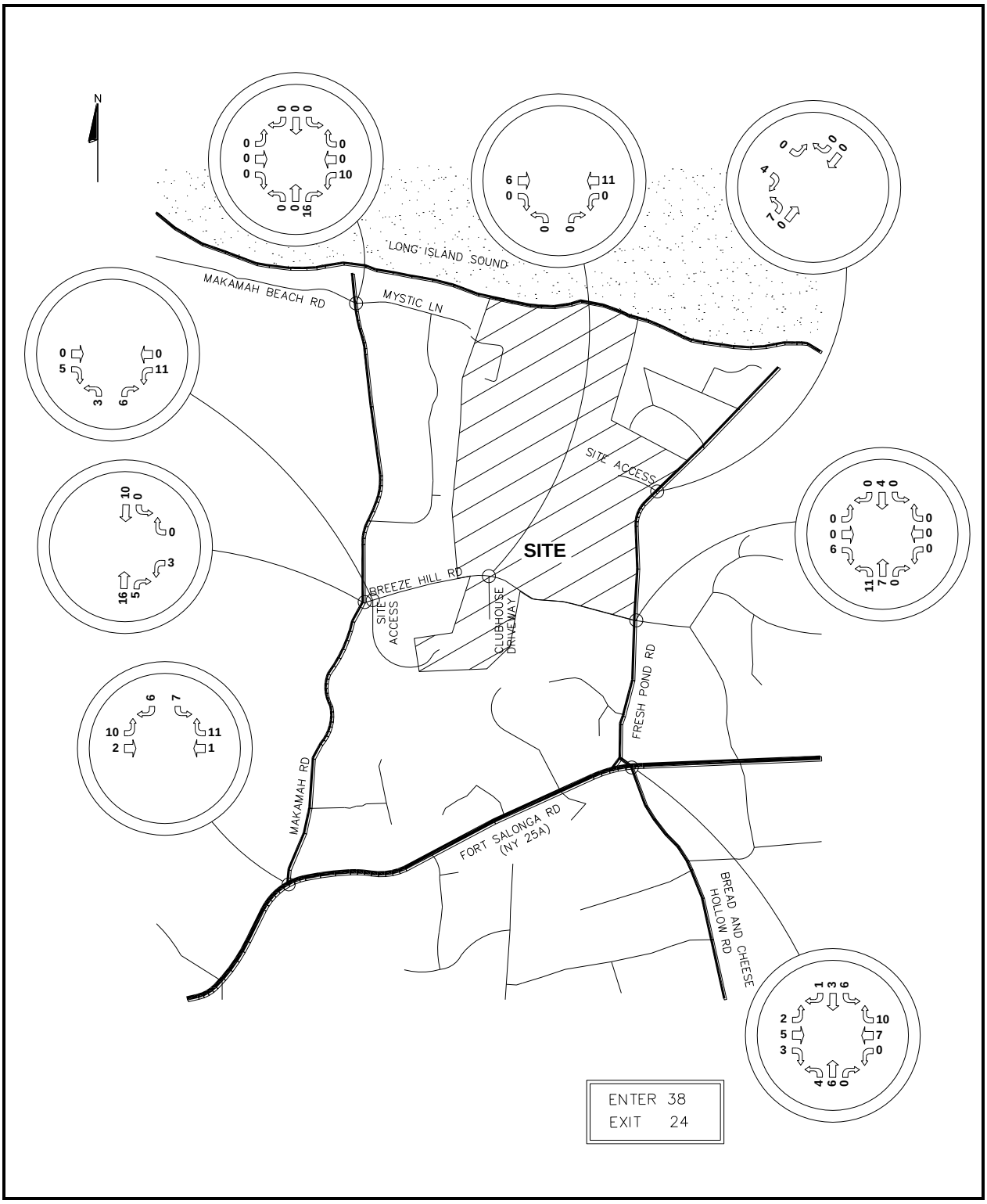


Figure 13: Site Generated PM Peak Hour Traffic Volumes

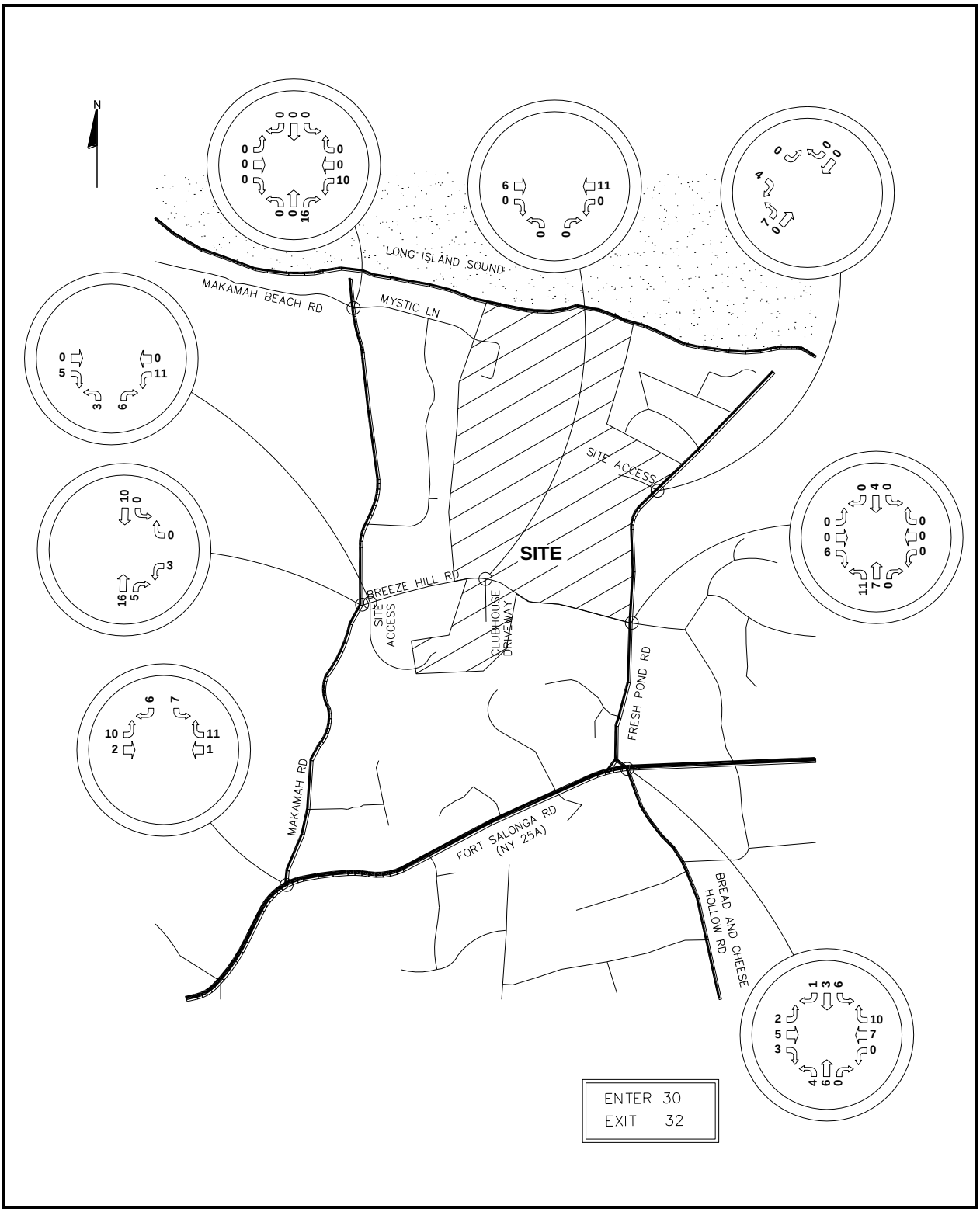


Figure 14: Site Generated Saturday Peak Hour Traffic Volumes

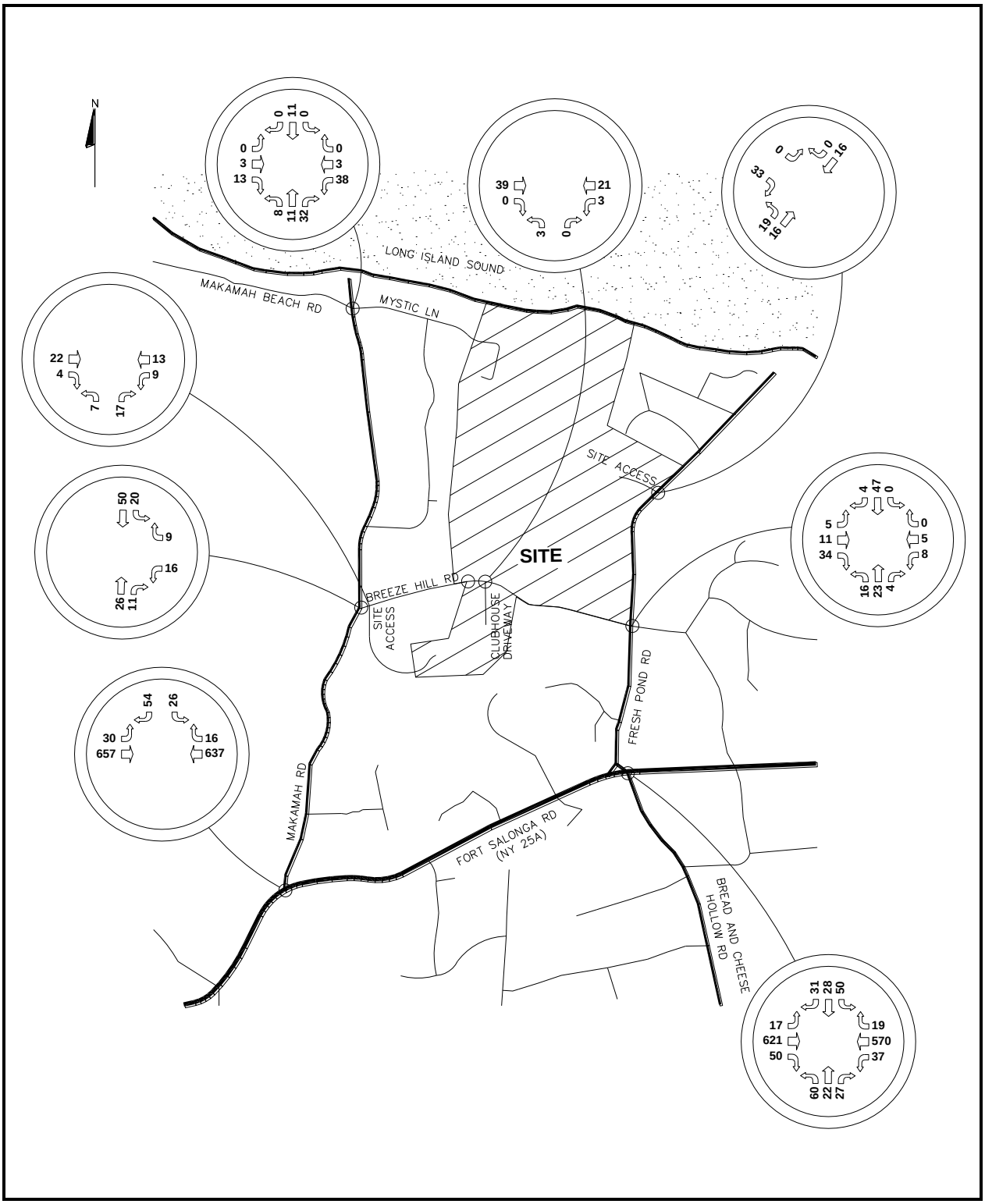


Figure 15: 2018 Build AM Peak Hour Traffic Volumes

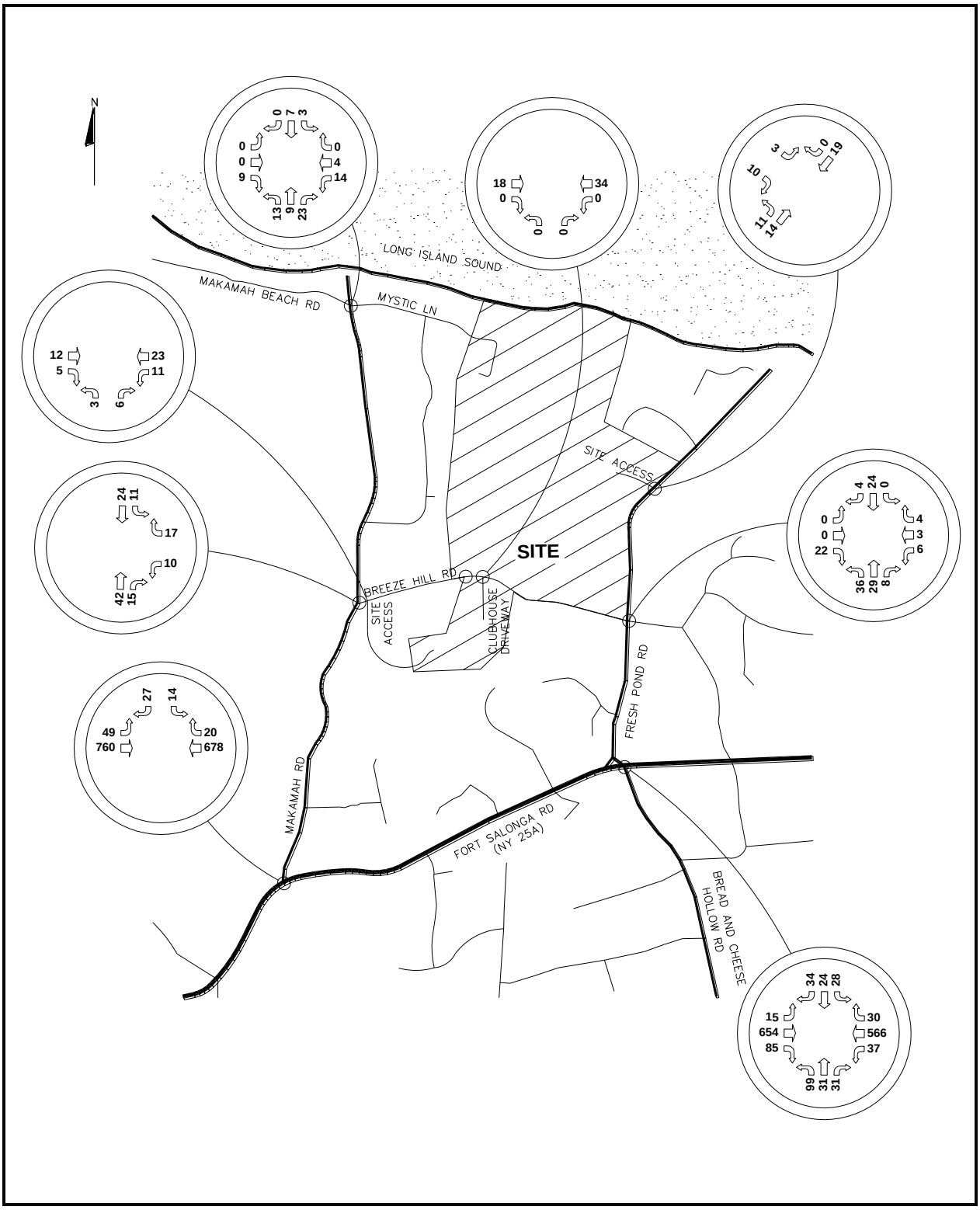


Figure 16: 2018 Build PM Peak Hour Traffic Volumes

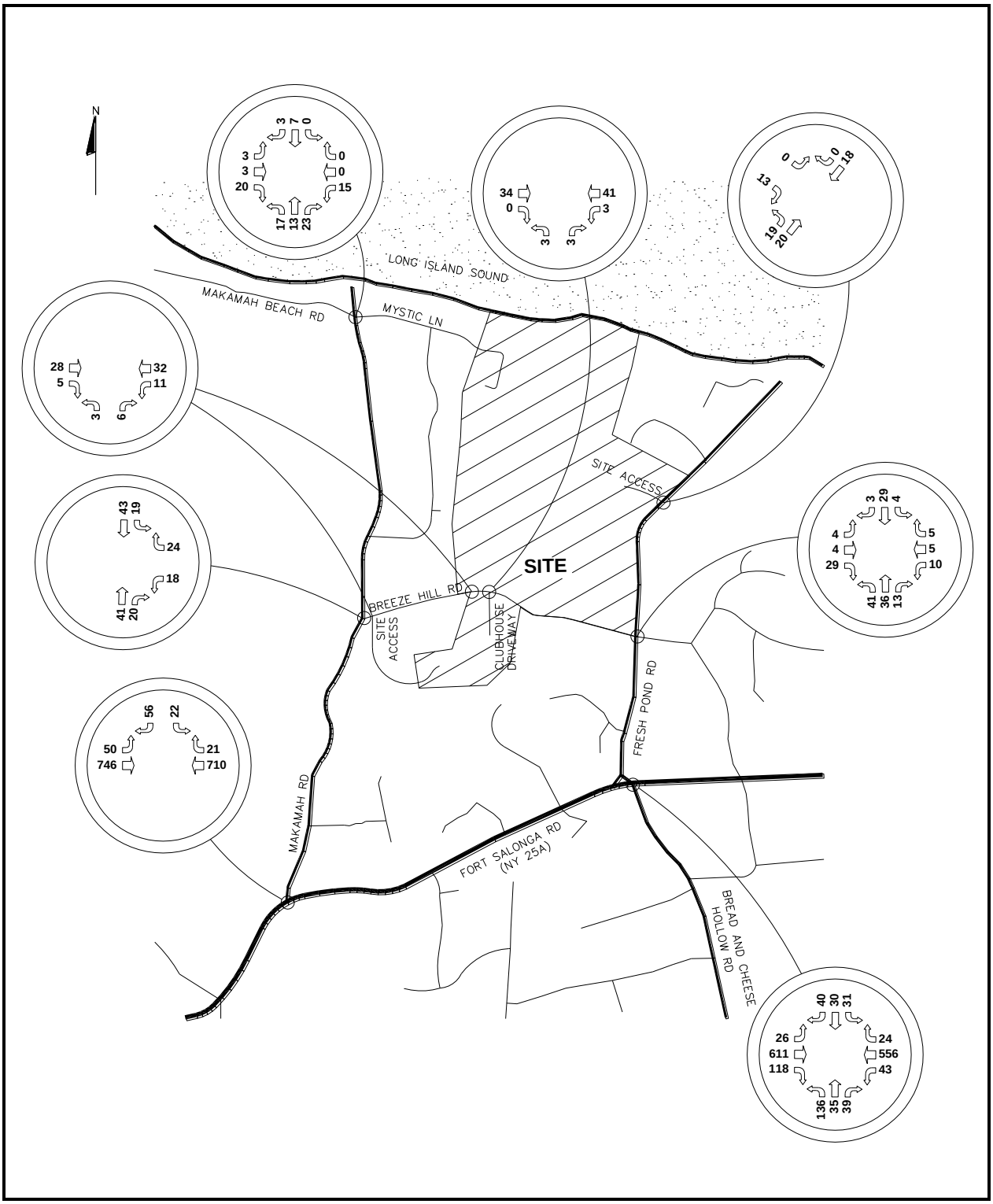


Figure 17: 2018 Build Saturday Peak Hour Traffic Volumes

TRAFFIC IMPACT ANALYSIS

As stated previously, the intersection capacity and level-of-service (LOS) analyses were based on the procedures and guidelines presented in the *HCM 2010*, published by the Transportation Research Board. SYNCHRO 9 was used to analyze the study intersections and provide a LOS measurement of their operation. The six classes of LOS, ranging from LOS A (best) to F (worst), are defined in Appendix C.

Tables 7 through 12 below, summarized the analysis results for the 2018 No Build and Build conditions. Detailed SYNCHRO reports are located in Appendix D.

Table 7: Level of Service Summary (Signalized) – AM Peak

			No Build		Build	
Signalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**
Fort Salonga Road (NYS 25A) at Bread and Cheese Hollow Rd/ Fresh Pond Rd	EB	L	6.6	A	7.1	A
		T	10.5	B	10.8	B
		R	3.7	A	4.0	A
	WB	L	7.8	A	8.1	A
		TR	10.4	B	10.9	B
	NB	LTR	24.1	C	25.5	C
	SB	LT	18.9	B	20.7	C
		R	6.4	A	7.8	A
	Intersection		11.4	B	12.2	B

Notes: LOS = Level of Service, Delay = seconds/vehicle,

Table 8: Level of Service Summary (Unsignalized) – AM Peak

			No Build		Build	
Unsignalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**
Fort Salonga Road (NYS 25A) at Makamah Rd	EB	LT	0.7	A	1.0	A
	SB	LR	18.9	C	30.0	D
Makamah Rd at Breeze Hill Rd	WB	LR	8.9	A	9.3	A
	SB	LT	3.3	A	2.2	A
Makamah Rd at Makamah Beach Rd/Mystic Ln	EB	LTR	8.7	A	8.7	A
	WB	LTR	9.4	A	9.6	A
	NB	LTR	1.6	A	1.2	A
	SB	LTR	0.0	A	0.0	A
Fresh Pond Rd at Breeze Hill Rd	EB	LTR	9.3	A	9.5	A
	WB	LTR	9.6	A	10.5	B
	NB	LTR	2.3	A	2.8	A
	SB	LTR	0.0	A	0.0	A
Breeze Hill Rd at Country Club Access	WB	LR	1.4	A	0.9	A
	NB	LT	8.8	A	9.0	A
Fresh Pond Rd at Northeast Site Access	EB	LR	-	-	8.6	A
	NB	LT	-	-	2.3	A
Breeze Hill Rd at Southwest Site Access	WB	LT	-	-	2.2	A
	NB	LR	-	-	8.7	A

Notes: LOS = Level of Service, Delay = seconds/vehicle

Table 9: Level of Service Summary (Signalized) – PM Peak

			No Build		Build	
Signalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**
Fort Salonga Road (NYS 25A) at Bread and Cheese Hollow Rd/ Fresh Pond Rd	EB	L	7.5	A	8.0	A
		T	14.1	B	15.1	B
		R	5.1	A	5.3	A
	WB	L	10.1	B	10.8	B
		TR	13.1	B	14.2	B
	NB	LTR	28.8	C	29.4	C
	SB	LT	21.1	C	21.7	C
		R	8.2	A	8.0	A
	Intersection		14.6	B	15.6	B

Notes: LOS = Level of Service, Delay = seconds/vehicle

Table 10: Level of Service Summary (Unsignalized) – PM Peak

			No Build		Build	
Unsignalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**
Fort Salonga Road (NYS 25A) at Makamah Rd	EB	LT	1.5	A	2.0	A
	SB	LR	27.1	D	37.5	E
Makamah Rd at Breeze Hill Rd	WB	LR	8.8	A	9.1	A
	SB	LT	3.3	A	2.4	A
Makamah Rd at Makamah Beach Rd/Mystic Ln	EB	LTR	8.5	A	8.5	A
	WB	LTR	9.4	A	9.4	A
	NB	LTR	3.3	A	2.2	A
	SB	LTR	2.2	A	2.2	A
Fresh Pond Rd at Breeze Hill Rd	EB	LTR	8.6	A	8.7	A
	WB	LTR	9.5	A	9.9	A
	NB	LTR	3.4	A	3.7	A
	SB	LTR	0.0	A	0.0	A
Breeze Hill Rd at Country Club Access	WB	LR	0.0	A	0.0	A
	NB	LT	0.0	A	0.0	A
Fresh Pond Rd at Northeast Site Access	EB	LR	-	-	8.5	A
	NB	LT	-	-	1.4	A
Breeze Hill Rd at Southwest Site Access	WB	LT	-	-	1.7	A
	NB	LR	-	-	8.7	A

Notes: LOS = Level of Service, Delay = seconds/vehicle

Table 11: Level of Service Summary (Signalized) – Saturday Peak

			No Build		Build	
Signalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**
Fort Salonga Road (NYS 25A) at Bread and Cheese Hollow Rd/ Fresh Pond Rd	EB	L	9.6	A	10.0	B
		T	15.8	B	16.3	B
		R	5.9	A	6.1	A
	WB	L	12.3	B	12.8	B
		TR	15.3	B	16.0	B
	NB	LTR	30.1	C	31.1	C
	SB	LT	19.7	B	20.6	C
		R	7.0	A	6.9	A
	Intersection		16.5	B	17.1	B

Notes: LOS = Level of Service, Delay = seconds/vehicle

Table 12: Level of Service Summary (Unsignalized) – Saturday Peak

			No Build		Build	
Unsignalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**
Fort Salonga Road (NYS 25A) at Makamah Rd	EB	LT	1.6	A	2.0	A
	SB	LR	36.4	E	58.0	F
Makamah Rd at Breeze Hill Rd	WB	LR	9.2	A	9.5	A
	SB	LT	2.8	A	2.3	A
Makamah Rd at Makamah Beach Rd/Mystic Ln	EB	LTR	8.8	A	8.9	A
	WB	LTR	9.4	A	9.6	A
	NB	LTR	3.4	A	2.6	A
	SB	LTR	0.0	A	0.0	A
Fresh Pond Rd at Breeze Hill Rd	EB	LTR	9.2	A	9.3	A
	WB	LTR	10.2	B	10.7	B
	NB	LTR	3.2	A	3.4	A
	SB	LTR	1.0	A	0.8	A
Breeze Hill Rd at Country Club Access	WB	LR	0.7	A	0.5	A
	NB	LT	8.9	A	8.8	A
Fresh Pond Rd at Northeast Site Access	EB	LR	-	-	8.5	A
	NB	LT	-	-	3.0	A
Breeze Hill Rd at Southwest Site Access	WB	LT	-	-	0.9	A
	NB	LR	-	-	8.8	A

Notes: LOS = Level of Service, Delay = seconds/vehicle

Fort Salonga Road (NYS 25A) and Bread and Cheese Hollow Road/Fresh Pond Road

In the No Build Condition, the signalized intersection of Fort Salonga Road (NYS 25A) and Bread and Cheese Hollow Road/Fresh Pond Road is, from an overall perspective, projected to operate at overall LOS B during all peak periods. With the construction of the proposed project,

the intersection will continue to operate at No Build conditions during the analyzed peak periods with minimal increase in delay. Therefore, no significant impacts are created and no mitigation measures are proposed at this intersection.

Fort Salonga Road (NYS 25A) and Makamah Road

In the No Build Condition, the eastbound left-turn movement at this unsignalized intersection is projected to operate at LOS A during all peak periods. The southbound stop controlled approach (Makamah Road) of this unsignalized intersection is projected to operate at LOS C, D and E during the AM, PM and Saturday peak hours, respectively. With the construction of the proposed project, the eastbound left-turn movement will continue to operate at No Build conditions during the analyzed peak periods with minimal increase in delay. Under the Build condition, the stop controlled southbound approach is anticipated to have a degradation in LOS. During the AM peak hour LOS will change from C to D, the PM peak hour will experience a change from D to E and Saturday will experience a change from E to F.

The analyses results for this unsignalized intersection may not be representative of actual field conditions. It should also be noted that the critical gap acceptance calculated by the Synchro Software (Software utilized to conduct capacity analyses) is higher than many of the available gaps on the major roadway (Fort Salonga Road). This may be the reason why the capacity analyses displays high delay on the southbound approach of Makamah Road. However, motorists were observed in the field exiting this roadway during short gaps. Therefore, the side street approach is actually operating at better levels of service when compared to the calculated levels of service by the Synchro Software.

Makamah Road at Breeze Hill Road

In the No Build Condition, the westbound stop controlled approach of this unsignalized intersection is projected to operate at LOS A during all peak periods. The southbound left-turn movement is projected to operate at LOS A during all peak periods. With the construction of the proposed project, the intersection will continue to operate at No Build conditions during the

analyzed peak periods with minimal increase in delay. Therefore, no significant impacts are created and no mitigation measures are proposed at this intersection.

Due to the proximity of this intersection to the Site Access for the Southwest Quadrant of the proposed development, located approximately 65 feet to the east, we are proposing to modify its configuration to improve safety. The main concerns are the free-flow nature of the northbound approach combined with the large radius on the southeast corner which would permit vehicles travelling northbound to make a right-turn while maintaining higher than desired speeds. This could create a conflict with vehicles exiting the site access which would not be able to see northbound turning vehicles from Makamah Road.

We are proposing to make this intersection all-way stop controlled which will lower operating speeds through the intersection. We are also proposing to decrease the radius of the southwest corner which will lower turning speeds and provide more separation between the site access driveway. After the implementation of the proposed changes, all approaches this intersection are projected to operate at LOS A.

Makamah Road at Makamah Beach Road/Mystic Lane

In the No Build Condition, the eastbound and westbound stop controlled approaches of this unsignalized intersection are projected to operate at LOS A during all peak periods. The northbound and southbound approaches are anticipated to operate at LOS A during all peak periods. With the construction of the proposed project, the intersection will continue to operate at No Build conditions during the analyzed peak periods with minimal increase in delay. Therefore, no significant impacts are created and no mitigation measures are proposed at this intersection.

Fresh Pond Road and Breeze Hill Road

In the No Build Condition, the eastbound stop controlled approach of this unsignalized intersection is projected to operate at LOS A during all peak periods. The westbound stop controlled approach is projected to operate at LOS A, A and B during the AM, PM and Saturday

peak hours, respectively. The northbound and southbound approaches are projected to operate at LOS A during all peak periods. With the construction of the proposed project, the intersection will continue to operate at No Build conditions during the analyzed peak periods with minimal increase in delay, except for the westbound approach during the AM peak hour, which will experience a change in LOS from A to B with an increase in delay of 0.9 seconds. This slight increase in delay is not a significant impact and no mitigation measures are proposed at this intersection.

Breeze Hill Road and Indian Hills Country Club Access

In the No Build Condition, the westbound left-turn movement of this unsignalized intersection is projected to operate at LOS A during all peak periods. The northbound approach is projected to operate at LOS A during all peak periods. With the construction of the proposed project, the intersection will continue to operate at No Build conditions during the analyzed peak periods with minimal increase in delay. Therefore, no significant impacts are created and no mitigation measures are proposed at this intersection.

Fresh Pond Road and Northeast Quadrant Site Access

In the Build Condition, the eastbound stop controlled approach (Site Access) of this unsignalized intersection is projected to operate at LOS A during all peak periods. The northbound left-turn movement is also projected to operate at LOS A during all peak hours.

Breeze Hill Road at Southwest Quadrant Site Access

In the Build Condition, the northbound stop controlled approach (Site Access) of this unsignalized intersection is projected to operate at LOS A during all peak periods. The westbound left-turn movement is also projected to operate at LOS A during all peak hours.

CONCLUSION

Nelson & Pope has investigated the potential traffic impacts associated with the proposed application for the addition of 110 senior housing units to be situated on the existing Indian Hills Country Club property, which is located on the north side of Breeze Hill Road between Makamah Road and Fresh Pond Road in Fort Salonga, Town of Huntington, Suffolk County, New York. The proposed project will be comprised of a total of 110 detached senior housing units, divided into 3 locations; northwest, northeast and southwest quadrants. The northwest quadrant will be comprised of 48 senior housing units and access will be provided via an easterly extension of Mystic Lane. The northeast quadrant will be comprised of 16 senior housing units and access will be provided via a newly constructed access extending west from Fresh Pond Road approximately 1,250 feet north of Breeze Hill Road. The southwest quadrant will be comprised of 46 senior housing units and access will be provided via an existing full access unnamed roadway which extends to the south from Breeze Hill Road approximately 65 feet east of Makamah Road. The following is a summary of this investigation and the findings thereof:

1. The following intersections were studied:
   - Fort Salonga Road (NYS 25A) at Makamah Road
   - Fort Salonga Road (NYS 25A) at Fresh Pond Road/Bread and Cheese Hollow Road
   - Makamah Road and Breeze Hill Road
   - Makamah Road and Makamah Beach Road/Mystic Lane
   - Fresh Pond Road and Breeze Hill Road
   - Breeze Hill Road and Indian Hills Country Club Access

2. Existing traffic volumes were counted in January 2016. Future No Build traffic volumes were determined by applying a 1.0% NYSDOT annual growth factor to the existing traffic volumes projected to 2018, the anticipated build year. The site-generated traffic was estimated and distributed to the study intersections and then added to the No Build traffic volumes to generate the future Build traffic volumes.

3. The proposed senior housing development is projected to generate 109 trips (38 entering and 71 exiting) during the weekday AM peak hour, 62 trips (38 entering and 24 exiting) during the weekday PM peak hour and 62 trips (30 entering and 32 exiting) during the Saturday midday peak hour.

4. Capacity analyses were conducted at all study intersections during the weekday AM, weekday PM and Saturday midday peak hours.

5. All the intersections studied are projected to continue operating at No Build LOS during the weekday AM, PM and Saturday midday peak hours with the construction of the proposed senior housing development with minimal increase in delay with the exception of Fort Salonga Road (NYS 25A) at Makamah Road.

   The analyses results for the unsignalized intersection of Fort Salonga Road (NYS 25A) at Makamah Road may not be representative of actual field conditions. It should also be noted that the critical gap acceptance calculated by the Synchro Software (Software utilized to conduct capacity analyses) is higher than many of the available gaps on the major roadway (Fort Salonga Road). This may be the reason why the capacity analyses displays high delay on the southbound approach of Makamah Road. However, motorists were observed in the field exiting this roadway during short gaps. Therefore, the side street approach is actually operating at better levels of service when compared to the calculated levels of service by the Synchro Software.

6. Due to the proximity of the intersection of Makamah Road at Breeze Hill Road to the Site Access for the Southwest Quadrant of the proposed development, located approximately 65 feet to the east on Breeze Hill Road, we are proposing to modify its configuration to improve safety. The main concerns are the free-flow nature of the northbound approach combined with the large radius on the southeast corner which would permit vehicles travelling northbound to make a right-turn while maintaining higher than desired speeds. This could create a conflict with vehicles exiting the site access which would not be able to see northbound turning vehicles from Makamah Road.

   We are proposing to make this intersection all-way stop controlled which will lower operating speeds through the intersection. We are also proposing to decrease the radius of

the southwest corner which will lower turning speeds and provide more separation between the site access driveway. After the implementation of the proposed changes, all approaches this intersection are projected to operate at LOS A.

Based on the results of the Traffic Impact Study as detailed in the body of this report, it is the professional opinion of Nelson & Pope that, constructing the proposed senior housing development on the Indian Hills Country Club property will not result in any adverse traffic impacts in the study area.

INDIAN HILLS

FORT SALONGA

TOWN OF HUNTINGTON

APPENDIX

September 2016

N&P JOB NO. 86047

Appendix A: Existing Traffic Volumes

NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : Breeze Hill at Country Club Entrance Weekday
Site Code :
Start Date : 1/7/2016
Page No : 1

Groups Printed- Lights - Buses - Trucks

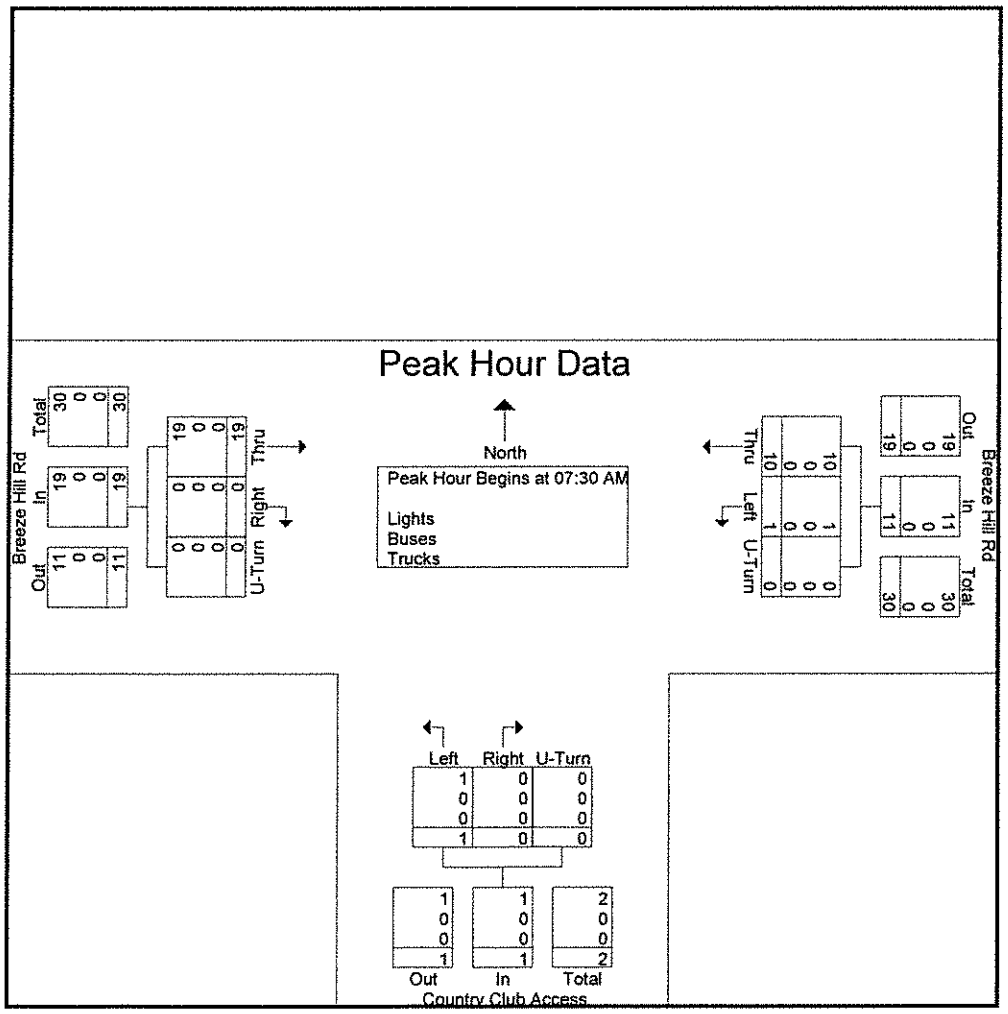
	Breeze Hill Rd Eastbound				Breeze Hill Rd Westbound				Country Club Access Northbound				
Start Time	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Int. Total
07:00 AM	3	0	0	3	0	1	0	1	0	0	0	0	4
07:15 AM	4	0	0	4	0	1	0	1	0	0	0	0	5
07:30 AM	4	0	0	4	1	3	0	4	0	0	0	0	8
07:45 AM	6	0	0	6	0	2	0	2	0	0	0	0	8
Total	17	0	0	17	1	7	0	8	0	0	0	0	25
08:00 AM	4	0	0	4	0	3	0	3	0	0	0	0	7
08:15 AM	5	0	0	5	0	2	0	2	1	0	0	1	8
08:30 AM	5	0	0	5	0	0	0	0	0	0	0	0	5
08:45 AM	4	0	0	4	0	1	0	1	0	0	0	0	5
Total	18	0	0	18	0	6	0	6	1	0	0	1	25
04:00 PM	2	0	0	2	0	2	0	2	0	0	0	0	4
04:15 PM	2	0	0	2	0	5	0	5	0	0	0	0	7
04:30 PM	0	0	0	0	0	4	0	4	0	0	0	0	4
04:45 PM	5	0	0	5	0	3	0	3	0	0	0	0	8
Total	9	0	0	9	0	14	0	14	0	0	0	0	23
05:00 PM	3	0	0	3	0	8	0	8	0	0	0	0	11
05:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
05:30 PM	0	0	0	0	0	6	0	6	0	0	0	0	6
05:45 PM	2	0	0	2	0	6	0	6	0	0	0	0	8
Total	5	0	0	5	0	21	0	21	0	0	0	0	26
Grand Total	49	0	0	49	1	48	0	49	1	0	0	1	99
Apprch %	100	0	0		2	98	0		100	0	0		
Total %	49.5	0	0	49.5	1	48.5	0	49.5	1	0	0	1	
Lights	49	0	0	49	1	48	0	49	1	0	0	1	99
% Lights	100	0	0	100	100	100	0	100	100	0	0	100	100
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0

NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : Breeze Hill at Country Club Entrance Weekday
Site Code :
Start Date : 1/7/2016
Page No : 2

	Breeze Hill Rd Eastbound				Breeze Hill Rd Westbound				Country Club Access Northbound				
Start Time	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	4	0	0	4	1	3	0	4	0	0	0	0	8
07:45 AM	6	0	0	6	0	2	0	2	0	0	0	0	8
08:00 AM	4	0	0	4	0	3	0	3	0	0	0	0	7
08:15 AM	5	0	0	5	0	2	0	2	1	0	0	1	8
Total Volume	19	0	0	19	1	10	0	11	1	0	0	1	31
% App. Total	100	0	0		9.1	90.9	0		100	0	0		
PHF	.792	.000	.000	.792	.250	.833	.000	.688	.250	.000	.000	.250	.969
Lights	19	0	0	19	1	10	0	11	1	0	0	1	31
% Lights	100	0	0	100	100	100	0	100	100	0	0	100	100
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0



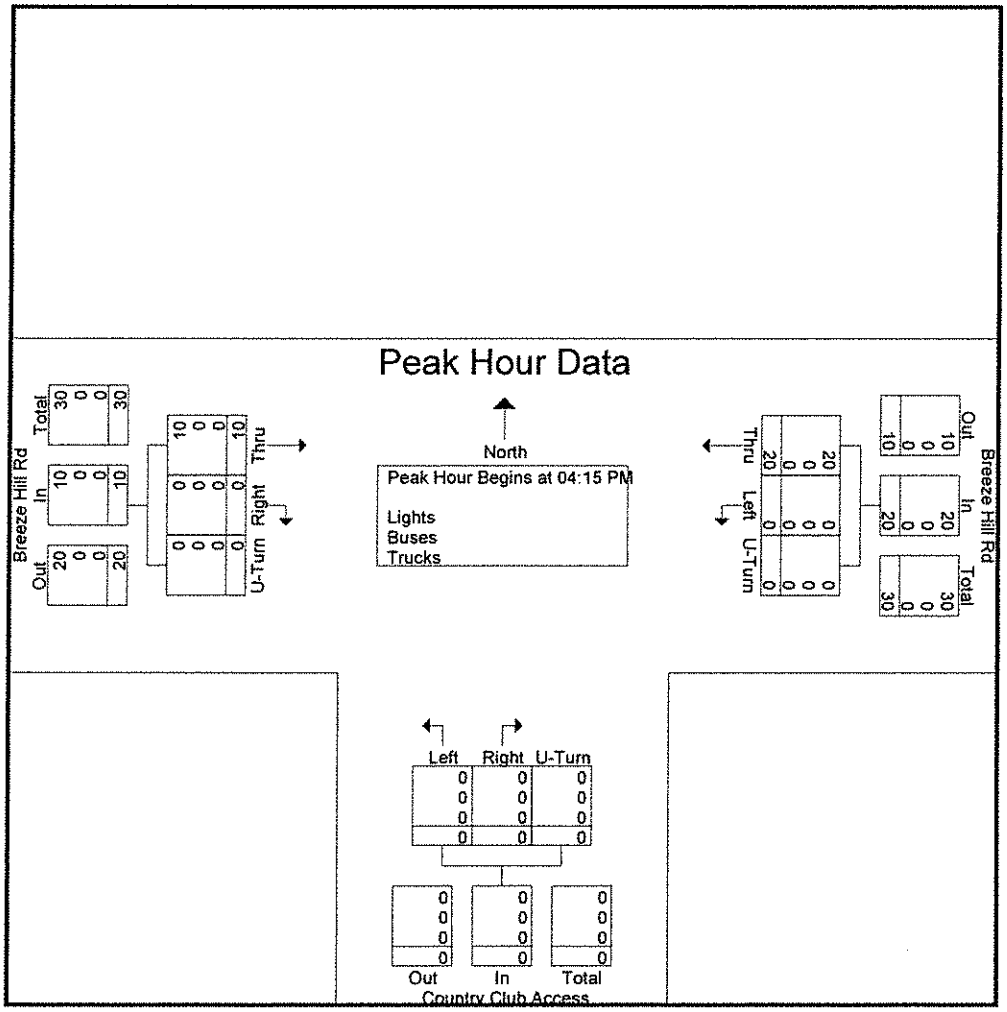
NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : Breeze Hill at Country Club Entrance Weekday
Site Code :
Start Date : 1/7/2016
Page No : 3

	Breeze Hill Rd Eastbound				Breeze Hill Rd Westbound				Country Club Access Northbound				
Start Time	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:15 PM													
04:15 PM	2	0	0	2	0	5	0	5	0	0	0	0	7
04:30 PM	0	0	0	0	0	4	0	4	0	0	0	0	4
04:45 PM	**5**	0	0	**5**	0	3	0	3	0	0	0	0	8
05:00 PM	3	0	0	3	0	**8**	0	**8**	0	0	0	0	**11**
Total Volume	10	0	0	10	0	20	0	20	0	0	0	0	30
% App. Total	100	0	0		0	100	0		0	0	0		
PHF	.500	.000	.000	.500	.000	.625	.000	.625	.000	.000	.000	.000	.682
Lights	10	0	0	10	0	20	0	20	0	0	0	0	30
% Lights	100	0	0	100	0	100	0	100	0	0	0	0	100
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Data



NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : Breeze Hill at Country Club Entrance Saturday
Site Code :
Start Date : 1/9/2016
Page No : 1

Groups Printed- Lights - Buses - Trucks

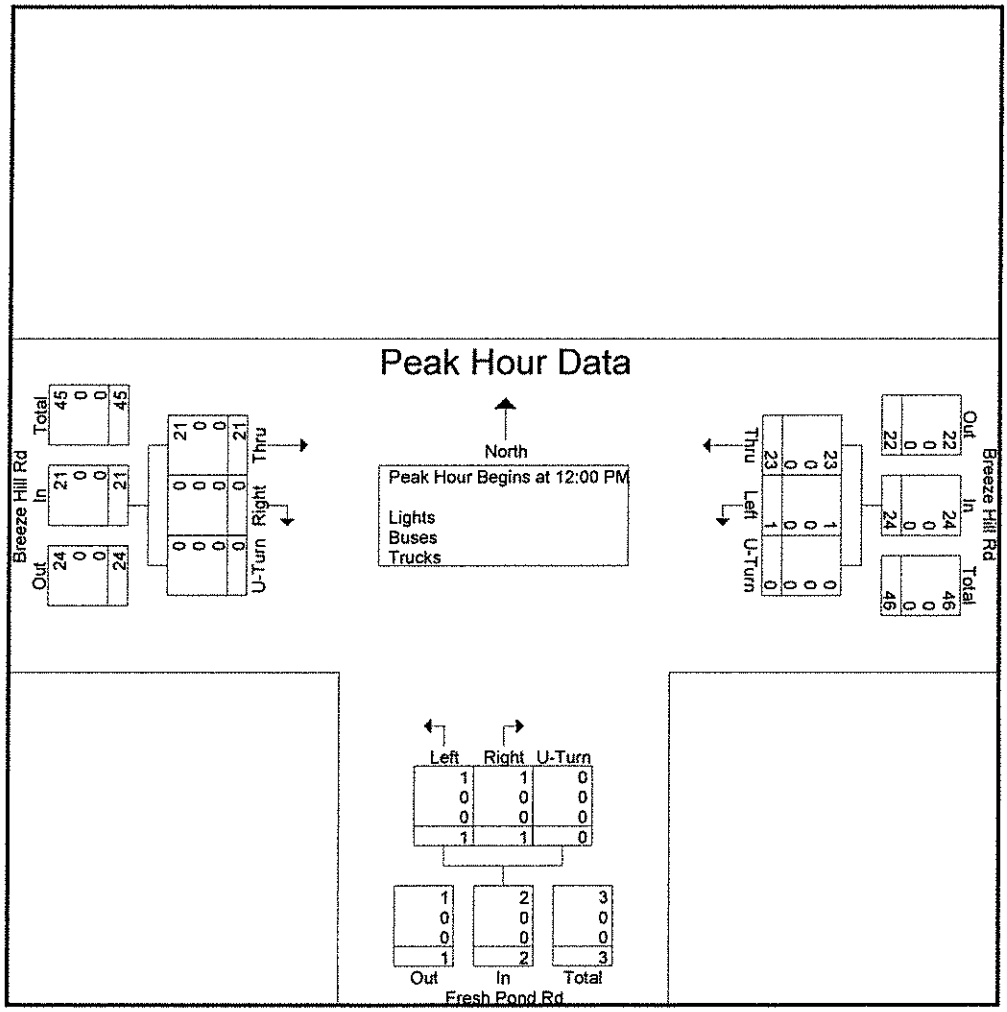
	Breeze Hill Rd Eastbound				Breeze Hill Rd Westbound				Fresh Pond Rd Northbound				
Start Time	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Int. Total
11:00 AM	3	0	0	3	2	0	0	2	0	0	0	0	5
11:15 AM	2	1	0	3	0	6	0	6	0	0	0	0	9
11:30 AM	2	0	0	2	0	2	0	2	0	0	0	0	4
11:45 AM	2	0	0	2	0	3	0	3	0	0	0	0	5
Total	9	1	0	10	2	11	0	13	0	0	0	0	23
12:00 PM	7	0	0	7	0	6	0	6	0	0	0	0	13
12:15 PM	5	0	0	5	1	4	0	5	1	0	0	1	11
12:30 PM	6	0	0	6	0	6	0	6	0	1	0	1	13
12:45 PM	3	0	0	3	0	7	0	7	0	0	0	0	10
Total	21	0	0	21	1	23	0	24	1	1	0	2	47
01:00 PM	3	0	0	3	0	3	0	3	0	0	0	0	6
01:15 PM	1	0	0	1	0	4	0	4	1	0	0	1	6
01:30 PM	4	0	0	4	1	0	0	1	0	0	0	0	5
01:45 PM	5	0	0	5	0	4	0	4	0	0	0	0	9
Total	13	0	0	13	1	11	0	12	1	0	0	1	26
Grand Total	43	1	0	44	4	45	0	49	2	1	0	3	96
Apprch %	97.7	2.3	0		8.2	91.8	0		66.7	33.3	0		
Total %	44.8	1	0	45.8	4.2	46.9	0	51	2.1	1	0	3.1	
Lights	43	1	0	44	4	45	0	49	2	1	0	3	96
% Lights	100	100	0	100	100	100	0	100	100	100	0	100	100
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0

NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : Breeze Hill at Country Club Entrance Saturday
Site Code :
Start Date : 1/9/2016
Page No : 2

	Breeze Hill Rd Eastbound				Breeze Hill Rd Westbound				Fresh Pond Rd Northbound				
Start Time	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	7	0	0	7	0	6	0	6	0	0	0	0	**13**
12:15 PM	5	0	0	5	**1**	4	0	5	**1**	0	0	**1**	11
12:30 PM	6	0	0	6	0	6	0	6	0	**1**	0	1	13
12:45 PM	3	0	0	3	0	7	0	7	0	0	0	0	10
Total Volume	21	0	0	21	1	23	0	24	1	1	0	2	47
% App. Total	100	0	0		4.2	95.8	0		50	50	0		
PHF	.750	.000	.000	.750	.250	.821	.000	.857	.250	.250	.000	.500	.904
Lights	21	0	0	21	1	23	0	24	1	1	0	2	47
% Lights	100	0	0	100	100	100	0	100	100	100	0	100	100
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0



NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : 4-BREEZE_HILL_RD_AT_FRESH_POND_RD_1-7-16_285382_01-07-2016
Site Code :
Start Date : 1/7/2016
Page No : 1

Groups Printed- Lights - Buses - Trucks

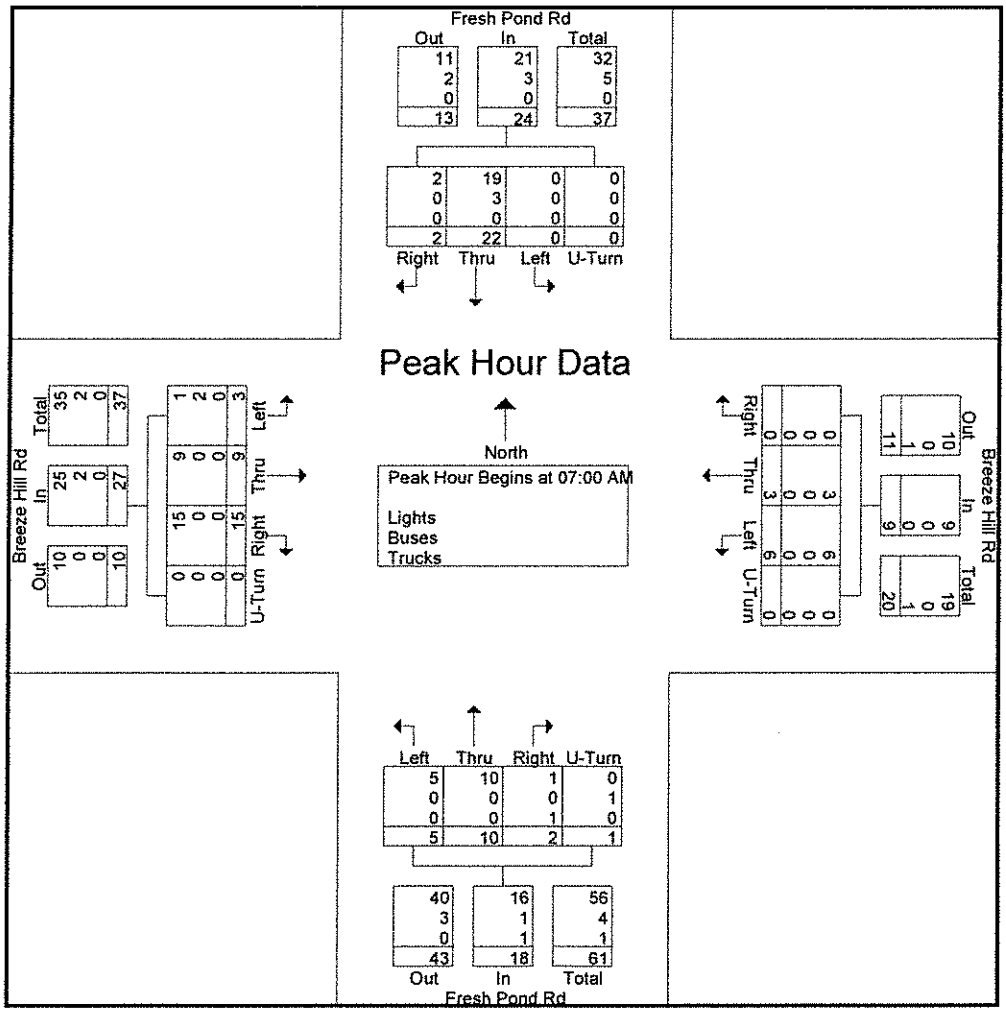
	Breeze Hill Rd Eastbound					Breeze Hill Rd Westbound					Fresh Pond Rd Southbound					Fresh Pond Rd Northbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	1	3	3	0	7	2	1	0	0	3	0	7	0	0	7	3	3	2	1	9	26
07:15 AM	2	1	3	0	6	1	0	0	0	1	0	7	1	0	8	0	3	0	0	3	18
07:30 AM	0	1	4	0	5	3	2	0	0	5	0	4	1	0	5	1	2	0	0	3	18
07:45 AM	0	4	5	0	9	0	0	0	0	0	0	4	0	0	4	1	2	0	0	3	16
Total	3	9	15	0	27	6	3	0	0	9	0	22	2	0	24	5	10	2	1	18	78
08:00 AM	0	0	4	0	4	2	0	1	0	3	0	3	0	0	3	4	6	1	0	11	21
08:15 AM	2	1	10	0	13	0	0	0	0	0	0	3	0	0	3	2	2	0	0	4	20
08:30 AM	0	1	6	0	7	0	1	0	0	1	1	4	0	0	5	1	4	1	0	6	19
08:45 AM	0	0	5	0	5	0	1	0	0	1	0	4	0	0	4	0	2	0	0	2	12
Total	2	2	25	0	29	2	2	1	0	5	1	14	0	0	15	7	14	2	0	23	72
04:00 PM	0	0	3	0	3	1	0	1	0	2	0	8	1	0	9	8	4	0	0	12	26
04:15 PM	0	0	8	0	8	3	1	0	0	4	0	2	0	0	2	3	3	3	0	9	23
04:30 PM	0	0	3	0	3	0	0	1	0	1	0	3	0	0	3	5	6	1	0	12	19
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	4	1	0	5	6	6	2	0	14	19
Total	0	0	14	0	14	4	1	2	0	7	0	17	2	0	19	22	19	6	0	47	87
05:00 PM	0	0	5	0	5	2	1	0	0	3	0	1	0	0	1	6	1	1	0	8	17
05:15 PM	0	1	3	0	4	0	0	0	0	0	0	1	0	0	1	2	4	2	0	8	13
05:30 PM	0	0	2	0	2	1	2	0	0	3	0	2	1	0	3	3	4	2	0	9	17
05:45 PM	1	1	2	0	4	0	1	0	0	1	0	5	0	0	5	9	4	1	1	15	25
Total	1	2	12	0	15	3	4	0	0	7	0	9	1	0	10	20	13	6	1	40	72
Grand Total	6	13	66	0	85	15	10	3	0	28	1	62	5	0	68	54	56	16	2	128	309
Apprch %	7.1	15.3	77.6	0		53.6	35.7	10.7	0		1.5	91.2	7.4	0		42.2	43.8	12.5	1.6		
Total %	1.9	4.2	21.4	0	27.5	4.9	3.2	1	0	9.1	0.3	20.1	1.6	0	22	17.5	18.1	5.2	0.6	41.4	
Lights	3	13	65	0	81	15	10	3	0	28	1	55	5	0	61	54	55	13	0	122	292
% Lights	50	100	98.5	0	95.3	100	100	100	0	100	100	88.7	100	0	89.7	100	98.2	81.2	0	95.3	94.5
Buses	2	0	1	0	3	0	0	0	0	0	0	5	0	0	5	0	1	0	1	2	10
% Buses	33.3	0	1.5	0	3.5	0	0	0	0	0	0	8.1	0	0	7.4	0	1.8	0	50	1.6	3.2
Trucks	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	3	1	4	7
% Trucks	16.7	0	0	0	1.2	0	0	0	0	0	0	3.2	0	0	2.9	0	0	18.8	50	3.1	2.3

NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : 4-BREEZE_HILL_RD_AT_FRESH_POND_RD_1-7-16_285382_01-07-2016
Site Code :
Start Date : 1/7/2016
Page No : 2

	Breeze Hill Rd Eastbound					Breeze Hill Rd Westbound					Fresh Pond Rd Southbound					Fresh Pond Rd Northbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	1	3	3	0	7	2	1	0	0	3	0	7	0	0	7	3	3	2	1	9	26
07:15 AM	2	1	3	0	6	1	0	0	0	1	0	7	1	0	8	0	3	0	0	3	18
07:30 AM	0	1	4	0	5	3	2	0	0	5	0	4	1	0	5	1	2	0	0	3	18
07:45 AM	0	4	5	0	9	0	0	0	0	0	0	4	0	0	4	1	2	0	0	3	16
Total Volume	3	9	15	0	27	6	3	0	0	9	0	22	2	0	24	5	10	2	1	18	78
% App. Total	11.1	33.3	55.6	0		66.7	33.3	0	0		0	91.7	8.3	0		27.8	55.6	11.1	5.6		
PHF	.375	.563	.750	.000	.750	.500	.375	.000	.000	.450	.000	.786	.500	.000	.750	.417	.833	.250	.250	.500	.750
Lights	1	9	15	0	25	6	3	0	0	9	0	19	2	0	21	5	10	1	0	16	71
% Lights	33.3	100	100	0	92.6	100	100	0	0	100	0	86.4	100	0	87.5	100	100	50.0	0	88.9	91.0
Buses	2	0	0	0	2	0	0	0	0	0	0	3	0	0	3	0	0	0	1	1	6
% Buses	66.7	0	0	0	7.4	0	0	0	0	0	0	13.6	0	0	12.5	0	0	0	100	5.6	7.7
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50.0	0	5.6	1.3



NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : 4-BREEZE_HILL_RD_AT_FRESH_POND_RD_1-7-16_285382_01-07-2016
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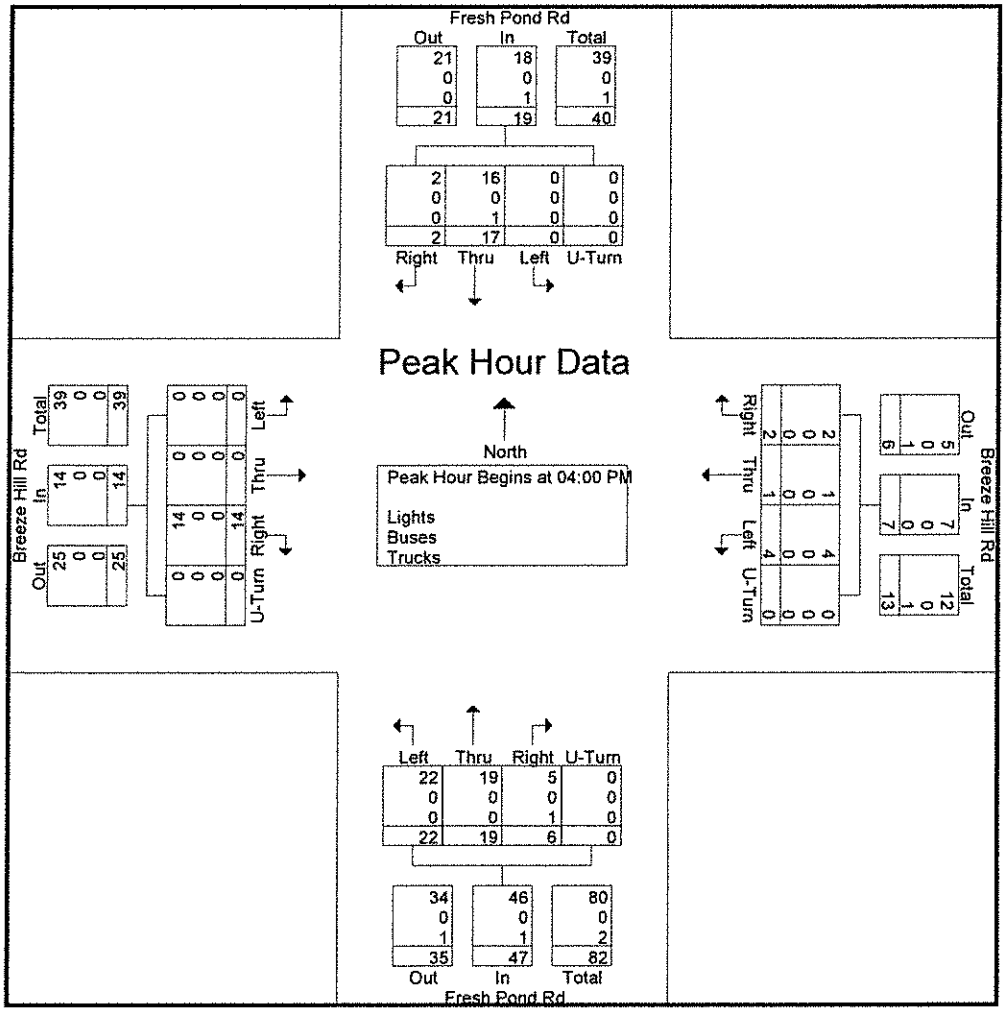
	Breeze Hill Rd Eastbound					Breeze Hill Rd Westbound					Fresh Pond Rd Southbound					Fresh Pond Rd Northbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	3	0	3	1	0	1	0	2	0	8	1	0	9	8	4	0	0	12	26
04:15 PM	0	0	8	0	8	3	1	0	0	4	0	2	0	0	2	3	3	3	0	9	23
04:30 PM	0	0	3	0	3	0	0	1	0	1	0	3	0	0	3	5	6	1	0	12	19
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	4	1	0	5	6	6	2	0	14	19
Total Volume	0	0	14	0	14	4	1	2	0	7	0	17	2	0	19	22	19	6	0	47	87
% App. Total	0	0	100	0		57.1	14.3	28.6	0		0	89.5	10.5	0		46.8	40.4	12.8	0		
PHF	.000	.000	.438	.000	.438	.333	.250	.500	.000	.438	.000	.531	.500	.000	.528	.688	.792	.500	.000	.839	.837
Lights	0	0	14	0	14	4	1	2	0	7	0	16	2	0	18	22	19	5	0	46	85
% Lights	0	0	100	0	100	100	100	100	0	100	0	94.1	100	0	94.7	100	100	83.3	0	97.9	97.7
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	2
% Trucks	0	0	0	0	0	0	0	0	0	0	0	5.9	0	0	5.3	0	0	16.7	0	2.1	2.3



NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : 4-BREEZE_HILL_RD_AT_FRESH_POND_RD_1-9-16_285383_01-09-2016
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Groups Printed- Lights - Buses - Trucks

	Breeze Hill Rd Eastbound					Breeze Hill Rd Westbound					Fresh Pond Rd Southbound					Fresh Pond Rd Northbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
11:00 AM	0	1	4	0	5	1	2	1	1	5	1	7	0	0	8	7	6	2	0	15	33
11:15 AM	0	0	2	0	2	4	1	0	0	5	0	2	0	0	2	5	5	1	0	11	20
11:30 AM	0	0	2	0	2	0	1	0	0	1	0	2	0	0	2	2	3	1	0	6	11
11:45 AM	0	0	6	0	6	1	1	1	0	3	1	4	0	0	5	3	3	1	0	7	21
Total	0	1	14	0	15	6	5	2	1	14	2	15	0	0	17	17	17	5	0	39	85
12:00 PM	0	1	4	0	5	2	1	2	0	5	2	7	1	0	10	6	10	1	0	17	37
12:15 PM	0	0	5	0	5	0	2	0	0	2	0	6	0	0	6	5	1	2	0	8	21
12:30 PM	1	0	3	0	4	2	0	1	0	3	0	3	0	0	3	4	3	3	0	10	20
12:45 PM	1	1	5	0	7	3	0	0	0	3	0	3	0	0	3	8	8	3	0	19	32
Total	2	2	17	0	21	7	3	3	0	13	2	19	1	0	22	23	22	9	0	54	110
01:00 PM	0	0	2	0	2	2	0	0	0	2	0	3	2	0	5	1	5	3	0	9	18
01:15 PM	0	0	3	0	3	0	0	0	0	0	0	4	2	0	6	5	5	3	0	13	22
01:30 PM	1	0	3	0	4	0	0	0	0	0	0	1	0	0	1	3	7	0	0	10	15
01:45 PM	0	1	5	0	6	2	0	0	0	2	1	4	1	0	6	1	2	3	0	6	20
Total	1	1	13	0	15	4	0	0	0	4	1	12	5	0	18	10	19	9	0	38	75
Grand Total	3	4	44	0	51	17	8	5	1	31	5	46	6	0	57	50	58	23	0	131	270
Apprch %	5.9	7.8	86.3	0		54.8	25.8	16.1	3.2		8.8	80.7	10.5	0		38.2	44.3	17.6	0		
Total %	1.1	1.5	16.3	0	18.9	6.3	3	1.9	0.4	11.5	1.9	17	2.2	0	21.1	18.5	21.5	8.5	0	48.5	
Lights	3	4	43	0	50	17	8	5	1	31	4	45	4	0	53	49	55	23	0	127	261
% Lights	100	100	97.7	0	98	100	100	100	100	100	80	97.8	66.7	0	93	98	94.8	100	0	96.9	96.7
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	1	0	1	0	0	0	0	0	1	1	2	0	4	1	3	0	0	4	9
% Trucks	0	0	2.3	0	2	0	0	0	0	0	20	2.2	33.3	0	7	2	5.2	0	0	3.1	3.3

NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : 4-BREEZE_HILL_RD_AT_FRESH_POND_RD_1-9-16_285383_01-09-2016
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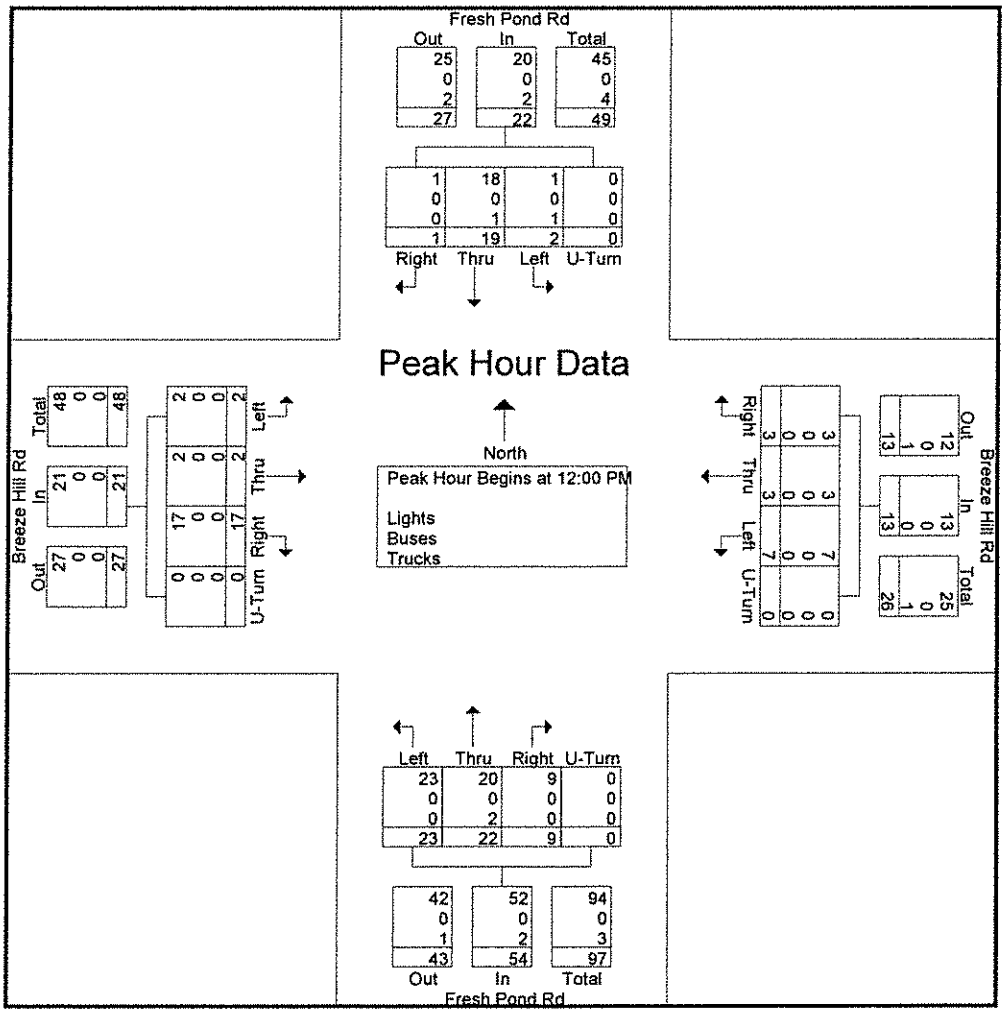
	Breeze Hill Rd Eastbound					Breeze Hill Rd Westbound					Fresh Pond Rd Southbound					Fresh Pond Rd Northbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	0	1	4	0	5	2	1	2	0	5	2	7	1	0	10	6	10	1	0	17	37
12:15 PM	0	0	5	0	5	0	2	0	0	2	0	6	0	0	6	5	1	2	0	8	21
12:30 PM	1	0	3	0	4	2	0	1	0	3	0	3	0	0	3	4	3	3	0	10	20
12:45 PM	1	1	5	0	7	3	0	0	0	3	0	3	0	0	3	8	8	3	0	19	32
Total Volume	2	2	17	0	21	7	3	3	0	13	2	19	1	0	22	23	22	9	0	54	110
% App. Total	9.5	9.5	81	0		53.8	23.1	23.1	0		9.1	86.4	4.5	0		42.6	40.7	16.7	0		
PHF	.500	.500	.850	.000	.750	.583	.375	.375	.000	.650	.250	.679	.250	.000	.550	.719	.550	.750	.000	.711	.743
Lights	2	2	17	0	21	7	3	3	0	13	1	18	1	0	20	23	20	9	0	52	106
% Lights	100	100	100	0	100	100	100	100	0	100	50.0	94.7	100	0	90.9	100	90.9	100	0	96.3	96.4
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	2	0	0	2	4
% Trucks	0	0	0	0	0	0	0	0	0	0	50.0	5.3	0	0	9.1	0	9.1	0	0	3.7	3.6



NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : 1-FORT_SALONGA_RD_FRESH_POND_RD_1-7-16_285376_01-07-2016
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Groups Printed- Lights - Buses - Trucks

	Fort Salonga Rd Eastbound					Fort Salonga Rd Westbound					Fresh Pond Rd Southbound					Bread & Cheese Hollow Rd Northbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	1	76	5	0	82	2	94	2	0	98	6	2	6	0	14	12	3	2	0	17	211
07:15 AM	0	99	6	0	105	6	102	3	0	111	5	5	4	0	14	10	0	8	0	18	248
07:30 AM	1	141	12	0	154	7	139	2	0	148	7	2	5	0	14	11	0	3	0	14	330
07:45 AM	5	123	7	0	135	16	137	2	0	155	5	6	3	0	14	14	1	6	0	21	325
Total	7	439	30	0	476	31	472	9	0	512	23	15	18	0	56	47	4	19	0	70	1114
08:00 AM	2	148	10	0	160	10	127	2	0	139	5	2	7	0	14	12	7	8	0	27	340
08:15 AM	4	148	11	0	163	0	115	0	0	115	9	4	6	0	19	14	6	7	0	27	324
08:30 AM	11	130	4	0	145	5	110	0	0	115	6	5	8	0	19	14	4	6	0	24	303
08:45 AM	2	117	9	0	128	4	112	2	0	118	5	5	5	0	15	11	0	9	0	20	281
Total	19	543	34	0	596	19	464	4	0	487	25	16	26	0	67	51	17	30	0	98	1248
04:00 PM	0	137	15	0	152	3	111	6	0	120	2	4	4	0	10	23	8	11	0	42	324
04:15 PM	0	167	22	0	189	6	121	4	0	131	7	9	8	0	24	21	3	9	0	33	377
04:30 PM	3	138	16	0	157	6	130	3	0	139	4	5	5	0	14	12	6	5	0	23	333
04:45 PM	5	138	14	0	157	17	140	7	0	164	3	2	9	0	14	23	7	10	0	40	375
Total	8	580	67	0	655	32	502	20	0	554	16	20	26	0	62	79	24	35	0	138	1409
05:00 PM	3	153	23	0	179	4	122	3	0	129	5	2	8	0	15	30	6	4	0	40	363
05:15 PM	14	155	13	0	182	5	127	3	0	135	5	3	5	0	13	17	3	9	0	29	359
05:30 PM	3	126	19	0	148	5	117	4	0	126	3	5	5	0	13	20	4	2	0	26	313
05:45 PM	4	114	19	0	137	7	109	8	0	124	3	4	7	0	14	37	8	8	0	53	328
Total	24	548	74	0	646	21	475	18	0	514	16	14	25	0	55	104	21	23	0	148	1363
Grand Total	58	2110	205	0	2373	103	1913	51	0	2067	80	65	95	0	240	281	66	107	0	454	5134
Apprch %	2.4	88.9	8.6	0		5	92.5	2.5	0		33.3	27.1	39.6	0		61.9	14.5	23.6	0		
Total %	1.1	41.1	4	0	46.2	2	37.3	1	0	40.3	1.6	1.3	1.9	0	4.7	5.5	1.3	2.1	0	8.8	
Lights	56	2080	195	0	2331	100	1881	48	0	2029	78	63	83	0	224	271	63	103	0	437	5021
% Lights	96.6	98.6	95.1	0	98.2	97.1	98.3	94.1	0	98.2	97.5	96.9	87.4	0	93.3	96.4	95.5	96.3	0	96.3	97.8
Buses	1	14	8	0	23	0	12	0	0	12	0	1	7	0	8	2	1	1	0	4	47
% Buses	1.7	0.7	3.9	0	1	0	0.6	0	0	0.6	0	1.5	7.4	0	3.3	0.7	1.5	0.9	0	0.9	0.9
Trucks	1	16	2	0	19	3	20	3	0	26	2	1	5	0	8	8	2	3	0	13	66
% Trucks	1.7	0.8	1	0	0.8	2.9	1	5.9	0	1.3	2.5	1.5	5.3	0	3.3	2.8	3	2.8	0	2.9	1.3

NELSON & POPE

572 Walt Whitman Road
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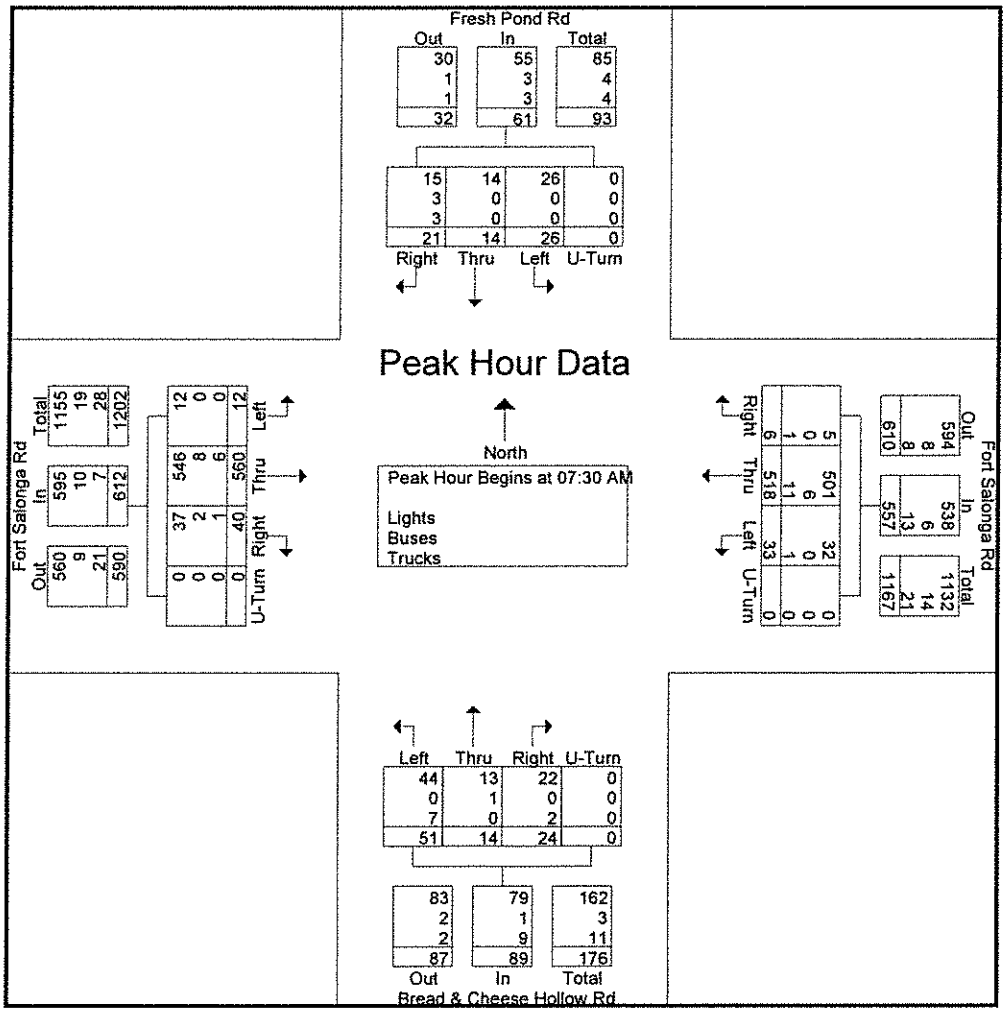
	Fort Salonga Rd Eastbound					Fort Salonga Rd Westbound					Fresh Pond Rd Southbound					Bread & Cheese Hollow Rd Northbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	1	141	**12**	0	154	7	**139**	**2**	0	148	7	2	5	0	14	11	0	3	0	14	330
07:45 AM	**5**	123	7	0	135	**16**	137	2	0	**155**	5	**6**	3	0	14	**14**	1	6	0	21	325
08:00 AM	2	**148**	10	0	160	10	127	2	0	139	5	2	**7**	0	14	12	**7**	**8**	0	**27**	**340**
08:15 AM	4	148	11	0	**163**	0	115	0	0	115	**9**	4	6	0	**19**	14	6	7	0	27	324
Total Volume	12	560	40	0	612	33	518	6	0	557	26	14	21	0	61	51	14	24	0	89	1319
% App. Total	2	91.5	6.5	0		5.9	93	1.1	0		42.6	23	34.4	0		57.3	15.7	27	0		
PHF	.600	.946	.833	.000	.939	.516	.932	.750	.000	.898	.722	.583	.750	.000	.803	.911	.500	.750	.000	.824	.970
Lights	12	546	37	0	595	32	501	5	0	538	26	14	15	0	55	44	13	22	0	79	1267
% Lights	100	97.5	92.5	0	97.2	97.0	96.7	83.3	0	96.6	100	100	71.4	0	90.2	86.3	92.9	91.7	0	88.8	96.1
Buses	0	8	2	0	10	0	6	0	0	6	0	0	3	0	3	0	1	0	0	1	20
% Buses	0	1.4	5.0	0	1.6	0	1.2	0	0	1.1	0	0	14.3	0	4.9	0	7.1	0	0	1.1	1.5
Trucks	0	6	1	0	7	1	11	1	0	13	0	0	3	0	3	7	0	2	0	9	32
% Trucks	0	1.1	2.5	0	1.1	3.0	2.1	16.7	0	2.3	0	0	14.3	0	4.9	13.7	0	8.3	0	10.1	2.4



NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : 1-FORT_SALONGA_RD_FRESH_POND_RD_1-7-16_285376_01-07-2016
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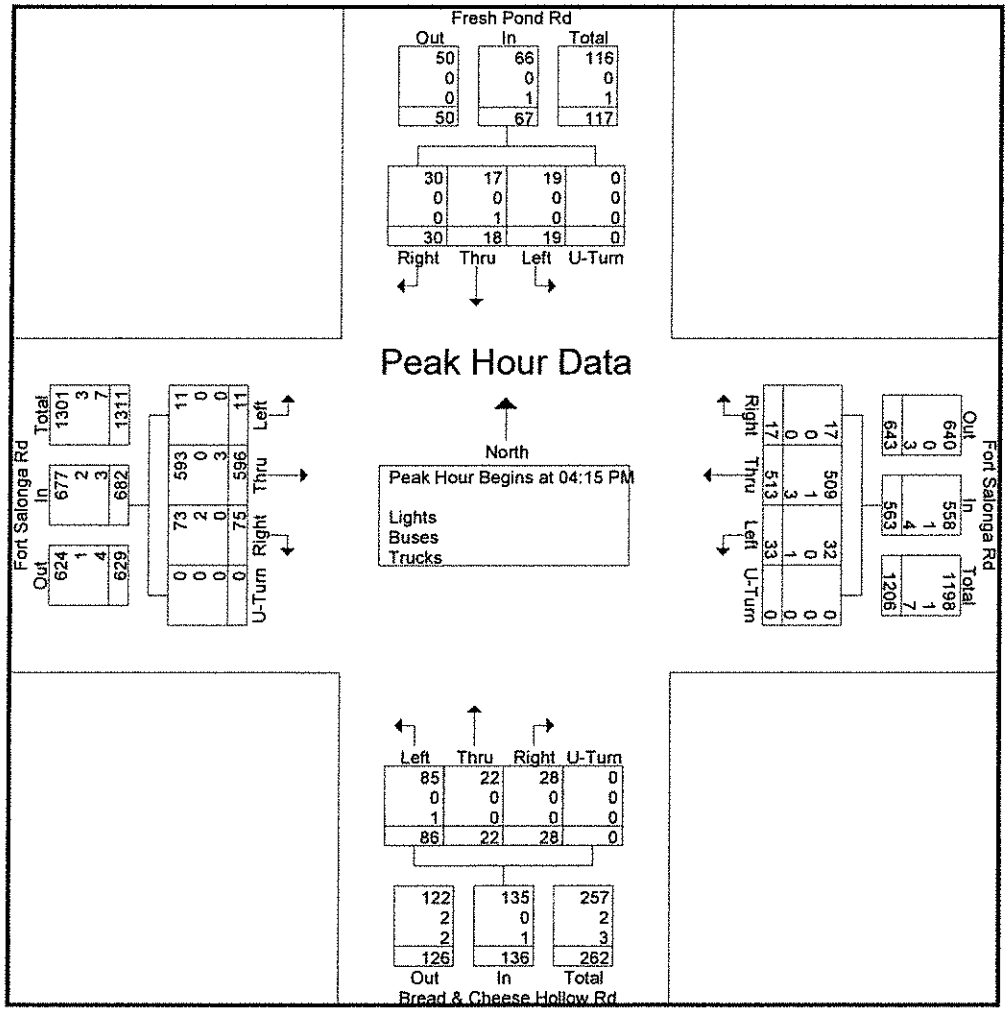
	Fort Salonga Rd Eastbound					Fort Salonga Rd Westbound					Fresh Pond Rd Southbound					Bread & Cheese Hollow Rd Northbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	0	**167**	22	0	**189**	6	121	4	0	131	**7**	**9**	8	0	**24**	21	3	9	0	33	**377**
04:30 PM	3	138	16	0	157	6	130	3	0	139	4	5	5	0	14	12	6	5	0	23	333
04:45 PM	**5**	138	14	0	157	**17**	**140**	**7**	0	**164**	3	2	**9**	0	14	23	**7**	**10**	0	**40**	375
05:00 PM	3	153	**23**	0	179	4	122	3	0	129	5	2	8	0	15	**30**	6	4	0	40	363
Total Volume	11	596	75	0	682	33	513	17	0	563	19	18	30	0	67	86	22	28	0	136	1448
% App. Total	1.6	87.4	11	0		5.9	91.1	3	0		28.4	26.9	44.8	0		63.2	16.2	20.6	0		
PHF	.550	.892	.815	.000	.902	.485	.916	.607	.000	.858	.679	.500	.833	.000	.698	.717	.786	.700	.000	.850	.960
Lights	11	593	73	0	677	32	509	17	0	558	19	17	30	0	66	85	22	28	0	135	1436
% Lights	100	99.5	97.3	0	99.3	97.0	99.2	100	0	99.1	100	94.4	100	0	98.5	98.8	100	100	0	99.3	99.2
Buses	0	0	2	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
% Buses	0	0	2.7	0	0.3	0	0.2	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0.2
Trucks	0	3	0	0	3	1	3	0	0	4	0	1	0	0	1	1	0	0	0	1	9
% Trucks	0	0.5	0	0	0.4	3.0	0.6	0	0	0.7	0	5.6	0	0	1.5	1.2	0	0	0	0.7	0.6



NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : 1-FORT_SALONGA_RD_FRESH_POND_RD_1-9-16_285377_01-09-2016
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Groups Printed- Lights - Buses - Trucks

	Fort Salonga Rd Eastbound					Fort Salonga Rd Westbound					Fresh Pond Rd Southbound					Bread & Cheese Hollow Rd Northbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
11:00 AM	5	105	19	0	129	12	79	5	0	96	2	6	7	0	15	22	6	8	0	36	276
11:15 AM	2	108	16	0	126	7	101	5	0	113	3	5	7	0	15	26	7	9	0	42	296
11:30 AM	2	96	19	0	117	8	92	4	0	104	2	8	1	0	11	24	2	7	0	33	265
11:45 AM	4	110	18	0	132	4	101	3	0	108	8	7	5	0	20	39	3	9	0	51	311
Total	13	419	72	0	504	31	373	17	0	421	15	26	20	0	61	111	18	33	0	162	1148
12:00 PM	12	109	25	0	146	11	107	3	0	121	5	2	8	0	15	28	8	11	0	47	329
12:15 PM	1	117	20	0	138	7	92	2	0	101	8	2	7	0	17	26	6	9	0	41	297
12:30 PM	6	116	22	0	144	10	104	1	0	115	4	6	8	0	18	18	4	8	0	30	307
12:45 PM	6	118	27	0	151	8	107	4	0	119	6	4	8	0	18	30	12	5	0	47	335
Total	25	460	94	0	579	36	410	10	0	456	23	14	31	0	68	102	30	33	0	165	1268
01:00 PM	5	120	20	0	145	8	123	3	0	134	1	8	7	0	16	28	0	8	0	36	331
01:15 PM	5	101	15	0	121	6	93	4	0	103	1	3	9	0	13	17	5	4	0	26	263
01:30 PM	6	106	19	0	131	7	112	4	0	123	2	6	4	0	12	30	5	9	0	44	310
01:45 PM	2	124	17	0	143	7	93	2	0	102	4	7	7	0	18	35	4	7	0	46	309
Total	18	451	71	0	540	28	421	13	0	462	8	24	27	0	59	110	14	28	0	152	1213
Grand Total	56	1330	237	0	1623	95	1204	40	0	1339	46	64	78	0	188	323	62	94	0	479	3629
Apprch %	3.5	81.9	14.6	0		7.1	89.9	3	0		24.5	34	41.5	0		67.4	12.9	19.6	0		
Total %	1.5	36.6	6.5	0	44.7	2.6	33.2	1.1	0	36.9	1.3	1.8	2.1	0	5.2	8.9	1.7	2.6	0	13.2	
Lights	53	1314	232	0	1599	92	1189	38	0	1319	44	62	78	0	184	320	60	89	0	469	3571
% Lights	94.6	98.8	97.9	0	98.5	96.8	98.8	95	0	98.5	95.7	96.9	100	0	97.9	99.1	96.8	94.7	0	97.9	98.4
Buses	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3
% Buses	0	0.2	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	1.1	0	0.2	0.1
Trucks	3	14	5	0	22	3	15	2	0	20	2	2	0	0	4	3	2	4	0	9	55
% Trucks	5.4	1.1	2.1	0	1.4	3.2	1.2	5	0	1.5	4.3	3.1	0	0	2.1	0.9	3.2	4.3	0	1.9	1.5

NELSON & POPE

572 Walt Whitman Road
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File Name : 1-FORT_SALONGA_RD_FRESH_POND_RD_1-9-16_285377_01-09-2016
Site Code :
Start Date : 1/9/2016
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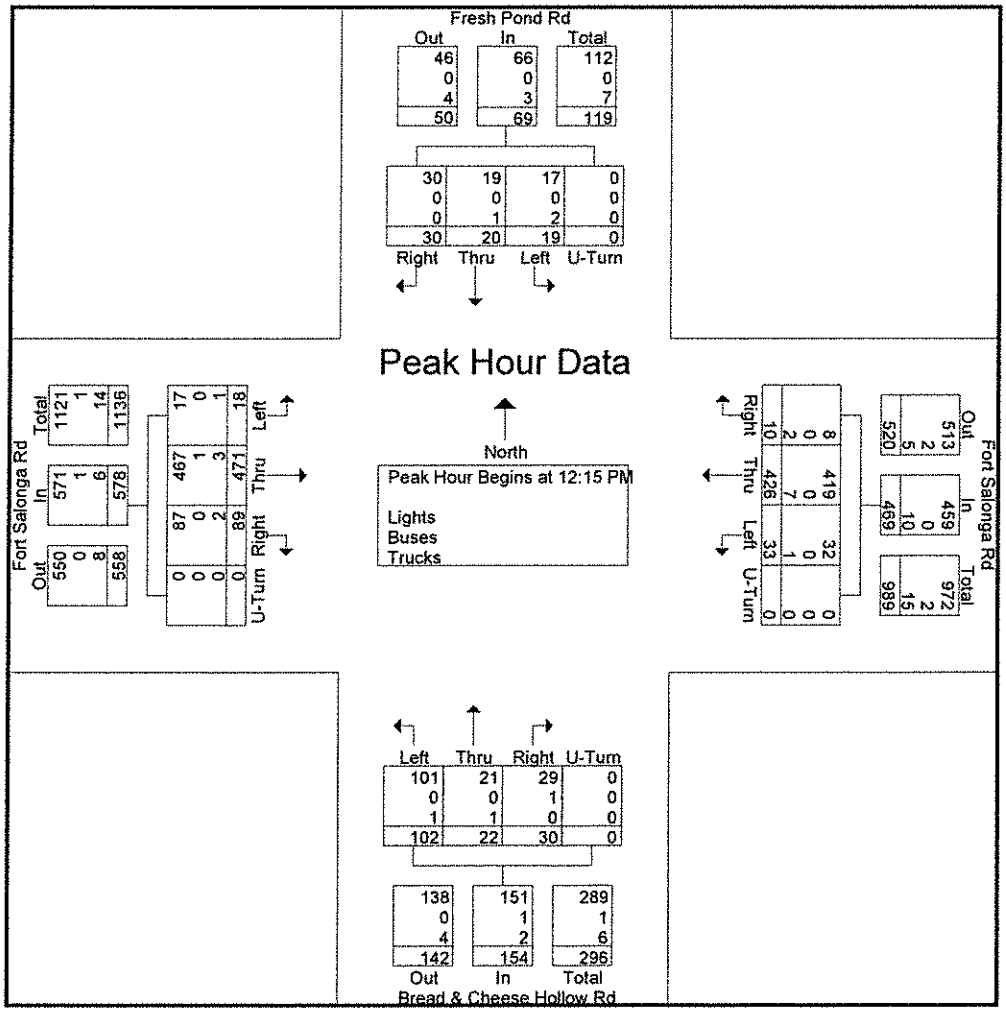
	Fort Salonga Rd Eastbound					Fort Salonga Rd Westbound					Fresh Pond Rd Southbound					Bread & Cheese Hollow Rd Northbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:15 PM																					
12:15 PM	1	117	20	0	138	7	92	2	0	101	8	2	7	0	17	26	6	9	0	41	297
12:30 PM	6	116	22	0	144	10	104	1	0	115	4	6	8	0	18	18	4	8	0	30	307
12:45 PM	6	118	27	0	151	8	107	4	0	119	6	4	8	0	18	30	12	5	0	47	335
01:00 PM	5	120	20	0	145	8	123	3	0	134	1	8	7	0	16	28	0	8	0	36	331
Total Volume	18	471	89	0	578	33	426	10	0	469	19	20	30	0	69	102	22	30	0	154	1270
% App. Total	3.1	81.5	15.4	0		7	90.8	2.1	0		27.5	29	43.5	0		66.2	14.3	19.5	0		
PHF	.750	.981	.824	.000	.957	.825	.866	.625	.000	.875	.594	.625	.938	.000	.958	.850	.458	.833	.000	.819	.948
Lights	17	467	87	0	571	32	419	8	0	459	17	19	30	0	66	101	21	29	0	151	1247
% Lights	94.4	99.2	97.8	0	98.8	97.0	98.4	80.0	0	97.9	89.5	95.0	100	0	95.7	99.0	95.5	96.7	0	98.1	98.2
Buses	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
% Buses	0	0.2	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	3.3	0	0.6	0.2
Trucks	1	3	2	0	6	1	7	2	0	10	2	1	0	0	3	1	1	0	0	2	21
% Trucks	5.6	0.6	2.2	0	1.0	3.0	1.6	20.0	0	2.1	10.5	5.0	0	0	4.3	1.0	4.5	0	0	1.3	1.7



NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : 2-FORT_SALONGA_RD_AT_MAKAMAH_RD_1-7-16_285378_01-07-2016
Site Code :
Start Date : 1/7/2016
Page No : 1

Groups Printed- Lights - Buses - Trucks

	Fort Salonga Rd Eastbound				Fort Salonga Rd Westbound				Makamah Rd Southbound				
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Int. Total
07:00 AM	3	76	0	79	108	0	0	108	0	5	0	5	192
07:15 AM	2	101	0	103	118	1	0	119	2	7	0	9	231
07:30 AM	1	155	0	156	135	2	0	137	0	11	0	11	304
07:45 AM	6	126	0	132	161	1	0	162	2	7	0	9	303
Total	12	458	0	470	522	4	0	526	4	30	0	34	1030
08:00 AM	8	164	0	172	137	0	0	137	2	6	0	8	317
08:15 AM	4	156	0	160	145	2	0	147	2	11	0	13	320
08:30 AM	6	139	0	145	136	3	0	139	1	5	0	6	290
08:45 AM	4	126	0	130	127	1	0	128	0	5	0	5	263
Total	22	585	0	607	545	6	0	551	5	27	0	32	1190
04:00 PM	9	150	0	159	135	0	0	135	1	10	0	11	305
04:15 PM	12	200	0	212	153	0	0	153	4	4	0	8	373
04:30 PM	9	157	0	166	142	1	0	143	1	6	0	7	316
04:45 PM	4	154	0	158	176	1	0	177	0	5	0	5	340
Total	34	661	0	695	606	2	0	608	6	25	0	31	1334
05:00 PM	10	185	0	195	151	5	0	156	0	3	0	3	354
05:15 PM	10	184	0	194	154	1	0	155	1	8	0	9	358
05:30 PM	6	143	0	149	138	0	0	138	0	4	0	4	291
05:45 PM	7	134	0	141	144	4	0	148	2	4	0	6	295
Total	33	646	0	679	587	10	0	597	3	19	0	22	1298
Grand Total	101	2350	0	2451	2260	22	0	2282	18	101	0	119	4852
Apprch %	4.1	95.9	0		99	1	0		15.1	84.9	0		
Total %	2.1	48.4	0	50.5	46.6	0.5	0	47	0.4	2.1	0	2.5	
Lights	95	2309	0	2404	2212	20	0	2232	17	99	0	116	4752
% Lights	94.1	98.3	0	98.1	97.9	90.9	0	97.8	94.4	98	0	97.5	97.9
Buses	4	24	0	28	17	1	0	18	1	1	0	2	48
% Buses	4	1	0	1.1	0.8	4.5	0	0.8	5.6	1	0	1.7	1
Trucks	2	17	0	19	31	1	0	32	0	1	0	1	52
% Trucks	2	0.7	0	0.8	1.4	4.5	0	1.4	0	1	0	0.8	1.1

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572 Walt Whitman Road
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File Name : 2-FORT_SALONGA_RD_AT_MAKAMAH_RD_1-7-16_285378_01-07-2016
Site Code :
Start Date : 1/7/2016
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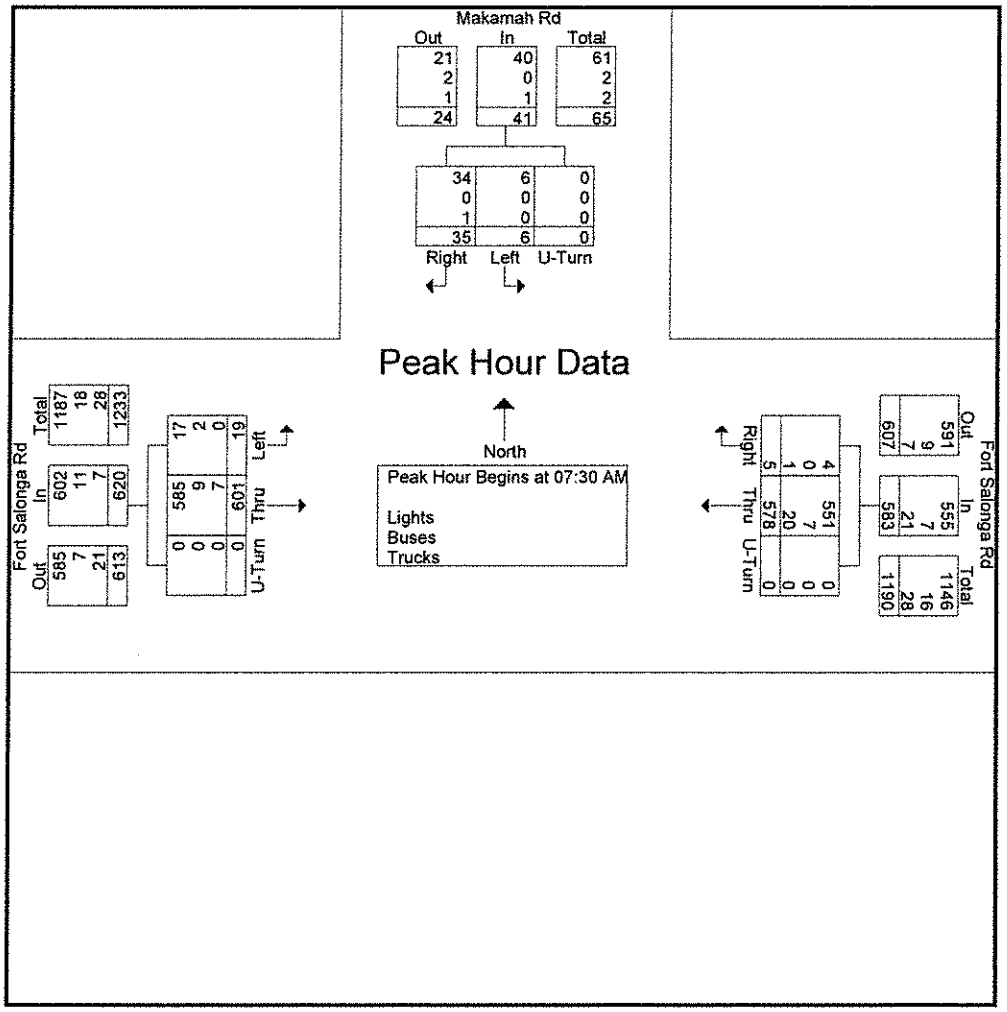
	Fort Salonga Rd Eastbound				Fort Salonga Rd Westbound				Makamah Rd Southbound				
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	1	155	0	156	135	**2**	0	137	0	**11**	0	11	304
07:45 AM	6	126	0	132	**161**	1	0	**162**	**2**	7	0	9	303
08:00 AM	**8**	**164**	0	**172**	137	0	0	137	2	6	0	8	317
08:15 AM	4	156	0	160	145	2	0	147	2	11	0	**13**	**320**
Total Volume	19	601	0	620	578	5	0	583	6	35	0	41	1244
% App. Total	3.1	96.9	0		99.1	0.9	0		14.6	85.4	0		
PHF	.594	.916	.000	.901	.898	.625	.000	.900	.750	.795	.000	.788	.972
Lights	17	585	0	602	551	4	0	555	6	34	0	40	1197
% Lights	89.5	97.3	0	97.1	95.3	80.0	0	95.2	100	97.1	0	97.6	96.2
Buses	2	9	0	11	7	0	0	7	0	0	0	0	18
% Buses	10.5	1.5	0	1.8	1.2	0	0	1.2	0	0	0	0	1.4
Trucks	0	7	0	7	20	1	0	21	0	1	0	1	29
% Trucks	0	1.2	0	1.1	3.5	20.0	0	3.6	0	2.9	0	2.4	2.3



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572 Walt Whitman Road
Melville, NY, 11747

File Name : 2-FORT_SALONGA_RD_AT_MAKAMAH_RD_1-7-16_285378_01-07-2016
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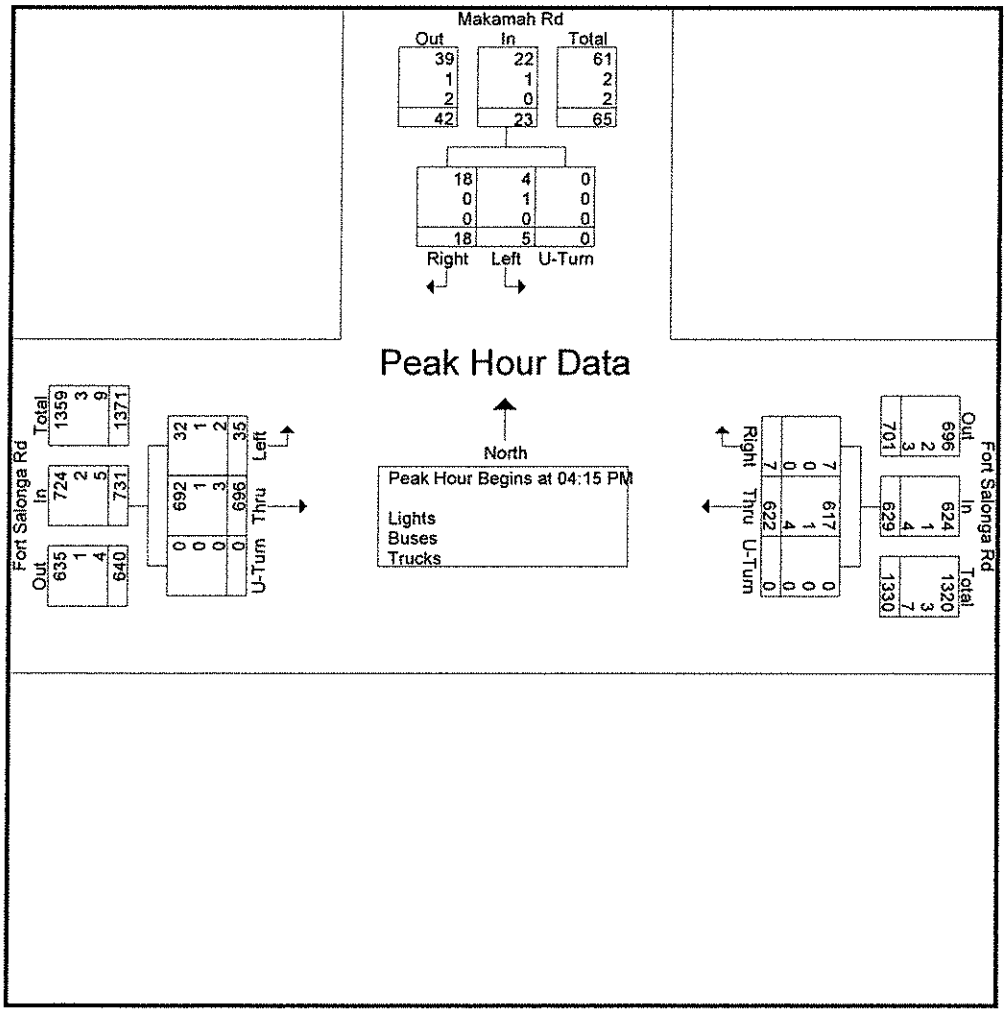
	Fort Salonga Rd Eastbound				Fort Salonga Rd Westbound				Makamah Rd Southbound				
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:15 PM													
04:15 PM	**12**	**200**	0	**212**	153	0	0	153	**4**	4	0	**8**	**373**
04:30 PM	9	157	0	166	142	1	0	143	1	**6**	0	7	316
04:45 PM	4	154	0	158	**176**	1	0	**177**	0	5	0	5	340
05:00 PM	10	185	0	195	151	**5**	0	156	0	3	0	3	354
Total Volume	35	696	0	731	622	7	0	629	5	18	0	23	1383
% App. Total	4.8	95.2	0		98.9	1.1	0		21.7	78.3	0		
PHF	.729	.870	.000	.862	.884	.350	.000	.888	.313	.750	.000	.719	.927
Lights	32	692	0	724	617	7	0	624	4	18	0	22	1370
% Lights	91.4	99.4	0	99.0	99.2	100	0	99.2	80.0	100	0	95.7	99.1
Buses	1	1	0	2	1	0	0	1	1	0	0	1	4
% Buses	2.9	0.1	0	0.3	0.2	0	0	0.2	20.0	0	0	4.3	0.3
Trucks	2	3	0	5	4	0	0	4	0	0	0	0	9
% Trucks	5.7	0.4	0	0.7	0.6	0	0	0.6	0	0	0	0	0.7



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572 Walt Whitman Road
Melville, NY, 11747

File Name : 2-FORT_SALONGA_RD_AT_MAKAMAH_RD_1-9-16_285379_01-09-2016
Site Code :
Start Date : 1/9/2016
Page No : 1

Groups Printed- Lights - Buses - Trucks

	Fort Salonga Rd Eastbound				Fort Salonga Rd Westbound				Makamah Rd Southbound				
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Int. Total
11:00 AM	7	128	1	136	120	0	0	120	0	5	0	5	261
11:15 AM	10	128	0	138	131	0	0	131	1	5	0	6	275
11:30 AM	7	119	0	126	122	1	0	123	3	3	0	6	255
11:45 AM	7	132	0	139	147	1	0	148	2	3	0	5	292
Total	31	507	1	539	520	2	0	522	6	16	0	22	1083
12:00 PM	7	143	0	150	141	0	0	141	3	8	0	11	302
12:15 PM	13	132	0	145	124	2	0	126	1	9	0	10	281
12:30 PM	5	148	0	153	123	1	0	124	5	8	0	13	290
12:45 PM	8	152	0	160	143	4	0	147	3	11	0	14	321
Total	33	575	0	608	531	7	0	538	12	36	0	48	1194
01:00 PM	5	146	0	151	161	0	0	161	2	10	0	12	324
01:15 PM	5	109	0	114	118	1	0	119	1	10	0	11	244
01:30 PM	7	146	0	153	137	2	0	139	0	9	0	9	301
01:45 PM	11	135	0	146	139	0	0	139	0	5	0	5	290
Total	28	536	0	564	555	3	0	558	3	34	0	37	1159
Grand Total	92	1618	1	1711	1606	12	0	1618	21	86	0	107	3436
Apprch %	5.4	94.6	0.1		99.3	0.7	0		19.6	80.4	0		
Total %	2.7	47.1	0	49.8	46.7	0.3	0	47.1	0.6	2.5	0	3.1	
Lights	92	1597	1	1690	1590	12	0	1602	21	83	0	104	3396
% Lights	100	98.7	100	98.8	99	100	0	99	100	96.5	0	97.2	98.8
Buses	0	2	0	2	0	0	0	0	0	0	0	0	2
% Buses	0	0.1	0	0.1	0	0	0	0	0	0	0	0	0.1
Trucks	0	19	0	19	16	0	0	16	0	3	0	3	38
% Trucks	0	1.2	0	1.1	1	0	0	1	0	3.5	0	2.8	1.1

NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

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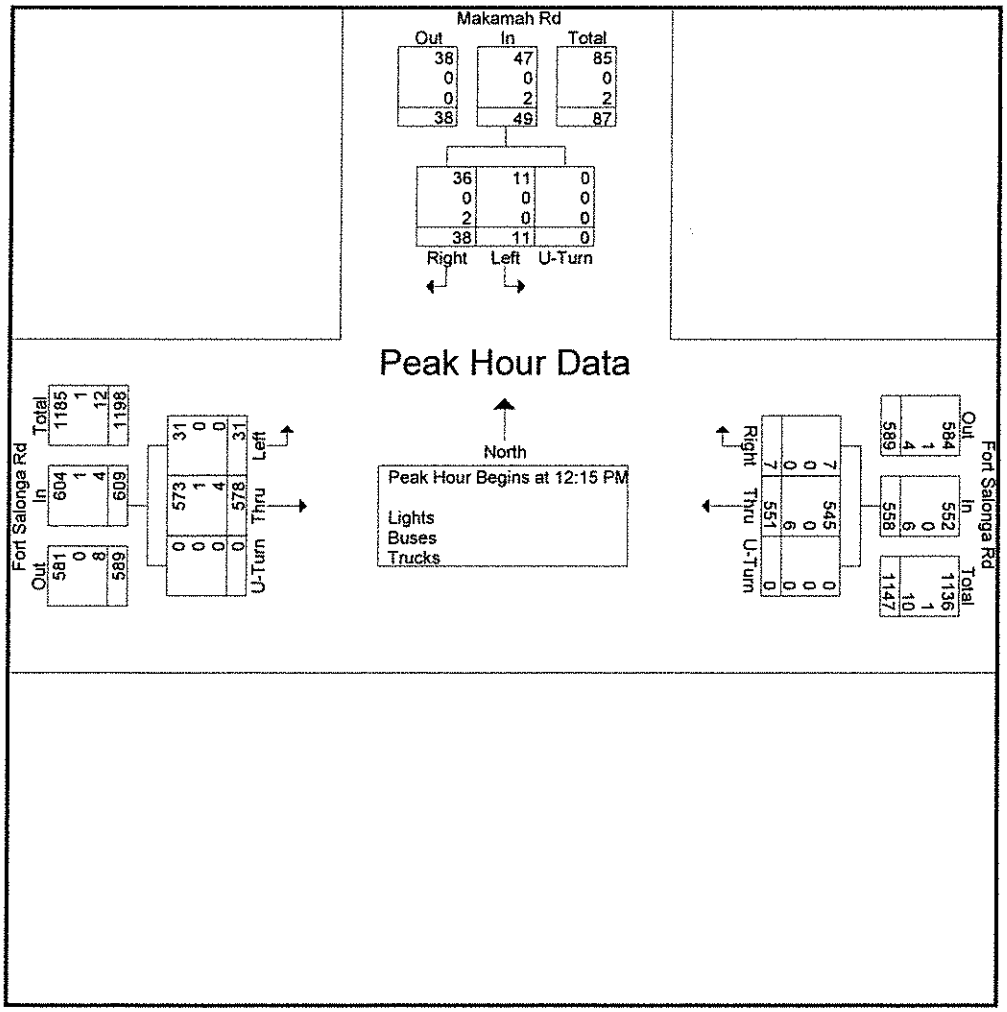
	Fort Salonga Rd Eastbound				Fort Salonga Rd Westbound				Makamah Rd Southbound				
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:15 PM													
12:15 PM	**13**	132	0	145	124	2	0	126	1	9	0	10	281
12:30 PM	5	148	0	153	123	1	0	124	**5**	8	0	13	290
12:45 PM	8	**152**	0	**160**	143	**4**	0	147	3	**11**	0	**14**	321
01:00 PM	5	146	0	151	**161**	0	0	**161**	2	10	0	12	**324**
Total Volume	31	578	0	609	551	7	0	558	11	38	0	49	1216
% App. Total	5.1	94.9	0		98.7	1.3	0		22.4	77.6	0		
PHF	.596	.951	.000	.952	.856	.438	.000	.866	.550	.864	.000	.875	.938
Lights	31	573	0	604	545	7	0	552	11	36	0	47	1203
% Lights	100	99.1	0	99.2	98.9	100	0	98.9	100	94.7	0	95.9	98.9
Buses	0	1	0	1	0	0	0	0	0	0	0	0	1
% Buses	0	0.2	0	0.2	0	0	0	0	0	0	0	0	0.1
Trucks	0	4	0	4	6	0	0	6	0	2	0	2	12
% Trucks	0	0.7	0	0.7	1.1	0	0	1.1	0	5.3	0	4.1	1.0



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572 Walt Whitman Road
Melville, NY, 11747

File Name : 3-MAKAMAH_RD_AT_BREEZE_HILL_RD_1-7-16_285380_01-07-2016
Site Code :
Start Date : 1/7/2016
Page No : 1

Groups Printed- Lights - Buses - Trucks

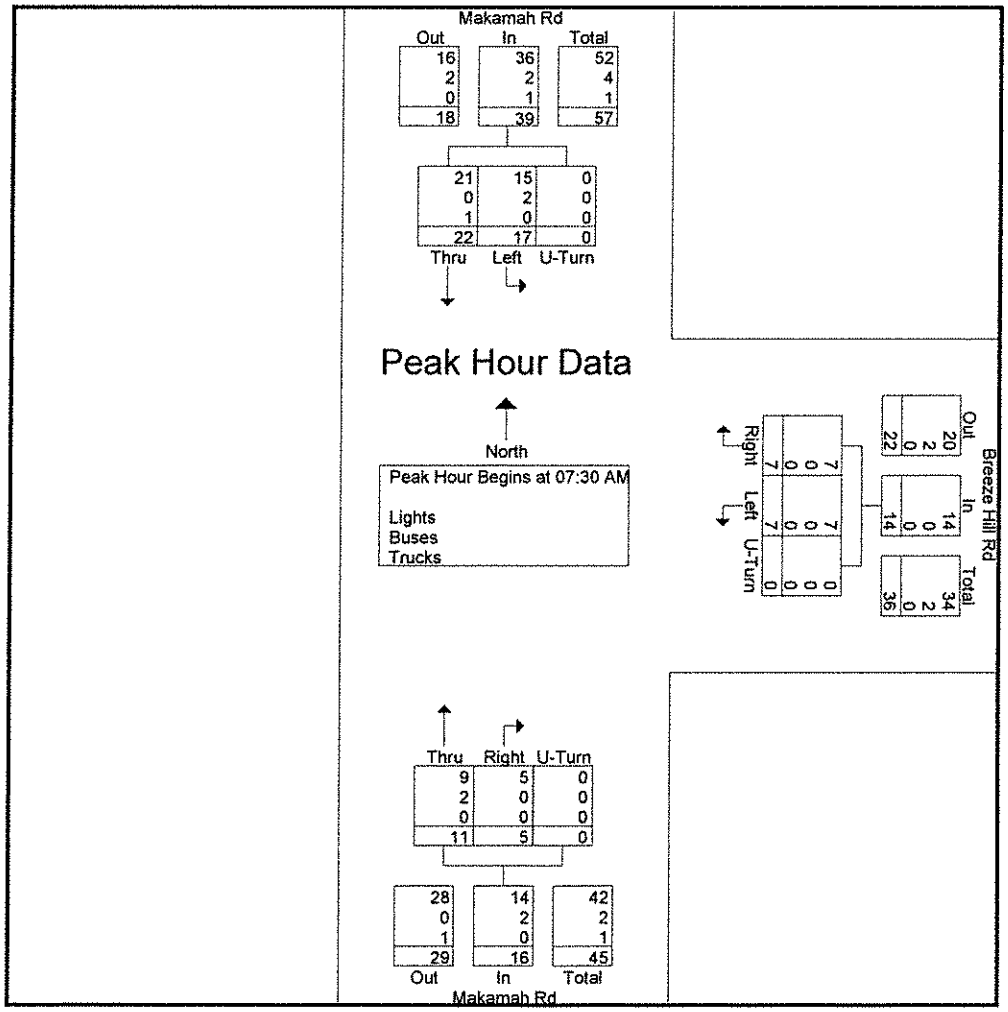
	Breeze Hill Rd Westbound				Makamah Rd Southbound				Makamah Rd Northbound				
Start Time	Left	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	1	1	1	3	5	4	0	9	3	1	0	4	16
07:15 AM	1	1	0	2	3	5	0	8	2	1	0	3	13
07:30 AM	4	1	0	5	3	5	0	8	0	2	0	2	15
07:45 AM	1	1	0	2	4	7	0	11	4	1	0	5	18
Total	7	4	1	12	15	21	0	36	9	5	0	14	62
08:00 AM	1	3	0	4	5	5	0	10	6	2	0	8	22
08:15 AM	1	2	0	3	5	5	0	10	1	0	0	1	14
08:30 AM	1	0	0	1	5	1	0	6	5	1	0	6	13
08:45 AM	1	0	0	1	4	4	0	8	5	0	0	5	14
Total	4	5	0	9	19	15	0	34	17	3	0	20	63
04:00 PM	2	6	0	8	2	5	0	7	3	4	0	7	22
04:15 PM	2	2	0	4	5	4	0	9	6	3	0	9	22
04:30 PM	2	2	0	4	1	2	0	3	5	3	0	8	15
04:45 PM	0	3	0	3	1	5	0	6	2	0	0	2	11
Total	6	13	0	19	9	16	0	25	16	10	0	26	70
05:00 PM	1	8	0	9	2	1	0	3	10	2	0	12	24
05:15 PM	1	1	0	2	3	5	0	8	5	2	0	7	17
05:30 PM	0	3	0	3	2	3	0	5	5	2	0	7	15
05:45 PM	2	4	0	6	1	3	0	4	5	1	0	6	16
Total	4	16	0	20	8	12	0	20	25	7	0	32	72
Grand Total	21	38	1	60	51	64	0	115	67	25	0	92	267
Apprch %	35	63.3	1.7		44.3	55.7	0		72.8	27.2	0		
Total %	7.9	14.2	0.4	22.5	19.1	24	0	43.1	25.1	9.4	0	34.5	
Lights	21	38	1	60	48	62	0	110	61	24	0	85	255
% Lights	100	100	100	100	94.1	96.9	0	95.7	91	96	0	92.4	95.5
Buses	0	0	0	0	3	1	0	4	4	1	0	5	9
% Buses	0	0	0	0	5.9	1.6	0	3.5	6	4	0	5.4	3.4
Trucks	0	0	0	0	0	1	0	1	2	0	0	2	3
% Trucks	0	0	0	0	0	1.6	0	0.9	3	0	0	2.2	1.1

NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : 3-MAKAMAH_RD_AT_BREEZE_HILL_RD_1-7-16_285380_01-07-2016
Site Code :
Start Date : 1/7/2016
Page No : 2

	Breeze Hill Rd Westbound				Makamah Rd Southbound				Makamah Rd Northbound				
Start Time	Left	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	**4**	1	0	**5**	3	5	0	8	0	**2**	0	2	15
07:45 AM	1	1	0	2	4	**7**	0	**11**	4	1	0	5	18
08:00 AM	1	**3**	0	4	**5**	5	0	10	**6**	2	0	**8**	**22**
08:15 AM	1	2	0	3	5	5	0	10	1	0	0	1	14
Total Volume	7	7	0	14	17	22	0	39	11	5	0	16	69
% App. Total	50	50	0		43.6	56.4	0		68.8	31.2	0		
PHF	.438	.583	.000	.700	.850	.786	.000	.886	.458	.625	.000	.500	.784
Lights	7	7	0	14	15	21	0	36	9	5	0	14	64
% Lights	100	100	0	100	88.2	95.5	0	92.3	81.8	100	0	87.5	92.8
Buses	0	0	0	0	2	0	0	2	2	0	0	2	4
% Buses	0	0	0	0	11.8	0	0	5.1	18.2	0	0	12.5	5.8
Trucks	0	0	0	0	0	1	0	1	0	0	0	0	1
% Trucks	0	0	0	0	0	4.5	0	2.6	0	0	0	0	1.4

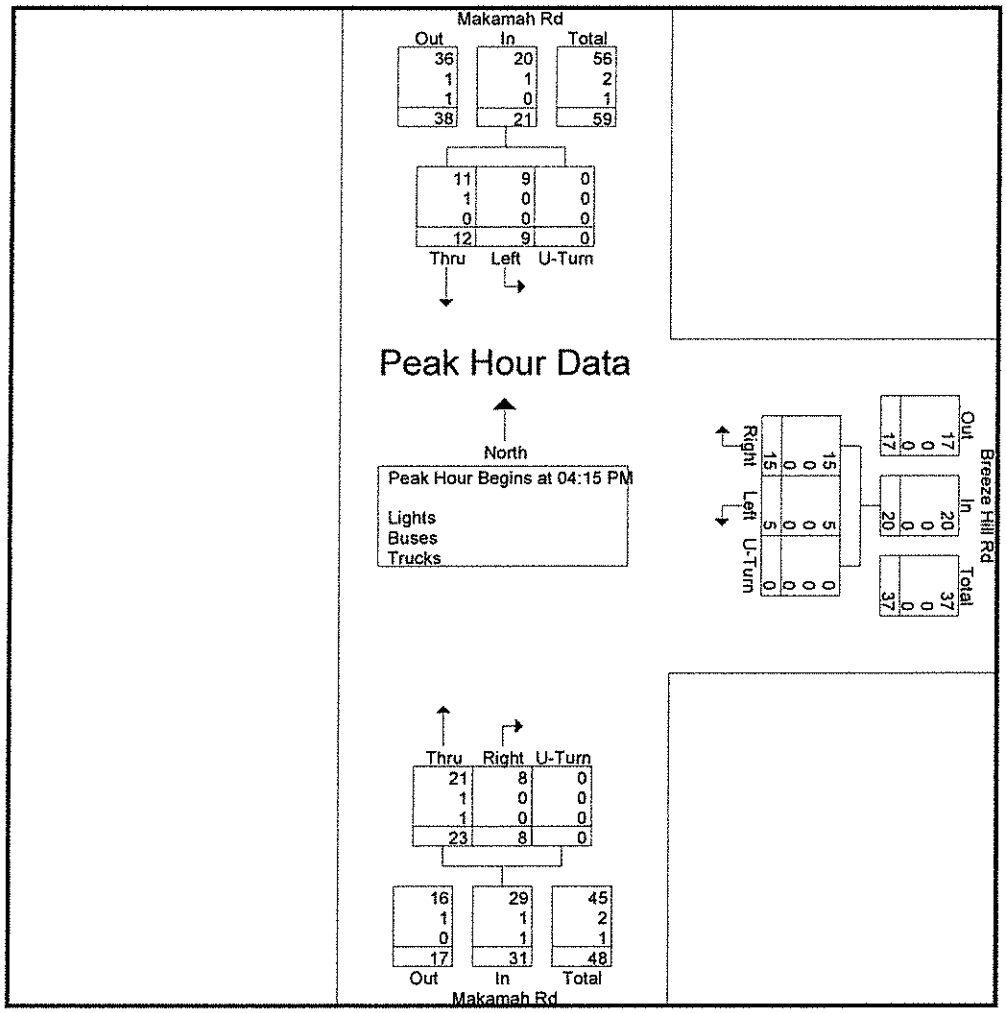


NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : 3-MAKAMAH_RD_AT_BREEZE_HILL_RD_1-7-16_285380_01-07-2016
Site Code :
Start Date : 1/7/2016
Page No : 3

	Breeze Hill Rd Westbound				Makamah Rd Southbound				Makamah Rd Northbound				
Start Time	Left	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:15 PM													
04:15 PM	**2**	2	0	4	**5**	4	0	**9**	6	**3**	0	9	22
04:30 PM	2	2	0	4	1	2	0	3	5	3	0	8	15
04:45 PM	0	3	0	3	1	**5**	0	6	2	0	0	2	11
05:00 PM	1	**8**	0	**9**	2	1	0	3	**10**	2	0	**12**	**24**
Total Volume	5	15	0	20	9	12	0	21	23	8	0	31	72
% App. Total	25	75	0		42.9	57.1	0		74.2	25.8	0		
PHF	.625	.469	.000	.556	.450	.600	.000	.583	.575	.667	.000	.646	.750
Lights	5	15	0	20	9	11	0	20	21	8	0	29	69
% Lights	100	100	0	100	100	91.7	0	95.2	91.3	100	0	93.5	95.8
Buses	0	0	0	0	0	1	0	1	1	0	0	1	2
% Buses	0	0	0	0	0	8.3	0	4.8	4.3	0	0	3.2	2.8
Trucks	0	0	0	0	0	0	0	0	1	0	0	1	1
% Trucks	0	0	0	0	0	0	0	0	4.3	0	0	3.2	1.4



NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : 3-MAKAMAH_RD_AT_BREEZE_HILL_RD_1-9-16_285381_01-09-2016
Site Code :
Start Date : 1/9/2016
Page No : 1

Groups Printed- Lights - Buses - Trucks

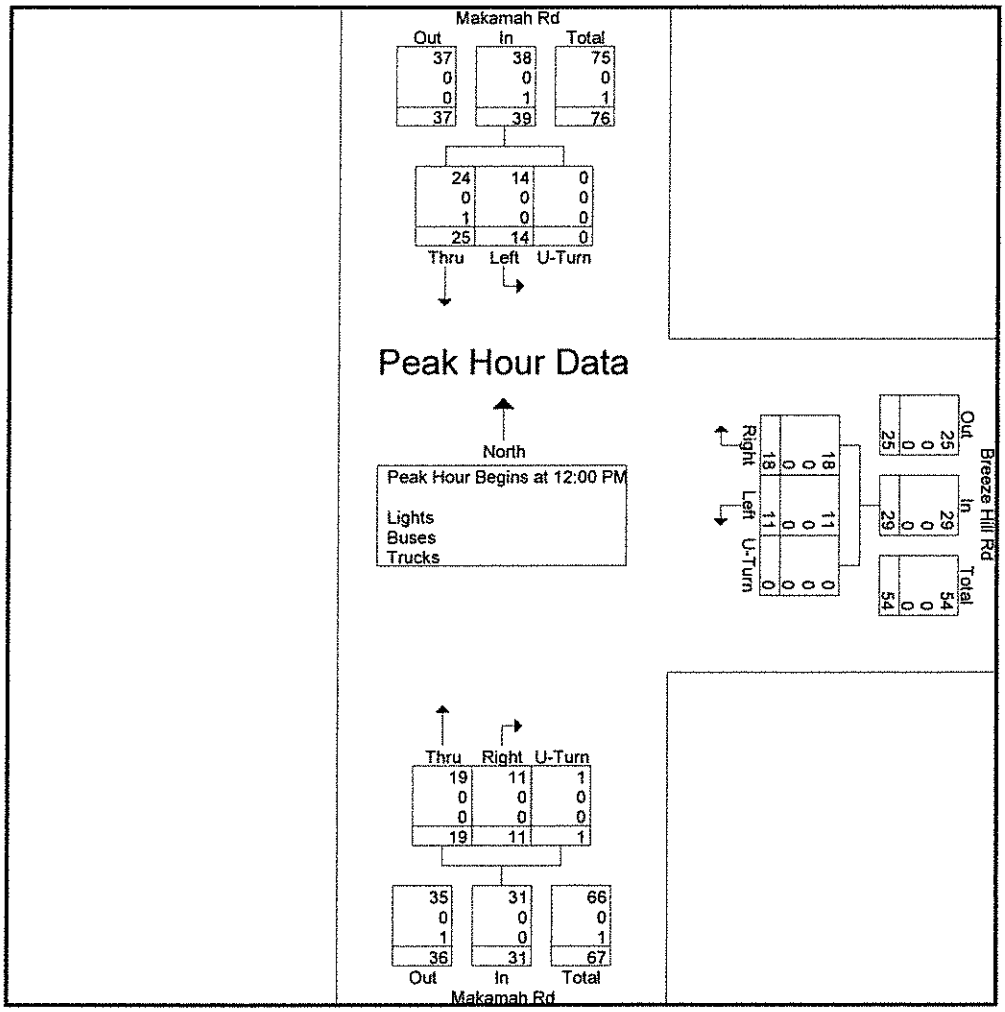
	Breeze Hill Rd Westbound				Makamah Rd Southbound				Makamah Rd Northbound				
Start Time	Left	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Int. Total
11:00 AM	0	5	0	5	5	3	0	8	3	2	0	5	18
11:15 AM	2	5	0	7	3	2	1	6	3	2	0	5	18
11:30 AM	1	2	0	3	0	3	0	3	4	2	1	7	13
11:45 AM	1	4	0	5	5	0	0	5	4	2	1	7	17
Total	4	16	0	20	13	8	1	22	14	8	2	24	66
12:00 PM	1	4	0	5	4	7	0	11	3	2	0	5	21
12:15 PM	4	5	0	9	4	5	0	9	7	3	0	10	28
12:30 PM	4	2	0	6	1	8	0	9	6	3	1	10	25
12:45 PM	2	7	0	9	5	5	0	10	3	3	0	6	25
Total	11	18	0	29	14	25	0	39	19	11	1	31	99
01:00 PM	3	2	1	6	1	4	0	5	2	1	0	3	14
01:15 PM	4	4	0	8	1	6	0	7	2	1	0	3	18
01:30 PM	3	1	0	4	2	4	0	6	3	3	0	6	16
01:45 PM	0	1	0	1	4	5	0	9	4	3	2	9	19
Total	10	8	1	19	8	19	0	27	11	8	2	21	67
Grand Total	25	42	1	68	35	52	1	88	44	27	5	76	232
Apprch %	36.8	61.8	1.5		39.8	59.1	1.1		57.9	35.5	6.6		
Total %	10.8	18.1	0.4	29.3	15.1	22.4	0.4	37.9	19	11.6	2.2	32.8	
Lights	25	40	1	66	34	50	1	85	43	27	5	75	226
% Lights	100	95.2	100	97.1	97.1	96.2	100	96.6	97.7	100	100	98.7	97.4
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	2	0	2	1	2	0	3	1	0	0	1	6
% Trucks	0	4.8	0	2.9	2.9	3.8	0	3.4	2.3	0	0	1.3	2.6

NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : 3-MAKAMAH_RD_AT_BREEZE_HILL_RD_1-9-16_285381_01-09-2016
Site Code :
Start Date : 1/9/2016
Page No : 2

	Breeze Hill Rd Westbound				Makamah Rd Southbound				Makamah Rd Northbound				
Start Time	Left	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	1	4	0	5	4	7	0	11	3	2	0	5	21
12:15 PM	4	5	0	9	4	5	0	9	7	3	0	10	28
12:30 PM	4	2	0	6	1	8	0	9	6	3	1	10	25
12:45 PM	2	7	0	9	5	5	0	10	3	3	0	6	25
Total Volume	11	18	0	29	14	25	0	39	19	11	1	31	99
% App. Total	37.9	62.1	0		35.9	64.1	0		61.3	35.5	3.2		
PHF	.688	.643	.000	.806	.700	.781	.000	.886	.679	.917	.250	.775	.884
Lights	11	18	0	29	14	24	0	38	19	11	1	31	98
% Lights	100	100	0	100	100	96.0	0	97.4	100	100	100	100	99.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	0	0	0	1	0	1	0	0	0	0	1
% Trucks	0	0	0	0	0	4.0	0	2.6	0	0	0	0	1.0



NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : MAKAMAH_RD_AT_MYSTIC_LN_289567_02-02-2016
Site Code :
Start Date : 2/2/2016
Page No : 1

Groups Printed- Lights - Buses - Trucks

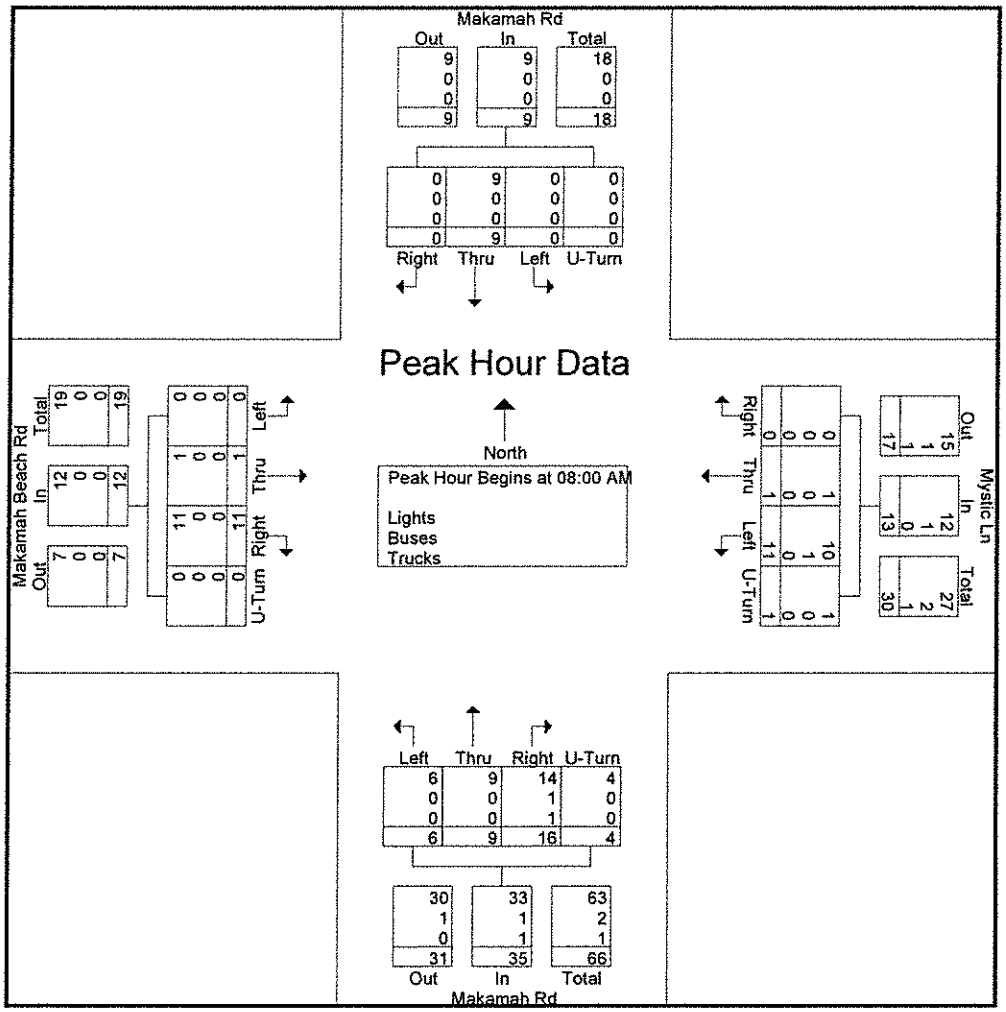
	Makamah Beach Rd Eastbound					Mystic Ln Westbound					Makamah Rd Southbound					Makamah Rd Northbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	0	2	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	2	2	5
07:15 AM	0	0	6	0	6	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0	9
07:30 AM	0	0	4	0	4	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5
07:45 AM	0	1	4	0	5	2	0	0	0	2	0	0	0	0	0	2	0	3	0	5	12
Total	0	1	16	0	17	6	1	0	0	7	0	0	0	0	0	2	0	3	2	7	31
08:00 AM	0	1	3	0	4	4	0	0	0	4	0	0	0	0	0	3	0	2	1	6	14
08:15 AM	0	0	2	0	2	1	1	0	0	2	0	3	0	0	3	0	3	7	3	13	20
08:30 AM	0	0	4	0	4	2	0	0	1	3	0	1	0	0	1	2	1	2	0	5	13
08:45 AM	0	0	2	0	2	4	0	0	0	4	0	5	0	0	5	1	5	5	0	11	22
Total	0	1	11	0	12	11	1	0	1	13	0	9	0	0	9	6	9	16	4	35	69
04:00 PM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	4
04:15 PM	0	0	3	0	3	1	1	0	0	2	0	0	0	0	0	3	3	1	0	7	12
04:30 PM	0	0	1	0	1	0	1	0	0	1	0	3	0	0	3	4	2	1	0	7	12
04:45 PM	0	0	0	0	0	1	0	0	0	1	1	2	0	0	3	3	1	1	0	5	9
Total	0	0	5	0	5	2	2	0	0	4	1	6	0	0	7	12	6	3	0	21	37
05:00 PM	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	1	1	2	0	4	7
05:15 PM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	4	1	0	0	5	7
05:30 PM	1	0	5	0	6	1	0	0	0	1	0	3	1	0	4	1	0	0	0	1	12
05:45 PM	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	6
Total	1	0	12	0	13	2	0	0	0	2	0	3	1	0	4	9	2	2	0	13	32
Grand Total	1	2	44	0	47	21	4	0	1	26	1	18	1	0	20	29	17	24	6	76	169
Apprch %	2.1	4.3	93.6	0		80.8	15.4	0	3.8		5	90	5	0		38.2	22.4	31.6	7.9		
Total %	0.6	1.2	26	0	27.8	12.4	2.4	0	0.6	15.4	0.6	10.7	0.6	0	11.8	17.2	10.1	14.2	3.6	45	
Lights	1	2	43	0	46	20	4	0	1	25	1	18	1	0	20	28	17	21	6	72	163
% Lights	100	100	97.7	0	97.9	95.2	100	0	100	96.2	100	100	100	0	100	96.6	100	87.5	100	94.7	96.4
Buses	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	1	0	2	0	3	5
% Buses	0	0	2.3	0	2.1	4.8	0	0	0	3.8	0	0	0	0	0	3.4	0	8.3	0	3.9	3
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.2	0	1.3	0.6

NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : MAKAMAH_RD_AT_MYSTIC_LN_289567_02-02-2016
Site Code :
Start Date : 2/2/2016
Page No : 2

	Makamah Beach Rd Eastbound					Mystic Ln Westbound					Makamah Rd Southbound					Makamah Rd Northbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	1	3	0	4	4	0	0	0	4	0	0	0	0	0	3	0	2	1	6	14
08:15 AM	0	0	2	0	2	1	1	0	0	2	0	3	0	0	3	0	3	7	3	13	20
08:30 AM	0	0	4	0	4	2	0	0	1	3	0	1	0	0	1	2	1	2	0	5	13
08:45 AM	0	0	2	0	2	4	0	0	0	4	0	5	0	0	5	1	5	5	0	11	22
Total Volume	0	1	11	0	12	11	1	0	1	13	0	9	0	0	9	6	9	16	4	35	69
% App. Total	0	8.3	91.7	0		84.6	7.7	0	7.7		0	100	0	0		17.1	25.7	45.7	11.4		
PHF	.000	.250	.688	.000	.750	.688	.250	.000	.250	.813	.000	.450	.000	.000	.450	.500	.450	.571	.333	.673	.784
Lights	0	1	11	0	12	10	1	0	1	12	0	9	0	0	9	6	9	14	4	33	66
% Lights	0	100	100	0	100	90.9	100	0	100	92.3	0	100	0	0	100	100	100	87.5	100	94.3	95.7
Buses	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	2
% Buses	0	0	0	0	0	9.1	0	0	0	7.7	0	0	0	0	0	0	0	6.3	0	2.9	2.9
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.3	0	2.9	1.4

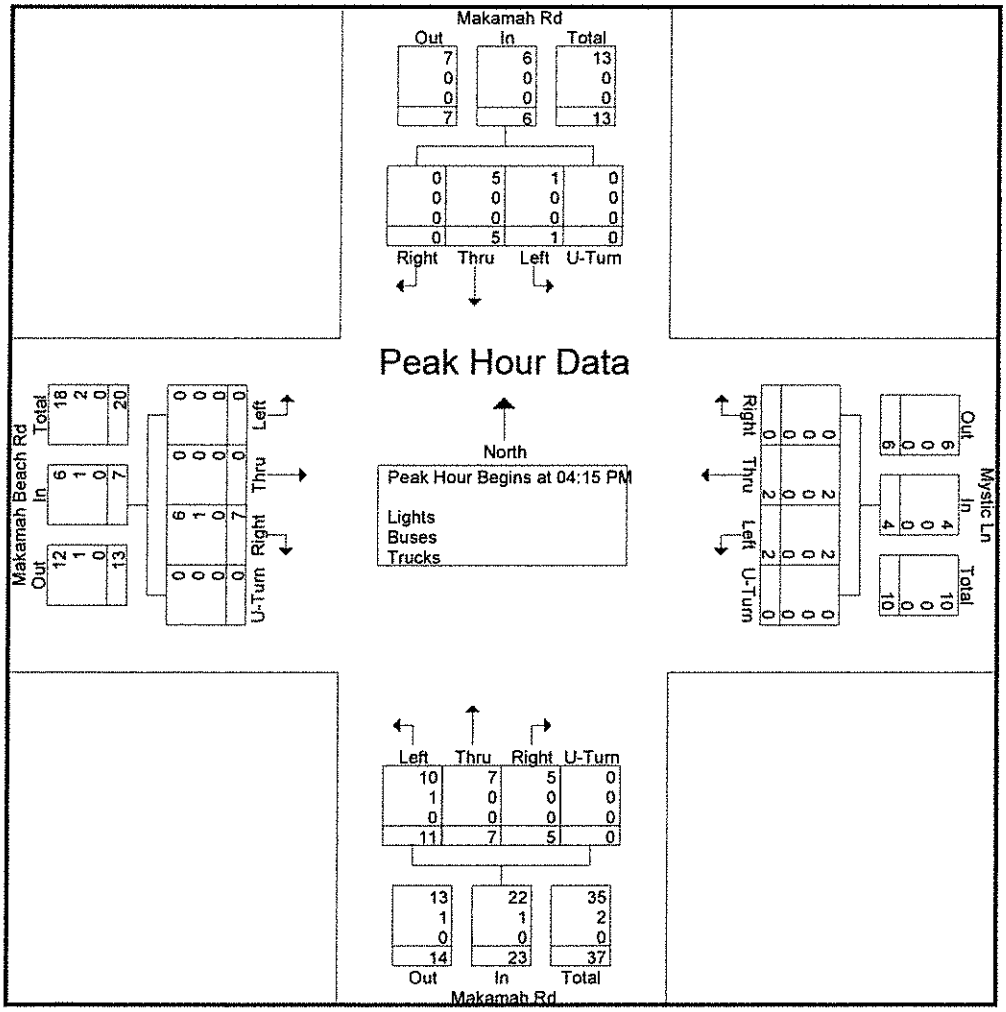


NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : MAKAMAH_RD_AT_MYSTIC_LN_289567_02-02-2016
Site Code :
Start Date : 2/2/2016
Page No : 3

	Makamah Beach Rd Eastbound					Mystic Ln Westbound					Makamah Rd Southbound					Makamah Rd Northbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	0	0	3	0	3	1	1	0	0	2	0	0	0	0	0	3	3	1	0	7	12
04:30 PM	0	0	1	0	1	0	1	0	0	1	0	3	0	0	3	4	2	1	0	7	12
04:45 PM	0	0	0	0	0	1	0	0	0	1	1	2	0	0	3	3	1	1	0	5	9
05:00 PM	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	1	1	2	0	4	7
Total Volume	0	0	7	0	7	2	2	0	0	4	1	5	0	0	6	11	7	5	0	23	40
% App. Total	0	0	100	0		50	50	0	0		16.7	83.3	0	0		47.8	30.4	21.7	0		
PHF	.000	.000	.583	.000	.583	.500	.500	.000	.000	.500	.250	.417	.000	.000	.500	.688	.583	.625	.000	.821	.833
Lights	0	0	6	0	6	2	2	0	0	4	1	5	0	0	6	10	7	5	0	22	38
% Lights	0	0	85.7	0	85.7	100	100	0	0	100	100	100	0	0	100	90.9	100	100	0	95.7	95.0
Buses	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
% Buses	0	0	14.3	0	14.3	0	0	0	0	0	0	0	0	0	0	9.1	0	0	0	4.3	5.0
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : MYSTIC_LN_AT_MAKAMAH_BEACH_RD-01-30-2016
Site Code :
Start Date : 1/30/2016
Page No : 1

Groups Printed- Lights - Buses - Trucks

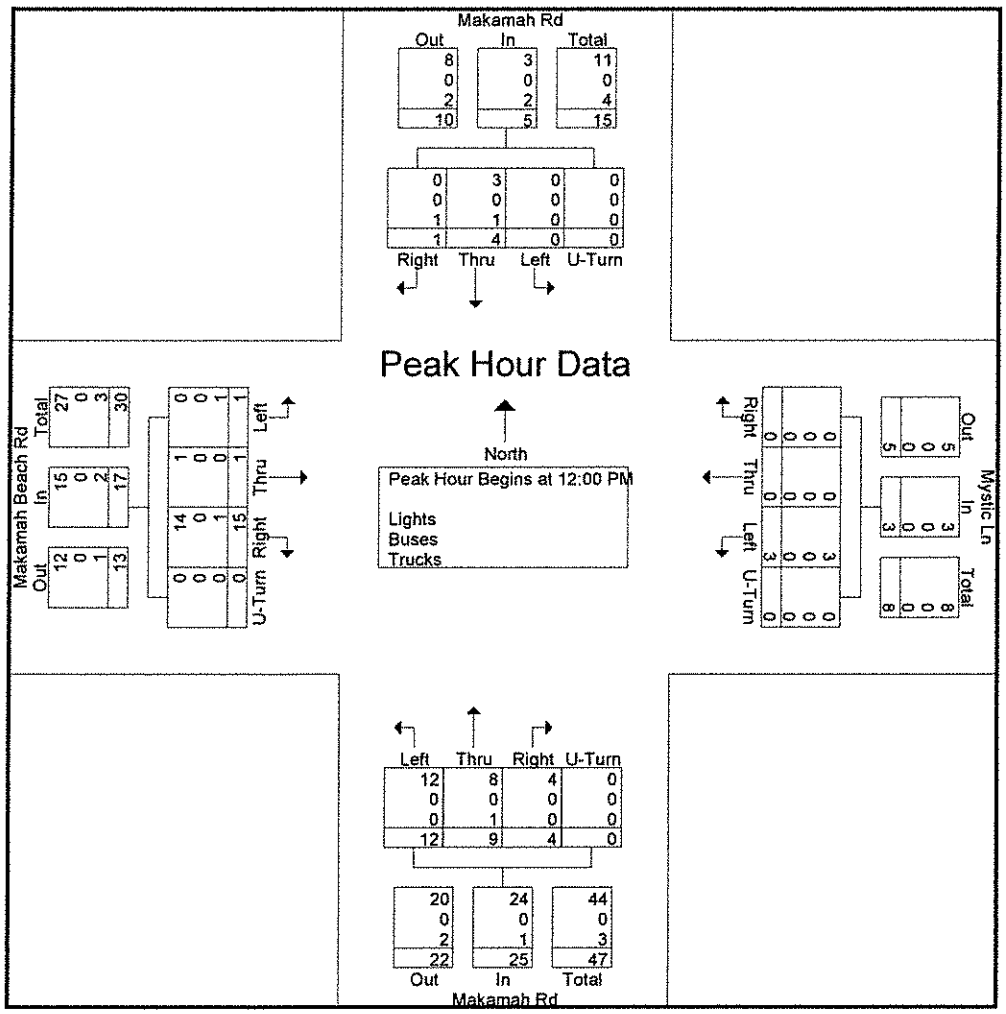
	Makamah Beach Rd Eastbound					Mystic Ln Westbound					Makamah Rd Southbound					Makamah Rd Northbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
11:00 AM	0	0	3	0	3	0	0	0	0	0	0	1	0	0	1	2	0	2	0	4	8
11:15 AM	0	0	8	0	8	0	0	0	0	0	0	1	1	0	2	6	1	0	0	7	17
11:30 AM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	1	1	0	2	4
11:45 AM	0	0	0	0	0	3	0	0	0	3	0	1	0	0	1	2	0	0	0	2	6
Total	0	0	12	0	12	3	0	0	0	3	0	4	1	0	5	10	2	3	0	15	35
12:00 PM	0	0	4	0	4	1	0	0	0	1	0	1	1	0	2	3	1	0	0	4	11
12:15 PM	1	0	7	0	8	0	0	0	0	0	0	1	0	0	1	3	1	2	0	6	15
12:30 PM	0	1	2	0	3	2	0	0	0	2	0	2	0	0	2	2	2	1	0	5	12
12:45 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	4	5	1	0	10	12
Total	1	1	15	0	17	3	0	0	0	3	0	4	1	0	5	12	9	4	0	25	50
01:00 PM	0	0	1	0	1	1	0	0	0	1	0	2	0	0	2	2	0	0	0	2	6
01:15 PM	0	0	1	0	1	2	0	1	0	3	0	5	0	0	5	1	0	0	0	1	10
01:30 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	3	0	1	0	4	6
01:45 PM	0	0	3	0	3	1	0	1	0	2	0	3	0	0	3	1	1	1	1	4	12
Total	0	0	7	0	7	4	0	2	0	6	0	10	0	0	10	7	1	2	1	11	34
Grand Total	1	1	34	0	36	10	0	2	0	12	0	18	2	0	20	29	12	9	1	51	119
Apprch %	2.8	2.8	94.4	0		83.3	0	16.7	0		0	90	10	0		56.9	23.5	17.6	2		
Total %	0.8	0.8	28.6	0	30.3	8.4	0	1.7	0	10.1	0	15.1	1.7	0	16.8	24.4	10.1	7.6	0.8	42.9	
Lights	0	1	33	0	34	10	0	2	0	12	0	17	1	0	18	29	11	9	1	50	114
% Lights	0	100	97.1	0	94.4	100	0	100	0	100	0	94.4	50	0	90	100	91.7	100	100	98	95.8
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	1	0	1	0	2	0	0	0	0	0	0	1	1	0	2	0	1	0	0	1	5
% Trucks	100	0	2.9	0	5.6	0	0	0	0	0	0	5.6	50	0	10	0	8.3	0	0	2	4.2

NELSON & POPE

572 Walt Whitman Road
Melville, NY, 11747

File Name : MYSTIC_LN_AT_MAKAMAH_BEACH_RD-01-30-2016
Site Code :
Start Date : 1/30/2016
Page No : 2

	Makamah Beach Rd Eastbound					Mystic Ln Westbound					Makamah Rd Southbound					Makamah Rd Northbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	0	0	4	0	4	1	0	0	0	1	0	1	1	0	2	3	1	0	0	4	11
12:15 PM	1	0	7	0	8	0	0	0	0	0	0	1	0	0	1	3	1	2	0	6	15
12:30 PM	0	1	2	0	3	2	0	0	0	2	0	2	0	0	2	2	2	1	0	5	12
12:45 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	4	5	1	0	10	12
Total Volume	1	1	15	0	17	3	0	0	0	3	0	4	1	0	5	12	9	4	0	25	50
% App. Total	5.9	5.9	88.2	0		100	0	0	0		0	80	20	0		48	36	16	0		
PHF	.250	.250	.536	.000	.531	.375	.000	.000	.000	.375	.000	.500	.250	.000	.625	.750	.450	.500	.000	.625	.833
Lights	0	1	14	0	15	3	0	0	0	3	0	3	0	0	3	12	8	4	0	24	45
% Lights	0	100	93.3	0	88.2	100	0	0	0	100	0	75.0	0	0	60.0	100	88.9	100	0	96.0	90.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	1	0	1	0	2	0	0	0	0	0	0	1	1	0	2	0	1	0	0	1	5
% Trucks	100	0	6.7	0	11.8	0	0	0	0	0	0	25.0	100	0	40.0	0	11.1	0	0	4.0	10.0



NELSON & POPE

AM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

GROWTH FACTOR: 1.10%
NO. OF YEARS: 2
GROWTH RATE: 1.023

LOCATION	DIR	MVMT	EXISTING VOLUME	SEASONALLY ADJUSTED VOLUMES	AMBIENT NO BUILD VOLUME
	NB	LEFT	0	0	0
NYS ROUTE 25A		THROUGH	0	0	0
AT		RIGHT	0	0	0
MAKAMAH ROAD	SB	LEFT	6	7	8
		THROUGH	0	0	0
1		RIGHT	35	38	39
	EB	LEFT	19	21	22
		THROUGH	601	639	654
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	578	615	630
		RIGHT	5	6	7
	NB	LEFT	51	55	57
NYS ROUTE 25A		THROUGH	14	15	16
AT		RIGHT	24	26	27
FRESH POND ROAD/	SB	LEFT	26	28	29
BREAD AND CHEESE HOLLOW ROAD		THROUGH	14	15	16
2		RIGHT	21	23	24
	EB	LEFT	12	13	14
		THROUGH	560	596	610
		RIGHT	40	43	44
	WB	LEFT	33	36	37
		THROUGH	518	551	564
		RIGHT	6	7	8
	NB	LEFT	0	0	0
		THROUGH	11	12	13
MAKAMAH ROAD		RIGHT	5	6	7
AT	SB	LEFT	17	19	20
BREEZE HILL ROAD		THROUGH	22	24	25
		RIGHT	0	0	0
3	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	7	8	9
		THROUGH	0	0	0
		RIGHT	7	8	9
	NB	LEFT	6	7	8
		THROUGH	9	10	11
MAKAMAH ROAD		RIGHT	16	18	19
AT	SB	LEFT	0	0	0
MAKAMAH BEACH ROAD/		THROUGH	9	10	11
MYSTIC LANE		RIGHT	0	0	0
4	EB	LEFT	0	0	0
		THROUGH	1	2	3
		RIGHT	11	12	13
	WB	LEFT	11	12	13
		THROUGH	1	2	3
		RIGHT	0	0	0

NELSON & POPE

AM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

GROWTH FACTOR: 1.10%
NO. OF YEARS: 2
GROWTH RATE: 1.023

LOCATION	DIR	MVMT	EXISTING VOLUME	SEASONALLY ADJUSTED VOLUMES	AMBIENT NO BUILD VOLUME
	NB	LEFT	5	6	7
		THROUGH	10	11	12
FRESH POND ROAD		RIGHT	2	3	4
AT	SB	LEFT	0	0	0
BREEZE HILL ROAD		THROUGH	22	24	25
		RIGHT	2	3	4
5	EB	LEFT	3	4	5
		THROUGH	9	10	11
		RIGHT	15	16	17
	WB	LEFT	6	7	8
		THROUGH	3	4	5
		RIGHT	0	0	0
	NB	LEFT	0	0	0
		THROUGH	13	14	15
FRESH POND ROAD		RIGHT	0	0	0
AT	SB	LEFT	0	0	0
NORTHEAST SITE ACCESS		THROUGH	24	26	27
		RIGHT	0	0	0
6	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	1	2	3
		THROUGH	0	0	0
BREEZE HILL ROAD		RIGHT	0	0	0
AT	SB	LEFT	0	0	0
INDIAN HILLS CLUBHOUSE DRIVEWAY		THROUGH	0	0	0
		RIGHT	0	0	0
7	EB	LEFT	0	0	0
		THROUGH	19	21	22
		RIGHT	0	0	0
	WB	LEFT	1	2	3
		THROUGH	10	11	12
		RIGHT	0	0	0
	NB	LEFT	0	0	0
		THROUGH	0	0	0
BREEZE HILL ROAD		RIGHT	0	0	0
AT	SB	LEFT	0	0	0
SOUTHWEST SITE ACCESS		THROUGH	0	0	0
		RIGHT	0	0	0
8	EB	LEFT	0	0	0
		THROUGH	22	24	25
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	14	15	16
		RIGHT	0	0	0

NELSON & POPE

AM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

OTHER
PLANNED
PROJECTS

	VOL
ENTER	0
EXIT	0
TOTAL	0

LOCATION	DIR	MVMT	%EN	%EX	NO OTHER PLANNED PROJECTS 1 VOL	SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS SUBTOTAL VOL
NYS ROUTE 25A AT MAKAMAH ROAD 1	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
NYS ROUTE 25A AT FRESH POND ROAD/ BREAD AND CHEESE HOLLOW ROAD 2	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
MAKAMAH ROAD AT BREEZE HILL ROAD 3	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
MAKAMAH ROAD AT MAKAMAH BEACH ROAD/ MYSTIC LANE 4	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0

NELSON & POPE

AM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

OTHER
PLANNED
PROJECTS

	VOL
ENTER	0
EXIT	0
TOTAL	0

NO OTHER PLANNED PROJECTS — SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS

LOCATION	DIR	MVMT	%EN	%EX	1 VOL	SUBTOTAL VOL
FRESH POND ROAD AT BREEZE HILL ROAD 5	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
FRESH POND ROAD AT NORTHEAST SITE ACCESS 6	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
BREEZE HILL ROAD AT INDIAN HILLS CLUBHOUSE DRIVEWAY 7	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
BREEZE HILL ROAD AT SOUTHWEST SITE ACCESS 8	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0

NELSON & POPE

AM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

LOCATION	DIR	MVMT	AMBIENT NO BUILD VOLUME	SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS	SUBTOTAL NO BUILD VOLUME
NYS ROUTE 25A AT MAKAMAH ROAD 1	NB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	SB	LEFT	8	0	8
		THROUGH	0	0	0
		RIGHT	39	0	39
	EB	LEFT	22	0	22
		THROUGH	654	0	654
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	630	0	630
		RIGHT	7	0	7
NYS ROUTE 25A AT FRESH POND ROAD/ BREAD AND CHEESE HOLLOW ROAD 2	NB	LEFT	57	0	57
		THROUGH	16	0	16
		RIGHT	27	0	27
	SB	LEFT	29	0	29
		THROUGH	16	0	16
		RIGHT	24	0	24
	EB	LEFT	14	0	14
		THROUGH	610	0	610
		RIGHT	44	0	44
	WB	LEFT	37	0	37
		THROUGH	564	0	564
		RIGHT	8	0	8
MAKAMAH ROAD AT BREEZE HILL ROAD 3	NB	LEFT	0	0	0
		THROUGH	13	0	13
		RIGHT	7	0	7
	SB	LEFT	20	0	20
		THROUGH	25	0	25
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	9	0	9
		THROUGH	0	0	0
		RIGHT	9	0	9
MAKAMAH ROAD AT MAKAMAH BEACH ROAD/ MYSTIC LANE 4	NB	LEFT	8	0	8
		THROUGH	11	0	11
		RIGHT	19	0	19
	SB	LEFT	0	0	0
		THROUGH	11	0	11
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	3	0	3
		RIGHT	13	0	13
	WB	LEFT	13	0	13
		THROUGH	3	0	3
		RIGHT	0	0	0

NELSON & POPE

AM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

LOCATION	DIR	MVMT	AMBIENT NO BUILD VOLUME	SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS	SUBTOTAL NO BUILD VOLUME
	NB	LEFT	7	0	7
		THROUGH	12	0	12
FRESH POND ROAD		RIGHT	4	0	4
AT	SB	LEFT	0	0	0
BREEZE HILL ROAD		THROUGH	25	0	25
		RIGHT	4	0	4
5	EB	LEFT	5	0	5
		THROUGH	11	0	11
		RIGHT	17	0	17
	WB	LEFT	8	0	8
		THROUGH	5	0	5
		RIGHT	0	0	0
	NB	LEFT	0	0	0
		THROUGH	15	0	15
FRESH POND ROAD		RIGHT	0	0	0
AT	SB	LEFT	0	0	0
NORTHEAST SITE ACCESS		THROUGH	27	0	27
		RIGHT	0	0	0
6	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	3	0	3
		THROUGH	0	0	0
BREEZE HILL ROAD		RIGHT	0	0	0
AT	SB	LEFT	0	0	0
INDIAN HILLS CLUBHOUSE DRIVEWAY		THROUGH	0	0	0
		RIGHT	0	0	0
7	EB	LEFT	0	0	0
		THROUGH	22	0	22
		RIGHT	0	0	0
	WB	LEFT	3	0	3
		THROUGH	12	0	12
		RIGHT	0	0	0
	NB	LEFT	0	0	0
		THROUGH	0	0	0
BREEZE HILL ROAD		RIGHT	0	0	0
AT	SB	LEFT	0	0	0
SOUTHWEST SITE ACCESS		THROUGH	0	0	0
		RIGHT	0	0	0
8	EB	LEFT	0	0	0
		THROUGH	25	0	25
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	16	0	16
		RIGHT	0	0	0

NELSON & POPE

AM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

			PASS-BY% 0%		SENIOR HOUSING 48 UNITS N/W QUAD	PASS-BY% 0%		SENIOR HOUSING 16 UNITS N/E QUAD	PASS-BY% 0%		SENIOR HOUSING 46 UNITS S/W QUAD	SUBTOTAL TRAFFIC GENERATED
					VOL			VOL			VOL	
				ENTER	13		ENTER	12		ENTER	13	
				EXIT	25		EXIT	21		EXIT	25	
				TOTAL	38		TOTAL	33		TOTAL	38	
LOCATION	DIR	MVMT	%EN	%EX	1 VOL	%EN	%EX	1 VOL				SUBTOTAL VOL
NYS ROUTE 25A AT MAKAMAH ROAD 1	NB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	SB	LEFT		70	18			0			0	18
		THROUGH			0			0			0	0
		RIGHT		30	8			0		30	8	16
	EB	LEFT	30		4			0	30		4	8
		THROUGH			0	30		4			0	4
		RIGHT			0			0			0	0
	WB	LEFT			0			0			0	0
		THROUGH			0		30	6			0	6
		RIGHT	70		9			0			0	9
NYS ROUTE 25A AT FRESH POND ROAD/ BREAD AND CHEESE HOLLOW ROAD 2	NB	LEFT	25		3			0			0	3
		THROUGH			0	25		3	25		3	6
		RIGHT			0			0			0	0
	SB	LEFT			0		45	9		45	11	20
		THROUGH			0		25	5		25	6	11
		RIGHT			0		30	6			0	6
	EB	LEFT			0	30		4			0	4
		THROUGH		45	11			0			0	11
		RIGHT		25	6			0			0	6
	WB	LEFT			0			0			0	0
		THROUGH	45		6			0			0	6
		RIGHT			0	45		5	45		6	11
MAKAMAH ROAD AT BREEZE HILL ROAD 3	NB	LEFT			0			0			0	0
		THROUGH	100		13			0			0	13
		RIGHT			0			0	30		4	4
	SB	LEFT			0			0			0	0
		THROUGH		100	25			0			0	25
		RIGHT			0			0			0	0
	EB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	WB	LEFT			0			0		30	8	8
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
MAKAMAH ROAD AT MAKAMAH BEACH ROAD/ MYSTIC LANE 4	NB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT	100		13			0			0	13
	SB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	EB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	WB	LEFT		100	25			0			0	25
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0

NELSON & POPE

AM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

			PASS-BY% 0%		SENIOR HOUSING 48 UNITS N/W QUAD	PASS-BY% 0%		SENIOR HOUSING 16 UNITS N/E QUAD	PASS-BY% 0%		SENIOR HOUSING 46 UNITS S/W QUAD	SUBTOTAL TRAFFIC GENERATED
					VOL			VOL			VOL	
				ENTER	13		ENTER	12		ENTER	13	
				EXIT	25		EXIT	21		EXIT	25	
				TOTAL	38		TOTAL	33		TOTAL	38	
LOCATION	DIR	MVMT	%EN	%EX	1 VOL	%EN	%EX	1 VOL				SUBTOTAL VOL
FRESH POND ROAD AT BREEZE HILL ROAD 5	NB	LEFT			0			0	70		9	9
		THROUGH			0	100		12			0	12
		RIGHT			0			0			0	0
	SB	LEFT			0			0			0	0
		THROUGH			0		100	21			0	21
		RIGHT			0			0			0	0
	EB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0		70	18	18
	WB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
FRESH POND ROAD AT NORTHEAST SITE ACCESS 6	NB	LEFT			0	100		12			0	12
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	SB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	EB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0		100	21			0	21
	WB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
BREEZE HILL ROAD AT INDIAN HILLS CLUBHOUSE DRIVEWAY 7	NB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	SB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	EB	LEFT			0			0			0	0
		THROUGH			0			0		70	18	18
		RIGHT			0			0			0	0
	WB	LEFT			0			0			0	0
		THROUGH			0			0	70		9	9
		RIGHT			0			0			0	0
BREEZE HILL ROAD AT SOUTHWEST SITE ACCESS 8	NB	LEFT			0			0		30	8	8
		THROUGH			0			0			0	0
		RIGHT			0			0		70	18	18
	SB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	EB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0	30		4	4
	WB	LEFT			0			0	70		9	9
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0

NELSON & POPE

AM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

LOCATION	DIR	MVMT	SUBTOTAL NO BUILD VOLUME	TRAFFIC GENERATED BY PROPOSED PROJECT	TOTAL BUILD VOLUME
NYS ROUTE 25A AT MAKAMAH ROAD 1	NB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	SB	LEFT	8	18	26
		THROUGH	0	0	0
		RIGHT	39	16	55
	EB	LEFT	22	8	30
		THROUGH	654	4	658
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	630	6	636
		RIGHT	7	9	16
NYS ROUTE 25A AT FRESH POND ROAD/ BREAD AND CHEESE HOLLOW ROAD 2	NB	LEFT	57	3	60
		THROUGH	16	6	22
		RIGHT	27	0	27
	SB	LEFT	29	20	49
		THROUGH	16	11	27
		RIGHT	24	6	30
	EB	LEFT	14	4	18
		THROUGH	610	11	621
		RIGHT	44	6	50
	WB	LEFT	37	0	37
		THROUGH	564	6	570
		RIGHT	8	11	19
MAKAMAH ROAD AT BREEZE HILL ROAD 3	NB	LEFT	0	0	0
		THROUGH	13	13	26
		RIGHT	7	4	11
	SB	LEFT	20	0	20
		THROUGH	25	25	50
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	9	8	17
		THROUGH	0	0	0
		RIGHT	9	0	9
MAKAMAH ROAD AT MAKAMAH BEACH ROAD/ MYSTIC LANE 4	NB	LEFT	8	0	8
		THROUGH	11	0	11
		RIGHT	19	13	32
	SB	LEFT	0	0	0
		THROUGH	11	0	11
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	3	0	3
		RIGHT	13	0	13
	WB	LEFT	13	25	38
		THROUGH	3	0	3
		RIGHT	0	0	0

NELSON & POPE

AM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

LOCATION	DIR	MVMT	SUBTOTAL NO BUILD VOLUME	TRAFFIC GENERATED BY PROPOSED PROJECT	TOTAL BUILD VOLUME
	NB	LEFT	7	9	16
		THROUGH	12	12	24
FRESH POND ROAD		RIGHT	4	0	4
AT	SB	LEFT	0	0	0
BREEZE HILL ROAD		THROUGH	25	21	46
		RIGHT	4	0	4
5	EB	LEFT	5	0	5
		THROUGH	11	0	11
		RIGHT	17	18	35
	WB	LEFT	8	0	8
		THROUGH	5	0	5
		RIGHT	0	0	0
	NB	LEFT	0	12	12
		THROUGH	15	0	15
FRESH POND ROAD		RIGHT	0	0	0
AT	SB	LEFT	0	0	0
NORTHEAST SITE ACCESS		THROUGH	27	0	27
		RIGHT	0	0	0
6	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	21	21
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	3	0	3
		THROUGH	0	0	0
BREEZE HILL ROAD		RIGHT	0	0	0
AT	SB	LEFT	0	0	0
INDIAN HILLS CLUBHOUSE DRIVEWAY		THROUGH	0	0	0
		RIGHT	0	0	0
7	EB	LEFT	0	0	0
		THROUGH	22	18	40
		RIGHT	0	0	0
	WB	LEFT	3	0	3
		THROUGH	12	9	21
		RIGHT	0	0	0
	NB	LEFT	0	8	8
		THROUGH	0	0	0
BREEZE HILL ROAD		RIGHT	0	18	18
AT	SB	LEFT	0	0	0
SOUTHWEST SITE ACCESS		THROUGH	0	0	0
		RIGHT	0	0	0
8	EB	LEFT	0	0	0
		THROUGH	25	0	25
		RIGHT	0	4	4
	WB	LEFT	0	9	9
		THROUGH	16	0	16
		RIGHT	0	0	0

NELSON & POPE

PM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

GROWTH FACTOR: 1.10%
NO. OF YEARS: 2
GROWTH RATE: 1.023

LOCATION	DIR	MVMT	EXISTING VOLUME	SEASONALLY ADJUSTED VOLUMES	AMBIENT NO BUILD VOLUME
NYS ROUTE 25A AT MAKAMAH ROAD 1	NB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	SB	LEFT	5	6	7
		THROUGH	0	0	0
		RIGHT	18	20	21
	EB	LEFT	35	38	39
		THROUGH	696	740	758
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	622	661	677
		RIGHT	7	8	9
NYS ROUTE 25A AT FRESH POND ROAD/ BREAD AND CHEESE HOLLOW ROAD 2	NB	LEFT	86	92	95
		THROUGH	22	24	25
		RIGHT	28	30	31
	SB	LEFT	19	21	22
		THROUGH	18	20	21
		RIGHT	30	32	33
	EB	LEFT	11	12	13
		THROUGH	596	634	649
		RIGHT	75	80	82
	WB	LEFT	33	36	37
		THROUGH	513	546	559
		RIGHT	17	19	20
MAKAMAH ROAD AT BREEZE HILL ROAD 3	NB	LEFT	0	0	0
		THROUGH	23	25	26
		RIGHT	8	9	10
	SB	LEFT	9	10	11
		THROUGH	12	13	14
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	5	6	7
		THROUGH	0	0	0
		RIGHT	15	16	17
MAKAMAH ROAD AT MAKAMAH BEACH ROAD/ MYSTIC LANE 4	NB	LEFT	11	12	13
		THROUGH	7	8	9
		RIGHT	5	6	7
	SB	LEFT	1	2	3
		THROUGH	5	6	7
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	7	8	9
	WB	LEFT	2	3	4
		THROUGH	2	3	4
		RIGHT	0	0	0

NELSON & POPE

PM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

GROWTH FACTOR: 1.10%
NO. OF YEARS: 2
GROWTH RATE: 1.023

LOCATION	DIR	MVMT	EXISTING VOLUME	SEASONALLY ADJUSTED VOLUMES	AMBIENT NO BUILD VOLUME
	NB	LEFT	22	24	25
		THROUGH	19	21	22
FRESH POND ROAD		RIGHT	6	7	8
AT	SB	LEFT	0	0	0
BREEZE HILL ROAD		THROUGH	17	19	20
		RIGHT	2	3	4
5	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	14	15	16
	WB	LEFT	4	5	6
		THROUGH	1	2	3
		RIGHT	2	3	4
	NB	LEFT	0	0	0
		THROUGH	21	23	24
FRESH POND ROAD		RIGHT	0	0	0
AT	SB	LEFT	0	0	0
NORTHEAST SITE ACCESS		THROUGH	19	21	22
		RIGHT	0	0	0
6	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	0	0	0
		THROUGH	0	0	0
BREEZE HILL ROAD		RIGHT	0	0	0
AT	SB	LEFT	0	0	0
INDIAN HILLS CLUBHOUSE DRIVEWAY		THROUGH	0	0	0
		RIGHT	0	0	0
7	EB	LEFT	0	0	0
		THROUGH	10	11	12
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	20	22	23
		RIGHT	0	0	0
	NB	LEFT	0	0	0
		THROUGH	0	0	0
BREEZE HILL ROAD		RIGHT	0	0	0
AT	SB	LEFT	0	0	0
SOUTHWEST SITE ACCESS		THROUGH	0	0	0
		RIGHT	0	0	0
8	EB	LEFT	0	0	0
		THROUGH	17	19	20
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	20	22	23
		RIGHT	0	0	0

NELSON & POPE

PM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

OTHER
PLANNED
PROJECTS

	VOL
ENTER	0
EXIT	0
TOTAL	0

NO OTHER PLANNED PROJECTS — SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS

LOCATION	DIR	MVMT	%EN	%EX	1 VOL	SUBTOTAL VOL
NYS ROUTE 25A AT MAKAMAH ROAD 1	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
NYS ROUTE 25A AT FRESH POND ROAD/ BREAD AND CHEESE HOLLOW ROAD 2	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
MAKAMAH ROAD AT BREEZE HILL ROAD 3	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
MAKAMAH ROAD AT MAKAMAH BEACH ROAD/ MYSTIC LANE 4	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0

NELSON & POPE

PM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

OTHER
PLANNED
PROJECTS

	NO OTHER PLANNED PROJECTS	SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS
	VOL	
ENTER	0	
EXIT	0	
TOTAL	0	

LOCATION	DIR	MVMT	%EN	%EX	1 VOL	SUBTOTAL VOL
FRESH POND ROAD AT BREEZE HILL ROAD 5	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
FRESH POND ROAD AT NORTHEAST SITE ACCESS 6	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
BREEZE HILL ROAD AT INDIAN HILLS CLUBHOUSE DRIVEWAY 7	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
BREEZE HILL ROAD AT SOUTHWEST SITE ACCESS 8	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0

NELSON & POPE

PM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

LOCATION	DIR	MVMT	AMBIENT NO BUILD VOLUME	SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS	SUBTOTAL NO BUILD VOLUME
NYS ROUTE 25A AT MAKAMAH ROAD 1	NB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	SB	LEFT	7	0	7
		THROUGH	0	0	0
		RIGHT	21	0	21
	EB	LEFT	39	0	39
		THROUGH	758	0	758
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	677	0	677
		RIGHT	9	0	9
NYS ROUTE 25A AT FRESH POND ROAD/ BREAD AND CHEESE HOLLOW ROAD 2	NB	LEFT	95	0	95
		THROUGH	25	0	25
		RIGHT	31	0	31
	SB	LEFT	22	0	22
		THROUGH	21	0	21
		RIGHT	33	0	33
	EB	LEFT	13	0	13
		THROUGH	649	0	649
		RIGHT	82	0	82
	WB	LEFT	37	0	37
		THROUGH	559	0	559
		RIGHT	20	0	20
MAKAMAH ROAD AT BREEZE HILL ROAD 3	NB	LEFT	0	0	0
		THROUGH	26	0	26
		RIGHT	10	0	10
	SB	LEFT	11	0	11
		THROUGH	14	0	14
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	7	0	7
		THROUGH	0	0	0
		RIGHT	17	0	17
MAKAMAH ROAD AT MAKAMAH BEACH ROAD/ MYSTIC LANE 4	NB	LEFT	13	0	13
		THROUGH	9	0	9
		RIGHT	7	0	7
	SB	LEFT	3	0	3
		THROUGH	7	0	7
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	9	0	9
	WB	LEFT	4	0	4
		THROUGH	4	0	4
		RIGHT	0	0	0

NELSON & POPE

PM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

LOCATION	DIR	MVMT	AMBIENT NO BUILD VOLUME	SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS	SUBTOTAL NO BUILD VOLUME
FRESH POND ROAD AT BREEZE HILL ROAD 5	NB	LEFT	25	0	25
		THROUGH	22	0	22
		RIGHT	8	0	8
	SB	LEFT	0	0	0
		THROUGH	20	0	20
		RIGHT	4	0	4
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	16	0	16
	WB	LEFT	6	0	6
		THROUGH	3	0	3
		RIGHT	4	0	4
FRESH POND ROAD AT NORTHEAST SITE ACCESS 6	NB	LEFT	0	0	0
		THROUGH	24	0	24
		RIGHT	0	0	0
	SB	LEFT	0	0	0
		THROUGH	22	0	22
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
BREEZE HILL ROAD AT INDIAN HILLS CLUBHOUSE DRIVEWAY 7	NB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	SB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	12	0	12
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	23	0	23
		RIGHT	0	0	0
BREEZE HILL ROAD AT SOUTHWEST SITE ACCESS 8	NB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	SB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	20	0	20
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	23	0	23
		RIGHT	0	0	0

NELSON & POPE

PM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

PASS-BY% 0%		SENIOR HOUSING 46 UNITS N/W QUAD	PASS-BY% 0%		SENIOR HOUSING 16 UNITS N/E QUAD	PASS-BY% 0%		SENIOR HOUSING 46 UNITS S/W QUAD	SUBTOTAL TRAFFIC GENERATED
		VOL			VOL			VOL	
	ENTER	16		ENTER	7		ENTER	15	
	EXIT	10		EXIT	4		EXIT	10	
	TOTAL	26		TOTAL	11		TOTAL	25	

LOCATION	DIR	MVMT	%EN	%EX	1 VOL	%EN	%EX	1 VOL				SUBTOTAL VOL
NYS ROUTE 25A AT MAKAMAH ROAD 1	NB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	SB	LEFT		70	7			0			0	7
		THROUGH			0			0			0	0
		RIGHT		30	3			0		30	3	6
	EB	LEFT	30		5			0	30		5	10
		THROUGH			0	30		2			0	2
		RIGHT			0			0			0	0
	WB	LEFT			0			0			0	0
		THROUGH			0		30	1			0	1
		RIGHT	70		11			0			0	11
NYS ROUTE 25A AT FRESH POND ROAD/ BREAD AND CHEESE HOLLOW ROAD 2	NB	LEFT	25		4			0			0	4
		THROUGH			0	25		2	25		4	6
		RIGHT			0			0			0	0
	SB	LEFT			0		45	2		45	5	7
		THROUGH			0		25	1		25	3	4
		RIGHT			0		30	1			0	1
	EB	LEFT			0	30		2			0	2
		THROUGH		45	5			0			0	5
		RIGHT		25	3			0			0	3
	WB	LEFT			0			0			0	0
		THROUGH	45		7			0			0	7
		RIGHT			0	45		3	45		7	10
MAKAMAH ROAD AT BREEZE HILL ROAD 3	NB	LEFT			0			0			0	0
		THROUGH	100		16			0			0	16
		RIGHT			0			0	30		5	5
	SB	LEFT			0			0			0	0
		THROUGH		100	10			0			0	10
		RIGHT			0			0			0	0
	EB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	WB	LEFT			0			0		30	3	3
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
MAKAMAH ROAD AT MAKAMAH BEACH ROAD/ MYSTIC LANE 4	NB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT	100		16			0			0	16
	SB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	EB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	WB	LEFT		100	10			0			0	10
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0

NELSON & POPE

PM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

PASS-BY% 0%		SENIOR HOUSING 48 UNITS N/W QUAD	PASS-BY% 0%		SENIOR HOUSING 16 UNITS N/E QUAD	PASS-BY% 0%		SENIOR HOUSING 46 UNITS S/W QUAD	SUBTOTAL TRAFFIC GENERATED
		VOL			VOL			VOL	
	ENTER	16		ENTER	7		ENTER	15	
	EXIT	10		EXIT	4		EXIT	10	
	TOTAL	26		TOTAL	11		TOTAL	25	

LOCATION	DIR	MVMT	%EN	%EX	1 VOL	%EN	%EX	1 VOL				SUBTOTAL VOL
FRESH POND ROAD AT BREEZE HILL ROAD 5	NB	LEFT			0			0	70		11	11
		THROUGH			0	100		7			0	7
		RIGHT			0			0			0	0
	SB	LEFT			0			0			0	0
		THROUGH			0		100	4			0	4
		RIGHT			0			0			0	0
	EB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0		70	7	7
	WB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
FRESH POND ROAD AT NORTHEAST SITE ACCESS 6	NB	LEFT			0	100		7			0	7
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	SB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	EB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0		100	4			0	4
	WB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
BREEZE HILL ROAD AT INDIAN HILLS CLUBHOUSE DRIVEWAY 7	NB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	SB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	EB	LEFT			0			0			0	0
		THROUGH			0			0		70	7	7
		RIGHT			0			0			0	0
	WB	LEFT			0			0			0	0
		THROUGH			0			0	70		11	11
		RIGHT			0			0			0	0
BREEZE HILL ROAD AT SOUTHWEST SITE ACCESS 8	NB	LEFT			0			0		30	3	3
		THROUGH			0			0			0	0
		RIGHT			0			0		70	7	7
	SB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	EB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0	30		5	5
	WB	LEFT			0			0	70		11	11
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0

NELSON & POPE

PM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

LOCATION	DIR	MVMT	SUBTOTAL NO BUILD VOLUME	TRAFFIC GENERATED BY PROPOSED PROJECT	TOTAL BUILD VOLUME
NYS ROUTE 25A AT MAKAMAH ROAD 1	NB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	SB	LEFT	7	7	14
		THROUGH	0	0	0
		RIGHT	21	6	27
	EB	LEFT	39	10	49
		THROUGH	758	2	760
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	677	1	678
		RIGHT	9	11	20
NYS ROUTE 25A AT FRESH POND ROAD/ BREAD AND CHEESE HOLLOW ROAD 2	NB	LEFT	95	4	99
		THROUGH	25	6	31
		RIGHT	31	0	31
	SB	LEFT	22	7	29
		THROUGH	21	4	25
		RIGHT	33	1	34
	EB	LEFT	13	2	15
		THROUGH	649	5	654
		RIGHT	82	3	85
	WB	LEFT	37	0	37
		THROUGH	559	7	566
		RIGHT	20	10	30
MAKAMAH ROAD AT BREEZE HILL ROAD 3	NB	LEFT	0	0	0
		THROUGH	26	16	42
		RIGHT	10	5	15
	SB	LEFT	11	0	11
		THROUGH	14	10	24
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	7	3	10
		THROUGH	0	0	0
		RIGHT	17	0	17
MAKAMAH ROAD AT MAKAMAH BEACH ROAD/ MYSTIC LANE 4	NB	LEFT	13	0	13
		THROUGH	9	0	9
		RIGHT	7	16	23
	SB	LEFT	3	0	3
		THROUGH	7	0	7
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	9	0	9
	WB	LEFT	4	10	14
		THROUGH	4	0	4
		RIGHT	0	0	0

NELSON & POPE

PM PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

LOCATION	DIR	MVMT	SUBTOTAL NO BUILD VOLUME	TRAFFIC GENERATED BY PROPOSED PROJECT	TOTAL BUILD VOLUME
	NB	LEFT	25	11	36
		THROUGH	22	7	29
FRESH POND ROAD		RIGHT	8	0	8
AT	SB	LEFT	0	0	0
BREEZE HILL ROAD		THROUGH	20	4	24
		RIGHT	4	0	4
5	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	16	7	23
	WB	LEFT	6	0	6
		THROUGH	3	0	3
		RIGHT	4	0	4
	NB	LEFT	0	7	7
		THROUGH	24	0	24
FRESH POND ROAD		RIGHT	0	0	0
AT	SB	LEFT	0	0	0
NORTHEAST SITE ACCESS		THROUGH	22	0	22
		RIGHT	0	0	0
6	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	4	4
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	0	0	0
		THROUGH	0	0	0
BREEZE HILL ROAD		RIGHT	0	0	0
AT	SB	LEFT	0	0	0
INDIAN HILLS CLUBHOUSE DRIVEWAY		THROUGH	0	0	0
		RIGHT	0	0	0
7	EB	LEFT	0	0	0
		THROUGH	12	7	19
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	23	11	34
		RIGHT	0	0	0
	NB	LEFT	0	3	3
		THROUGH	0	0	0
BREEZE HILL ROAD		RIGHT	0	7	7
AT	SB	LEFT	0	0	0
SOUTHWEST SITE ACCESS		THROUGH	0	0	0
		RIGHT	0	0	0
8	EB	LEFT	0	0	0
		THROUGH	20	0	20
		RIGHT	0	5	5
	WB	LEFT	0	11	11
		THROUGH	23	0	23
		RIGHT	0	0	0

NELSON & POPE

SATURDAY PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

GROWTH FACTOR: 1.10%
NO. OF YEARS: 2
GROWTH RATE: 1.023

LOCATION	DIR	MVMT	EXISTING VOLUME	SEASONALLY ADJUSTED VOLUMES	AMBIENT NO BUILD VOLUME
	NB	LEFT	0	0	0
NYS ROUTE 25A		THROUGH	0	0	0
AT		RIGHT	0	0	0
MAKAMAH ROAD	SB	LEFT	11	14	15
		THROUGH	0	0	0
1		RIGHT	38	48	50
	EB	LEFT	31	39	40
		THROUGH	578	727	744
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	551	693	709
		RIGHT	7	9	10
	NB	LEFT	102	129	132
NYS ROUTE 25A		THROUGH	22	28	29
AT		RIGHT	30	38	39
FRESH POND ROAD/	SB	LEFT	19	24	25
BREAD AND CHEESE HOLLOW ROAD		THROUGH	20	26	27
2		RIGHT	30	38	39
	EB	LEFT	18	23	24
		THROUGH	471	592	606
		RIGHT	89	112	115
	WB	LEFT	33	42	43
		THROUGH	426	536	549
		RIGHT	10	13	14
	NB	LEFT	0	0	0
		THROUGH	19	24	25
MAKAMAH ROAD		RIGHT	11	14	15
AT	SB	LEFT	14	18	19
BREEZE HILL ROAD		THROUGH	25	32	33
		RIGHT	0	0	0
3	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	11	14	15
		THROUGH	0	0	0
		RIGHT	18	23	24
	NB	LEFT	12	16	17
		THROUGH	9	12	13
MAKAMAH ROAD		RIGHT	4	6	7
AT	SB	LEFT	0	0	0
MAKAMAH BEACH ROAD/		THROUGH	4	6	7
MYSTIC LANE		RIGHT	1	2	3
4	EB	LEFT	1	2	3
		THROUGH	1	2	3
		RIGHT	15	19	20
	WB	LEFT	3	4	5
		THROUGH	0	0	0
		RIGHT	0	0	0

NELSON & POPE

SATURDAY PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

GROWTH FACTOR: 1.10%
NO. OF YEARS: 2
GROWTH RATE: 1.023

LOCATION	DIR	MVMT	EXISTING VOLUME	SEASONALLY ADJUSTED VOLUMES	AMBIENT NO BUILD VOLUME
	NB	LEFT	23	29	30
		THROUGH	22	28	29
FRESH POND ROAD		RIGHT	9	12	13
AT	SB	LEFT	2	3	4
BREEZE HILL ROAD		THROUGH	19	24	25
		RIGHT	1	2	3
5	EB	LEFT	2	3	4
		THROUGH	2	3	4
		RIGHT	17	22	23
	WB	LEFT	7	9	10
		THROUGH	3	4	5
		RIGHT	3	4	5
	NB	LEFT	8	11	12
		THROUGH	15	19	20
FRESH POND ROAD		RIGHT	0	0	0
AT	SB	LEFT	0	0	0
NORTHEAST SITE ACCESS		THROUGH	13	17	18
		RIGHT	0	0	0
6	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	6	8	9
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	1	2	3
		THROUGH	0	0	0
BREEZE HILL ROAD		RIGHT	1	2	3
AT	SB	LEFT	0	0	0
INDIAN HILLS CLUBHOUSE DRIVEWAY		THROUGH	0	0	0
		RIGHT	0	0	0
7	EB	LEFT	0	0	0
		THROUGH	21	27	28
		RIGHT	0	0	0
	WB	LEFT	1	2	3
		THROUGH	23	29	30
		RIGHT	0	0	0
	NB	LEFT	0	0	0
		THROUGH	0	0	0
BREEZE HILL ROAD		RIGHT	0	0	0
AT	SB	LEFT	0	0	0
SOUTHWEST SITE ACCESS		THROUGH	0	0	0
		RIGHT	0	0	0
8	EB	LEFT	0	0	0
		THROUGH	25	32	33
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	29	37	38
		RIGHT	0	0	0

NELSON & POPE

SATURDAY PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

OTHER
PLANNED
PROJECTS

	NO OTHER PLANNED PROJECTS VOL	SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS
ENTER	0	
EXIT	0	
TOTAL	0	

LOCATION	DIR	MVMT	%EN	%EX	1 VOL	SUBTOTAL VOL
NYS ROUTE 25A AT MAKAMAH ROAD 1	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
NYS ROUTE 25A AT FRESH POND ROAD/ BREAD AND CHEESE HOLLOW ROAD 2	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
MAKAMAH ROAD AT BREEZE HILL ROAD 3	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
MAKAMAH ROAD AT MAKAMAH BEACH ROAD/ MYSTIC LANE 4	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0

NELSON & POPE

SATURDAY PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

OTHER
PLANNED
PROJECTS

	NO OTHER PLANNED PROJECTS VOL
ENTER	0
EXIT	0
TOTAL	0

SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS

LOCATION	DIR	MVMT	%EN	%EX	1 VOL	SUBTOTAL VOL
FRESH POND ROAD AT BREEZE HILL ROAD 5	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
FRESH POND ROAD AT NORTHEAST SITE ACCESS 6	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
BREEZE HILL ROAD AT INDIAN HILLS CLUBHOUSE DRIVEWAY 7	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
BREEZE HILL ROAD AT SOUTHWEST SITE ACCESS 8	NB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	SB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	EB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0
	WB	LEFT			0	0
		THROUGH			0	0
		RIGHT			0	0

NELSON & POPE

SATURDAY PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

LOCATION	DIR	MVMT	AMBIENT NO BUILD VOLUME	SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS	SUBTOTAL NO BUILD VOLUME
NYS ROUTE 25A AT MAKAMAH ROAD 1	NB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	SB	LEFT	15	0	15
		THROUGH	0	0	0
		RIGHT	50	0	50
	EB	LEFT	40	0	40
		THROUGH	744	0	744
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	709	0	709
		RIGHT	10	0	10
NYS ROUTE 25A AT FRESH POND ROAD/ BREAD AND CHEESE HOLLOW ROAD 2	NB	LEFT	132	0	132
		THROUGH	29	0	29
		RIGHT	39	0	39
	SB	LEFT	25	0	25
		THROUGH	27	0	27
		RIGHT	39	0	39
	EB	LEFT	24	0	24
		THROUGH	606	0	606
		RIGHT	115	0	115
	WB	LEFT	43	0	43
		THROUGH	549	0	549
		RIGHT	14	0	14
MAKAMAH ROAD AT BREEZE HILL ROAD 3	NB	LEFT	0	0	0
		THROUGH	25	0	25
		RIGHT	15	0	15
	SB	LEFT	19	0	19
		THROUGH	33	0	33
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	15	0	15
		THROUGH	0	0	0
		RIGHT	24	0	24
MAKAMAH ROAD AT MAKAMAH BEACH ROAD/ MYSTIC LANE 4	NB	LEFT	17	0	17
		THROUGH	13	0	13
		RIGHT	7	0	7
	SB	LEFT	0	0	0
		THROUGH	7	0	7
		RIGHT	3	0	3
	EB	LEFT	3	0	3
		THROUGH	3	0	3
		RIGHT	20	0	20
	WB	LEFT	5	0	5
		THROUGH	0	0	0
		RIGHT	0	0	0

NELSON & POPE

SATURDAY PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

LOCATION	DIR	MVMT	AMBIENT NO BUILD VOLUME	SUBTOTAL TRAFFIC GENERATED BY OTHER PROJECTS	SUBTOTAL NO BUILD VOLUME
	NB	LEFT	30	0	30
		THROUGH	29	0	29
FRESH POND ROAD		RIGHT	13	0	13
AT	SB	LEFT	4	0	4
BREEZE HILL ROAD		THROUGH	25	0	25
		RIGHT	3	0	3
5	EB	LEFT	4	0	4
		THROUGH	4	0	4
		RIGHT	23	0	23
	WB	LEFT	10	0	10
		THROUGH	5	0	5
		RIGHT	5	0	5
	NB	LEFT	12	0	12
		THROUGH	20	0	20
FRESH POND ROAD		RIGHT	0	0	0
AT	SB	LEFT	0	0	0
NORTHEAST SITE ACCESS		THROUGH	18	0	18
		RIGHT	0	0	0
6	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	9	0	9
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	3	0	3
		THROUGH	0	0	0
BREEZE HILL ROAD		RIGHT	3	0	3
AT	SB	LEFT	0	0	0
INDIAN HILLS CLUBHOUSE DRIVEWAY		THROUGH	0	0	0
		RIGHT	0	0	0
7	EB	LEFT	0	0	0
		THROUGH	28	0	28
		RIGHT	0	0	0
	WB	LEFT	3	0	3
		THROUGH	30	0	30
		RIGHT	0	0	0
	NB	LEFT	0	0	0
		THROUGH	0	0	0
BREEZE HILL ROAD		RIGHT	0	0	0
AT	SB	LEFT	0	0	0
SOUTHWEST SITE ACCESS		THROUGH	0	0	0
		RIGHT	0	0	0
8	EB	LEFT	0	0	0
		THROUGH	33	0	33
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	38	0	38
		RIGHT	0	0	0

NELSON & POPE

SATURDAY PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

PASS-BY% 0%		SENIOR HOUSING 48 UNITS N/W QUAD	PASS-BY% 0%		SENIOR HOUSING 16 UNITS N/E QUAD	PASS-BY% 0%		SENIOR HOUSING 44 UNITS S/W QUAD	SUBTOTAL TRAFFIC GENERATED
		VOL			VOL			VOL	
	ENTER	13		ENTER	5		ENTER	12	
	EXIT	13		EXIT	6		EXIT	13	
	TOTAL	26		TOTAL	11		TOTAL	25	

LOCATION	DIR	MVMT	%EN	%EX	1 VOL	%EN	%EX	1 VOL				SUBTOTAL VOL
NYS ROUTE 25A AT MAKAMAH ROAD 1	NB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	SB	LEFT		70	9			0			0	9
		THROUGH			0			0			0	0
		RIGHT		30	4			0		30	4	8
	EB	LEFT	30		4			0	30		4	8
		THROUGH			0	30		2			0	2
		RIGHT			0			0			0	0
	WB	LEFT			0			0			0	0
		THROUGH			0		30	2			0	2
		RIGHT	70		9			0			0	9
NYS ROUTE 25A AT FRESH POND ROAD/ BREAD AND CHEESE HOLLOW ROAD 2	NB	LEFT	25		3			0			0	3
		THROUGH			0	25		1	25		3	4
		RIGHT			0			0			0	0
	SB	LEFT			0		45	3		45	6	9
		THROUGH			0		25	2		25	3	5
		RIGHT			0		30	2			0	2
	EB	LEFT			0	30		2			0	2
		THROUGH		45	6			0			0	6
		RIGHT		25	3			0			0	3
	WB	LEFT			0			0			0	0
		THROUGH	45		6			0			0	6
		RIGHT			0	45		2	45		5	7
MAKAMAH ROAD AT BREEZE HILL ROAD 3	NB	LEFT			0			0			0	0
		THROUGH	100		13			0			0	13
		RIGHT			0			0	30		4	4
	SB	LEFT			0			0			0	0
		THROUGH		100	13			0			0	13
		RIGHT			0			0			0	0
	EB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	WB	LEFT			0			0		30	4	4
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
MAKAMAH ROAD AT MAKAMAH BEACH ROAD/ MYSTIC LANE 4	NB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT	100		13			0			0	13
	SB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	EB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	WB	LEFT		100	13			0			0	13
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0

NELSON & POPE

SATURDAY PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

PASS-BY% 0%	SENIOR HOUSING 48 UNITS N/W QUAD	PASS-BY% 0%	SENIOR HOUSING 16 UNITS N/E QUAD	PASS-BY% 0%	SENIOR HOUSING 44 UNITS S/W QUAD	SUBTOTAL TRAFFIC GENERATED
	VOL		VOL		VOL	
ENTER	13	ENTER	5	ENTER	12	
EXIT	13	EXIT	6	EXIT	13	
TOTAL	26	TOTAL	11	TOTAL	25	

LOCATION	DIR	MVMT	%EN	%EX	1 VOL	%EN	%EX	1 VOL				SUBTOTAL VOL
FRESH POND ROAD AT BREEZE HILL ROAD 5	NB	LEFT			0			0	70		8	8
		THROUGH			0	100		5			0	5
		RIGHT			0			0			0	0
	SB	LEFT			0			0			0	0
		THROUGH			0		100	6			0	6
		RIGHT			0			0			0	0
	EB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0		70	9	9
	WB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
FRESH POND ROAD AT NORTHEAST SITE ACCESS 6	NB	LEFT			0	100		5			0	5
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	SB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	EB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0		100	6			0	6
	WB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
BREEZE HILL ROAD AT INDIAN HILLS CLUBHOUSE DRIVEWAY 7	NB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	SB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	EB	LEFT			0			0			0	0
		THROUGH			0			0		70	9	9
		RIGHT			0			0			0	0
	WB	LEFT			0			0			0	0
		THROUGH			0			0	70		8	8
		RIGHT			0			0			0	0
BREEZE HILL ROAD AT SOUTHWEST SITE ACCESS 8	NB	LEFT			0			0		30	4	4
		THROUGH			0			0			0	0
		RIGHT			0			0		70	9	9
	SB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0
	EB	LEFT			0			0			0	0
		THROUGH			0			0			0	0
		RIGHT			0			0	30		4	4
	WB	LEFT			0			0	70		8	8
		THROUGH			0			0			0	0
		RIGHT			0			0			0	0

NELSON & POPE

SATURDAY PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

LOCATION	DIR	MVMT	SUBTOTAL NO BUILD VOLUME	TRAFFIC GENERATED BY PROPOSED PROJECT	TOTAL BUILD VOLUME
NYS ROUTE 25A AT MAKAMAH ROAD 1	NB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	SB	LEFT	15	9	24
		THROUGH	0	0	0
		RIGHT	50	8	58
	EB	LEFT	40	8	48
		THROUGH	744	2	746
		RIGHT	0	0	0
	WB	LEFT	0	0	0
		THROUGH	709	2	711
		RIGHT	10	9	19
NYS ROUTE 25A AT FRESH POND ROAD/ BREAD AND CHEESE HOLLOW ROAD 2	NB	LEFT	132	3	135
		THROUGH	29	4	33
		RIGHT	39	0	39
	SB	LEFT	25	9	34
		THROUGH	27	5	32
		RIGHT	39	2	41
	EB	LEFT	24	2	26
		THROUGH	606	6	612
		RIGHT	115	3	118
	WB	LEFT	43	0	43
		THROUGH	549	6	555
		RIGHT	14	7	21
MAKAMAH ROAD AT BREEZE HILL ROAD 3	NB	LEFT	0	0	0
		THROUGH	25	13	38
		RIGHT	15	4	19
	SB	LEFT	19	0	19
		THROUGH	33	13	46
		RIGHT	0	0	0
	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	WB	LEFT	15	4	19
		THROUGH	0	0	0
		RIGHT	24	0	24
MAKAMAH ROAD AT MAKAMAH BEACH ROAD/ MYSTIC LANE 4	NB	LEFT	17	0	17
		THROUGH	13	0	13
		RIGHT	7	13	20
	SB	LEFT	0	0	0
		THROUGH	7	0	7
		RIGHT	3	0	3
	EB	LEFT	3	0	3
		THROUGH	3	0	3
		RIGHT	20	0	20
	WB	LEFT	5	13	18
		THROUGH	0	0	0
		RIGHT	0	0	0

NELSON & POPE

SATURDAY PEAK HOUR
Project Name: Indian Hills
N&P Project No. 86047

LOCATION	DIR	MVMT	SUBTOTAL NO BUILD VOLUME	TRAFFIC GENERATED BY PROPOSED PROJECT	TOTAL BUILD VOLUME
	NB	LEFT	30	8	38
		THROUGH	29	5	34
FRESH POND ROAD		RIGHT	13	0	13
AT	SB	LEFT	4	0	4
BREEZE HILL ROAD		THROUGH	25	6	31
		RIGHT	3	0	3
5	EB	LEFT	4	0	4
		THROUGH	4	0	4
		RIGHT	23	9	32
	WB	LEFT	10	0	10
		THROUGH	5	0	5
		RIGHT	5	0	5
	NB	LEFT	12	5	17
		THROUGH	20	0	20
FRESH POND ROAD		RIGHT	0	0	0
AT	SB	LEFT	0	0	0
NORTHEAST SITE ACCESS		THROUGH	18	0	18
		RIGHT	0	0	0
6	EB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	9	6	15
	WB	LEFT	0	0	0
		THROUGH	0	0	0
		RIGHT	0	0	0
	NB	LEFT	3	0	3
		THROUGH	0	0	0
BREEZE HILL ROAD		RIGHT	3	0	3
AT	SB	LEFT	0	0	0
INDIAN HILLS CLUBHOUSE DRIVEWAY		THROUGH	0	0	0
		RIGHT	0	0	0
7	EB	LEFT	0	0	0
		THROUGH	28	9	37
		RIGHT	0	0	0
	WB	LEFT	3	0	3
		THROUGH	30	8	38
		RIGHT	0	0	0
	NB	LEFT	0	4	4
		THROUGH	0	0	0
BREEZE HILL ROAD		RIGHT	0	9	9
AT	SB	LEFT	0	0	0
SOUTHWEST SITE ACCESS		THROUGH	0	0	0
		RIGHT	0	0	0
8	EB	LEFT	0	0	0
		THROUGH	33	0	33
		RIGHT	0	4	4
	WB	LEFT	0	8	8
		THROUGH	38	0	38
		RIGHT	0	0	0

Appendix B: Accident Data

Accident Location Information System(ALIS)

Date: 1/20/201
11:05:58 AM

Accident Verbal Description

12540_VDR_Fort_Salonga_intersections

Date in this report covers the period - 9/1/2012-8/31/2015

Complete Accident data from NYSDMV is only available thru 8/31/2015 12:00:00 AM

County: Suffolk Muni: Huntington(T) Ref. Marker: 25A07031106 Street: FRESH POND RD
AT INTERSECTION WITH FORT SALONGA RD

10/3/2012 Wed 20:40 PM Persons Killed: 0 Persons Injured: 1 Extent of Injuries: C **Case: 2012-34738009**
Accident Class: INJURY Police Agency: SUFFOLK CO PD YAPHANK Num of Veh: 1
Type Of Accident: COLLISION WITH TREE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: OTHER Weather: RAIN
Road Surface Condition: WET Road Char.: CURVE AND GRADE Light Condition: DARK-ROAD LIGHTED
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 2952 State of Registration: NY
Num of Occupants: 1 Driver's Age: 68 Sex: F Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: PAVEMENT SLIPPERY, NOT ENTERED

County: Suffolk Muni: Huntington(T) Ref. Marker: Street: BREAD AND CHEESE HOLLOW RD
AT INTERSECTION WITH Fort Salonga Rd

2/26/2013 Tue 09:30 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2013-34949530**
Accident Class: PROPERTY DAMAGE Police Agency: SUFFOLK CO PD YAPHANK Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: REAR END Weather: RAIN
Road Surface Condition: WET Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3640 State of Registration: NY
Num of Occupants: 1 Driver's Age: 58 Sex: F Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: SLOWED OR STOPPING
Apparent Factors: DRIVER INATTENTION, FOLLOWING TOO CLOSELY

Veh :1 CAR/VAN/PICKUP Registered Weight: 4470 State of Registration: NY
Num of Occupants: 1 Driver's Age: 55 Sex: M Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Suffolk Muni: Huntington(T) Ref. Marker: 25A07031099 Street: FORT SALONGA RD
AT INTERSECTION WITH MAKAMAH RD

4/2/2013 Tue 15:05 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2013-34991695**
Accident Class: PROPERTY DAMAGE Police Agency: SUFFOLK CO PD YAPHANK Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: NONE
Manner of Collision: REAR END Weather: CLEAR
Road Surface Condition: DRY Road Char.: CURVE AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3354 State of Registration: NY
Num of Occupants: 1 Driver's Age: 46 Sex: M Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: DRIVER INATTENTION, NOT ENTERED

Veh :1 CAR/VAN/PICKUP Registered Weight: 4274 State of Registration: NY
Num of Occupants: 1 Driver's Age: 84 Sex: M Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT ENTERED, NOT ENTERED

County: Suffolk Muni: Huntington(T) Ref. Marker: 25A07031106 Street: FORT SALONGA RD
AT INTERSECTION WITH BREAD AND CHEESE HOLLOW RD

12/21/2013 Sat 14:45 PM Persons Killed: 0 Persons Injured: 1 Extent of Injuries: C **Case: 2013-35256078**
Accident Class: INJURY Police Agency: SUFFOLK CO PD YAPHANK Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: REAR END Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3215 State of Registration: NY
Num of Occupants: 1 Driver's Age: 36 Sex: M Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :2 MOTORCYCLE Registered Weight: 710 State of Registration: NY
Num of Occupants: 1 Driver's Age: 40 Sex: M Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: DRIVER INATTENTION, NOT APPLICABLE

County: Suffolk Muni: Huntington(T) Ref. Marker: 25A07031106 Street: [Route] 25A

1/15/2014 Wed 06:53 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2014-35278410**
Accident Class: PROPERTY DAMAGE Police Agency: SUFFOLK CO PD YAPHANK Num of Veh: 1

Type Of Accident: COLLISION WITH TREE
Traffic Control: TRAFFIC SIGNAL
Manner of Collision: OTHER
Weather: FOG/SMOG/SMOKE
Road Surface Condition: SNOW/ICE
Road Char.: CURVE AND GRADE
Light Condition: DAWN
Loc. of Ped/Bicycle: NOT APPLICABLE
Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 2593 State of Registration: NY
Num of Occupants: 3 Driver's Age: 32 Sex: M Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: SLOWED OR STOPPING
Apparent Factors: PAVEMENT SLIPPERY, REACTION TO OTHER UNINVOLVED VEHICL

County: Suffolk Muni: Huntington(T) Ref. Marker: 25A07031106 Street: FORT SALONGA RD
AT INTERSECTION WITH BREAD AND CHEESE HOLLOW RD

7/30/2014 Wed 17:30 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2014-35540652**
Accident Class: PROPERTY DAMAGE Police Agency: SUFFOLK CO PD YAPHANK Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE
Traffic Control: NONE
Manner of Collision: UNKNOWN
Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE
Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3883 State of Registration: NY
Num of Occupants: 1 Driver's Age: Sex: Citation Issued:
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: PARKED
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 5683 State of Registration: NY
Num of Occupants: 1 Driver's Age: 50 Sex: F Citation Issued: N
Direction of Travel: SOUTH-EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STARTING FROM PARKING
Apparent Factors: NOT APPLICABLE, DRIVER INATTENTION

County: Suffolk Muni: Huntington(T) Ref. Marker: Street: FRESH POND RD
AT INTERSECTION WITH BREEZE HILL RD

2/21/2015 Sat 09:45 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2015-35655278**
Accident Class: PROPERTY DAMAGE Police Agency: SUFFOLK CO PD YAPHANK Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE
Traffic Control: STOP SIGN
Manner of Collision: RIGHT ANGLE
Weather: CLOUDY
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE
Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 TRUCK Registered Weight: 17500 State of Registration: NY
Num of Occupants: 1 Driver's Age: 22 Sex: M Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD

Apparent Factors: NOT ENTERED, NOT ENTERED

Veh :2 CAR/VAN/PICKUP Registered Weight: 3986 State of Registration: NY
Num of Occupants: 1 Driver's Age: 23 Sex: M Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: TRAFFIC CONTROL DEVICES DISREGARDED, FAILURE TO YIELD RIGHT OF WAY

County: Suffolk Muni: Huntington(T) Ref. Marker: 25A07031106 Street: [Route] 25A
6/22/2015 Mon 15:37 PM Persons Killed: 0 Persons Injured: 2 Extent of Injuries: AB **Case: 2015-35806105**
Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: SUFFOLK CO PD YAPHANK Num of Veh: 3
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: OTHER Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3175 State of Registration: NY
Num of Occupants: 1 Driver's Age: 50 Sex: F Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT ENTERED, NOT ENTERED

Veh :2 CAR/VAN/PICKUP Registered Weight: 3076 State of Registration: NY
Num of Occupants: 1 Driver's Age: 25 Sex: F Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT ENTERED, NOT ENTERED

Veh :3 CAR/VAN/PICKUP Registered Weight: 3060 State of Registration: NY
Num of Occupants: 1 Driver's Age: 78 Sex: F Citation Issued: N
Direction of Travel: SOUTH-WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: FAILURE TO YIELD RIGHT OF WAY, NOT ENTERED

County: Suffolk Muni: Huntington(T) Ref. Marker: 25A07031106 Street: FORT SALONGA RD
AT INTERSECTION WITH BREAD AND CHEESE HOLLOW RD
8/11/2015 Tue 07:40 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2015-35857026**
Accident Class: PROPERTY DAMAGE Police Agency: SUFFOLK CO PD YAPHANK Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: LEFT TURN (AGAINST OTHER CAR) Weather: RAIN
Road Surface Condition: WET Road Char.: STRAIGHT AT HILLCREST Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 2701 State of Registration: NY

Num of Occupants: 1 Driver's Age: 41 Sex: F Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: PAVEMENT SLIPPERY, NOT ENTERED

Veh :2 CAR/VAN/PICKUP Registered Weight: 11300 State of Registration: NY
Num of Occupants: 2 Driver's Age: 72 Sex: M Citation Issued: N
Direction of Travel: SOUTH-WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: PAVEMENT SLIPPERY, FAILURE TO YIELD RIGHT OF WAY

County: Suffolk Muni: Huntington(T) Ref. Marker: 25A07031106 Street: ROUTE 25A
5/14/2015 Thu 15:45 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2015-35930943**
Accident Class: PROPERTY DAMAGE Police Agency: SUFFOLK CO PD YAPHANK Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: UNKNOWN Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 4231 State of Registration: NY
Num of Occupants: 1 Driver's Age: 38 Sex: M Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: NOT APPLICABLE, FAILURE TO YIELD RIGHT OF WAY

Veh :1 CAR/VAN/PICKUP Registered Weight: 3995 State of Registration: NY
Num of Occupants: 1 Driver's Age: 16 Sex: F Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: UNKNOWN, NOT APPLICABLE

County: Suffolk Muni: Huntington(T) Ref. Marker: Street: BREAD AND CHEESE HOLLOW RD
AT INTERSECTION WITH Fort Salonga Rd
8/10/2015 Mon 17:50 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2015-35958281**
Accident Class: PROPERTY DAMAGE Police Agency: SUFFOLK CO PD YAPHANK Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: STOP SIGN
Manner of Collision: REAR END Weather: CLOUDY
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3119 State of Registration: NY
Num of Occupants: 1 Driver's Age: 27 Sex: M Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD

Apparent Factors: FOLLOWING TOO CLOSELY, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3316 State of Registration: NY
Num of Occupants: 1 Driver's Age: 32 Sex: F Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Suffolk Muni: Huntington(T) Ref. Marker: 25A07031106 Street: ROUTE 25A
8/15/2015 Sat 20:45 PM Persons Killed: 0 Persons Injured: 1 Extent of Injuries: C **Case: 2015-36039572**
Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: SUFFOLK CO PD YAPHANK Num of Veh: 1
Type Of Accident: COLLISION WITH DEER Traffic Control: NONE
Manner of Collision: OTHER Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DARK-ROAD LIGHTED
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3337 State of Registration: NY
Num of Occupants: 1 Driver's Age: 24 Sex: F Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: UNKNOWN, NOT ENTERED

Accident Location Information System(ALIS)

Date: 1/20/201
11:31:40 AM

Accident Verbal Description

12540_VDR_Breeze_ Hill_Rd

Date in this report covers the period - 9/1/2012-8/31/2015

Complete Accident data from NYSDMV is only available thru 8/31/2015 12:00:00 AM

County: Suffolk Muni: Huntington(T) Ref. Marker: Street: FRESH POND RD
AT INTERSECTION WITH BREEZE HILL RD

2/21/2015 Sat 09:45 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2015-35655278**
Accident Class: PROPERTY DAMAGE Police Agency: SUFFOLK CO PD YAPHANK Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: STOP SIGN
Manner of Collision: RIGHT ANGLE Weather: CLOUDY
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 TRUCK Registered Weight: 17500 State of Registration: NY
Num of Occupants: 1 Driver's Age: 22 Sex: M Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT ENTERED, NOT ENTERED

Veh :2 CAR/VAN/PICKUP Registered Weight: 3986 State of Registration: NY
Num of Occupants: 1 Driver's Age: 23 Sex: M Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: TRAFFIC CONTROL DEVICES DISREGARDED, FAILURE TO YIELD RIGHT OF WAY

Appendix C: Trip Generation

Indian Hills Trip Generation Estimates

Time Period	Distribution	Senior Housing 48 Units (ITE LUC 251) NW Section	Senior Housing 16 Units (ITE LUC 251) NE Section	Senior Housing 44 Units (ITE LUC 251) SW Section	TOTAL
Weekday AM Peak Hour	Enter	13	11	13	37
	Exit	25	22	24	71
	Total	**38**	**33**	**37**	**108**
Weekday PM Peak Hour	Enter	16	7	15	38
	Exit	10	4	9	23
	Total	**26**	**11**	**24**	**61**
Saturday Midday Peak Hour	Enter	16	7	15	38
	Exit	10	4	9	23
	Total	**26**	**11**	**24**	**61**

Source: Trip Generation, 9th Edition, published by ITE

Detailed Land Use Data

For 46 Dwelling Units of SENIORDETACHED 1

(251) Senior Adult Housing - Detached

Project: Indian Hills

Open Date: 8/29/2016

Analysis Date: 8/29/2016

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R2
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 9th Edition	38	0	0.22	0.13	0.84	0.47	607	35	65	True	T = 0.17(X) + 29.95	0.93
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 9th Edition	25	0	0.27	0.17	0.95	0.53	605	61	39	True	Ln(T) = 0.75 Ln(X) + 0.35	0.89
Saturday Peak Hour of Generator Source : Trip Generation Manual 9th Edition	11	0	0.23	0.19	0.27	0.48	1547	48	52	False		

Detailed Land Use Data

For 16 Dwelling Units of SENIORDETACHED 2

(251) Senior Adult Housing - Detached

Project: Indian Hills

Open Date: 8/29/2016

Analysis Date: 8/29/2016

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R2
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 9th Edition	33	0	0.22	0.13	0.84	0.47	607	35	65	True	T = 0.17(X) + 29.95	0.93
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 9th Edition	11	0	0.27	0.17	0.95	0.53	605	61	39	True	Ln(T) = 0.75 Ln(X) + 0.35	0.89
Saturday Peak Hour of Generator Source : Trip Generation Manual 9th Edition	4	0	0.23	0.19	0.27	0.48	1547	48	52	False		

Detailed Land Use Data

For 48 Dwelling Units of SENIORDETACHED 3

(251) Senior Adult Housing - Detached

Project: Indian Hills

Open Date: 8/29/2016

Analysis Date: 8/29/2016

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R2
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 9th Edition	38	0	0.22	0.13	0.84	0.47	607	35	65	True	T = 0.17(X) + 29.95	0.93
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 9th Edition	26	0	0.27	0.17	0.95	0.53	605	61	39	True	Ln(T) = 0.75 Ln(X) + 0.35	0.89
Saturday Peak Hour of Generator Source : Trip Generation Manual 9th Edition	11	0	0.23	0.19	0.27	0.48	1547	48	52	False		

Appendix D: Level of Service Definitions

LEVEL OF SERVICE: SIGNALIZED INTERSECTIONS

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The levels of service range between level of service A (relatively congestion-free) and level of service F (congested).

The delay experienced by a motorist is made up of a number of factors that relate to control, geometry, traffic, and incidents at an intersection. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during ideal conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of any incidents, and when there are no other vehicles on the road. The portion of the total delay attributed to the control facility is called the control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Control delay may also be referred to as signal delay for signalized intersections.

Level of service criteria for signalized intersections is determined in terms of the average control delay per vehicle. The following average control delays are used to determine approach levels of service:

Control Delay (s/veh)	**LOS by Volume-to-Capacity Ratio***	
	≤1.0	**>1.0**
≤ 10	A	F
> 10 – 20	B	F
> 20-35	C	F
> 35-55	D	F
> 55 – 80	E	F
> 80	F	F

Note: *For approach-based and intersectionwide assessments, LOS is defined solely by control delay.

Level of Service A describes operations with very low control delay. This occurs when progression is extremely favorable; most vehicles arrive during the green phase and do not stop at all. Short traffic signal cycles may contribute to low delay.

Level of Service B generally occurs with good progression and/or short traffic signal cycle lengths. More vehicles stop than for level of service A, causing higher average delays.

Level of Service C has higher delays than level of service B. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures, where motorists are required to wait through an entire signal cycle, may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.

Level of Service D At this level, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths or high volume-to-capacity ratios. The proportion of stopping vehicles increases. Individual cycle failures are noticeable.

Level of Service E is considered the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths and high volume-to-capacity ratios. Individual cycle failures occur frequently.

Level of Service F is considered unacceptable to most drivers. This condition often occurs with over saturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may occur at volume to capacity ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

LEVEL OF SERVICE: TWO WAY STOP CONTROLLED INTERSECTIONS

The quality of traffic service at a two-way stop controlled, or "TWSC," intersection is measured according to the level of service and capacity of individual legs. The level of service ranges from LOS A to LOS F, just as with signalized intersections.

The right of way at the TWSC intersection is controlled by stop signs on two opposing legs of an intersection (on one leg of a "T"-type intersection). The capacity of a controlled leg is based on the distribution of gaps in the major street traffic flow, driver judgment in selecting a gap through which to execute the desired maneuver and the follow up time required by each driver in a queue.

The level of service for a TWSC intersection is determined by the computed or measured control delay and is defined for each minor movement. Level of service is not defined for the intersection as a whole. The delay experienced by a motorist is made up of a number of factors that relate to control, geometry, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during conditions with ideal geometry and in the absence of incidents, control, and traffic. This program only quantifies that portion of the total delay attributed to traffic control measures, either traffic signals or stop signs. This delay is called control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration. Average control delay for any particular minor movement is a function of the approach and the degree of saturation.

The expectation is that TWSC intersections are designed to carry smaller traffic volumes than signalized intersections. Therefore, the delay threshold times are lower for the same LOS grades. The following average control delays are used to determine approach levels of service:

Level of Service A	$\leq$ 10 seconds per vehicle
Level of Service B	> 10 and $\leq$ 15 seconds per vehicle
Level of Service C	> 15 and $\leq$ 25 seconds per vehicle
Level of Service D	> 25 and $\leq$ 35 seconds per vehicle
Level of Service E	> 35 and $\leq$ 50 seconds per vehicle
Level of Service F	> 50 seconds per vehicle

Appendix E: Capacity Analysis/Level of Service Worksheets

LEVELS OF SERVICE AND DELAY - AM Peak

			Existing		No Build		Build	
Signalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
NYS 25A at	EB	L	6.5	A	6.6	A	7.1	A
Bread and Cheese Hollow Rd/		T	10.2	B	10.5	B	10.8	B
Fresh Pond Rd		R	3.6	A	3.7	A	4.0	A
	WB	L	7.6	A	7.8	A	8.1	A
		TR	10.2	B	10.4	B	10.9	B
	NB	LTR	23.4	C	24.1	C	25.5	C
	SB	LT	18.6	B	18.9	B	20.7	C
		R	6.2	A	6.4	A	7.8	A
		Intersection	11.1	B	11.4	B	12.2	B

LEVELS OF SERVICE AND DELAY - AM Peak

			Existing		No Build		Build	
Unsignalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
NYS 25A at Makamah Rd	EB	LT	0.7	A	0.7	A	1.0	A
	SB	LR	18.0	C	18.9	C	30.0	D
Makamah Rd at Breeze Hill Rd	WB	LR	8.8	A	8.9	A	9.3	A
	SB	LT	3.3	A	3.3	A	2.2	A
Makamah Rd at Makamah Beach Rd/Mystic Ln	EB	LTR	8.6	A	8.7	A	8.7	A
	WB	LTR	9.3	A	9.4	A	9.6	A
	NB	LTR	1.4	A	1.6	A	1.2	A
	SB	LTR	0.0	A	0.0	A	0.0	A
Fresh Pond Rd at Breeze Hill Rd	EB	LTR	9.1	A	9.3	A	9.5	A
	WB	LTR	9.5	A	9.6	A	10.5	B
	NB	LTR	2.2	A	2.3	A	2.8	A
	SB	LTR	0.0	A	0.0	A	0.0	A
Breeze Hill Rd at Country Club Access	WB	LR	1.2	A	1.4	A	0.9	A
	NB	LT	8.8	A	8.8	A	9.0	A
Fresh Pond Rd at Northeast Site Access	EB	LR	-	-	-	-	8.6	A
	NB	LT	-	-	-	-	2.3	A
Breeze Hill Rd at Southwest Site Access	WB	LT	-	-	-	-	2.2	A
	NB	LR	-	-	-	-	8.7	A

							All-Way Stop	
Makamah Rd at Breeze Hill Rd	WB	LR	-	-	-	-	7.3	A
	NB	TR	-	-	-	-	7.5	A
	SB	LT	-	-	-	-	7.6	A

LEVELS OF SERVICE AND DELAY - PM Peak

			Existing		No Build		Build	
Signalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
NYS 25A at	EB	L	7.2	A	7.5	A	8.0	A
Bread and Cheese Hollow Rd/		T	13.6	B	14.1	B	15.1	B
Fresh Pond Rd		R	5.0	A	5.1	A	5.3	A
	WB	L	9.6	A	10.1	B	10.8	B
		TR	12.6	B	13.1	B	14.2	B
	NB	LTR	28.0	C	28.8	C	29.4	C
	SB	LT	20.6	C	21.1	C	21.7	C
		R	8.2	A	8.2	A	8.0	A
		Intersection	14.1	B	14.6	B	15.6	B

LEVELS OF SERVICE AND DELAY - PM Peak

			Existing		No Build		Build	
Unsignalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
NYS 25A at Makamah Rd	EB	LT	1.5	A	1.5	A	2.0	A
	SB	LR	23.9	C	27.1	D	37.5	E
Makamah Rd at Breeze Hill Rd	WB	LR	8.8	A	8.8	A	9.1	A
	SB	LT	3.2	A	3.3	A	2.4	A
Makamah Rd at Makamah Beach Rd/Mystic Ln	EB	LTR	8.5	A	8.5	A	8.5	A
	WB	LTR	9.3	A	9.4	A	9.4	A
	NB	LTR	3.5	A	3.3	A	2.2	A
	SB	LTR	1.8	A	2.2	A	2.2	A
Fresh Pond Rd at Breeze Hill Rd	EB	LTR	8.6	A	8.6	A	8.7	A
	WB	LTR	9.4	A	9.5	A	9.9	A
	NB	LTR	3.5	A	3.4	A	3.7	A
	SB	LTR	0.0	A	0.0	A	0.0	A
Breeze Hill Rd at Country Club Access	WB	LR	0.0	A	0.0	A	0.0	A
	NB	LT	0.0	A	0.0	A	0.0	A
Fresh Pond Rd at Northeast Site Access	EB	LR	-	-	-	-	8.5	A
	NB	LT	-	-	-	-	1.4	A
Breeze Hill Rd at Southwest Site Access	WB	LR	-	-	-	-	1.7	A
	NB	LT	-	-	-	-	8.7	A

							All-Way Stop	
Makamah Rd at Breeze Hill Rd	WB	LR	-	-	-	-	7.1	A
	NB	TR	-	-	-	-	7.5	A
	SB	LT	-	-	-	-	7.6	A

LEVELS OF SERVICE AND DELAY - SAT Peak

			Existing		No Build		Build	
Signalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
NYS 25A at	EB	L	9.4	A	9.6	A	10.0	B
Bread and Cheese Hollow Rd/		T	15.4	B	15.8	B	16.3	B
Fresh Pond Rd		R	5.8	A	5.9	A	6.1	A
	WB	L	11.9	B	12.3	B	12.8	B
		TR	14.9	B	15.3	B	16.0	B
	NB	LTR	29.3	C	30.1	C	31.1	C
	SB	LT	19.2	B	19.7	B	20.6	C
		R	6.9	A	7.0	A	6.9	A
		Intersection	16.0	B	16.5	B	17.1	B

LEVELS OF SERVICE AND DELAY - SAT Peak

			Existing		No Build		Build	
Unsignalized Intersections	**Approach**	**Movt.**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
NYS 25A at Makamah Rd	EB	LT	1.5	A	1.6	A	2.0	A
	SB	LR	32.0	D	36.4	E	58.0	F
Makamah Rd at Breeze Hill Rd	WB	LR	9.1	A	9.2	A	9.5	A
	SB	LT	2.7	A	2.8	A	2.3	A
Makamah Rd at Makamah Beach Rd/Mystic Ln	EB	LTR	8.7	A	8.8	A	8.9	A
	WB	LTR	9.3	A	9.4	A	9.6	A
	NB	LTR	3.5	A	3.4	A	2.6	A
	SB	LTR	0.0	A	0.0	A	0.0	A
Fresh Pond Rd at Breeze Hill Rd	EB	LTR	9.1	A	9.2	A	9.3	A
	WB	LTR	10.1	B	10.2	B	10.7	B
	NB	LTR	3.2	A	3.2	A	3.4	A
	SB	LTR	0.8	A	1.0	A	0.8	A
Breeze Hill Rd at Country Club Access	WB	LR	0.5	A	0.7	A	0.5	A
	NB	LT	8.8	A	8.9	A	8.8	A
Fresh Pond Rd at Northeast Site Access	EB	LR	-	-	-	-	8.5	A
	NB	LT	-	-	-	-	3.0	A
Breeze Hill Rd at Southwest Site Access	WB	LR	-	-	-	-	0.9	A
	NB	LT	-	-	-	-	8.8	A

							All-Way Stop	
Makamah Rd at Breeze Hill Rd	WB	LR	-	-	-	-	7.5	A
	NB	TR	-	-	-	-	7.5	A
	SB	LT	-	-	-	-	8.0	A

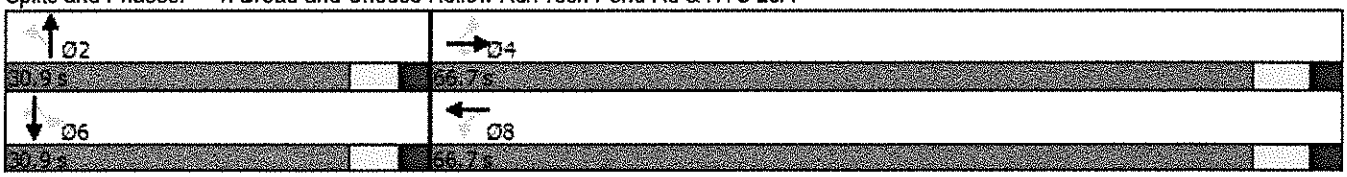
Existing Capacity Analyses

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	13	596	43	36	551	55	15	28	15	23
Future Volume (vph)	13	596	43	36	551	55	15	28	15	23
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4			8		2		6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	4	4	4	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	26.7	26.7	26.7	26.7	26.7	25.9	25.9	10.9	10.9	10.9
Total Split (s)	66.7	66.7	66.7	66.7	66.7	30.9	30.9	30.9	30.9	30.9
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%	31.7%	31.7%	31.7%
Yellow Time (s)	4.3	4.3	4.3	4.3	4.3	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7		5.9		5.9	5.9
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	None	None	None	None	None
Act Effct Green (s)	29.5	29.5	29.5	29.5	29.5		10.1		9.9	9.9
Actuated g/C Ratio	0.61	0.61	0.61	0.61	0.61		0.21		0.21	0.21
v/c Ratio	0.03	0.54	0.05	0.12	0.53		0.44		0.19	0.09
Control Delay	6.5	10.2	3.6	7.6	10.2		23.4		18.6	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Delay	6.5	10.2	3.6	7.6	10.2		23.4		18.6	6.2
LOS	A	B	A	A	B		C		B	A
Approach Delay		9.7			10.0		23.4		14.2	
Approach LOS		A			B		C		B	

Intersection Summary

Cycle Length: 97.6
Actuated Cycle Length: 48.2
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 11.1 Intersection LOS: B
Intersection Capacity Utilization 54.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Bread and Cheese Hollow Rd/Fresh Pond Rd & NYS 25A



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	21	639	615	6	7	38
Future Volume (Veh/h)	21	639	615	6	7	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.79	0.79
Hourly flow rate (vph)	23	710	683	7	9	48
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	690				1442	686
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	690				1442	686
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	97				94	89
cM capacity (veh/h)	864				143	445

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	733	690	57
Volume Left	23	0	9
Volume Right	0	7	48
cSH	864	1700	334
Volume to Capacity	0.03	0.41	0.17
Queue Length 95th (ft)	2	0	15
Control Delay (s)	0.7	0.0	18.0
Lane LOS	A		C
Approach Delay (s)	0.7	0.0	18.0
Approach LOS			C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	8	12	6	19	24
Future Volume (Veh/h)	8	8	12	6	19	24
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.70	0.70	0.50	0.50	0.89	0.89
Hourly flow rate (vph)	11	11	24	12	21	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	99	30			36	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	99	30			36	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	99	99			99	
cM capacity (veh/h)	892	1050			1513	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	22	36	48
Volume Left	11	0	21
Volume Right	11	12	0
cSH	965	1700	1513
Volume to Capacity	0.02	0.02	0.01
Queue Length 95th (ft)	2	0	1
Control Delay (s)	8.8	0.0	3.3
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	3.3
Approach LOS	A		

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2	12	12	2	0	7	10	18	0	10	0
Future Volume (Veh/h)	0	2	12	12	2	0	7	10	18	0	10	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.81	0.81	0.81	0.67	0.67	0.67	0.45	0.45	0.45
Hourly flow rate (vph)	0	3	16	15	2	0	10	15	27	0	22	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	72	84	22	88	70	28	22			42		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	72	84	22	88	70	28	22			42		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	98	100	100	99			100		
cM capacity (veh/h)	919	805	1061	861	819	1052	1607			1580		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	19	17	52	22
Volume Left	0	15	10	0
Volume Right	16	0	27	0
cSH	1010	856	1607	1580
Volume to Capacity	0.02	0.02	0.01	0.00
Queue Length 95th (ft)	1	2	0	0
Control Delay (s)	8.6	9.3	1.4	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.6	9.3	1.4	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	22.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	10	16	7	4	0	6	11	3	0	24	3
Future Volume (Veh/h)	4	10	16	7	4	0	6	11	3	0	24	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.45	0.45	0.45	0.50	0.50	0.50	0.75	0.75	0.75
Hourly flow rate (vph)	5	13	21	16	9	0	12	22	6	0	32	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	88	86	34	110	85	25	36			28		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	88	86	34	110	85	25	36			28		
tC, single (s)	7.8	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.1	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	98	98	98	99	100	99			100		
cM capacity (veh/h)	752	802	1045	839	803	1057	1588			1599		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	39	25	40	36
Volume Left	5	16	12	0
Volume Right	21	0	6	4
cSH	908	826	1588	1599
Volume to Capacity	0.04	0.03	0.01	0.00
Queue Length 95th (ft)	3	2	1	0
Control Delay (s)	9.1	9.5	2.2	0.0
Lane LOS	A	A	A	
Approach Delay (s)	9.1	9.5	2.2	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	16.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	21	0	2	11	2	0
Future Volume (Veh/h)	21	0	2	11	2	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.69	0.69	0.25	0.25
Hourly flow rate (vph)	27	0	3	16	8	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			27		49	27
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			27		49	27
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1587		958	1048

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	27	19	8
Volume Left	0	3	8
Volume Right	0	0	0
cSH	1700	1587	958
Volume to Capacity	0.02	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	1.2	8.8
Lane LOS		A	A
Approach Delay (s)	0.0	1.2	8.8
Approach LOS			A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Timings
1: Bread and Cheese Hollow Rd/Fresh Pond Rd & NYS 25A

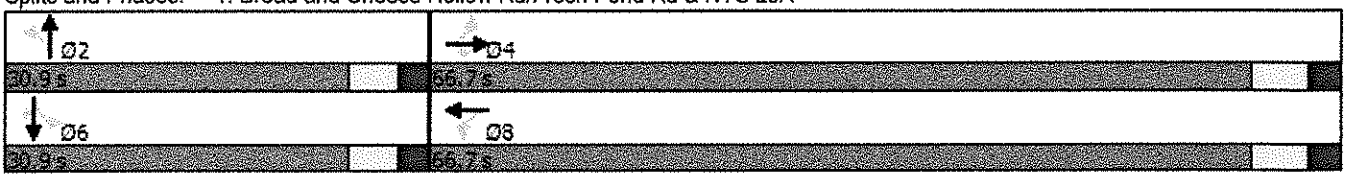
9/23/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	12	634	80	36	546	92	24	21	20	32
Future Volume (vph)	12	634	80	36	546	92	24	21	20	32
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4			8		2		6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	4	4	4	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	26.7	26.7	26.7	26.7	26.7	25.9	25.9	10.9	10.9	10.9
Total Split (s)	66.7	66.7	66.7	66.7	66.7	30.9	30.9	30.9	30.9	30.9
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%	31.7%	31.7%	31.7%
Yellow Time (s)	4.3	4.3	4.3	4.3	4.3	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7		5.9		5.9	5.9
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	None	None	None	None	None
Act Effct Green (s)	30.4	30.4	30.4	30.4	30.4		12.8		12.8	12.8
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54		0.23		0.23	0.23
v/c Ratio	0.04	0.67	0.11	0.18	0.63		0.55		0.17	0.11
Control Delay	7.2	13.6	5.0	9.6	12.6		28.0		20.6	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Delay	7.2	13.6	5.0	9.6	12.6		28.0		20.6	8.2
LOS	A	B	A	A	B		C		C	A
Approach Delay		12.5			12.4		28.0		15.2	
Approach LOS		B			B		C		B	

Intersection Summary

Cycle Length: 97.6
Actuated Cycle Length: 56.4
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 14.1 — Intersection LOS: B
Intersection Capacity Utilization 58.7% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Bread and Cheese Hollow Rd/Fresh Pond Rd & NYS 25A



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	38	740	661	8	6	20
Future Volume (Veh/h)	38	740	661	8	6	20
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.89	0.89	0.72	0.72
Hourly flow rate (vph)	44	860	743	9	8	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	752				1696	748
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	752				1696	748
tC, single (s)	4.2				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.3
p0 queue free %	95				91	93
cM capacity (veh/h)	827				87	416

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	904	752	36
Volume Left	44	0	8
Volume Right	0	9	28
cSH	827	1700	226
Volume to Capacity	0.05	0.44	0.16
Queue Length 95th (ft)	4	0	14
Control Delay (s)	1.5	0.0	23.9
Lane LOS	A		C
Approach Delay (s)	1.5	0.0	23.9
Approach LOS			C

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	16	25	9	10	13
Future Volume (Veh/h)	6	16	25	9	10	13
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.56	0.56	0.65	0.65	0.58	0.58
Hourly flow rate (vph)	11	29	38	14	17	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	101	45			52	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	101	45			52	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	97			99	
cM capacity (veh/h)	893	1031			1567	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	40	52	39
Volume Left	11	0	17
Volume Right	29	14	0
cSH	989	1700	1567
Volume to Capacity	0.04	0.03	0.01
Queue Length 95th (ft)	3	0	1
Control Delay (s)	8.8	0.0	3.2
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	3.2
Approach LOS	A		

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	8	3	3	0	12	8	6	2	6	0
Future Volume (Veh/h)	0	0	8	3	3	0	12	8	6	2	6	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.58	0.58	0.50	0.50	0.50	0.82	0.82	0.82	0.50	0.50	0.50
Hourly flow rate (vph)	0	0	14	6	6	0	15	10	7	4	12	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	66	67	12	78	64	14	12			17		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	66	67	12	78	64	14	12			17		
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	99	99	99	100	99			100		
cM capacity (veh/h)	918	818	1035	896	821	1072	1562			1613		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	14	12	32	16
Volume Left	0	6	15	4
Volume Right	14	0	7	0
cSH	1035	857	1562	1613
Volume to Capacity	0.01	0.01	0.01	0.00
Queue Length 95th (ft)	1	1	1	0
Control Delay (s)	8.5	9.3	3.5	1.8
Lane LOS	A	A	A	A
Approach Delay (s)	8.5	9.3	3.5	1.8
Approach LOS	A	A		

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	15	5	2	3	24	21	7	0	19	3
Future Volume (Veh/h)	0	0	15	5	2	3	24	21	7	0	19	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.44	0.44	0.44	0.44	0.44	0.44	0.84	0.84	0.84	0.53	0.53	0.53
Hourly flow rate (vph)	0	0	34	11	5	7	29	25	8	0	36	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	136	130	39	160	129	29	42			33		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	136	130	39	160	129	29	42			33		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	97	99	99	99	98			100		
cM capacity (veh/h)	819	750	1038	773	751	1052	1580			1592		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	34	23	62	42
Volume Left	0	11	29	0
Volume Right	34	7	8	6
cSH	1038	835	1580	1592
Volume to Capacity	0.03	0.03	0.02	0.00
Queue Length 95th (ft)	3	2	1	0
Control Delay (s)	8.6	9.4	3.5	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.6	9.4	3.5	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	21.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	11	0	0	22	0	0
Future Volume (Veh/h)	11	0	0	22	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.50	0.50	0.63	0.63	0.50	0.50
Hourly flow rate (vph)	22	0	0	35	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			22		57	22
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			22		57	22
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1593		950	1055

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	22	35	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1593	1700
Volume to Capacity	0.01	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Timings
1: Bread and Cheese Hollow Rd/Fresh Pond Rd & NYS 25A

9/23/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	23	592	112	42	536	129	28	24	26	38
Future Volume (vph)	23	592	112	42	536	129	28	24	26	38
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4			8		2		6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	4	4	4	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	26.7	26.7	26.7	26.7	26.7	25.9	25.9	10.9	10.9	10.9
Total Split (s)	66.7	66.7	66.7	66.7	66.7	30.9	30.9	30.9	30.9	30.9
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%	31.7%	31.7%	31.7%
Yellow Time (s)	4.3	4.3	4.3	4.3	4.3	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7		5.9		5.9	5.9
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	None	None	None	None	None
Act Effct Green (s)	28.7	28.7	28.7	28.7	28.7		15.2		15.2	15.2
Actuated g/C Ratio	0.50	0.50	0.50	0.50	0.50		0.27		0.27	0.27
v/c Ratio	0.09	0.68	0.16	0.22	0.66		0.64		0.18	0.12
Control Delay	9.4	15.4	5.8	11.9	14.9		29.3		19.2	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Delay	9.4	15.4	5.8	11.9	14.9		29.3		19.2	6.9
LOS	A	B	A	B	B		C		B	A
Approach Delay		13.8			14.7		29.3		13.9	
Approach LOS		B			B		C		B	

Intersection Summary

Cycle Length: 97.6
Actuated Cycle Length: 57.3
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 16.0 — Intersection LOS: B
Intersection Capacity Utilization 63.0% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Bread and Cheese Hollow Rd/Fresh Pond Rd & NYS 25A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	39	727	693	9	14	48
Future Volume (Veh/h)	39	727	693	9	14	48
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.89	0.89	0.72	0.72
Hourly flow rate (vph)	45	845	779	10	19	67
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	789				1719	784
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	789				1719	784
tC, single (s)	4.2				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.3
p0 queue free %	94				77	83
cM capacity (veh/h)	801				84	396

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	890	789	86
Volume Left	45	0	19
Volume Right	0	10	67
cSH	801	1700	217
Volume to Capacity	0.06	0.46	0.40
Queue Length 95th (ft)	4	0	44
Control Delay (s)	1.5	0.0	32.0
Lane LOS	A		D
Approach Delay (s)	1.5	0.0	32.0
Approach LOS			D

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	14	23	24	14	18	32
Future Volume (Veh/h)	14	23	24	14	18	32
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.56	0.56	0.65	0.65	0.58	0.58
Hourly flow rate (vph)	25	41	37	22	31	55
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	165	48			59	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	165	48			59	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	96			98	
cM capacity (veh/h)	814	1027			1558	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	66	59	86
Volume Left	25	0	31
Volume Right	41	22	0
cSH	934	1700	1558
Volume to Capacity	0.07	0.03	0.02
Queue Length 95th (ft)	6	0	2
Control Delay (s)	9.1	0.0	2.7
Lane LOS	A		A
Approach Delay (s)	9.1	0.0	2.7
Approach LOS	A		

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	19.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	19	4	0	0	16	12	6	0	6	2
Future Volume (Veh/h)	2	2	19	4	0	0	16	12	6	0	6	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.58	0.58	0.50	0.50	0.50	0.82	0.82	0.82	0.50	0.50	0.50
Hourly flow rate (vph)	3	3	33	8	0	0	20	15	7	0	12	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	72	76	14	107	74	18	16			22		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	72	76	14	107	74	18	16			22		
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	97	99	100	100	99			100		
cM capacity (veh/h)	914	808	1032	838	809	1066	1557			1607		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	39	8	42	16
Volume Left	3	8	20	0
Volume Right	33	0	7	4
cSH	1001	838	1557	1607
Volume to Capacity	0.04	0.01	0.01	0.00
Queue Length 95th (ft)	3	1	1	0
Control Delay (s)	8.7	9.3	3.5	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.7	9.3	3.5	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	3	22	9	4	4	29	28	12	3	24	2
Future Volume (Veh/h)	3	3	22	9	4	4	29	28	12	3	24	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.44	0.44	0.44	0.44	0.44	0.44	0.84	0.84	0.84	0.53	0.53	0.53
Hourly flow rate (vph)	7	7	50	20	9	9	35	33	14	6	45	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	182	176	47	222	171	40	49			47		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	182	176	47	222	171	40	49			47		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	95	97	99	99	98			100		
cM capacity (veh/h)	754	702	1028	683	707	1037	1571			1573		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	64	38	82	55
Volume Left	7	20	35	6
Volume Right	50	9	14	4
cSH	943	749	1571	1573
Volume to Capacity	0.07	0.05	0.02	0.00
Queue Length 95th (ft)	5	4	2	0
Control Delay (s)	9.1	10.1	3.2	0.8
Lane LOS	A	B	A	A
Approach Delay (s)	9.1	10.1	3.2	0.8
Approach LOS	A	B		

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	20.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	27	0	2	29	2	2
Future Volume (Veh/h)	27	0	2	29	2	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.50	0.50	0.63	0.63	0.50	0.50
Hourly flow rate (vph)	54	0	3	46	4	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			54		106	54
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			54		106	54
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1551		890	1013

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	54	49	8
Volume Left	0	3	4
Volume Right	0	0	4
cSH	1700	1551	948
Volume to Capacity	0.03	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.5	8.8
Lane LOS		A	A
Approach Delay (s)	0.0	0.5	8.8
Approach LOS			A

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

No Build Capacity Analyses

Timings
1: Bread and Cheese Hollow Rd/Fresh Pond Rd & NYS 25A

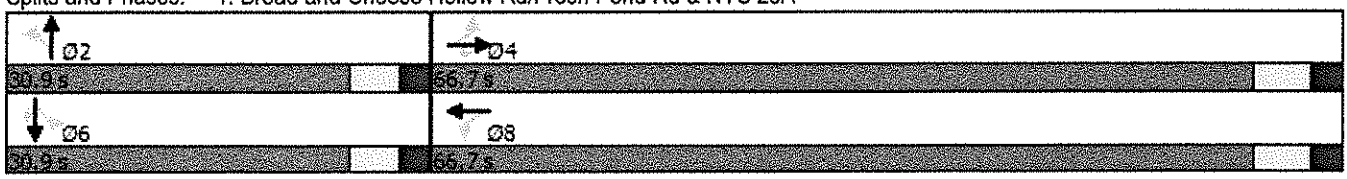
9/23/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	14	610	44	37	564	57	16	29	16	24
Future Volume (vph)	14	610	44	37	564	57	16	29	16	24
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4			8		2		6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	4	4	4	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	26.7	26.7	26.7	26.7	26.7	25.9	25.9	10.9	10.9	10.9
Total Split (s)	66.7	66.7	66.7	66.7	66.7	30.9	30.9	30.9	30.9	30.9
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%	31.7%	31.7%	31.7%
Yellow Time (s)	4.3	4.3	4.3	4.3	4.3	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7		5.9		5.9	5.9
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	None	None	None	None	None
Act Effct Green (s)	30.1	30.1	30.1	30.1	30.1		10.5		10.2	10.2
Actuated g/C Ratio	0.61	0.61	0.61	0.61	0.61		0.21		0.21	0.21
v/c Ratio	0.04	0.55	0.05	0.12	0.55		0.46		0.19	0.09
Control Delay	6.6	10.5	3.7	7.8	10.4		24.1		18.9	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Delay	6.6	10.5	3.7	7.8	10.4		24.1		18.9	6.4
LOS	A	B	A	A	B		C		B	A
Approach Delay		9.9			10.3		24.1		14.5	
Approach LOS		A			B		C		B	

Intersection Summary

Cycle Length: 97.6
Actuated Cycle Length: 49.1
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 11.4 — Intersection LOS: B
Intersection Capacity Utilization 55.4% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Bread and Cheese Hollow Rd/Fresh Pond Rd & NYS 25A



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	22	654	630	7	8	39
Future Volume (Veh/h)	22	654	630	7	8	39
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.79	0.79
Hourly flow rate (vph)	24	727	700	8	10	49
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	708				1479	704
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	708				1479	704
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	97				93	89
cM capacity (veh/h)	850				136	435

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	751	708	59
Volume Left	24	0	10
Volume Right	0	8	49
cSH	850	1700	317
Volume to Capacity	0.03	0.42	0.19
Queue Length 95th (ft)	2	0	17
Control Delay (s)	0.7	0.0	18.9
Lane LOS	A		C
Approach Delay (s)	0.7	0.0	18.9
Approach LOS			C

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	9	9	13	7	20	25
Future Volume (Veh/h)	9	9	13	7	20	25
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.70	0.70	0.50	0.50	0.89	0.89
Hourly flow rate (vph)	13	13	26	14	22	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	105	33			40	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	105	33			40	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	99	99			99	
cM capacity (veh/h)	885	1046			1508	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	26	40	50
Volume Left	13	0	22
Volume Right	13	14	0
cSH	959	1700	1508
Volume to Capacity	0.03	0.02	0.01
Queue Length 95th (ft)	2	0	1
Control Delay (s)	8.9	0.0	3.3
Lane LOS	A		A
Approach Delay (s)	8.9	0.0	3.3
Approach LOS	A		

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	19.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	3	13	13	3	0	8	11	19	0	11	0
Future Volume (Veh/h)	0	3	13	13	3	0	8	11	19	0	11	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.81	0.81	0.81	0.67	0.67	0.67	0.45	0.45	0.45
Hourly flow rate (vph)	0	4	17	16	4	0	12	16	28	0	24	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	80	92	24	97	78	30	24			44		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	80	92	24	97	78	30	24			44		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	98	98	100	100	99			100		
cM capacity (veh/h)	904	796	1058	847	810	1050	1604			1577		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	21	20	56	24
Volume Left	0	16	12	0
Volume Right	17	0	28	0
cSH	996	839	1604	1577
Volume to Capacity	0.02	0.02	0.01	0.00
Queue Length 95th (ft)	2	2	1	0
Control Delay (s)	8.7	9.4	1.6	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.7	9.4	1.6	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	23.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	11	17	8	5	0	7	12	4	0	25	4
Future Volume (Veh/h)	5	11	17	8	5	0	7	12	4	0	25	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.45	0.45	0.45	0.50	0.50	0.50	0.75	0.75	0.75
Hourly flow rate (vph)	7	15	23	18	11	0	14	24	8	0	33	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	97	96	36	122	94	28	38			32		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	97	96	36	122	94	28	38			32		
tC, single (s)	7.8	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.1	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	98	98	98	99	100	99			100		
cM capacity (veh/h)	739	791	1043	821	793	1053	1585			1593		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	45	29	46	38
Volume Left	7	18	14	0
Volume Right	23	0	8	5
cSH	891	810	1585	1593
Volume to Capacity	0.05	0.04	0.01	0.00
Queue Length 95th (ft)	4	3	1	0
Control Delay (s)	9.3	9.6	2.3	0.0
Lane LOS	A	A	A	
Approach Delay (s)	9.3	9.6	2.3	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	17.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	22	0	3	12	3	0
Future Volume (Veh/h)	22	0	3	12	3	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.69	0.69	0.25	0.25
Hourly flow rate (vph)	28	0	4	17	12	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			28		53	28
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			28		53	28
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1585		953	1047

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	28	21	12
Volume Left	0	4	12
Volume Right	0	0	0
cSH	1700	1585	953
Volume to Capacity	0.02	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	1.4	8.8
Lane LOS		A	A
Approach Delay (s)	0.0	1.4	8.8
Approach LOS			A

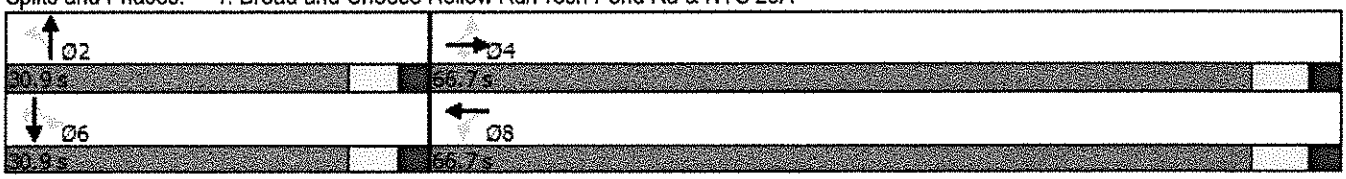
Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	13	649	82	37	559	95	25	22	21	33
Future Volume (vph)	13	649	82	37	559	95	25	22	21	33
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4			8		2		6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	4	4	4	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	26.7	26.7	26.7	26.7	26.7	25.9	25.9	10.9	10.9	10.9
Total Split (s)	66.7	66.7	66.7	66.7	66.7	30.9	30.9	30.9	30.9	30.9
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%	31.7%	31.7%	31.7%
Yellow Time (s)	4.3	4.3	4.3	4.3	4.3	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7		5.9		5.9	5.9
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	None	None	None	None	None
Act Effct Green (s)	30.9	30.9	30.9	30.9	30.9		13.2		13.2	13.2
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54		0.23		0.23	0.23
v/c Ratio	0.05	0.69	0.11	0.19	0.64		0.56		0.18	0.12
Control Delay	7.5	14.1	5.1	10.1	13.1		28.8		21.1	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Delay	7.5	14.1	5.1	10.1	13.1		28.8		21.1	8.2
LOS	A	B	A	B	B		C		C	A
Approach Delay		13.0			12.9		28.8		15.5	
Approach LOS		B			B		C		B	

Intersection Summary

Cycle Length: 97.6
Actuated Cycle Length: 57.4
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 14.6 Intersection LOS: B
Intersection Capacity Utilization 59.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Bread and Cheese Hollow Rd/Fresh Pond Rd & NYS 25A



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	39	758	677	9	7	21
Future Volume (Veh/h)	39	758	677	9	7	21
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.89	0.89	0.72	0.72
Hourly flow rate (vph)	45	881	761	10	10	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	771				1737	766
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	771				1737	766
tC, single (s)	4.2				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.3
p0 queue free %	94				88	93
cM capacity (veh/h)	813				82	406

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	926	771	39
Volume Left	45	0	10
Volume Right	0	10	29
cSH	813	1700	201
Volume to Capacity	0.06	0.45	0.19
Queue Length 95th (ft)	4	0	17
Control Delay (s)	1.5	0.0	27.1
Lane LOS	A		D
Approach Delay (s)	1.5	0.0	27.1
Approach LOS			D

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	17	26	10	11	14
Future Volume (Veh/h)	7	17	26	10	11	14
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.56	0.56	0.65	0.65	0.58	0.58
Hourly flow rate (vph)	13	30	40	15	19	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	110	48			55	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	110	48			55	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	97			99	
cM capacity (veh/h)	882	1027			1563	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	43	55	43
Volume Left	13	0	19
Volume Right	30	15	0
cSH	978	1700	1563
Volume to Capacity	0.04	0.03	0.01
Queue Length 95th (ft)	3	0	1
Control Delay (s)	8.8	0.0	3.3
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	3.3
Approach LOS	A		

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	9	4	4	0	13	9	7	3	7	0
Future Volume (Veh/h)	0	0	9	4	4	0	13	9	7	3	7	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.58	0.58	0.50	0.50	0.50	0.82	0.82	0.82	0.50	0.50	0.50
Hourly flow rate (vph)	0	0	16	8	8	0	16	11	9	6	14	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	78	78	14	90	74	16	14			20		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	78	78	14	90	74	16	14			20		
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	98	99	99	100	99			100		
cM capacity (veh/h)	900	805	1032	877	809	1070	1560			1609		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	16	36	20
Volume Left	0	8	16	6
Volume Right	16	0	9	0
cSH	1032	842	1560	1609
Volume to Capacity	0.02	0.02	0.01	0.00
Queue Length 95th (ft)	1	1	1	0
Control Delay (s)	8.5	9.4	3.3	2.2
Lane LOS	A	A	A	A
Approach Delay (s)	8.5	9.4	3.3	2.2
Approach LOS	A	A		

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	13.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	16	6	3	4	25	22	8	0	20	4
Future Volume (Veh/h)	0	0	16	6	3	4	25	22	8	0	20	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.44	0.44	0.44	0.44	0.44	0.44	0.84	0.84	0.84	0.53	0.53	0.53
Hourly flow rate (vph)	0	0	36	14	7	9	30	26	10	0	38	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	146	138	42	169	137	31	46			36		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	146	138	42	169	137	31	46			36		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	97	98	99	99	98			100		
cM capacity (veh/h)	803	742	1034	760	743	1049	1575			1588		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	36	30	66	46
Volume Left	0	14	30	0
Volume Right	36	9	10	8
cSH	1034	824	1575	1588
Volume to Capacity	0.03	0.04	0.02	0.00
Queue Length 95th (ft)	3	3	1	0
Control Delay (s)	8.6	9.5	3.4	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.6	9.5	3.4	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	22.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	12	0	0	23	0	0
Future Volume (Veh/h)	12	0	0	23	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.50	0.50	0.63	0.63	0.50	0.50
Hourly flow rate (vph)	24	0	0	37	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			24		61	24
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			24		61	24
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1591		945	1052

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	24	37	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1591	1700
Volume to Capacity	0.01	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Timings
1: Bread and Cheese Hollow Rd/Fresh Pond Rd & NYS 25A

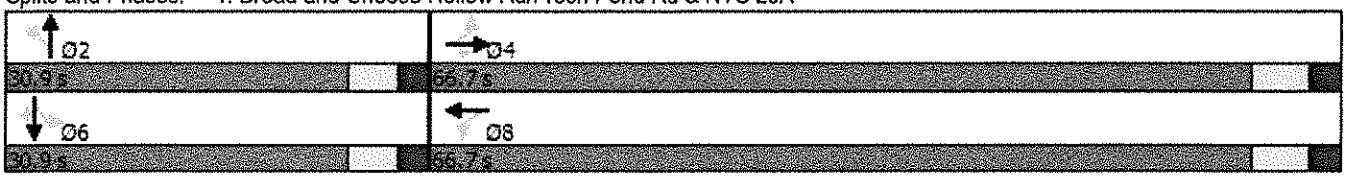
9/23/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	24	606	115	43	549	132	29	25	27	39
Future Volume (vph)	24	606	115	43	549	132	29	25	27	39
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4			8		2		6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	4	4	4	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	26.7	26.7	26.7	26.7	26.7	25.9	25.9	10.9	10.9	10.9
Total Split (s)	66.7	66.7	66.7	66.7	66.7	30.9	30.9	30.9	30.9	30.9
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%	31.7%	31.7%	31.7%
Yellow Time (s)	4.3	4.3	4.3	4.3	4.3	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7		5.9		5.9	5.9
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	None	None	None	None	None
Act Effct Green (s)	29.4	29.4	29.4	29.4	29.4		15.7		15.7	15.7
Actuated g/C Ratio	0.50	0.50	0.50	0.50	0.50		0.27		0.27	0.27
v/c Ratio	0.10	0.69	0.16	0.23	0.67		0.65		0.19	0.12
Control Delay	9.6	15.8	5.9	12.3	15.3		30.1		19.7	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Delay	9.6	15.8	5.9	12.3	15.3		30.1		19.7	7.0
LOS	A	B	A	B	B		C		B	A
Approach Delay		14.1			15.1		30.1		14.3	
Approach LOS		B			B		C		B	

Intersection Summary

Cycle Length: 97.6
Actuated Cycle Length: 58.5
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 16.5 — Intersection LOS: B
Intersection Capacity Utilization 64.1% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Bread and Cheese Hollow Rd/Fresh Pond Rd & NYS 25A



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	40	744	709	10	15	50
Future Volume (Veh/h)	40	744	709	10	15	50
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.89	0.89	0.72	0.72
Hourly flow rate (vph)	47	865	797	11	21	69
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	808				1762	802
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	808				1762	802
tC, single (s)	4.2				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.3
p0 queue free %	94				73	82
cM capacity (veh/h)	787				79	387

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	912	808	90
Volume Left	47	0	21
Volume Right	0	11	69
cSH	787	1700	202
Volume to Capacity	0.06	0.48	0.45
Queue Length 95th (ft)	5	0	52
Control Delay (s)	1.6	0.0	36.4
Lane LOS	A		E
Approach Delay (s)	1.6	0.0	36.4
Approach LOS			E

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	24	25	15	19	33
Future Volume (Veh/h)	15	24	25	15	19	33
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.56	0.56	0.65	0.65	0.58	0.58
Hourly flow rate (vph)	27	43	38	23	33	57
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	172	50			61	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	172	50			61	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	96			98	
cM capacity (veh/h)	805	1025			1555	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	70	61	90
Volume Left	27	0	33
Volume Right	43	23	0
cSH	927	1700	1555
Volume to Capacity	0.08	0.04	0.02
Queue Length 95th (ft)	6	0	2
Control Delay (s)	9.2	0.0	2.8
Lane LOS	A		A
Approach Delay (s)	9.2	0.0	2.8
Approach LOS	A		

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	3	20	5	0	0	17	13	7	0	7	3
Future Volume (Veh/h)	3	3	20	5	0	0	17	13	7	0	7	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.58	0.58	0.50	0.50	0.50	0.82	0.82	0.82	0.50	0.50	0.50
Hourly flow rate (vph)	5	5	34	10	0	0	21	16	9	0	14	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	80	84	17	116	82	20	20			25		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	80	84	17	116	82	20	20			25		
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	99	99	97	99	100	100	99			100		
cM capacity (veh/h)	904	799	1028	824	801	1063	1552			1603		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	44	10	46	20
Volume Left	5	10	21	0
Volume Right	34	0	9	6
cSH	981	824	1552	1603
Volume to Capacity	0.04	0.01	0.01	0.00
Queue Length 95th (ft)	4	1	1	0
Control Delay (s)	8.8	9.4	3.4	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.8	9.4	3.4	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	18.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	23	10	5	5	30	29	13	4	25	3
Future Volume (Veh/h)	4	4	23	10	5	5	30	29	13	4	25	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.44	0.44	0.44	0.44	0.44	0.44	0.84	0.84	0.84	0.53	0.53	0.53
Hourly flow rate (vph)	9	9	52	23	11	11	36	35	15	8	47	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	197	188	50	237	184	42	53			50		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	197	188	50	237	184	42	53			50		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	95	97	98	99	98			99		
cM capacity (veh/h)	733	690	1024	664	694	1034	1566			1570		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	70	45	86	61
Volume Left	9	23	36	8
Volume Right	52	11	15	6
cSH	920	736	1566	1570
Volume to Capacity	0.08	0.06	0.02	0.01
Queue Length 95th (ft)	6	5	2	0
Control Delay (s)	9.2	10.2	3.2	1.0
Lane LOS	A	B	A	A
Approach Delay (s)	9.2	10.2	3.2	1.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	19.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	28	0	3	30	3	3
Future Volume (Veh/h)	28	0	3	30	3	3
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.50	0.50	0.63	0.63	0.50	0.50
Hourly flow rate (vph)	56	0	5	48	6	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			56		114	56
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			56		114	56
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	99
cM capacity (veh/h)			1549		880	1011

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	56	53	12
Volume Left	0	5	6
Volume Right	0	0	6
cSH	1700	1549	941
Volume to Capacity	0.03	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.7	8.9
Lane LOS		A	A
Approach Delay (s)	0.0	0.7	8.9
Approach LOS			A

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	14.1%	ICU Level of Service	A
Analysis Period (min)	15		

Build Capacity Analyses

Timings
1: Bread and Cheese Hollow Rd/Fresh Pond Rd & NYS 25A

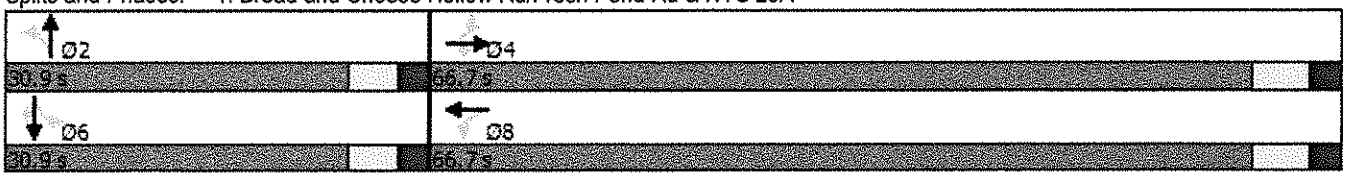
9/23/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	18	621	50	37	570	60	22	49	27	30
Future Volume (vph)	18	621	50	37	570	60	22	49	27	30
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4			8		2		6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	4	4	4	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	26.7	26.7	26.7	26.7	26.7	25.9	25.9	10.9	10.9	10.9
Total Split (s)	66.7	66.7	66.7	66.7	66.7	30.9	30.9	30.9	30.9	30.9
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%	31.7%	31.7%	31.7%
Yellow Time (s)	4.3	4.3	4.3	4.3	4.3	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7		5.9		5.9	5.9
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	None	None	None	None	None
Act Effct Green (s)	31.4	31.4	31.4	31.4	31.4		11.3		11.0	11.0
Actuated g/C Ratio	0.62	0.62	0.62	0.62	0.62		0.22		0.22	0.22
v/c Ratio	0.05	0.56	0.06	0.13	0.56		0.49		0.29	0.11
Control Delay	7.1	10.8	4.0	8.1	10.9		25.5		20.7	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Delay	7.1	10.8	4.0	8.1	10.9		25.5		20.7	7.8
LOS	A	B	A	A	B		C		C	A
Approach Delay		10.3			10.8		25.5		17.0	
Approach LOS		B			B		C		B	

Intersection Summary

Cycle Length: 97.6
Actuated Cycle Length: 51
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 12.2 — Intersection LOS: B
Intersection Capacity Utilization 56.9% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Bread and Cheese Hollow Rd/Fresh Pond Rd & NYS 25A



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	658	636	16	26	55
Future Volume (Veh/h)	30	658	636	16	26	55
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.79	0.79
Hourly flow rate (vph)	33	731	707	18	33	70
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	725				1513	716
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	725				1513	716
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	96				74	84
cM capacity (veh/h)	838				128	428

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	764	725	103
Volume Left	33	0	33
Volume Right	0	18	70
cSH	838	1700	245
Volume to Capacity	0.04	0.43	0.42
Queue Length 95th (ft)	3	0	49
Control Delay (s)	1.0	0.0	30.0
Lane LOS	A		D
Approach Delay (s)	1.0	0.0	30.0
Approach LOS			D

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	17	9	26	11	20	50
Future Volume (Veh/h)	17	9	26	11	20	50
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.70	0.70	0.50	0.50	0.89	0.89
Hourly flow rate (vph)	24	13	52	22	22	56
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	163	63			74	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	163	63			74	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	97	99			98	
cM capacity (veh/h)	820	1007			1464	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	37	74	78
Volume Left	24	0	22
Volume Right	13	22	0
cSH	877	1700	1464
Volume to Capacity	0.04	0.04	0.02
Queue Length 95th (ft)	3	0	1
Control Delay (s)	9.3	0.0	2.2
Lane LOS	A		A
Approach Delay (s)	9.3	0.0	2.2
Approach LOS	A		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	20.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	3	13	38	3	0	8	11	32	0	11	0
Future Volume (Veh/h)	0	3	13	38	3	0	8	11	32	0	11	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.81	0.81	0.81	0.67	0.67	0.67	0.45	0.45	0.45
Hourly flow rate (vph)	0	4	17	47	4	0	12	16	48	0	24	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	90	112	24	107	88	40	24			64		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	90	112	24	107	88	40	24			64		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	98	94	99	100	99			100		
cM capacity (veh/h)	891	776	1058	834	800	1037	1604			1551		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	21	51	76	24
Volume Left	0	47	12	0
Volume Right	17	0	48	0
cSH	990	831	1604	1551
Volume to Capacity	0.02	0.06	0.01	0.00
Queue Length 95th (ft)	2	5	1	0
Control Delay (s)	8.7	9.6	1.2	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.7	9.6	1.2	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	11	35	8	5	0	16	24	4	0	46	4
Future Volume (Veh/h)	5	11	35	8	5	0	16	24	4	0	46	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.45	0.45	0.45	0.50	0.50	0.50	0.75	0.75	0.75
Hourly flow rate (vph)	7	15	47	18	11	0	32	48	8	0	61	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	185	184	64	234	182	52	66			56		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	185	184	64	234	182	52	66			56		
tC, single (s)	7.8	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.1	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	98	95	97	98	100	98			100		
cM capacity (veh/h)	635	700	1007	669	701	1021	1549			1562		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	69	29	88	66
Volume Left	7	18	32	0
Volume Right	47	0	8	5
cSH	872	681	1549	1562
Volume to Capacity	0.08	0.04	0.02	0.00
Queue Length 95th (ft)	6	3	2	0
Control Delay (s)	9.5	10.5	2.8	0.0
Lane LOS	A	B	A	
Approach Delay (s)	9.5	10.5	2.8	0.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	19.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	21	12	15	27	0
Future Volume (Veh/h)	0	21	12	15	27	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.50	0.58	0.90
Hourly flow rate (vph)	0	23	13	30	47	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	103	47	47			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	103	47	47			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	99			
cM capacity (veh/h)	888	1022	1560			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	23	43	47
Volume Left	0	13	0
Volume Right	23	0	0
cSH	1022	1560	1700
Volume to Capacity	0.02	0.01	0.03
Queue Length 95th (ft)	2	1	0
Control Delay (s)	8.6	2.3	0.0
Lane LOS	A	A	
Approach Delay (s)	8.6	2.3	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	40	0	3	21	3	0
Future Volume (Veh/h)	40	0	3	21	3	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.69	0.69	0.25	0.25
Hourly flow rate (vph)	51	0	4	30	12	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			51		89	51
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			51		89	51
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1568		914	1023

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	51	34	12
Volume Left	0	4	12
Volume Right	0	0	0
cSH	1700	1568	914
Volume to Capacity	0.03	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.9	9.0
Lane LOS		A	A
Approach Delay (s)	0.0	0.9	9.0
Approach LOS			A

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	13.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	25	4	9	16	8	18
Future Volume (Veh/h)	25	4	9	16	8	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.90	0.90	0.70	0.90	0.90
Hourly flow rate (vph)	32	4	10	23	9	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			36		77	34
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			36		77	34
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	98
cM capacity (veh/h)			1575		920	1039

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	36	33	29
Volume Left	0	10	9
Volume Right	4	0	20
cSH	1700	1575	999
Volume to Capacity	0.02	0.01	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	2.2	8.7
Lane LOS		A	A
Approach Delay (s)	0.0	2.2	8.7
Approach LOS			A

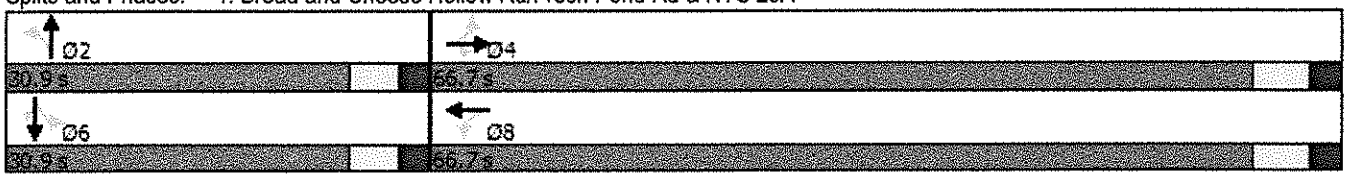
Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	15	654	85	37	566	99	31	29	25	34
Future Volume (vph)	15	654	85	37	566	99	31	29	25	34
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4			8		2		6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	4	4	4	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	26.7	26.7	26.7	26.7	26.7	25.9	25.9	10.9	10.9	10.9
Total Split (s)	66.7	66.7	66.7	66.7	66.7	30.9	30.9	30.9	30.9	30.9
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%	31.7%	31.7%	31.7%
Yellow Time (s)	4.3	4.3	4.3	4.3	4.3	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7		5.9		5.9	5.9
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	None	None	None	None	None
Act Effct Green (s)	30.3	30.3	30.3	30.3	30.3		13.7		13.7	13.7
Actuated g/C Ratio	0.53	0.53	0.53	0.53	0.53		0.24		0.24	0.24
v/c Ratio	0.06	0.71	0.12	0.21	0.68		0.58		0.22	0.12
Control Delay	8.0	15.1	5.3	10.8	14.2		29.4		21.7	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Delay	8.0	15.1	5.3	10.8	14.2		29.4		21.7	8.0
LOS	A	B	A	B	B		C		C	A
Approach Delay		13.9			14.0		29.4		16.4	
Approach LOS		B			B		C		B	

Intersection Summary

Cycle Length: 97.6
Actuated Cycle Length: 57.5
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 15.6 Intersection LOS: B
Intersection Capacity Utilization 60.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Bread and Cheese Hollow Rd/Fresh Pond Rd & NYS 25A



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	49	760	678	20	14	27
Future Volume (Veh/h)	49	760	678	20	14	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.89	0.89	0.72	0.72
Hourly flow rate (vph)	57	884	762	22	19	38
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	784				1771	773
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	784				1771	773
tC, single (s)	4.2				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.3
p0 queue free %	93				75	91
cM capacity (veh/h)	804				77	402

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	941	784	57
Volume Left	57	0	19
Volume Right	0	22	38
cSH	804	1700	166
Volume to Capacity	0.07	0.46	0.34
Queue Length 95th (ft)	6	0	35
Control Delay (s)	2.0	0.0	37.5
Lane LOS	A		E
Approach Delay (s)	2.0	0.0	37.5
Approach LOS			E

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	17	42	15	11	24
Future Volume (Veh/h)	10	17	42	15	11	24
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.56	0.56	0.65	0.65	0.58	0.58
Hourly flow rate (vph)	18	30	65	23	19	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	156	76			88	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	156	76			88	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	97			99	
cM capacity (veh/h)	830	990			1520	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	48	88	60
Volume Left	18	0	19
Volume Right	30	23	0
cSH	923	1700	1520
Volume to Capacity	0.05	0.05	0.01
Queue Length 95th (ft)	4	0	1
Control Delay (s)	9.1	0.0	2.4
Lane LOS	A		A
Approach Delay (s)	9.1	0.0	2.4
Approach LOS	A		

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Makamah Rd & Makamah Beach Rd/Mystic Ln

9/23/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	9	14	4	0	13	9	23	3	7	0
Future Volume (Veh/h)	0	0	9	14	4	0	13	9	23	3	7	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.58	0.58	0.50	0.50	0.50	0.82	0.82	0.82	0.50	0.50	0.50
Hourly flow rate (vph)	0	0	16	28	8	0	16	11	28	6	14	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	87	97	14	99	83	25	14			39		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	87	97	14	99	83	25	14			39		
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	98	97	99	100	99			100		
cM capacity (veh/h)	887	786	1032	864	800	1057	1560			1584		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	36	55	20
Volume Left	0	28	16	6
Volume Right	16	0	28	0
cSH	1032	849	1560	1584
Volume to Capacity	0.02	0.04	0.01	0.00
Queue Length 95th (ft)	1	3	1	0
Control Delay (s)	8.5	9.4	2.2	2.2
Lane LOS	A	A	A	A
Approach Delay (s)	8.5	9.4	2.2	2.2
Approach LOS	A	A		

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	17.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	23	6	3	4	36	29	8	0	24	4
Future Volume (Veh/h)	0	0	23	6	3	4	36	29	8	0	24	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.44	0.44	0.44	0.44	0.44	0.44	0.84	0.84	0.84	0.53	0.53	0.53
Hourly flow rate (vph)	0	0	52	14	7	9	43	35	10	0	45	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	188	180	49	227	179	40	53			45		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	188	180	49	227	179	40	53			45		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	95	98	99	99	97			100		
cM capacity (veh/h)	749	698	1025	681	699	1037	1566			1576		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	52	30	88	53
Volume Left	0	14	43	0
Volume Right	52	9	10	8
cSH	1025	764	1566	1576
Volume to Capacity	0.05	0.04	0.03	0.00
Queue Length 95th (ft)	4	3	2	0
Control Delay (s)	8.7	9.9	3.7	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.7	9.9	3.7	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	23.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	7	24	22	0
Future Volume (Veh/h)	0	4	7	24	22	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.70	0.80	0.90
Hourly flow rate (vph)	0	4	8	34	28	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	78	28	28			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	78	28	28			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	99			
cM capacity (veh/h)	920	1047	1585			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	42	28
Volume Left	0	8	0
Volume Right	4	0	0
cSH	1047	1585	1700
Volume to Capacity	0.00	0.01	0.02
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.5	1.4	0.0
Lane LOS	A	A	
Approach Delay (s)	8.5	1.4	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	19	0	0	34	0	0
Future Volume (Veh/h)	19	0	0	34	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.50	0.50	0.63	0.63	0.50	0.50
Hourly flow rate (vph)	38	0	0	54	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			38		92	38
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			38		92	38
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1585		913	1040

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	38	54	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1585	1700
Volume to Capacity	0.02	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	20	5	11	23	3	7
Future Volume (Veh/h)	20	5	11	23	3	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.50	0.90	0.90	0.56	0.90	0.90
Hourly flow rate (vph)	40	6	12	41	3	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			46		108	43
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			46		108	43
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	99
cM capacity (veh/h)			1562		883	1027

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	46	53	11
Volume Left	0	12	3
Volume Right	6	0	8
cSH	1700	1562	983
Volume to Capacity	0.03	0.01	0.01
Queue Length 95th (ft)	0	1	1
Control Delay (s)	0.0	1.7	8.7
Lane LOS		A	A
Approach Delay (s)	0.0	1.7	8.7
Approach LOS			A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		

Timings
1: Bread and Cheese Hollow Rd/Fresh Pond Rd & NYS 25A

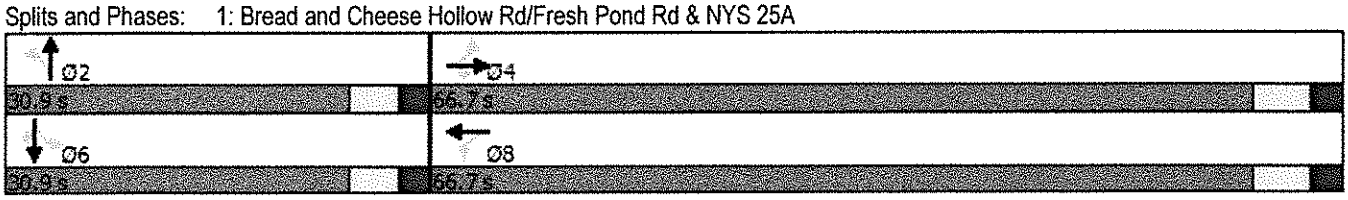
9/23/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	26	612	118	43	555	135	33	34	32	41
Future Volume (vph)	26	612	118	43	555	135	33	34	32	41
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4			8		2		6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	4	4	4	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	26.7	26.7	26.7	26.7	26.7	25.9	25.9	10.9	10.9	10.9
Total Split (s)	66.7	66.7	66.7	66.7	66.7	30.9	30.9	30.9	30.9	30.9
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%	31.7%	31.7%	31.7%
Yellow Time (s)	4.3	4.3	4.3	4.3	4.3	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7		5.9		5.9	5.9
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	None	None	None	None	None
Act Effct Green (s)	30.1	30.1	30.1	30.1	30.1		16.5		16.5	16.5
Actuated g/C Ratio	0.50	0.50	0.50	0.50	0.50		0.28		0.28	0.28
v/c Ratio	0.11	0.70	0.17	0.24	0.69		0.67		0.24	0.12
Control Delay	10.0	16.3	6.1	12.8	16.0		31.1		20.6	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0
Total Delay	10.0	16.3	6.1	12.8	16.0		31.1		20.6	6.9
LOS	A	B	A	B	B		C		C	A
Approach Delay		14.5			15.8		31.1		15.4	
Approach LOS		B			B		C		B	

Intersection Summary

Cycle Length: 97.6
Actuated Cycle Length: 60
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 17.1 — Intersection LOS: B
Intersection Capacity Utilization 64.5% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Bread and Cheese Hollow Rd/Fresh Pond Rd & NYS 25A



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	48	746	711	19	24	58
Future Volume (Veh/h)	48	746	711	19	24	58
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.89	0.89	0.72	0.72
Hourly flow rate (vph)	56	867	799	21	33	81
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	820				1788	810
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	820				1788	810
tC, single (s)	4.2				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.3
p0 queue free %	93				56	79
cM capacity (veh/h)	779				75	383

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	923	820	114
Volume Left	56	0	33
Volume Right	0	21	81
cSH	779	1700	174
Volume to Capacity	0.07	0.48	0.65
Queue Length 95th (ft)	6	0	94
Control Delay (s)	2.0	0.0	58.0
Lane LOS	A		F
Approach Delay (s)	2.0	0.0	58.0
Approach LOS			F

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	19	24	38	19	19	46
Future Volume (Veh/h)	19	24	38	19	19	46
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.56	0.56	0.65	0.65	0.58	0.58
Hourly flow rate (vph)	34	43	58	29	33	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	218	72			87	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	218	72			87	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	96			98	
cM capacity (veh/h)	758	995			1522	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	77	87	112
Volume Left	34	0	33
Volume Right	43	29	0
cSH	875	1700	1522
Volume to Capacity	0.09	0.05	0.02
Queue Length 95th (ft)	7	0	2
Control Delay (s)	9.5	0.0	2.3
Lane LOS	A		A
Approach Delay (s)	9.5	0.0	2.3
Approach LOS	A		

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	20.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	3	20	18	0	0	17	13	20	0	7	3
Future Volume (Veh/h)	3	3	20	18	0	0	17	13	20	0	7	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.58	0.58	0.50	0.50	0.50	0.82	0.82	0.82	0.50	0.50	0.50
Hourly flow rate (vph)	5	5	34	36	0	0	21	16	24	0	14	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	87	99	17	124	90	28	20			40		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	87	99	17	124	90	28	20			40		
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	99	99	97	96	100	100	99			100		
cM capacity (veh/h)	894	784	1028	815	793	1053	1552			1583		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	44	36	61	20
Volume Left	5	36	21	0
Volume Right	34	0	24	6
cSH	977	815	1552	1583
Volume to Capacity	0.05	0.04	0.01	0.00
Queue Length 95th (ft)	4	3	1	0
Control Delay (s)	8.9	9.6	2.6	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.9	9.6	2.6	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	21.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
5: Fresh Pond Rd & Breeze Hill Rd

9/23/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	32	10	5	5	38	34	13	4	31	3
Future Volume (Veh/h)	4	4	32	10	5	5	38	34	13	4	31	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.44	0.44	0.44	0.44	0.44	0.44	0.84	0.84	0.84	0.53	0.53	0.53
Hourly flow rate (vph)	9	9	73	23	11	11	45	40	15	8	58	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	231	222	61	292	218	48	64			55		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	231	222	61	292	218	48	64			55		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	93	96	98	99	97			99		
cM capacity (veh/h)	693	657	1010	594	661	1027	1551			1563		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	91	45	100	72
Volume Left	9	23	45	8
Volume Right	73	11	15	6
cSH	919	681	1551	1563
Volume to Capacity	0.10	0.07	0.03	0.01
Queue Length 95th (ft)	8	5	2	0
Control Delay (s)	9.3	10.7	3.4	0.8
Lane LOS	A	B	A	A
Approach Delay (s)	9.3	10.7	3.4	0.8
Approach LOS	A	B		

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	21.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	15	17	20	18	0
Future Volume (Veh/h)	0	15	17	20	18	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.72	0.65	0.90
Hourly flow rate (vph)	0	17	19	28	28	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	94	28	28			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	94	28	28			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	99			
cM capacity (veh/h)	895	1047	1585			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	17	47	28
Volume Left	0	19	0
Volume Right	17	0	0
cSH	1047	1585	1700
Volume to Capacity	0.02	0.01	0.02
Queue Length 95th (ft)	1	1	0
Control Delay (s)	8.5	3.0	0.0
Lane LOS	A	A	
Approach Delay (s)	8.5	3.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	18.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	37	0	3	38	3	3
Future Volume (Veh/h)	37	0	3	38	3	3
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.86	0.86	0.50	0.50
Hourly flow rate (vph)	49	0	3	44	6	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			49		99	49
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			49		99	49
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	99
cM capacity (veh/h)			1571		903	1025

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	49	47	12
Volume Left	0	3	6
Volume Right	0	0	6
cSH	1700	1571	960
Volume to Capacity	0.03	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.5	8.8
Lane LOS		A	A
Approach Delay (s)	0.0	0.5	8.8
Approach LOS			A

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	14.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	33	4	8	38	4	9
Future Volume (Veh/h)	33	4	8	38	4	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.90	0.56	0.90	0.90
Hourly flow rate (vph)	44	5	9	68	4	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			49		132	46
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			49		132	46
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	99
cM capacity (veh/h)			1558		856	1023

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	49	77	14
Volume Left	0	9	4
Volume Right	5	0	10
cSH	1700	1558	969
Volume to Capacity	0.03	0.01	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.9	8.8
Lane LOS		A	A
Approach Delay (s)	0.0	0.9	8.8
Approach LOS			A

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	18.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Makamah Rd & Breeze Hill Rd

9/23/2016

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	17	9	26	11	20	50
Future Volume (vph)	17	9	26	11	20	50
Peak Hour Factor	0.70	0.70	0.50	0.50	0.89	0.89
Hourly flow rate (vph)	24	13	52	22	22	56

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	37	74	78
Volume Left (vph)	24	0	22
Volume Right (vph)	13	22	0
Hadj (s)	-0.08	0.04	0.16
Departure Headway (s)	4.1	4.1	4.2
Degree Utilization, x	0.04	0.08	0.09
Capacity (veh/h)	834	857	840
Control Delay (s)	7.3	7.5	7.6
Approach Delay (s)	7.3	7.5	7.6
Approach LOS	A	A	A

Intersection Summary			
Delay	7.5		
Level of Service	A		
Intersection Capacity Utilization	20.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Makamah Rd & Breeze Hill Rd

9/23/2016

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	10	17	42	15	11	24
Future Volume (vph)	10	17	42	15	11	24
Peak Hour Factor	0.56	0.56	0.65	0.65	0.58	0.58
Hourly flow rate (vph)	18	30	65	23	19	41

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	48	88	60
Volume Left (vph)	18	0	19
Volume Right (vph)	30	23	0
Hadj (s)	-0.30	-0.04	0.16
Departure Headway (s)	3.9	4.0	4.2
Degree Utilization, x	0.05	0.10	0.07
Capacity (veh/h)	883	873	832
Control Delay (s)	7.1	7.5	7.6
Approach Delay (s)	7.1	7.5	7.6
Approach LOS	A	A	A

Intersection Summary			
Delay	7.4		
Level of Service	A		
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Makamah Rd & Breeze Hill Rd

9/23/2016

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	19	24	38	19	19	46
Future Volume (vph)	19	24	38	19	19	46
Peak Hour Factor	0.56	0.56	0.65	0.65	0.58	0.58
Hourly flow rate (vph)	34	43	58	29	33	79

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	77	87	112
Volume Left (vph)	34	0	33
Volume Right (vph)	43	29	0
Hadj (s)	-0.25	-0.10	0.15
Departure Headway (s)	4.1	4.1	4.3
Degree Utilization, x	0.09	0.10	0.13
Capacity (veh/h)	838	851	815
Control Delay (s)	7.5	7.5	8.0
Approach Delay (s)	7.5	7.5	8.0
Approach LOS	A	A	A

Intersection Summary			
Delay	7.7		
Level of Service	A		
Intersection Capacity Utilization	20.1%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX J

PHASE I and II ARCHAEOLOGICAL INVESTIGATION

Indian Hills Country Club

Tracker Archaeology Services, Inc.

October 2015

Phase I and Phase II Archaeological Investigations at the Indian Hills Prehistoric Site for the proposed Improvements to the Indian Hills Golf Course Northport, Township of Huntington, Suffolk County, New York

October 2015

Prepared for:
The Northwind Group, Haupaugue, New York
Nelson Pope & Voorhis LLC, Melville, New York

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835

MANAGEMENT SUMMARY

PR#:
not known

Involved agencies:
Town of Huntington

Phase:
Phase IA/IB and Phase II

Location:
Northport (Fort Salonga)
Town of Huntington
Suffolk County

Survey Area:
3 Areas:
1)Drive Range Length: about 400 feet (122 meters) north-south; Width: about 600 feet (183m) E/W
2)Maintenance Length: about 300 feet (91 meters) N/S; Width: about 100 feet (30m) E/W
3)NW Area Length: about 800 feet (294 meters) N/S; Width: about 400 feet (122 m) E/W
-Acres Surveyed: about 15 acres (6 hectares)
-Archaeological Site Size: spread out at about 600 feet (183m) N/S by 300 ft (91m) E/W with heavy concentration about 100 ft by 25 ft

USGS:
Northport, NY

Survey overview:
ST no. & interval: Phase I = 240 ST's at 50 ft (15m) intervals; Phase II = 84 ST's at 25ft, 12.5ft, & 1 meter
Size of freshly plowed area: na
Surface survey transect interval: na

Results:
Phase I: No historic or prehistoric remains on, 1)the golf drive range (SW section) or, 2)the maintenance area (NE section)
-Native American site on, 3) northwest section consisting of 7 Phase I artifacts in 7 ST's with 4 quartz flakes, 1 quartz biface and 1 black/olive green glass utilized flake & 1 black/olive green glass drill/utilized flake
-Phase II:Rossville-like point, point tip, bifaces, flakes, quartz crystal, 1 FCR - not eligible

Results of Architectural Survey:
No. Of buildings/structures/cemeteries in project area: none
No. Of buildings/structures/cemeteries adjacent to project area: none
No. Of previously determined NR listed or eligible buildings/structures/cemeteries/districts: none
No. Of identified eligible buildings/structures/cemeteries/districts: none

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Date of Report:
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INTRODUCTION

Between July 30 and August 9, 2015, TRACKER Archaeology, Inc. conducted a Phase IA documentary study and a Phase IB archaeological survey for the proposed improvements at the Indian Hills Golf Course in Northport, Town of Huntington, Suffolk County, New York.

The purpose of the Phase IA documentary study was to determine the prehistoric and historic potential of the property for the recovery of archaeological remains. This was accomplished by a review of the original and current environmental data, archaeological site files, other archival literature, maps, and documents.

A prehistoric site file search was conducted utilizing the resources of the New York State Historic Preservation Office - Field Services Bureau in Waterford, New York. Various historical and archaeological web sites were reviewed for any pertinent information.

The purpose of the Phase IB survey was to recover physical evidence for the presence or absence of archaeological sites on the property. This was accomplished through subsurface testing and ground surface reconnaissance.

The project area is located within the Indian Hills Gold Club in Fort Salonga. The project area is approximately 15 acres in size located in 3 separate areas: the NW area, the drive range (SW area), and the maintenance area (NE area).

A prehistoric site was encountered in the NW area, consisting of 7 positive ST's with 1 artifact per ST. The ensuing Phase II study was conducted in September.

The study was conducted by TRACKER Archaeology, Inc. of Monroe, New York. Prehistoric and historic research was conducted by Principal Investigator, Alfred G. Cammisa, M.A. Field work was conducted by Alfred G. Cammisa, field director Alexander Padilla, B.A., field technicians Alfred T. Cammisa, Edward Tassinari and Conner Winters B.A. Artifact analysis by Joseph Diamond, PhD. Report preparation was conducted by Alfred Cammisa, with Alexander Padilla (CAD).

The work was performed for The Northwind Group, Haupaugue, New York and Nelson, Pope & Voorhis, LLC, Melville, New York.

ENVIRONMENT

Geology

The study area is located in the southeast portion of New York State, in the northwest part of Suffolk County. This portion of New York lies in the Atlantic Coastal Plains Physiographic Province. The coastal plain slopes gently eastward and is actually a strip of recently emerged sea bottom. The soils in this region consist largely of LoSand, clay and marl (a mixture of clay, finely fragmented shell and calcite). This area of Long Island is near both the Harbor Hill and Ronkonkoma Moraines (Schuberth 1968:cover map, 9, 184-186; Jensen and Soren 1974; Sirkin 1996:41, 168).

Soils and Topography

Soils in the study area consist of:

Name	Soil Horizon Depth cm (in)	Color	Texture Inclusion	Slope %	Drainage	Landform
Carver	O=2-1(501) O=1-0(2-0) A1=0-3 (-8) A2=3-8(-20) B=8-14 (-36) B2=14-22 (-56)	leaves mull 10YR4/1 10YR6/1 7.5YR5/4 7.5YR5/6	Sa	15-35	excessive	moraines
Cut and Fill	na	na	LoFiSa or LoSa	na	well	60%-75% cut & fill
Riverhead	A=0-12 (0-30) B=12-27 (-69)	10YR4/3 7.5YR5/6	LoSa	8-15	well	moraines & outwash plains
Scio	O=2-1(501) O=1-0(2-0) A11=0-4 (-10) A12=4-7(-18) B21=7-19 (-48)	leaves organic 10YR2/2 10YR4/3 10YR5/4	SiLo	2-6	well	moraines & outwash plains
Sudbury	O=2-1(5-3) O=1-0(2-0) A2=0-1 (-3) B=1-13 (-33)	leaves organic matter 10YR4/1 2.5YR5/4	SaLo	0-3	well	outwash plains & moraines
Walpole	O=2-1(501) O=1-0(2-0) A1=0-5 (-13) B21=5-19 (-48)	leaves mull 10YR3/2 2.5YR5/4	SaLo	0-3	poor	sides of tidal creeks/ marshes & low lying areas

(Warner 1975: map #37, pgs. 66-67, 68, 81, 83, 85-86, 87-88).

KEY:
Shade: Lt=Light, Dk=Dark, V=Very
Color: Br=Brown, Blk=Black, Gry=Gray, Gbr=Gray Brown, StBr=Strong Brown, Rbr=Red Brown, Ybr= Yellow Brown
Soils: Si=Silt, Lo=Loam, LoSa=LoSand, Cl=Clay

Other: Sh=shale, M=Mottle, Gr=Gravelly, Cb=cobbles, Fi=Fine /=or

Elevations on the property range from approximately 50 to 120 feet above mean sea level.

Hydrology
The project area is between 365 to 3137 feet from the Long Island Sound, between 848 to 2036 feet from Fresh Pond and between 1299 to 300 feet from salt water marshes.

Vegetation
The predominant forest community inhabiting the Coastal Plain Physiographic Province in this vicinity (Cape Cod to the Carolinas) was the Northern Pine-Oak Forest. These forests are maintained largely by the effects of frequent fires. Were it not for the fires which the pine species have adapted to, these forests would slowly change to Mesic, dominated by oak, hickory and red maple. Northern Pine-Oak forests occur on sandy, or otherwise poor soils that are overly dry. All coastal plains of eastern North America are Xeric (dry forest). They generally have lower species diversity than bottomland forests (Kricher 1988:16-17, 65-66). The reason the forest soils and surfaces are so dry in this moist region is due to the excessive drainage of overly sandy soils on the Coastal Plain.

At the time of the Phase IB survey, the area consisted of an existing golf club. The driving range was a manicured golf course/range, the maintenance area was impacted by buildings, paved driveway/parking areas, and debris piles, and the northwest section consisted of an extremely dense undergrowth with mostly various types of briars and grape-like vines, with also large vines, and assorted scrub.

PREHISTORIC POTENTIAL

A prehistoric site file search was conducted at the New York State Historic Preservation Office (NYSHPO). Archaeological sites recorded within 1 mile of the study area included:

NYSM Site	NYSHPO Site	Distance from APE ft(m)	Site Type
7616		on or adjacent	Sites?
707		adjacent	Indian Hill.
	10304.000009	890 (271)	Makamah Beach. Near east branch of un-named Creek through Crab Meadow Park. Artifacts found include Wading River points and quartz chips.
5513		1004 (306)	Makamah Beach, SCAA 108, NCM210. Late Archaic. Artifacts found include Wading River projectile points and quartz chips.
	10308.0026	1466 (447)	Fresh Pond Eel Fishing Site: Fishing station.
5511		4679 (1427)	Lambert, SCAA 107, NCM 142. Artifacts found include quartz debitage, large knife fragments and chert debitage.

Indian foot trails were recorded historically and 1 appears along or close to Route 25A (Fort Salonga Road) (Stone nd:map).

Assessing the known environmental and prehistoric archaeological data, we can summarize the following points:

-The project area is between 365 to 3137 feet from the Long Island Sound, between 848 to 2036 feet from Fresh Pond and between 1299 to 300 feet from salt water marshes.

-The study area is situated on mostly well drained soils with level to steep slopes and some cut and fill areas.

-An Indian foot trail passed nearby the project area.

-Numerous prehistoric sites are recorded near the study area including 2 on the golf club and 1 possibly on the NW project area.

In our opinion, the study area has a high potential for the recovery of prehistoric archaeological remains along the level to moderately sloped areas and intact ground, especially the NW section.

HISTORIC POTENTIAL

Contact Period (Seventeenth Century)
At the time of European contact and settlement, this section of Long Island was occupied by the Matinnecock tribe (Bolton 1975:map, 53-54; Stone-Levine 1980:161). The nearest villages of the Matinnecock tribe were the Slongo and Arhakaamunk (Stone nd. map).

Indian trails have been reported in the vicinity of the project area. They traversed along or close to Route 25A (see Prehistoric Potential).

By 1650 the Matinnecock tribe consisted of only 30 families. This number was most likely greatly reduced from their pre-Contact population. At this time "great numbers of Indian plantations now lie waste and vacant" (Bolton 1975:54).

Between 1653 and 1654, the Matinnecock "sold" the last of traditionally occupied territory to the new European settlers (Bolton 1975:54).

Actually, the Matinnecock may have been pressured to "sell" their land. They were likely influenced by the now powerful (probably due to European influence) Wyandanch, chief of the Montauket tribe. Wyandanch denied the Matinnecock any land between Cow Harbor (Northport Harbor) and the Nissequogue River which they sold to the settlers. Land in Huntington, including the present day Township of Babylon, was sold either by Wyandanch himself or under pressure from Wyandanch by the local villages (Street 1982:2-10; Thompson 1918: 386 Bolton 1975:46). Since hunter-gatherers are normally exogamous, and since the Long Island Indians also appeared to follow this custom, genealogical connections between individuals or villages may have also played a part in political influence between tribes.

Eighteenth Century
The old Indian trails became established roads used by settlers (Huntington Historical Society 1937:17).

Wigwams were reported in the 1740's by Reverend Horton who may have lived in them. The nearest was reported along the aforementioned Indian foot trail, near Fresh Pond (Stone nd:map, Stone 1980:170).

The Matinnecock tribe was nearly passed away by this time. Many scattered survivors of the tribe lived as servants to the European-Americans. Farming operations were in all parts of the Township and the associated buildings consisted of small, rude houses and barns with thatched roofs (Street 1982:36).

Nineteenth Century

About 1810 a movement to improve the old Indian trails (now established roads) spread to Long Island from upstate. Private companies were hired to improve road, build toll gates and levy tolls. These roads became known as turnpikes and were merely old dirt roads, in some cases straightened a bit, but worked into such shape that the road was raised toward the middle for better drainage with gutters along the edges. A toll gate along Jericho Turnpike was placed at Commack in the Huntington-Smithtown border (Huntington Historical Society 1937:17-18).

Farmers were principally engaged in raising wheat, rye and corn, and the raising of livestock, including horses, cattle and sheep. Only a limited amount of sheep were originally raised due to the ever present threat of wolves. As many as five flour mills were constructed (Street 1982:36).

The 1836 Colton map shows Crab Meadows salt marshes and Fresh Pond. There no structures on or adjacent to the project area (Figure 4).

The 1858 Chace map depicts the Gardiner structures possibly adjacent to the project area south of Breeze Hill Road (Figure 5).

Crab Meadow was a marshy region with approximately twelve farm houses. Fresh Pond had a store, a post office, and two large brick yards. Vernon Valley was a pleasant farming district with about 150 inhabitants. Northport was a flourishing village where shipbuilding was a considerable business. Manure from New York City was shipped to Northport and bought by farmers in the surrounding area. Fishing and shell fishing were also big businesses as was sand and clay mining (Bayles 1962:162-165).

The 1873 Beers atlas shows the Brick Co. building possibly adjacent to the project area on the south side of Breeze Hill Road. Other buildings, including brick yards, are nearby but not adjacent to the northwest project area (Figure 6)

The 1896 Hyde atlas depicts no structures on or immediately adjacent to the project area although there are brickyards nearby. The brick yard company may have owned the northern project areas (Figure 7).

Twentieth Century

The 1903 U.S.G.S depicts a structure possibly adjacent to the property to the northwest and south of Breeze Hill Road (Figure 8).

An historic site file search was conducted at the New York State Historic Preservation Office (NYSHPO). Archaeological sites recorded within 1 mile of the study area included:

NYSM Site	NYSHPO Site	Distance from APE ft(m)	Site Type
	A10308.000036 A10308.000425	2846 (868)	Remains of Fort Slongo: Fort Slongo was a small fortress on what was then called Treadwell's Neck in Smithtown. The British built it during the Revolutionary War as an outpost from which they could scan the Long Island Sound for rebels. It consisted of an embankment forming a hollow square of about 50 feet, built at the head of a small ravine that sloped abruptly westward into the valley. The walls were formed by banking earth around trees growing in their natural position and around posts set in the ground. On October 2, 1781, while the British troops were drinking at a nearby tavern, a small group of rebels crossed the sound and attacked and overtook the fort. The patriots burned the fort to the ground and returned to Connecticut with 21 captured British soldiers, three cannons and some small arms, all in the last days of the War.

Assessing the known environmental and historic archaeological data, we can summarize the following points:

-The project area is between 365 to 3137 feet from the Long Island Sound, between 848 to 2036 feet from Fresh Pond and between 1299 to 300 feet from salt water marshes.

-The study area is situated on mostly well drained soils with level to steep slopes and some cut and fill areas.

-An Indian foot trail passed nearby the project area. A wigwam was reported along it close by the project area.

-Historic structures were nearby and possibly adjacent to the project area south of Breeze Hill road and to the northwest.

-An historic site was reported in the vicinity.

In our opinion, the study area has a higher than average potential for the recovery of historic archaeological remains on the more the level to moderately sloped terrain and intact ground.

FIELD METHODS

Walkover-Reconnaissance

Exposed ground surfaces (70 to 100 percent visibility) were subjected to a close quarters walkover, at 5 meter intervals, to observe for artifacts. Covered ground terrain was reconnoitered at about 15 meter (25ft) intervals to observe for any above ground features, such as berms, depression, or rock configurations, which could be evidence for a prehistoric or historic site. Photographs were taken of the project area.

Shovel Testing
Shovel tests (ST's) were excavated at about 15 meter (50ft) intervals across the project area. Each ST measured about 30 to 40 cm. in diameter and was dug into the underlying subsoil (B horizon) 10 to 20 cm. when possible. All soils were screened through 1/4 inch wire mesh and observed for artifacts. Shovel tests and surface finds were flagged in the field. All ST's were mapped on the project area map at this time.

Soil stratigraphy was recorded according to texture and color. Soil color was matched against the Munsell color chart for soils. Notes were transcribed in a notebook and on pre-printed field forms.

FIELD RESULTS

Field testing of the project area included the excavation of 240 ST's across the 3 project areas. No prehistoric artifacts or features were encountered on the golf drive range (SW section) or the maintenance area (NE section). A Native American site was encountered on the northwest section (see below).

Stratigraphy
-A/O horizon - 0 to 4 cm of rootmat, leaves, and humus.

-A horizon - 4 to 23 cm. thick of 10YR4/3 brown loamy sand .

-B horizon - consisted of 10 to 20 cm. dug into of 10YR5/4 yellow brown loamy sand.

Artifacts
All 7 artifacts were found in the North-West project area near the bluff overlooking the Long Island Sound:
ST 29: 1 quartz tertiary flake
ST 43: 1 black/olive green glass drill/utilized flake
ST 49: 1 quartz very small biface
ST 56: 1 white quartzite 1 primary flake
ST 86: 1 quartz primary flake
ST 99: 1 black/olive green utilized flake
ST 100: 1 quartz tertiary flake

CONCLUSIONS AND RECOMMENDATIONS

Based upon topographic characteristics, distance to other known prehistoric sites and an Indian trail, the property was assessed as having a higher than average potential for encountering prehistoric sites.

Based upon topographic characteristics, distance to historic map documented structures, historic sites, historic roads, and an Indian trail, the property was assessed as having a higher than average potential for encountering historic sites.

The field testing included the excavation of shovel tests at 15 meter intervals across the project area. No prehistoric or historic artifacts or features were encountered on the golf drive range (SW section) or the maintenance area (NE section). A Native American site was encountered on the northwest section consisting of 7 artifacts of quartz and black/olive green glass, flakes and small tools in 7 positive ST's.

-No further work is recommended at the golf drive range (SW section) or the maintenance area (NE section).

-We recommend Phase II intensive testing on the North-West Section of the project area (near the bluff overlooking the Long Island Sound) prior to any development related ground breaking or construction which threatens site information.

The purpose of the Phase I archaeological survey is to establish the presence or absence of archaeological sites. If the site is to be impacted by proposed construction or other activities, Phase II intensive testing of any archaeological site is them specified by the regulations of the New York State Historic Preservation Office and the National Advisory Council on Historic preservation. Phase II investigation methods should interpret the archaeological sites and determine if it is eligible for the nomination to State or National Registers of Historic Places.

Phase II investigations would supply information needed to make this determination and would include:

1) Site integrity, including the depth and extent of undisturbed soil horizons and the presence or absence of cultural features, and the degree of natural and/or human disturbances to those features.
2) Cultural components/affiliations and time range present.
3) Vertical and horizontal distribution of archaeological remains (spatial boundaries and stratigraphic levels).
4) Site interpretation, including any uniqueness/significance, in a local or regional context, must be demonstrated.

RESEARCH QUESTIONS

-What is the temporal affiliation of this site?
Diagnostic points, pottery, other artifacts, or radiocarbon from features can solve this question.

-What activities are present on the Indian Hills Site?
Defining artifact types and identify associated tasks will answer this.

-Can intra-site settlement patterns be distinguished?
Identifying and interpreting artifact concentrations and their relative spatial distributions and associated tasks will assist with this task.

-Can site seasonality be determined?
Flotable features could possibly identify seasonality.

-Did the natural or cultural landscape and/or resources of the area influence the inhabitants activities.

-How does this site fit into the local and/or regional settlement patterns?
A comparison of other sites in the vicinity will provide insight here.

-Is the Indian Hills Site eligible for nomination to the National or State Registers of Historic Places?
(see above 4 criteria).

FIELD METHODS

Phase II field work took place between September 12 and 13, 2015. Field methods consisted of the excavation of additional ST's and also test units (TU's).

Phase II Radial Shovel Testing

Phase I shovel testing recovered artifacts strewn out across the project area at approximately 275 to 50 feet apart, indicating a light, scattered artifact density. Phase II shovel testing was designed to test this light density site for the best results. Phase II shovel tests were therefore originally conducted at 25 and 12.5 foot intervals, but narrowed to 1 meter intervals around Phase I positive ST's.

Test Units

Test units were placed primarily in areas of highest artifacts concentration for this site. Test units measured 1 meter square. They were dug by natural stratigraphy with some arbitrary levels. Excavation ceased at 10 cm. into culturally sterile subsoil.

Excavation of the 1 meter square TU's was accomplished manually with the use of shovel and trowels. Shovel technique utilized was the "skimming" method. Soil horizon interfaces or any potential feature stains were troweled in an attempt to uncover cultural features. Elevations of stratigraphy were recorded with the use of a line level which was placed at 10 cm above ground surface, usually at the corner with the highest elevation.

Pre-printed ST field forms were completed for all ST's. Note for all TU's were transcribed on pre-printed TU field forms. These were completed for each TU and level. Notes and sketches were also recorded in a field journal. Photographs were taken of stratigraphically profiled TU walls, environmental information, and general work in progress.

Soils were screened though a 1/4 inch wire mesh on 3 TU's and *1/8 inch mesh* on 1 TU and analyzed for artifacts. Excavated soils were subjected to 100% screening. Stratigraphic profiles were mapped for TU's. All artifacts were bagged by TU and level, provenienced, and returned to the laboratory for processing and analyses.

FIELD RESULTS

Re-shovel testing of the prehistoric site included a total of 84 additional ST's, of which 6 were positive. Four TU's were excavated during the Phase II intensive testing of the Indian Hills Site.

Phase II shovel testing confirmed the following:
-The site appears to have spread east from the golf course, across the wooded project area, and very possibly off the Indian Hills Golf Club property to the west, where other recorded sites are located
-The highest artifact density appeared at the edge of the existing golf course, closer to the previously recorded Indian Hills sites. The remainder of the site consisted of a light scattering of artifacts between 275 to 50 feet apart.

Stratigraphy

Stratigraphy taken from TU's and consisted of:

Level 1, A/O Horizon - about 1 to 12 cm. thick of root mat, leaf litter and humus.

Level 2, A Horizon - about 5 to 13 cm. thick of 10YR4/3 brown, loamy sand.
Level 2B, A Horizon (arbitrary level) - about 7 to 17 cm. thick of 10YR4/3 brown, loamy sand.

Level 3, A/B Horizon Interface - about 11 to 18 cm. dug into of mottled 10YR4/3 topsoil with subsoil,

10YR5/6 loamy sand.

Level 4, B Horizon, subsoil -. dug into 10 cm. of 10YR 5/6 yellow brown loamy sand. This was a culturally sterile layer.

Test Excavation Units
Areas for placement of TU's on this small artifact concentration was determined on ST artifact counts and/ or types.

Test Unit 1 as excavated next to positive radial ST 296 ("12.5' South of ST 99"). Test unit 4 was subsequently excavated adjacent to TU1.

Test Unit 2 was placed near positive radial ST 310 ("12.5' North of ST 100").

Test Unit 3 was placed near positive radial ST 290 ("12.5' North of ST 99").

LABORATORY METHODS

Methods used consisted of the investigation of raw material variety, flake attributes such as decortication reduction sequences, tool identification, and edgeware analysis (retouch and utilization). Artifacts were weighed, selected whole points and other selected tools were measured. Analysis was, for the most part, conducted macroscopically (with the naked eye). The use of a hand lens or microscope may have been also used in some instances for determining use wear versus retouch, mineral composition, and some general analysis.

LABORATORY RESULTS

Phase II investigations of theIndian Hills Site resulted in the recovery of 171 prehistoric artifacts, 164 from TU's and 7 of which were from Phase II ST's. This amount combined with the 7 artifacts from the Phase IB survey totaled 178 artifacts. The exact type of artifacts and its location are listed in appendix 4. (Inventory).

Native American artifacts:

Debitage

Total Debitage (% of Phase I & II lithics)	tertiary flakes (% of debitage	secondary flakes (% of debitage	primary flalkes (% of debitage)
167 (94%)	141 (84.5%)	15 (9%)	11 (6.5%)

Tools

Total tools (% of Phase I & II lithics)	Points (% of tools)	Bifaces (% of tools)	Utilized flakes (% of tools)	Drill/Utilized Flake	quartz crystal (% of tools) (% of tools)
10 (2 glass) (5.5)	2 (1 Rossville-like) (20%)	5 (50%)	1 glass (10%)	1 glass (10%)	1 (10%)

The Rossville point is dated by Ritchie (1989:46) as Terminal Archaic through Early Woodland. However, they were also found at the Goat Island rock-shelter burial in association with Early to Middle Woodland ceramic (Chilton 1992).

Fire Cracked Rock
A total of 1 possible (rose colored) FCR (.5%) of lithics was collected from TU 2.

Material
Virtually all raw material was of quartzite/quartz with the exception of 2 glass artifacts (utilized flake and drill/utilized flake) and a metamorphic/igneous type (large biface).

LOCATION OF ARTIFACTS

Artifacts per TU (not including Euro-American artifacts):

TU	ARTIFACT COUNT (% PER TU)	ARTIFACT TYPES
1	31	all flakes, Biface fragment (3 Euro-American (EA) ceramics)
2	19	tertiary and secondary flakes, possible FCR (6 EA)
3	33	all flakes, Rossville-like Point, white quartz crystal (7 EA)
4	81	all flakes, marginal Biface, possible Biface, Point tip (3 EA)

Artifacts by Level for TU's (not including Euro-American artifacts):

LEVEL	COUNT	ARTIFACT TYPE
1	2	tertiary flakes
2A	25	all flakes, (4 EA)
2B	86	all flakes, possible FCR, 2 Bifaces, 1 Point (tip), white quartzite crystal, (EA10)

LEVEL	COUNT	ARTIFACT TYPE
3	51	all flakes, Rossville-like Point, Biface (5 EA)
4	0	na

CULTURAL INTERPRETATIONS

The IndianHills Site appears to represent a combination of occurrences. The loosely dated Rossville point suggests an Early Woodland Period occupation, but give or take about a prehistoric Period (Late Archaic to Middle Woodland). The 2 olive green wine/liquor glass modified (and likely unmodified) artifacts suggests a Contact Period, or very early Historic Native American occupation. The historic ceramic points to still another occupation, nineteenth century.

Activities on site appear to include:
-Hunting as evidenced by 2 points.

-Butchering with 5 bifaces

-Ephemeral Cooking/Late Food Processing as shown by 1 FCR

-Historic Hide Preparation suggested by a (wine/liquor) glass Utilized flake and a Drill

-Nineteenth century Food Preparation evidenced with by a variety of ceramic

-Stone Tool Production-Final stage as shown by tertiary flakes and bifaces.

-Stone Tool Production- Initial stage shown by primary flakes

-possible Ceremonialism as indicated by the quartz crystal recovered.

Spatial Analysis/Intrasite patterns:
-Most of the Indian Hills Site appears to be sparsely spread out across the NW project area and included both stone debitage and 2 stone tools as well as 2 glass tools from wine/liquor glass. Stone bifaces were recovered from shovel tests both at the northwest and southwest areas. The 2 glass tools were encountered in the southeast and center portions of this project area. It is difficult to say whether the stone artifacts are a separate occupation here from the historic occupation or whether the historic occupants were using both materials.

-Most of the artifacts come from the concentration in the southeast corner of the project area where all the test units were excavated. Test unit 1 and adjacent TU 4 may indicate a lithic workshop at this locale. There were 3 bifaces recovered here, 1 from TU 1 and at 2 bifaces from TU 4 as well as a point tip, and a high amount of teritary flakes. Test unit 4 produced 2 to 3 times more artifacts, in the form tertiary flakes, than the other TU's on site.

Test unit 3 produced both a Rossville-like point and a quartz crystal, possible indicating some sort of ceremonial activity here at the north end of the artifact concentration.

Test unit 2 produced the least amount of artifacts but the only fire cracked rock on site, indicating some low level cooking activity here.

Historic artifacts included (unmodified) olive green wine/liquor bottle glass from TU's 2 and 3 which are likely associated with the Contact/early Historic Period olive green wine/liquor glass tools found elsewhere on site. Brown and black whiteware transferprint were in TU 1, brown transferprint in adjacent TU 4 and blue transferprint was in TU 2 and TU 3. Hand painted pearlware was recovered from adjacent TU's 1 and 4. All historic artifacts were recovered in association with the lithic artifacts from all cultural levels. It should be noted that modern, twentieth century, debris was also recovered in association to both lithics and historic artifacts down to level 2B.

Regional & Period Settlement Pattern Review

-The Indian Hills Site is situated along a high bluff overlooking the Long Island Sound. Prehistoric sites are reported from Fresh Pond to the east, through Indian Hills Golf Club, to Makamah Beach and Crab Meadow in the west.

-Historic Fort Slongo was also reported nearby indicating an Eighteenth Century presence close to this project area.

-Middle to late nineteenth century brick yards were adjacent to this project area and the brick companies may have owned the project area here at some point. Woodland or Historic Period Native Americans may have also utilized the clay deposits for their pots.

All of these time periods are also present on the Indian Hills Site and mixed together stratigraphically in all of the test units.

SUMMARY AND RECOMMENDATIONS

The Indian Hills Site appears to represent a combination of occurrences reflected in other recorded sites close by. The loosely dated Rossville point suggests an Early Woodland Period occupation, but give or take about a prehistoric Period (Late Archaic to Middle Woodland). The 2 modified glass artifacts suggests a Contact Period, or very early Historic Native American occupation. The historic ceramic indicates still another occupation, nineteenth century. All of these time periods are present on the Indian Hills Site but mixed together stratigraphically in all of the test units. Modern, twentieth century, (discarded) debris is also mixed in for most levels with the aforementioned period artifacts.

A site is eligible for nomination to the National Register of Historic Places if it meets one or more of the following criteria (as set forth in 9 NYCRR 427 and 428 or CRF 800):

A) Associated with events that have made a significant contribution to the broad patterns of our history;
B) Associated with the lives of persons significant in our past;
C) Embodies the distinctive characteristics of a type, period, or method of construction, or represents a significant and distinguishable entity whose components may lack individual distinctions; or
D) Has yielded, or may be likely to yield, information important in prehistory or history.

In our opinion, the Indian Hills Site does not have research value that would make it eligible for the historic registers for the following reasons:

-Stratigraphic mixing of artifacts with each other: nineteenth century, Contact/early historic Period associated, and prehistoric periods through all cultural levels. These in turn are mixed with modern debris through all but the lowest level. This is evident from the test units in the area of artifact concentration. The remainder of this site consists of a light scattering of artifacts.

-In addition, no features are on this site.

No further work is therefore recommended.

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APPENDIX 1

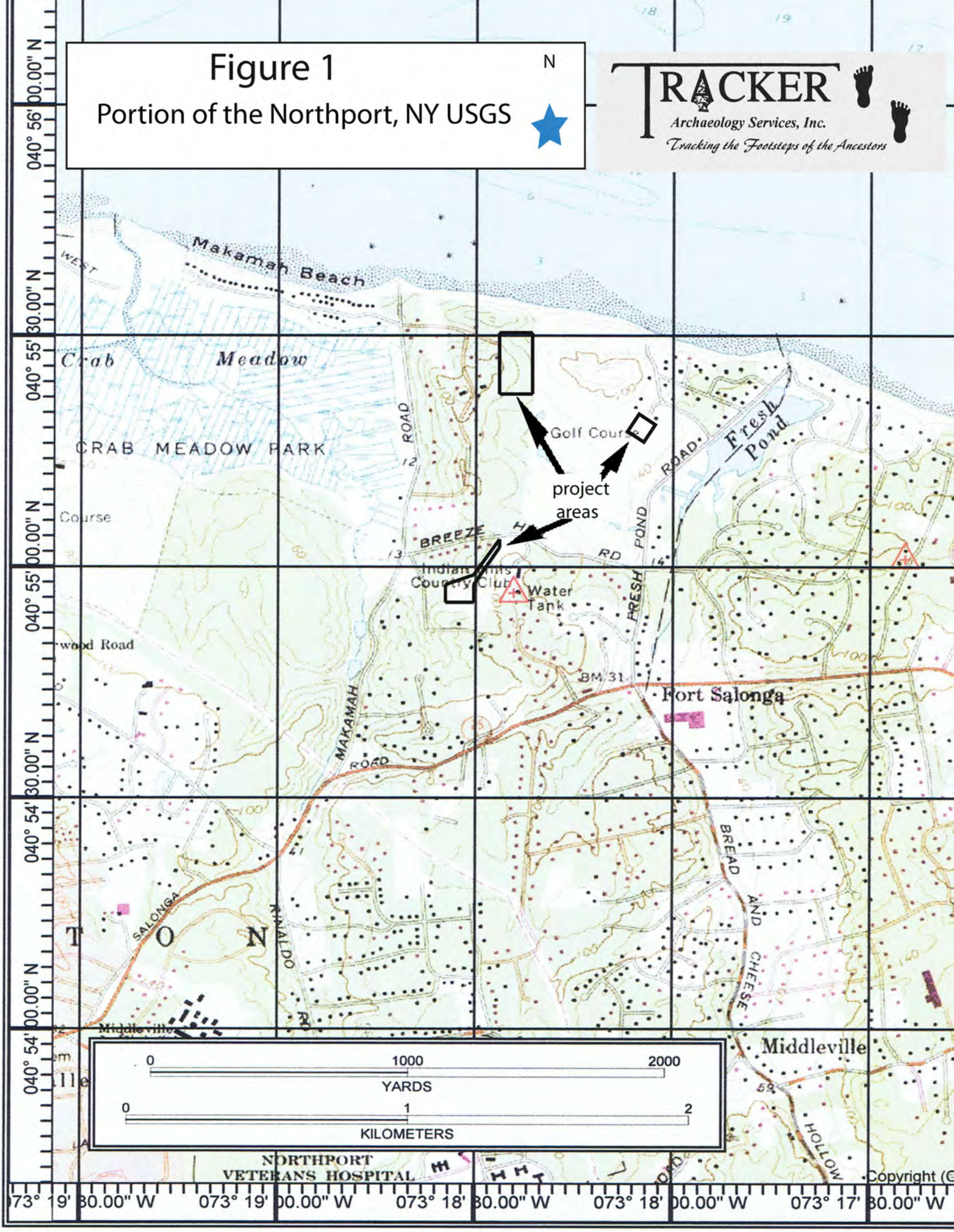


Figure 1
Portion of the Northport, NY USGS
N
TRACKER
Archaeology Services, Inc.
Tracking the Footsteps of the Ancestors
Makamah Beach
Crab Meadow
CRAB MEADOW PARK
Course
ROAD
Golf Cour
project areas
Fresh Pond
ROAD
BREEZE
RD
POND
FRESH
Indian Hills Country Club
Water Tank
wood Road
BM 31
Fort Salonga
MAKAMAH
ROAD
BREAD AND CHEESE
SALONGA
RINALDO
RD
T O N
Middleville
HOLLOW
NORTHPORT VETERANS HOSPITAL
0 1000 2000
YARDS
0 1 2
KILOMETERS
040° 56' 00.00" N
040° 55' 30.00" N
040° 55' 00.00" N
040° 55' 00.00" N
040° 55' 30.00" N
040° 54' 00.00" N
040° 54' 00.00" N
073° 19' 30.00" W
073° 19' 00.00" W
073° 18' 30.00" W
073° 18' 00.00" W
073° 17' 30.00" W
Copyright (C

FIGURE 2: LOCATION OF SHOVEL TESTS

PHOTO ANGLE
NEGATIVE SHOVEL TEST
POSITIVE SHOVEL TEST W/ 1 PREHISTORIC ARTIFACT
PROJECT LIMITS (A.P.E.)

PROJECT NAME: INDIAN HILLS

TRACKER Archaeology Services, Inc.
"Tracking the Footsteps of the Ancestors"

Figure 3

Portion of the 1836 Colton map

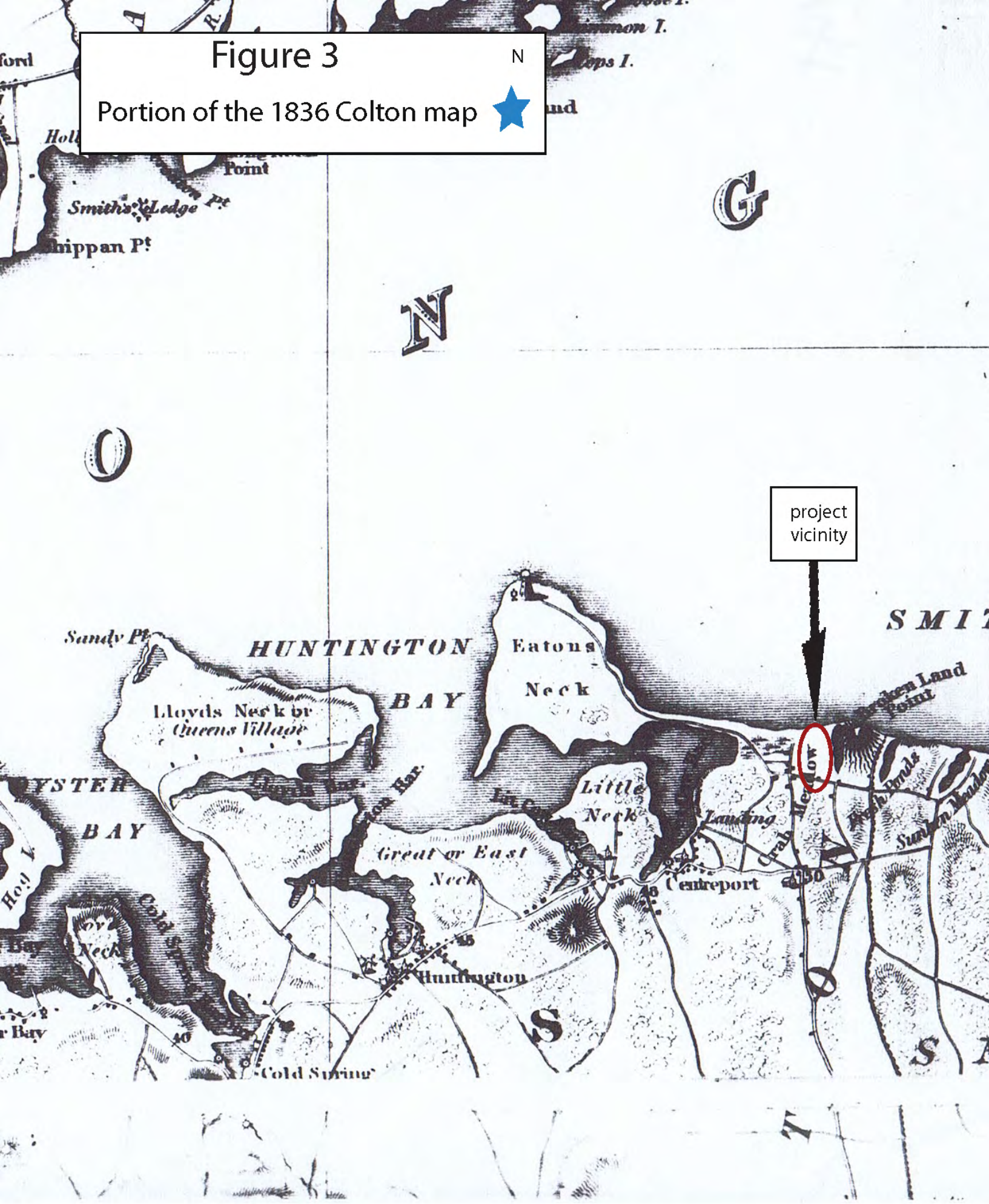
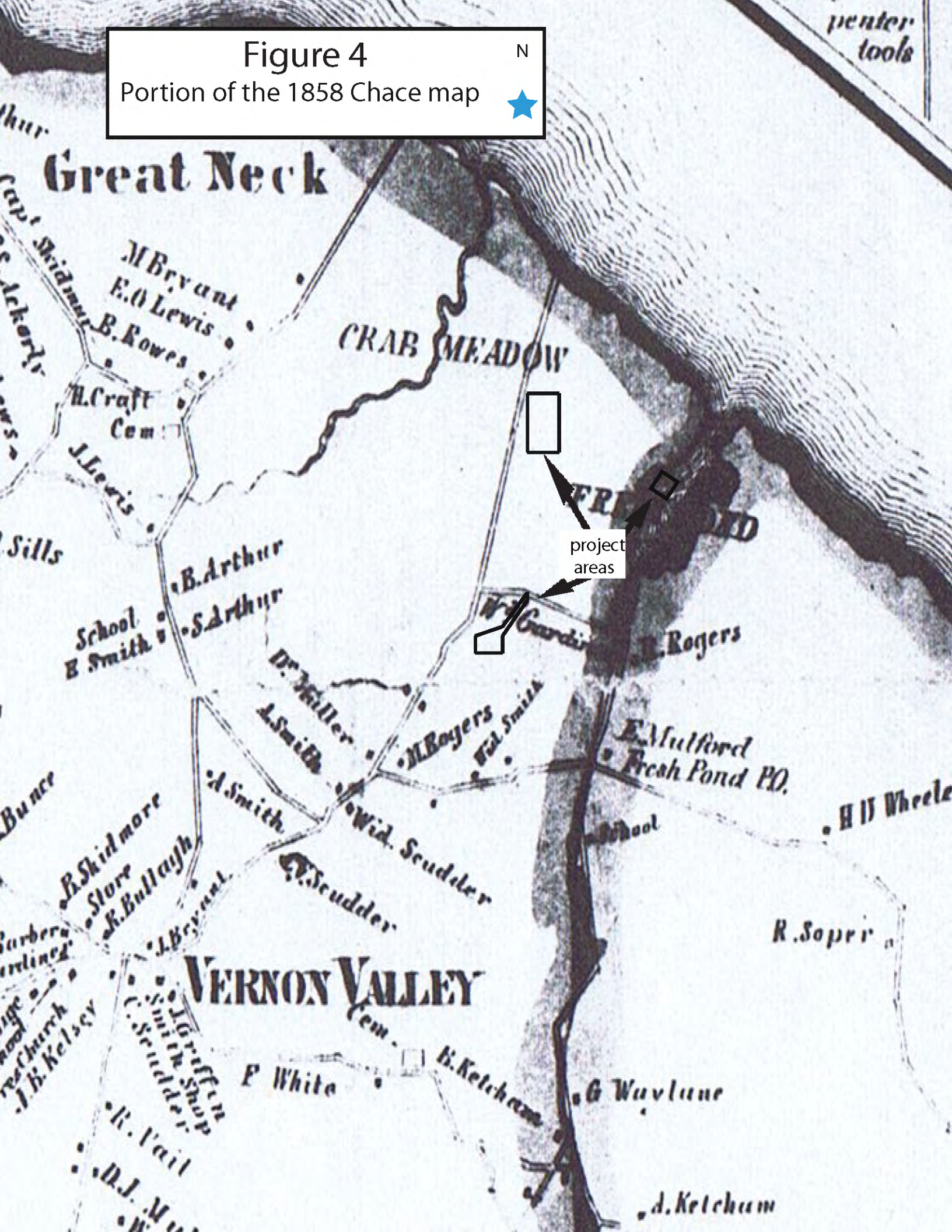
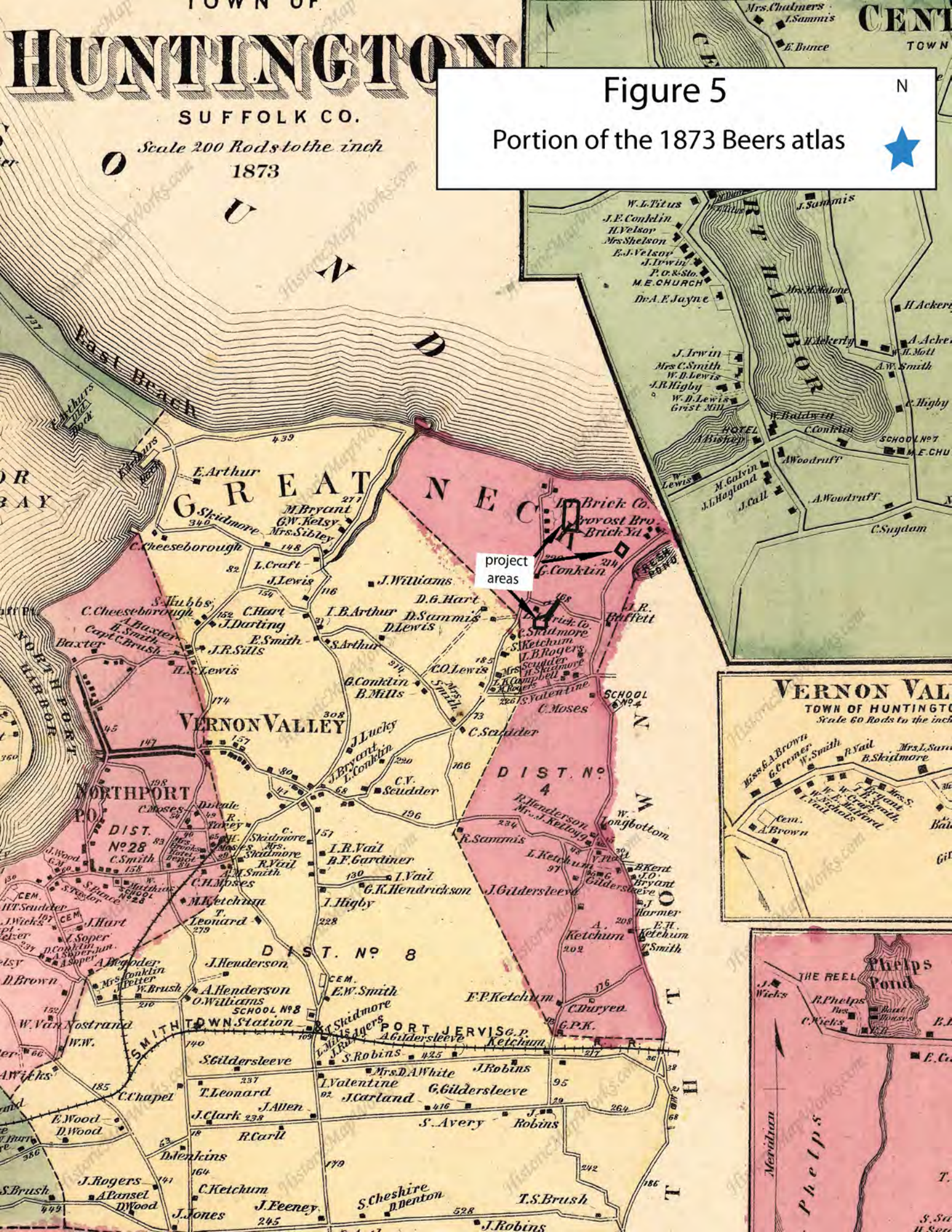


Figure 4
Portion of the 1858 Chace map

N




TOWN OF
HUNTINGTON
SUFFOLK CO.
Scale 200 Rods to the inch
1873
Figure 5
Portion of the 1873 Beers atlas
N
project areas
GREAT NECK
VERNON VALLEY
NORTHPORT
DIST. No 28
DIST. No 4
DIST. No 8
PORT JERVIS
SMITHTOWN Station
East Branch
NORTHPORT HARBOR
HARBOR
SCHOOL No 4
SCHOOL No 8
VERNON VALLEY
TOWN OF HUNTINGTON
Scale 60 Rods to the inch
Phelps Pond
THE REEL
Meridian

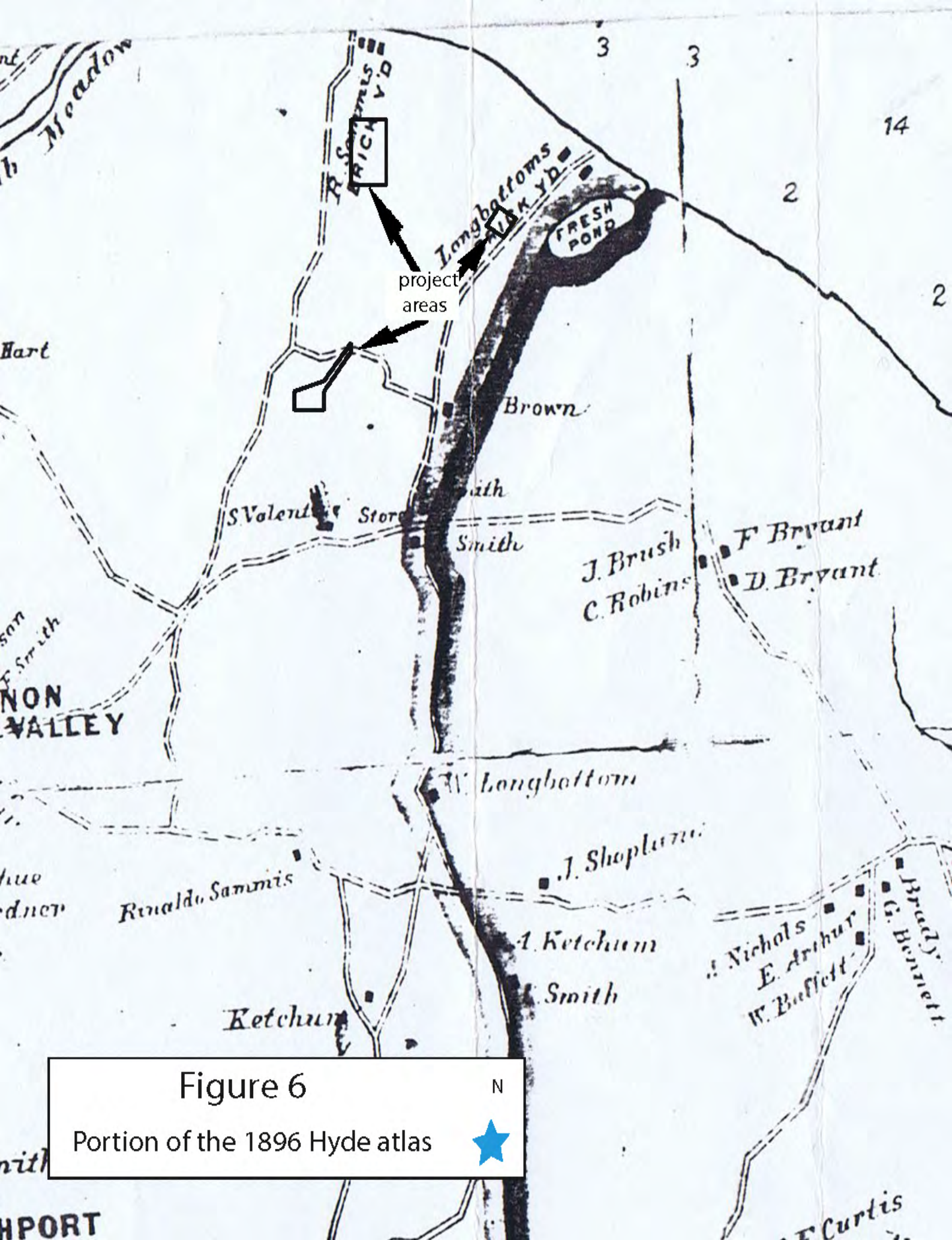


Figure 6

Portion of the 1896 Hyde atlas

Figure 7
Portion of the 1903 USGS

Figure 8

Portion of the County Soil Survey

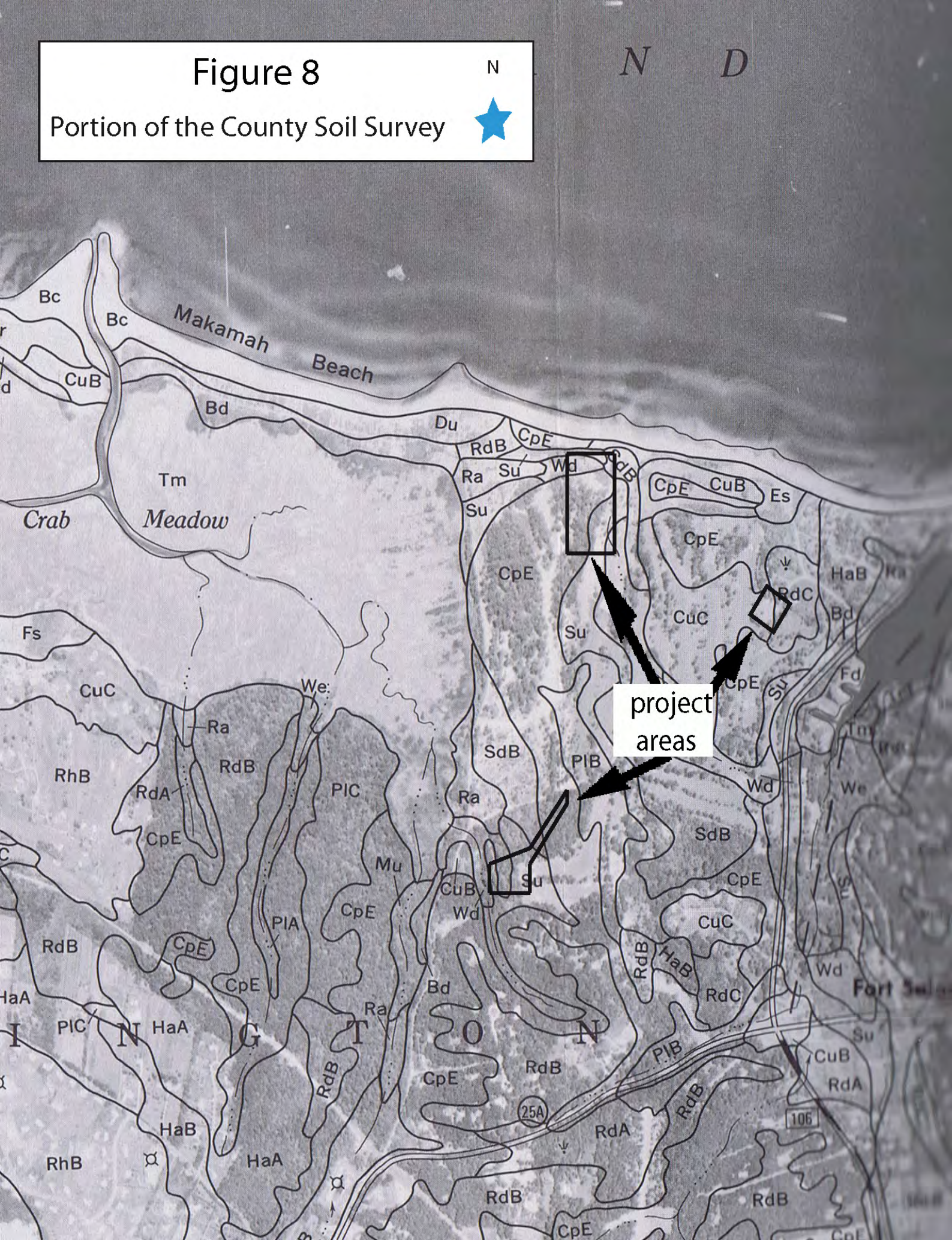
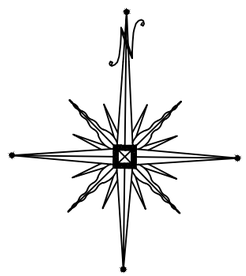


FIGURE 9: LOCATION OF PHASE 2 SHOVEL TESTS

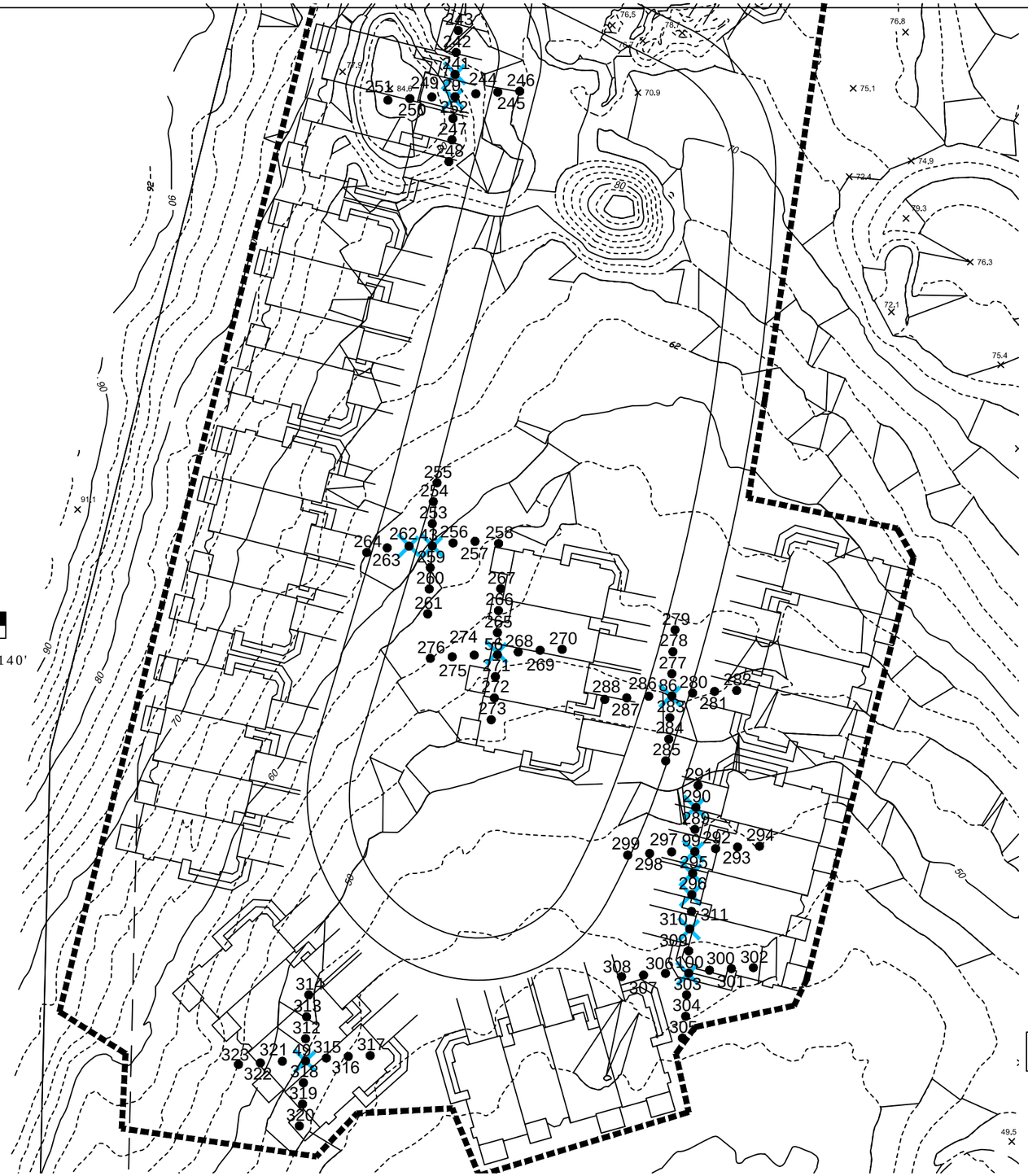
- NEGATIVE SHOVEL TEST
- POSITIVE SHOVEL TEST W/PREHISTORIC ARTIFACTS



SCALE: 1 INCH = 70 FEET

140' 105' 70' 35' 0 70' 140'

NOTE: RADIAL SHOVEL TESTS ARE NOT TO SCALE



PROJECT NAME: INDIAN HILLS

TRACKER Archaeology Services, Inc.
Tracking the Footsteps of the Ancestors

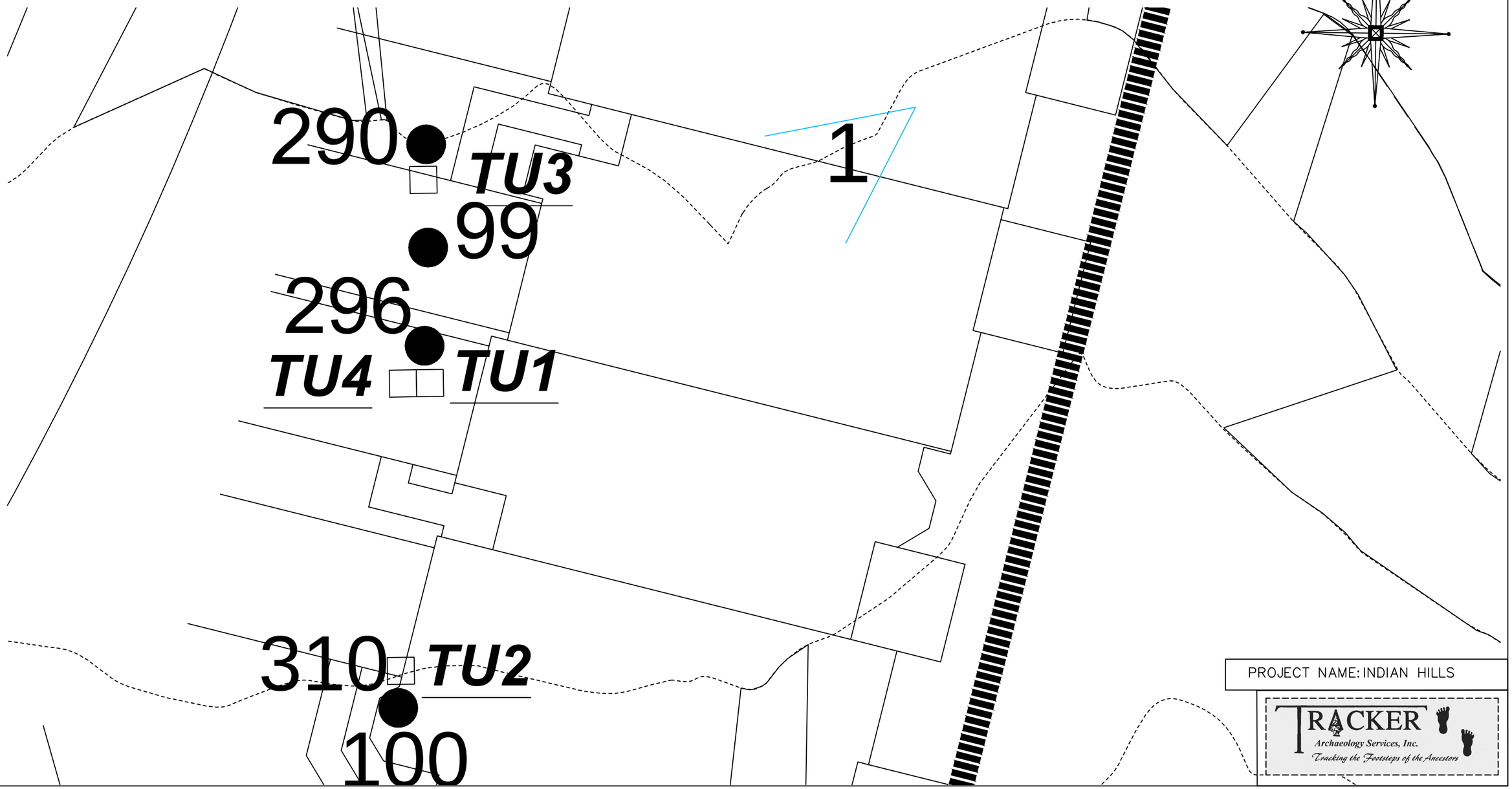
FIGURE 10: LOCATION OF TEST UNITS

TEST UNIT(TU)

PHOTO ANGLE

SCALE: 1 INCH = 12 FEET

24' 18' 12' 6' 0 12' 24'



PROJECT NAME: INDIAN HILLS

TRACKER
Archaeology Services, Inc.
Tracking the Footsteps of the Ancestors

FIGURE 11: ARTIFACT DENSITY & DISTRIBUTION

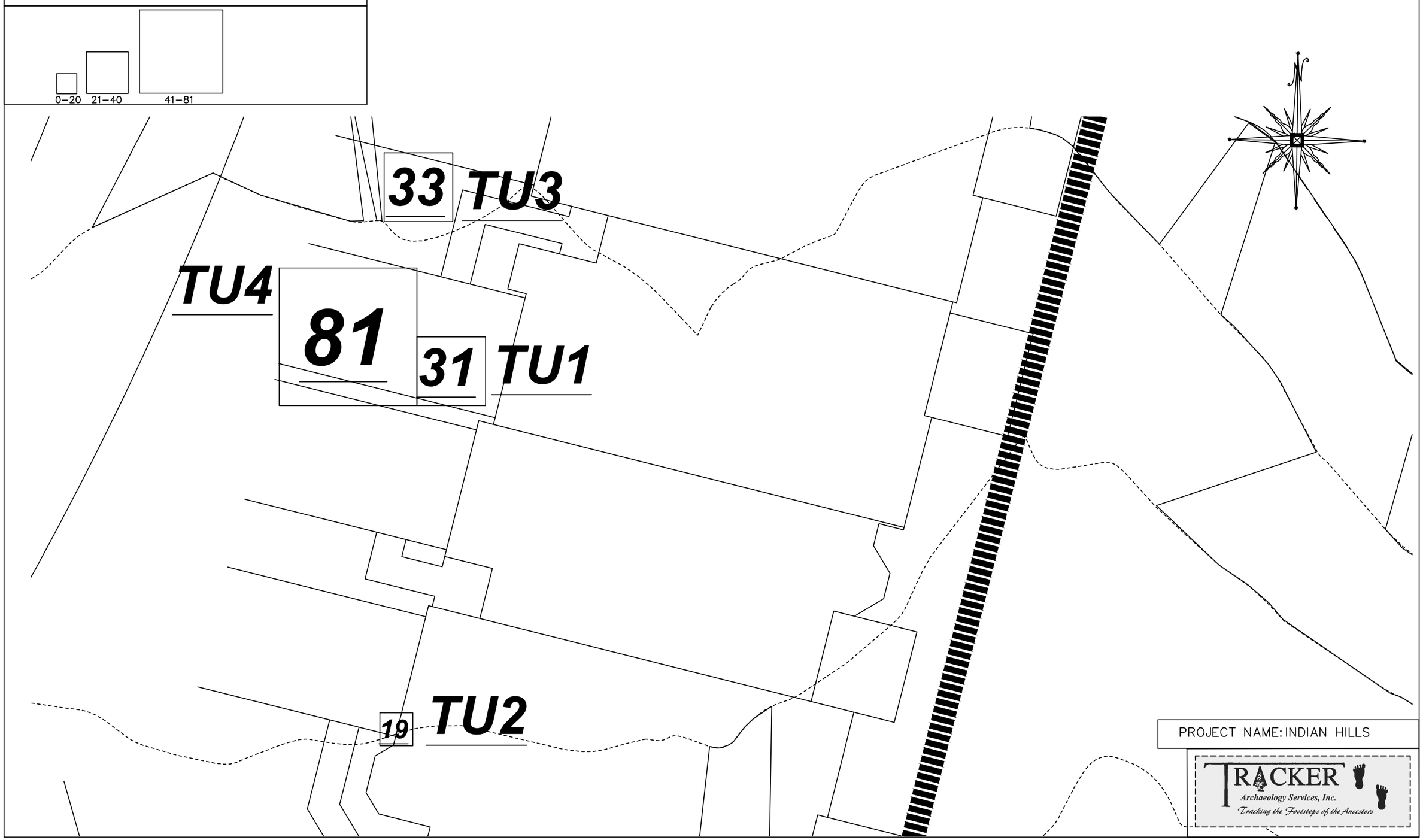


FIGURE 12: PROFILES OF TEST UNITS 1 & 4

PROJECT NAME: INDIAN HILLS

TRACKER Archaeology Services, Inc. Tracking the Footsteps of the Ancestors

NORTH VIEW PROFILE- TEST UNITS 1 & 4

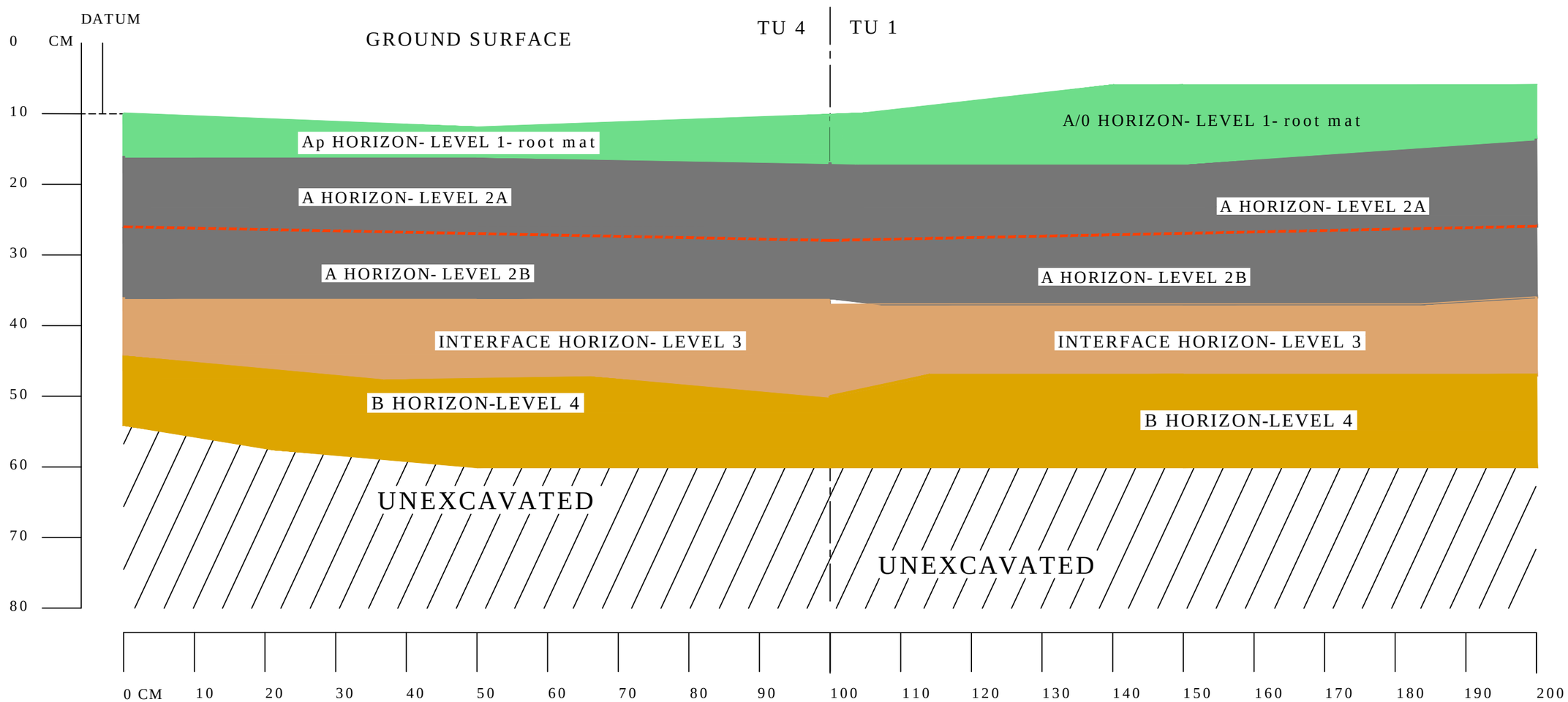


Photo 1
Looking from near ST 30

Photo 2
Looking from near ST 94

Photo 3
Looking north from near ST 41

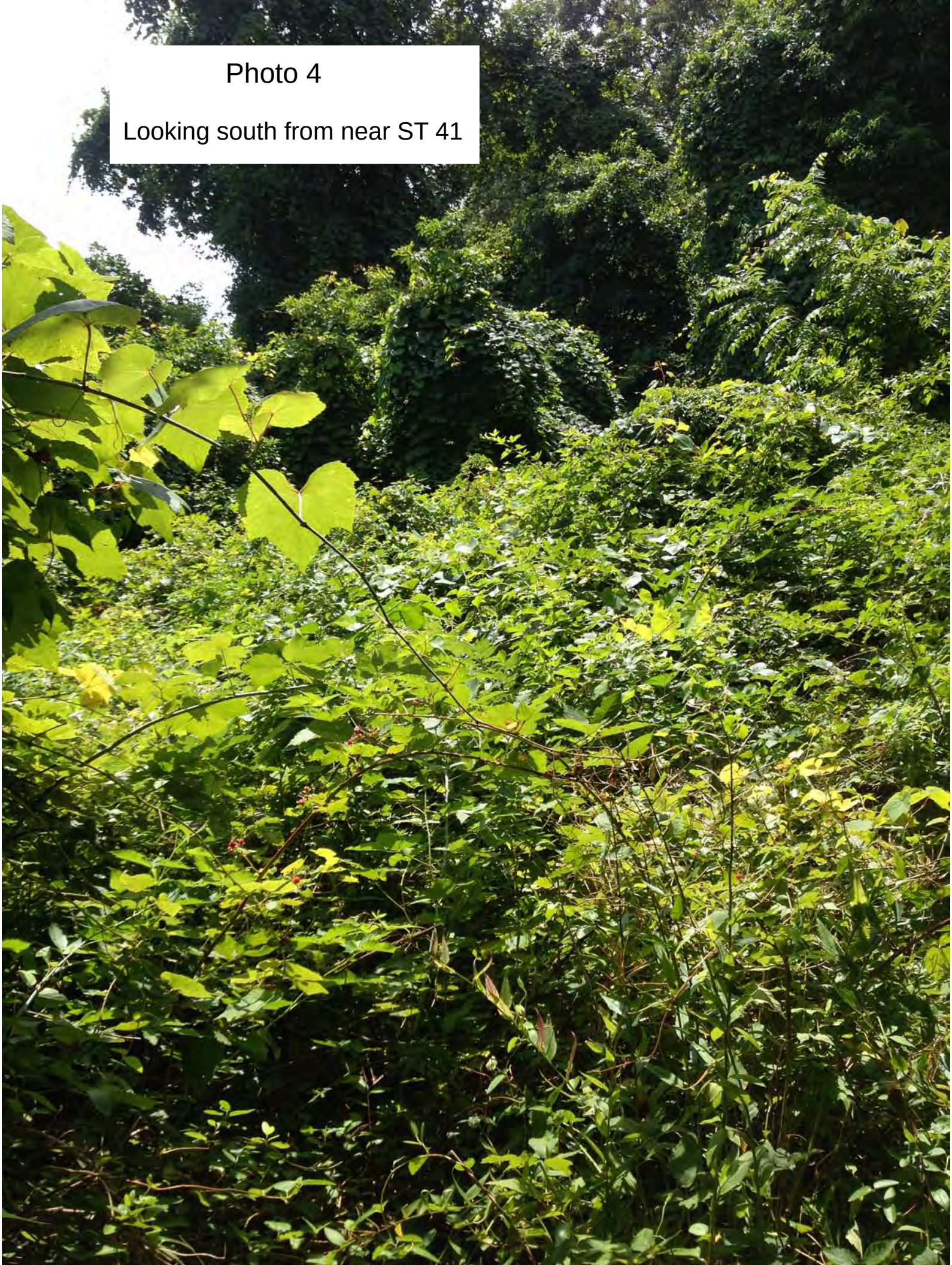


Photo 4

Looking south from near ST 41

Photo 5
Looking west from near ST 142

Photo 6
Looking south from near ST 143

Photo 7

Looking east from maintenance parking

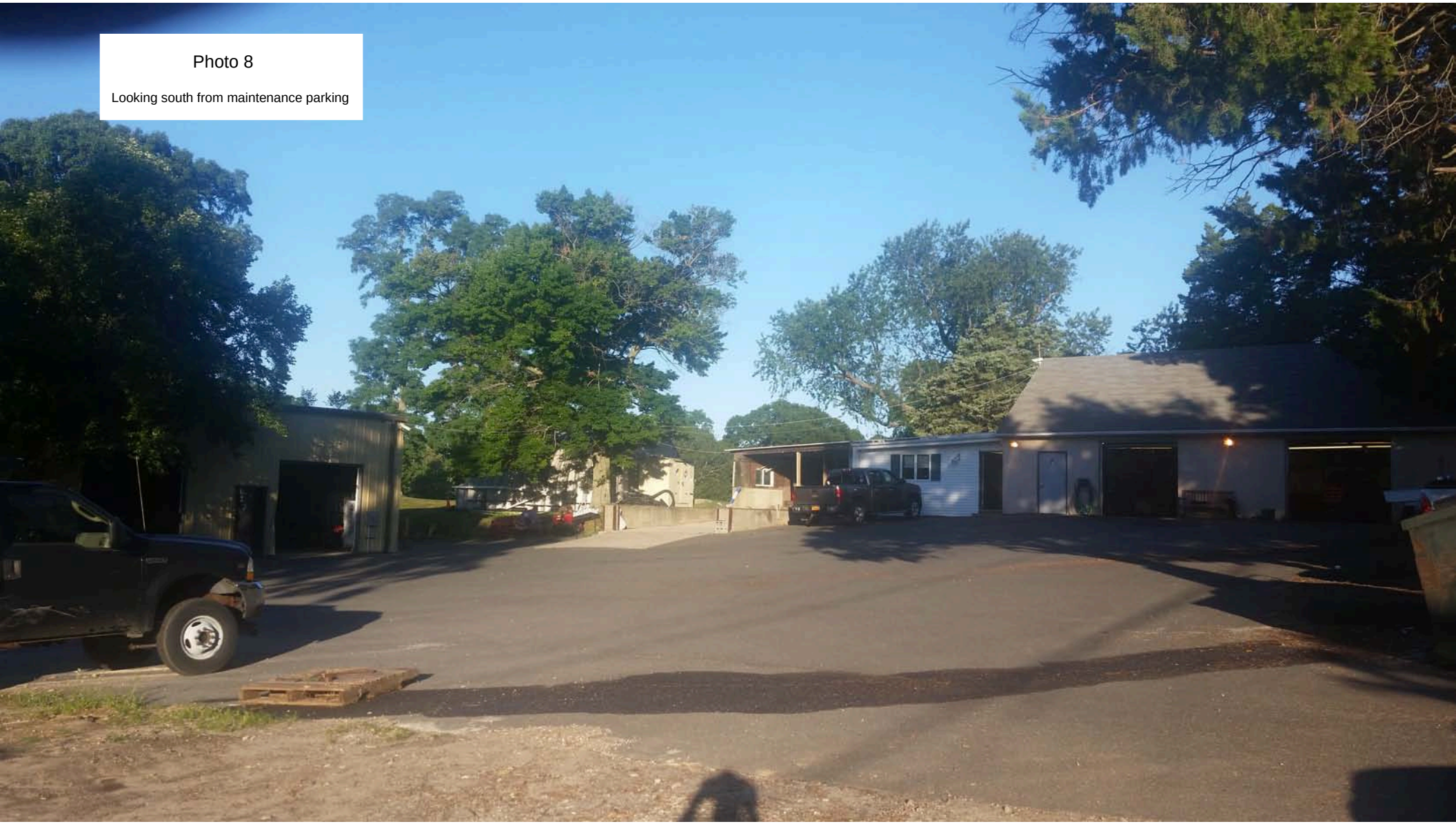


Photo 8

Looking south from maintenance parking

Photo 9
Looking north from ST 224

Photo 10
Looking east from ST 224

Photo 11

Looking SW at Phase II work in progress

Photo 12

TU's 1 & 4, North Wall

Photo 13

TU 2, North Wall

Photo 14

Rossville-like Point from TU 3

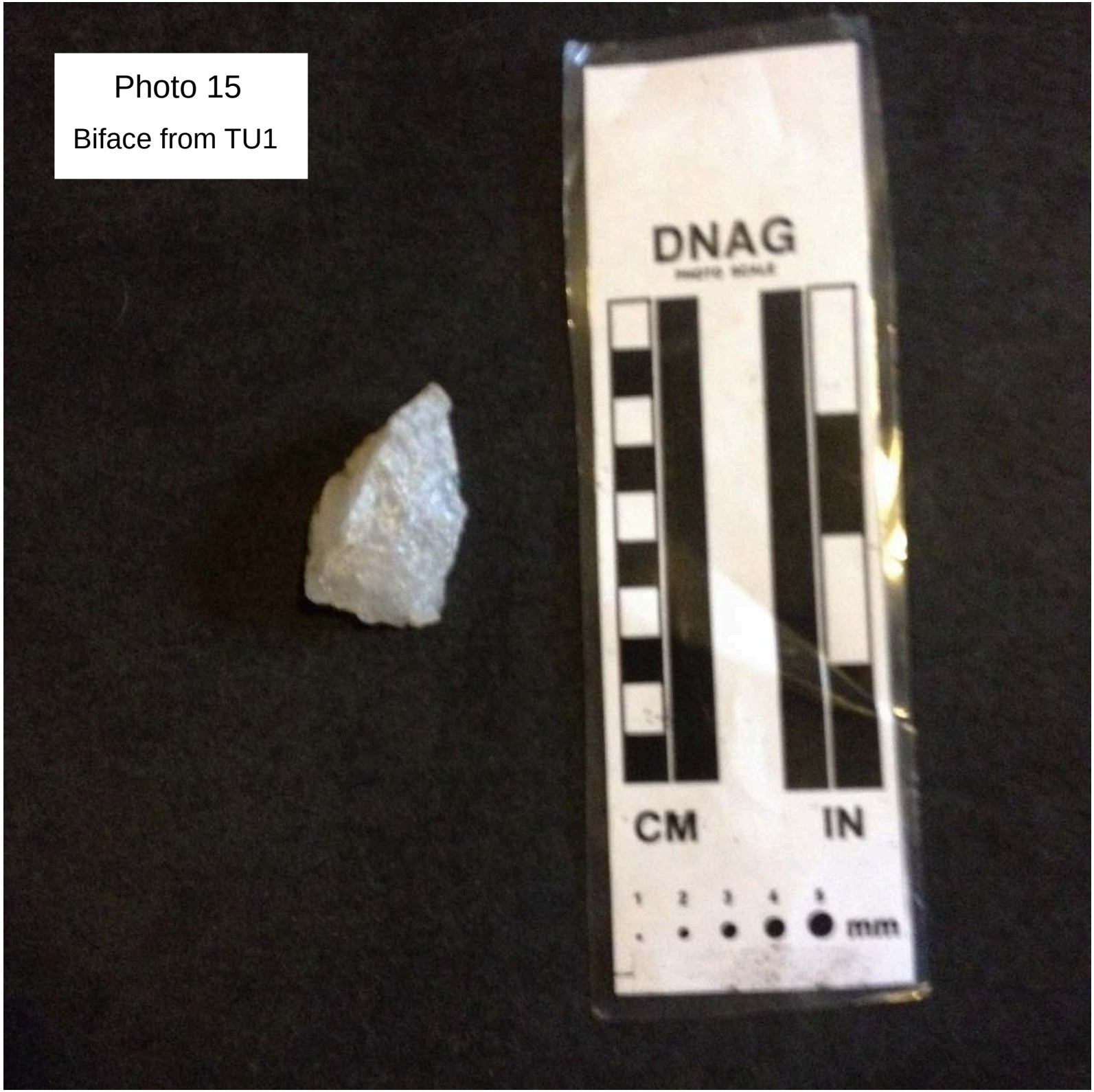


Photo 15

Biface from TU1

Photo 16

Point tip from TU 4

APPENDIX 2

SHOVEL TESTS

STP	LV	DEPTH(CM)	TEXTURE	COLOR	HOR	COMMENT
1	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-20	LoSa	10YR4/3	A	NCM
	3	20-30	LoSa	10YR5/4	B	NCM
2	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	4-21		10YR4/3	A	NCM
	3	21-32	LoSa	10YR5/4	B	NCM
3	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-25	LoSa	10YR4/3	A	NCM
	3	25-37	LoSa	10YR5/4	B	NCM
4	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-28	LoSa	10YR4/3	A	NCM
	3	28-39	LoSa	10YR5/4	B	NCM
5	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-22	LoSa	10YR4/3	A	NCM
	3	22-35	LoSa	10YR5/4	B	NCM
6	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-25	LoSa	10YR4/3	A	NCM
	3	25-35	LoSa	10YR5/4	B	NCM
7	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-23	LoSa	10YR4/3	A	NCM
	3	23-37	LoSa	10YR5/4	B	NCM .
8	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-28	LoSa	10YR4/3	A	NCM
	3	28-38	LoSa	10YR5/4	B	NCM
9	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-29	LoSa	10YR4/3	A	NCM
	3	29-40	LoSa	10YR5/4	B	NCM
10	1	0-7	rootmat,leaves,humus		A/O	NCM
	2	7-26	LoSa	10YR4/3	A	NCM
	3	26-37	LoSa	10YR5/4	B	NCM
11	1	0-7	rootmat,leaves,humus		A/O	NCM
	2	7-27	LoSa	10YR4/3	A	NCM
	3	27-37	LoSa	10YR5/4	B	NCM
12	1	0-8	rootmat,leaves,humus		A/O	NCM
	2	8-27	LoSa	10YR4/3	A	NCM
	3	27-37	LoSa	10YR5/4	B	NCM
13	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-27	LoSa	10YR4/3	A	NCM
	3	27-38	LoSa	10YR5/4	B	NCM

14	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-26	LoSa	10YR4/3	A	NCM
	3	60-40	LoSa	10YR5/4	B	NCM
15	1	0-7	rootmat,leaves,humus		A/O	NCM
	2	7-25	LoSa	10YR4/3	A	NCM
	3	25-37	LoSa	10YR5/4	B	NCM
16	1	0-8	rootmat,leaves,humus		A/O	NCM
	2	8-28	LoSa,gravel	10YR4/3	A	NCM
	3	28-40	LoSa,gravel	10YR5/4	B	NCM
17	1	0-8	rootmat,leaves,humus		A/O	NCM
	2	8-20	LoSa	10YR4/3	A	NCM
	3	20-30	LoSa	10YR5/4	B	NCM
18	1	0-9	rootmat,leaves,humus		A/O	NCM
	2	9-27	LoSa	10YR4/3	A	NCM
	3	27-37	LoSa	10YR5/4	B	NCM
19	1	0-8	rootmat,leaves,humus		A/O	NCM
	2	8-25	LoSa	10YR4/3	A	NCM
	3	25-35	LoSa	10YR5/4	B	NCM
20	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-27	LoSa	10YR4/3	A	NCM
	3	27-37	LoSa	10YR5/4	B	NCM
21	1	0-8	rootmat,leaves,humus		A/O	NCM
	2	8-20	LoSa	10YR4/3	A	NCM
	3	20-30	LoSa	10YR5/4	B	NCM
22	1	0-10	rootmat,leaves,humus		A/O	NCM
	2	10-25	LoSa	10YR4/3	A	NCM
	3	25-35	LoSa	10YR5/4	B	NCM
23	1	0-9	rootmat,leaves,humus		A/O	NCM
	2	9-24	LoSa	10YR4/3	A	NCM
	3	24-36	LoSa	10YR5/4	B	NCM
24	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-27	LoSa	10YR4/3	A	NCM
	3	27-37	LoSa	10YR5/4	B	NCM
25	1	0-7	rootmat,leaves,humus		A/O	NCM
	2	7-27	LoSa	10YR4/3	A	NCM
	3	27-37	LoSa	10YR5/4	B	NCM
26	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-27	LoSa	10YR4/3	A	NCM
	3	27-38	LoSa	10YR5/4	B	NCM
27	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-28	LoSa	10YR4/3	A	NCM
	3	28-38	LoSa	10YR5/4	B	NCM

28	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-28	LoSa	10YR4/3	A	NCM
	3	28-39	LoSa	10YR5/4	B	NCM
29	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-26	LoSa	10YR4/3	A	flake
	3	26-36	LoSa	10YR5/4	B	NCM

Note: near dirt road/OK

30	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-25	LoSa	10YR4/3	A	NCM
	3	25-35	LoSa	10YR5/4	B	NCM
31	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-26	LoSa	10YR4/3	A	NCM
	3	26-36	LoSa	10YR5/4	B	NCM
32	1	0-7	rootmat,leaves,humus		A/O	NCM
	2	7-27	LoSa	10YR4/3	A	NCM
	3	27-39	LoSa	10YR5/4	B	NCM
33	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-28	LoSa	10YR4/3	A	NCM
	3	28-38	LoSa	10YR5/4	B	NCM
34	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-21	LoSa	10YR4/3	A	NCM
	3	21-33	LoSa	10YR5/4	B	NCM
35	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-24	LoSa	10YR4/3	A	NCM
	3	24-34	LoSa	10YR5/4	B	NCM
36	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-18	LoSa	10YR4/3	A	NCM
	3	18-30	LoSa	10YR5/4	B	NCM
37	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-19	LoSa	10YR4/3	A	NCM
	3	19-35	LoSa	10YR5/4	B	NCM
38	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-20	LoSa	10YR4/3	A	NCM
	3	20-40	LoSa	10YR5/4	B	NCM
39	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-26	LoSa	10YR4/3	A	NCM
	3	26-36	LoSa	10YR5/4	B	NCM
40	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-21	LoSa	10YR4/3	A	NCM
	3	21-35	LoSa	10YR5/4	B	NCM

41	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-16	LoSa	10YR4/3	A	NCM
	3	16-32	LoSa	10YR5/4	B	NCM
42	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-17	LoSa	10YR4/3	A	NCM
	3	17-30	LoSa	10YR5/4	B	NCM
43	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-23	LoSa	10YR4/3	A	blackglass drill/ UT flake
	3	23-33	LoSa	10YR5/4	B	NCM

Note: crawling on hands & knees east of deer trail

44	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-17	LoSa	10YR4/3	A	NCM
	3	17-34	LoSa	10YR5/4	B	NCM
45	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-18	LoSa	10YR4/3	A	NCM
	3	18-29	LoSa	10YR5/4	B	NCM
46	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-18	LoSa	10YR4/3	A	NCM
	3	18-30	LoSa	10YR5/4	B	NCM
47	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-19	LoSa	10YR4/3	A	NCM
	3	19-34	LoSa	10YR5/4	B	NCM
48	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-20	LoSa	10YR4/3	A	NCM
	3	20-30	LoSa	10YR5/4	B	NCM
49	1	0-7	rootmat,leaves,humus		A/O	NCM
	2	7-18	LoSa	10YR4/3	A	small biface
	3	18-32	LoSa	10YR5/4	B	NCM
50	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-16	LoSa	10YR4/3	A	NCM
	3	16-33	LoSa	10YR5/4	B	NCM
51	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-26	LoSa	10YR4/3	A	NCM
	3	26-38	LoSa	10YR5/4	B	NCM
52	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-26	LoSa	10YR4/3	A	NCM
	3	26-36	LoSa	10YR5/4	B	NCM
53	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-23	LoSa	10YR4/3	A	NCM
	3	23-34	LoSa	10YR5/4	B	NCM

54	1	0-7	rootmat,leaves,humus		A/O	NCM
	2	7-21	LoSa	10YR4/3	A	NCM
	3	21-35	LoSa	10YR5/4	B	NCM
55	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-22	LoSa	10YR4/3	A	NCM
	3	22-32	LoSa	10YR5/4	B	NCM
56	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-25	LoSa	10YR4/3	A	flake
	3	25-35	LoSa	10YR5/4	B	NCM

Note: in large clearing (nice if you can get to it)

57	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-18	LoSa	10YR4/3	A	NCM
	3	18-28	LoSa	10YR5/4	B	NCM
58	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-26	LoSa	10YR4/3	A	NCM
	3	26-39	LoSa	10YR5/4	B	NCM
59	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-17	LoSa	10YR4/3	A	NCM
	3	17-38	LoSa	10YR5/4	B	NCM

Note: dumped wood to ST 62

60	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-21	LoSa	10YR4/3	A	NCM
	3	21-32	LoSa	10YR5/4	B	NCM
61	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-20	LoSa	10YR4/3	A	NCM
	3	20-31	LoSa	10YR5/4	B	NCM
62	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-24	LoSa	10YR4/3	A	NCM
	3	24-34	LoSa	10YR5/4	B	NCM
63	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-9	LoSa	10YR4/3	A	NCM
	3	9-29	LoSa	10YR5/4	B	NCM
64	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-25	LoSa	10YR4/3	A	NCM
	3	25-45	LoSa	10YR5/4	B	NCM
65	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-25	LoSa	10YR4/3	A	NCM
	3	25-35	LoSa	10YR5/4	B	NCM
66	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-24	LoSa	10YR4/3	A	NCM
	3	24-35	LoSa	10YR5/4	B	NCM

67	1	0-7	rootmat,leaves,humus		A/O	NCM
	2	7-18	LoSa wood pellets..	10YR4/3	A	NCM
	3	18-28	LoSa	10YR5/4	B	NCM
68	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-22	LoSa	10YR4/3	A	NCM
	3	22-34	LoSa	10YR5/4	B	NCM
69	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-21	LoSa	10YR4/3	A	NCM
	3	21-33	LoSa	10YR5/4	B	NCM
70	1	0-8	rootmat,leaves,humus		A/O	NCM
	2	8-20	LoSa	10YR4/3	A	NCM
	3	20-40	LoSa	10YR5/4	B	NCM
71	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-21	LoSa	10YR4/3	A	NCM
	3	21-33	LoSa	10YR5/4	B	NCM
72	1	0-7	rootmat,leaves,humus		A/O	NCM
	2	7-22	LoSa	10YR4/3	A	NCM
	3	22-32	LoSa	10YR5/4	B	NCM
73	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-18	LoSa	10YR4/3	A	NCM
	3	18-28	LoSa	10YR5/4	B	NCM
74	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-26	LoSa	10YR4/3	A	NCM
	3	26-38	LoSa	10YR5/4	B	NCM
75	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-18	LoSa	10YR4/3	A	NCM
	3	18-29	LoSa	10YR5/4	B	NCM
76	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-20	LoSa	10YR4/3	A	NCM
	3	20-31	LoSa	10YR5/4	B	NCM
77	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-24	LoSa	10YR4/3	A	NCM
	3	24-34	LoSa	10YR5/4	B	NCM
78	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-23	LoSa	10YR4/3	A	NCM
	3	23-33	LoSa	10YR5/4	B	NCM
79	1	0-7	rootmat,leaves,humus		A/O	NCM
	2	7-18	LoSa	10YR4/3	A	NCM
	3	18-30	LoSa	10YR5/4	B	NCM

80	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-18	LoSa	10YR4/3	A	NCM
	3	18-30	LoSa	10YR5/4	B	NCM
81	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-25	LoSa	10YR4/3	A	NCM
	3	25-35	LoSa	10YR5/4	B	NCM
82	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-23	LoSa	10YR4/3	A	NCM
	3	23-38	LoSa	10YR5/4	B	NCM
83	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-24	LoSa	10YR4/3	A	NCM
	3	24-36	LoSa	10YR5/4	B	NCM
84	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-26	LoSa	10YR4/3	A	NCM
	3	26-38	LoSa	10YR5/4	B	NCM
85	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-25	LoSa	10YR4/3	A	NCM
	3	25-37	LoSa	10YR5/4	B	NCM
86	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-27	LoSa	10YR4/3	A	flake
	3	27-40	LoSa	10YR5/4	B	NCM
87	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-19	LoSa	10YR4/3	A	NCM
	3	19-29	LoSa	10YR5/4	B	NCM
88	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-26	LoSa	10YR4/3	A	NCM
	3	26-36	LoSa	10YR5/4	B	NCM
89	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-20	LoSa	10YR4/3	A	NCM
	3	20-30	LoSa	10YR5/4	B	NCM
90	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-24	LoSa	10YR4/3	A	NCM
	3	24-34	LoSa	10YR5/4	B	NCM
91	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-22	LoSa	10YR4/3	A	NCM
	3	22-35	LoSa	10YR5/4	B	NCM
92	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-22	LoSa	10YR4/3	A	NCM
	3	22-35	LoSa	10YR5/4	B	NCM

93	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-21	Sa	10YR4/3-5/4	dumped	NCM
Note: on berm						
94	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-19	LoSa	10YR4/3	A	NCM
	3	19-29	LoSa	10YR5/4	B	NCM
95	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-25	LoSa	10YR4/3	A	NCM
	3	25-35	LoSa	10YR5/4	B	NCM
96	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-18	LoSa	10YR4/3	A	NCM
	3	18-40	LoSa	10YR5/4	B	NCM
97	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-25	LoSa	10YR4/3	A	NCM
	3	25-35	LoSa	10YR5/4	B	NCM
98	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-20	LoSa	10YR4/3	A	NCM
	3	20-35	LoSa	10YR5/4	B	NCM
99	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-22	LoSa	10YR4/3	A	black glass UT flake
	3	22-35	LoSa	10YR5/4	B	NCM
100	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-22	LoSa	10YR4/3	A	flake
	3	22-35	LoSa	10YR5/4	B	NCM
101	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-21	LoSa	10YR4/3	A	NCM
	3	21-32	LoSa	10YR5/4	B	NCM
102	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-21	LoSa	10YR4/3	A	NCM
	3	21-32	LoSa	10YR5/4	B	NCM
103	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-17	LoSa	10YR4/3	A	NCM
	3	17-27	LoSa	10YR5/4	B	NCM
104	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-21	LoSa	10YR4/3	A	NCM
	3	22-35	LoSa	10YR5/4	B	NCM
105	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-24	LoSa	10YR4/3	A	NCM
	3	24-36	LoSa	10YR5/4	B	NCM

106	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-15	LoSa	10YR4/3	A	NCM
	3	15-25	LoSa	10YR5/4	B	NCM
107	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-20	LoSa	10YR4/3	A	NCM
	3	20-35	LoSa	10YR5/4	B	NCM
108	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-20	LoSa	10YR4/3	A	NCM
	3	20-34	LoSa	10YR5/4	B	NCM
109	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-26	LoSa	10YR4/3	A	NCM
	3	26-36	LoSa	10YR5/4	B	NCM
110	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-23	LoSa	10YR4/3	A	NCM
	3	23-38	LoSa	10YR5/4	B	NCM
111	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-21	LoSa	10YR4/3	A	NCM
	3	21-32	LoSa	10YR5/4	B	NCM
112	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-17	LoSa	10YR4/3	A	NCM
	3	17-28	LoSa	10YR5/4	B	NCM
113	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-13	LoSa	10YR4/3	A	NCM
	3	13-24	LoSa	10YR5/4	B	NCM
114	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-15	LoSa	10YR4/3	A	NCM
	3	15-28	LoSa	10YR5/4	B	NCM
115	1	0-7	rootmat,leaves,humus		A/O	NCM
	2	7-19	LoSa	10YR4/3	A	NCM
	3	19-39	LoSa	10YR5/4	B	NCM
116	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-14	LoSa	10YR4/3	A	NCM
	3	14-28	LoSa	10YR5/4	B	NCM
117	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-17	LoSa	10YR4/3	A	NCM
	3	17-29	LoSa	10YR5/4	B	NCM
118	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-18	LoSa	10YR4/3	A	NCM
	3	18-28	LoSa	10YR5/4	B	NCM

119	1	0-8	rootmat,leaves,humus		A/O	NCM
	2	8-18	LoSa	10YR4/3	A	NCM
	3	18-39	LoSa	10YR5/4	B	NCM
120	1	0-7	rootmat,leaves,humus		A/O	NCM
	2	7-17	LoSa	10YR4/3	A	NCM
	3	17-37	LoSa	10YR5/4	B	NCM
121	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-10	LoSa	10YR4/3	A	NCM
	3	10-30	LoSa	10YR5/4	B	NCM
122	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-16	LoSa	10YR4/3	A	NCM
	3	16-37	LoSa	10YR5/4	B	NCM
123	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-17	LoSa	10YR4/3	A	NCM
	3	17-28	LoSa	10YR5/4	B	NCM
124	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-14	LoSa	10YR4/3	A	NCM
	3	47-28	LoSa	10YR5/4	B	NCM
125	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-16	LoSa	10YR4/3	A	NCM
	3	16-27	LoSa	10YR5/4	B	NCM
126	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-13	LoSa	10YR4/3	A	NCM
	3	13-25	LoSa	10YR5/4	B	NCM
127	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-12	LoSa	10YR4/3	A	NCM
	3	12-33	LoSa	10YR5/4	B	NCM
128	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-9	LoSa	10YR4/3	A	NCM
	3	9-20	LoSa	10YR5/4	B	NCM
129	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-14	LoSa	10YR4/3	A	NCM
	3	14-30	LoSa	10YR5/4	B	NCM
130	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-10	LoSa	10YR4/3	A	NCM
	3	10-25	LoSa	10YR5/4	B	NCM
131	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-11	LoSa	10YR4/3	A	NCM
	3	11-31	LoSa	10YR5/4	B	NCM

132	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-17	LoSa	10YR4/3	A	NCM
	3	17-28	LoSa	10YR5/4	B	NCM
133	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-17	LoSa	10YR4/3	A	NCM
	3	17-27	LoSa	10YR5/4	B	NCM
134	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-17	LoSa	10YR4/3	A	NCM
	3	17-30	LoSa	10YR5/4	B	NCM
135	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-11	LoSa	10YR4/3	A	NCM
	3	11-21	LoSa	10YR5/4	B	NCM
136	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-12	LoSa,gravel	10YR4/3	A	NCM
	3	12-22	LoSa,gravel	10YR5/4	B	NCM
137	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-10	LoSa	10YR4/3	A	NCM
	3	10-25	LoSa	10YR5/4	B	NCM
138	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-17	LoSa	10YR4/3	A	NCM
	3	17-30	LoSa	10YR5/4	B	NCM
139	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-16	LoSa	10YR4/3	A	NCM
	3	16-26	LoSa	10YR5/4	B	NCM
140	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-10	LoSa	10YR4/3	A	NCM
	3	10-20	LoSa	10YR5/4	B	NCM
141	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-11	LoSa	10YR4/3	A	NCM
	3	11-31	LoSa	10YR5/4	B	NCM
142	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-19	LoSa	10YR4/3	A	NCM
	3	19-29	LoSa	10YR5/4	B	NCM
143	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-17	LoSa	10YR4/3	A	NCM
	3	17-30	LoSa	10YR5/4	B	NCM
144	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-15	LoSa	10YR4/3	A	NCM
	3	15-36	LoSa	10YR5/4	B	NCM

145	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-13	LoSa	10YR4/3	A	NCM
	3	13-33	LoSa	10YR5/4	B	NCM
146	1	0-1	rootmat,leaves,humus		A/O	NCM
	2	1-19	LoSa	10YR4/3	A	NCM
	3	19-39	LoSa	10YR5/4	B	NCM
147	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-13	LoSa	10YR4/3	A	NCM
	3	13-30	LoSa	10YR5/4	B	NCM
148	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-18	LoSa	10YR4/3	A	NCM
	3	18-28	LoSa	10YR5/4	B	NCM
149	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-12	LoSa	10YR4/3	A	NCM
	3	12-25	LoSa	10YR5/4	B	NCM
150	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-14	LoSa	10YR4/3	A	NCM
	3	14-26	LoSa	10YR5/4	B	NCM
151	1	0-1	rootmat,leaves,humus		A/O	NCM
	2	1-10	LoSa	10YR4/3	A	NCM
	3	10-25	LoSa	10YR5/4	B	NCM
152	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-15	LoSa	10YR4/3	A	NCM
	3	15-35	LoSa	10YR5/4	B	NCM
153	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-17	LoSa	10YR4/3	A	NCM
	3	17-30	LoSa	10YR5/4	B	NCM
154	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-7	LoSa	10YR4/3	A	NCM
	3	7-27	LoSa	10YR5/4	B	NCM
155	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-18	LoSa	10YR4/3	A	NCM
	3	18-28	LoSa	10YR5/4	B	NCM
156	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-20	LoSa	10YR4/3	A	NCM
	3	20-30	LoSa	10YR5/4	B	NCM
157	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-17	LoSa	10YR4/3	A	NCM
	3	17-30	LoSa	10YR5/4	B	NCM

158	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-20	LoSa	10YR4/3	A	NCM
	3	20-33	LoSa	10YR5/4	B	NCM
159	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-18	LoSa	10YR4/3	A	NCM
	3	18-40	LoSa	10YR5/4	B	NCM
160	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-12	LoSa	10YR4/3	A	NCM
	3	12-22	LoSa	10YR5/4	B	NCM
161	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-9	LoSa	10YR4/3	A	NCM
	3	9-24	LoSa	10YR5/4	B	NCM
162	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-22	LoSa	10YR4/3	A	NCM
	3	22-32	LoSa	10YR5/4	B	NCM
163	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-12	LoSa	10YR4/3	A	NCM
	3	12-25	LoSa	10YR5/4	B	NCM
164	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-9	LoSa	10YR4/3	A	NCM
	3	9-25	LoSa	10YR5/4	B	NCM
165	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-14	LoSa	10YR4/3	A	NCM
	3	14-30	LoSa	10YR5/4	B	NCM
166	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-13	LoSa	10YR4/3	A	NCM
	3	13-23	LoSa	10YR5/4	B	NCM
167	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-17	LoSa	10YR4/3	A	NCM
	3	17-30	LoSa	10YR5/4	B	NCM
168	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-21	LoSa	10YR4/3	A	NCM
	3	21-31	LoSa	10YR5/4	B	NCM
169	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-13	LoSa	10YR4/3	A	NCM
	3	13-35	LoSa	10YR5/4	B	NCM
170	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-12	LoSa	10YR4/3	A	NCM
	3	12-30	LoSa	10YR5/4	B	NCM

171	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-22	LoSa	10YR4/3	A	NCM
	3	22-35	LoSa	10YR5/4	B	NCM
172	1	0-8	rootmat,leaves,humus		A/O	NCM
	2	8-17	LoSa	10YR4/3	A	NCM
	3	17-35	LoSa	10YR5/4	B	NCM
173	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-15	LoSa	10YR4/3	A	NCM
	3	15-30	LoSa	10YR5/4	B	NCM
174	1	0-7	rootmat,leaves,humus		A/O	NCM
	2	7-23	LoSa	10YR4/3	A	NCM
	3	23-34	LoSa	10YR5/4	B	NCM
175	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-17	LoSa	10YR4/3	A	NCM
	3	17-27	LoSa	10YR5/4	B	NCM
176	1	0-7	rootmat,leaves,humus		A/O	NCM
	2	7-19	LoSa	10YR4/3	A	NCM
	3	19-29	LoSa	10YR5/4	B	NCM
177	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-14	LoSa	10YR4/3	A	NCM
	3	14-28	LoSa	10YR5/4	B	NCM
178	1	0-8	rootmat,leaves,humus		A/O	NCM
	2	8-17	LoSa	10YR4/3	A	NCM
	3	17-28	LoSa	10YR5/4	B	NCM
179	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-18	LoSa	10YR4/3	A	NCM
	3	18-30	LoSa	10YR5/4	B	NCM
180	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-16	LoSa	10YR4/3	A	NCM
	3	16-28	LoSa	10YR5/4	B	NCM
181	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-15	LoSa	10YR4/3	A	NCM
	3	15-30	LoSa	10YR5/4	B	NCM
182	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-11	LoSa	10YR4/3	A	NCM
	3	11-23	LoSa	10YR5/4	B	NCM
183	1	0-7	rootmat,leaves,humus		A/O	NCM
	2	7-19	LoSa	10YR4/3	A	NCM
	3	19-30	LoSa	10YR5/4	B	NCM

184	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-17	LoSa	10YR4/3	A	NCM
	3	17-28	LoSa	10YR5/4	B	NCM
185	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-11	LoSa	10YR4/3	A	NCM
	3	11-23	LoSa	10YR5/4	B	NCM
186	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-7	LoSa	10YR4/3	A	NCM
	3	7-9,rocks	LoSa	10YR5/4	B	NCM
187	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-17	LoSa	10YR4/3	A	NCM
	3	17-28	LoSa	10YR5/4	B	NCM
188	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-20	LoSa	10YR4/3	A	NCM
	3	20-rocks				
189	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-15	LoSa	10YR4/3	A	NCM
	3	15-25	LoSa	10YR5/4	B	NCM
190	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-14	LoSa	10YR4/3	A	NCM
	3	14-24	LoSa	10YR5/4	B	NCM
191	1	0-7	rootmat,leaves,humus		A/O	NCM
	2	7-19	LoSa	10YR4/3	A	NCM
	3	19-29	LoSa	10YR5/4	B	NCM
192	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-18	LoSa	10YR4/3	A	NCM
	3	18-34	LoSa	10YR5/4	B	NCM
193	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-16	LoSa	10YR4/3	A	NCM
	3	16-27	LoSa	10YR5/4	B	NCM
194	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-12	LoSa	10YR4/3	A	NCM
	3	12-22	LoSa	10YR5/4	B	NCM
195	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-11	LoSa	10YR4/3	A	NCM
	3	11-24	LoSa	10YR5/4	B	NCM
196	1	0-7	rootmat,leaves,humus		A/O	NCM
	2	7-23	LoSa	10YR4/3	A	NCM
	3	23-35	LoSa	10YR5/4	B	NCM

197	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-7	LoSa	10YR4/3	A	NCM
	3	7-25	LoSa	10YR5/4	B	NCM
198	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-11	LoSa	10YR4/3	A	NCM
	3	11-23	LoSa	10YR5/4	B	NCM
199	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-15	LoSa	10YR4/3	A	NCM
	3	15-25	LoSa	10YR5/4	B	NCM
200	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-11	LoSa	10YR4/3	A	NCM
	3	11-23	LoSa	10YR5/4	B	NCM
201	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-17	LoSa	10YR4/3	A	NCM
	3	17-29	LoSa	10YR5/4	B	NCM
202	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-12	LoSa	10YR4/3	A	NCM
	3	12-26	LoSa	10YR5/4	B	NCM
203	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-18	LoSa	10YR4/3	A	NCM
	3	18-28	LoSa	10YR5/4	B	NCM
204	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-13	LoSa	10YR4/3	A	NCM
	3	13-23	LoSa	10YR5/4	B	NCM
205	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-15	LoSa	10YR4/3	A	NCM
	3	15-26	LoSa	10YR5/4	B	NCM
206	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-14	LoSa	10YR4/3	A	NCM
	3	14-26	LoSa	10YR5/4	B	NCM
207	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-18	LoSa	10YR4/3	A	NCM
	3	18-30	LoSa	10YR5/4	B	NCM
208	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-17	LoSa	10YR4/3	A	NCM
	3	17-30	LoSa	10YR5/4	B	NCM
209	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-27	LoSa	10YR4/3	A	NCM
	3	27-40	LoSa	10YR5/4	B	NCM

210	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-16	LoSa	10YR4/3	A	NCM
	3	16-38	LoSa	10YR5/4	B	NCM
211	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-16	LoSa	10YR4/3	A	NCM
	3	16-33	LoSa	10YR5/4	B	NCM
212	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-17	LoSa	10YR4/3	A	NCM
	3	17- 27	LoSa	10YR5/4	B	NCM
213	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-16	LoSa	10YR4/3	A	NCM
	3	16-36	LoSa	10YR5/4	B	NCM
214	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-19	LoSa	10YR4/3	A	NCM
	3	19-29	LoSa	10YR5/4	B	NCM
215	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-15	LoSa	10YR4/3	A	NCM
	3	15-25	LoSa	10YR5/4	B	NCM
216	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-15	LoSa	10YR4/3	A	NCM
	3	15-25	LoSa	10YR5/4	B	NCM
217	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-20	LoSa	10YR4/3	A	NCM
	3	20-30	LoSa	10YR5/4	B	NCM
218	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-16	LoSa	10YR4/3	A	NCM
	3	16-26	LoSa	10YR5/4	B	NCM
219	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-18	LoSa	10YR4/3	A	NCM
	3	18-40	LoSa	10YR5/4	B	NCM
220	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-14	LoSa	10YR4/3	A	NCM
	3	14-35	LoSa	10YR5/4	B	NCM
221	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-18	LoSa	10YR4/3	A	NCM
	3	18-38	LoSa	10YR5/4	B	NCM
222	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-15	LoSa	10YR4/3	A	NCM
	3	15-27	LoSa	10YR5/4	B	NCM

223	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-15	LoSa	10YR4/3	A	NCM
	3	15-25	LoSa	10YR5/4	B	NCM
224	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-10	LoSa	10YR4/3	A	NCM
	3	10-25	LoSa	10YR5/4	B	NCM
225	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-9	LoSa	10YR4/3	A	NCM
	3	9-20	LoSa	10YR5/4	B	NCM
226	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-13	LoSa	10YR4/3	A	NCM
	3	13-25	LoSa	10YR5/4	B	NCM
227	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-9	LoSa	10YR4/3	A	NCM
	3	9-23	LoSa	10YR5/4	B	NCM
228	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-16	LoSa	10YR4/3	A	NCM
	3	16- 26	LoSa	10YR5/4	B	NCM
229	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-13	LoSa	10YR4/3	A	NCM
	3	13-23	LoSa	10YR5/4	B	NCM
230	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-14	LoSa	10YR4/3	A	NCM
	3	4-30	LoSa	10YR5/4	B	NCM
231	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-22	LoSa	10YR4/3	A	NCM
	3	22-34	LoSa	10YR5/4	B	NCM
232	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-14	LoSa	10YR4/3	A	NCM
	3	14-24	LoSa	10YR5/4	B	NCM
233	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-17	LoSa	10YR4/3	A	NCM
	3	17-27	LoSa	10YR5/4	B	NCM
234	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-15	LoSa	10YR4/3	A	NCM
	3	15-35	LoSa	10YR5/4	B	NCM
235	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-14	LoSa	10YR4/3	A	NCM
	3	14-30	LoSa	10YR5/4	B	NCM

236	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-16	LoSa	10YR4/3	A	NCM
	3	15-35	LoSa	10YR5/4	B	NCM
237	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-14	LoSa	10YR4/3	A	NCM
	3	14-30	LoSa	10YR5/4	B	NCM
238	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-19	LoSa	10YR4/3	A	NCM
	3	19-29	LoSa	10YR5/4	B	NCM
239	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-13	LoSa	10YR4/3	A	NCM
	3	13-23	LoSa	10YR5/4	B	NCM
240	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-11	LoSa	10YR4/3	A	NCM
	3	11-30	LoSa	10YR5/4	B	NCM

Radials:

241	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-29	LoSa	10YR4/3	A	biface?
	3	29-41	LoSa	10YR5/4	B	NCM
242	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-30	LoSa	10YR4/3	A	NCM
	3	30-43	LoSa	10YR5/4	B	NCM
243	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-26	LoSa	10YR4/3	A	NCM
	3	26-38	LoSa	10YR5/4	B	NCM
244	1	0-7	rootmat,leaves,humus		A/O	NCM
	2	7-29	LoSa	10YR4/3	A	NCM
	3	29-40	LoSa	10YR5/4	B	NCM
245	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-25	LoSa	10YR4/3	A	NCM
	3	25-39	LoSa	10YR5/4	B	NCM
246	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-19	LoSa	10YR4/3	A	NCM
	3	19-33	LoSa	10YR5/4	B	NCM
247	2	0-28	LoSa	10YR4/3	A	NCM
	3	28-40	LoSa	10YR5/4	B	NCM
248	2	0-29	LoSa	10YR4/3	A	NCM
	3	29-41	LoSa	10YR5/4	B	NCM
249	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-27	LoSa	10YR4/3	A	NCM
	3	27-49	LoSa	10YR5/4	B	NCM

250	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-29	LoSa	10YR4/3	A	NCM
	3	29-41	LoSa	10YR5/4	B	NCM
251	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-27	LoSa	10YR4/3	A	NCM
	3	27-41	LoSa	10YR5/4	B	NCM
252	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-23	LoSa	10YR4/3	A	NCM
	3	23-43	LoSa	10YR5/4	B	NCM
253	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-23	LoSa	10YR4/3	A	NCM
	3	23-34	LoSa	10YR5/4	B	NCM
254	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-33	LoSa	10YR4/3	A	NCM
	3	33-43	LoSa	10YR5/4	B	NCM
255	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-31	LoSa	10YR4/3	A	undec ww, coal
	3	31-43	LoSa	10YR5/4	B	NCM
256	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-20	LoSa	10YR4/3	A	plastic
	3	20-37	LoSa	10YR5/4	B	NCM
257	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-23	LoSa	10YR4/3	A	NCM
	3	23-roots				
258	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-47	LoSa mottled	10YR4/3-5/4	A	coal
	3	47-58	LoSa	10YR5/4	B	NCM
259	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-36	LoSa	10YR4/3	A	NCM
	3	36-48	LoSa	10YR5/4	B	NCM
260	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-31	LoSa	10YR4/3	A	NCM
	3	31-root				
261	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-34	LoSa	10YR4/3	A	NCM
	3	34-44	LoSa	10YR5/4	B	NCM
262	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-29	LoSa	10YR4/3	A	flake
	3	29-41	LoSa	10YR5/4	B	NCM

263	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-30	LoSa	10YR4/3	A	NCM
	3	30-42	LoSa	10YR5/4	B	NCM
264	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-25	LoSa	10YR4/3	A	NCM
	3	25-38	LoSa	10YR5/4	B	NCM
265	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-26	LoSa	10YR4/3	A	NCM
	3	26-36	LoSa	10YR5/4	B	NCM
266	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-40	LoSa	10YR4/3	A	NCM
	3	40-53	LoSa	10YR5/4	B	NCM
267	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-26	LoSa	10YR4/3	A	NCM
	3	26-36	LoSa	10YR5/4	B	NCM
268	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-25	LoSa	10YR4/3	A	NCM
	3	25-36	LoSa	10YR5/4	B	NCM
269	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-27	LoSa	10YR4/3	A	NCM
	3	27-37	LoSa	10YR5/4	B	NCM
270	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-30	LoSa	10YR4/3	A	NCM
	3	30-42	LoSa	10YR5/4	B	NCM
271	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-30	LoSa	10YR4/3	A	NCM
	3	30-42	LoSa	10YR5/4	B	NCM
272	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-22	LoSa	10YR4/3	A	NCM
	3	22-32	LoSa	10YR5/4	B	NCM
273	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-30	LoSa	10YR4/3	A	NCM
	3	30-41	LoSa	10YR5/4	B	NCM
274	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-23	LoSa	10YR4/3	A	NCM
	3	23-33	LoSa	10YR5/4	B	NCM
275	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-32	LoSa	10YR4/3	A	NCM
	3	32-44	LoSa	10YR5/4	B	NCM

276	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-26	LoSa	10YR4/3	A	NCM
	3	26-38	LoSa	10YR5/4	B	NCM
277	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-31	LoSa	10YR4/3	A	NCM
	3	31-42	LoSa	10YR5/4	B	NCM
278	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-33	LoSa	10YR4/3	A	NCM
	3	33-43	LoSa	10YR5/4	B	NCM
279	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-32	LoSa	10YR4/3	A	NCM
	3	32-45	LoSa	10YR5/4	B	NCM
280	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-29	LoSa	10YR4/3	A	NCM
	3	29-40	LoSa	10YR5/4	B	NCM
281	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-31	LoSa	10YR4/3	A	NCM
	3	31-44	LoSa	10YR5/4	B	NCM
282	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-28	LoSa	10YR4/3	A	NCM
	3	28-38	LoSa	10YR5/4	B	NCM
283	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-27	LoSa	10YR4/3	A	NCM
	3	27-40	LoSa	10YR5/4	B	NCM
284	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-27	LoSa	10YR4/3	A	NCM
	3	27-39	LoSa	10YR5/4	B	NCM
285	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-29	LoSa	10YR4/3	A	NCM
	3	29-40	LoSa	10YR5/4	B	NCM
286	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-32	LoSa	10YR4/3	A	NCM
	3	32-42	LoSa	10YR5/4	B	NCM
287	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-27	LoSa	10YR4/3	A	NCM
	3	27-39	LoSa	10YR5/4	B	NCM
288	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-33	LoSa	10YR4/3	A	NCM
	3	33-47	LoSa	10YR5/4	B	NCM
289	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-15	LoSa	10YR4/3	A	NCM
	3	15-28	LoSa	10YR5/4	B	NCM

290	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-35	LoSa	10YR4/3	A	flake
	3	35-47	LoSa	10YR5/4	B	NCM
291	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-30	LoSa	10YR4/3	A	NCM
	3	30-41	LoSa	10YR5/4	B	NCM
292	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-32	LoSa	10YR4/3	A	NCM
	3	32-45	LoSa	10YR5/4	B	NCM
293	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-26	LoSa	10YR4/3	A	NCM
	3	26-38	LoSa	10YR5/4	B	NCM
294	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-32	LoSa	10YR4/3	A	NCM
	3	32-42	LoSa	10YR5/4	B	NCM
295	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-32	LoSa	10YR4/3	A	flake
	3	32-42	LoSa	10YR5/4	B	NCM
296	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-30	LoSa	10YR4/3	A	flake
	3	30-41	LoSa	10YR5/4	B	NCM
297	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-31	LoSa	10YR4/3	A	NCM
	3	31-41	LoSa	10YR5/4	B	NCM
298	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-32	LoSa	10YR4/3	A	NCM
	3	32-43	LoSa	10YR5/4	B	NCM
299	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-24	LoSa	10YR4/3	A	NCM
	3	24-34	LoSa	10YR5/4	B	NCM
300	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-23	LoSa	10YR4/3	A	NCM
	3	23-35	LoSa	10YR5/4	B	NCM
301	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-15	LoSa	10YR4/3	A	NCM
	3	15-25	LoSa	10YR5/4	B	NCM
302	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-23	LoSa	10YR4/3	A	NCM
	3	23-33	LoSa	10YR5/4	B	NCM

303	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-30	LoSa	10YR4/3	A	NCM
	3	30-41	LoSa	10YR5/4	B	NCM
304	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-30	LoSa	10YR4/3	A	NCM
	3	30-40	LoSa	10YR5/4	B	NCM
305	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-30	LoSa	10YR4/3	A	NCM
	3	30-45	LoSa	10YR5/4	B	NCM
306	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-10	LoSa	10YR4/3	A	NCM
	3	10-21	LoSa	10YR5/4	B	NCM
307	1	0-5	rootmat,leaves,humus		A/O	NCM
	2	5-6	LoSa	10YR4/3	A	NCM
	3	6-rocks				
308	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-17	LoSa	10YR4/3	A	NCM
	3	17-27	LoSa	10YR5/4	B	NCM
309	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-21	LoSa	10YR4/3	A	NCM
	3	21-32	LoSa	10YR5/4	B	NCM
310	1	0-4	rootmat,leaves,humus		A/O	NCM
	2	4-11	LoSa	10YR4/3	A	flake
	3	11-28	LoSa	10YR5/4	B	NCM
311	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-26	LoSa	10YR4/3	A	NCM
	3	26-38	LoSa	10YR5/4	B	NCM
312	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-30	LoSa	10YR4/3	A	NCM
	3	30-40	LoSa	10YR5/4	B	NCM
313	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-14	LoSa	10YR4/3	A	NCM
	3	14-29	LoSa	10YR5/4	B	NCM
314	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-20	LoSa	10YR4/3	A	NCM
	3	20-31	LoSa	10YR5/4	B	NCM
315	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-25	LoSa	10YR4/3	A	NCM
	3	25-40	LoSa	10YR5/4	B	NCM

316	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-29	LoSa	10YR4/3	A	NCM
	3	29-40	LoSa	10YR5/4	B	NCM
317	1	0-3	rootmat,leavees,humus		A/O	NCM
	2	3-26	LoSa	10YR4/3	A	NCM
	3	26-37	LoSa	10YR5/4	B	NCM
318	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-23	LoSa	10YR4/3	A	NCM
	3	23-33	LoSa	10YR5/4	B	NCM
319	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-25	LoSa	10YR4/3	A	NCM
	3	25-40	LoSa	10YR5/4	B	NCM
320	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-26	LoSa	10YR4/3	A	NCM
	3	26-36	LoSa	10YR5/4	B	NCM
321	1	0-6	rootmat,leaves,humus		A/O	NCM
	2	6-21	LoSa	10YR4/3	A	NCM
	3	21-31	LoSa	10YR5/4	B	NCM
322	1	0-2	rootmat,leaves,humus		A/O	NCM
	2	2-22	LoSa	10YR4/3	A	NCM
	3	22-33	LoSa	10YR5/4	B	NCM
323	1	0-3	rootmat,leaves,humus		A/O	NCM
	2	3-24	LoSa	10YR4/3	A	NCM
	3	24-34	LoSa	10YR5/4	B	NCM
324	1	0-1	rootmat,leaves,humus		A/O	NCM
	2	1-23	LoSa	10YR4/3	A	NCM
	3	23-35	LoSa	10YR5/4	B	NCM

TEST UNITS

TU	LV	NE	SE	NW	SW	CENT	TEXTURE	COLOR	HOR
1	1	12-16	16-19	12-16	18-20	16-17	rootmat,humus,leaves		A/O
	2a	16-26	19-28	16-26	20-30	17-27	LoSa	10YR4/3	A
	2b	26-36	28-36	26-36	30-38	27-36	LoSa	10YR4/3	A
	3	36-48	36-48	36-50	38-49	36-50	LoSa	10YR4/3&5/6	A/B
	4	48-58	48-58	50-60	49-59	50-60	LoSa	10YR5/6	B

Note: some modern debris down to 2B, 1 transferprint in Lv. 3

2	1	9-13	11-16	10-15	16-19	13-15	rootmat,humus,leaves		A/O
	2a	13-26	16-24	15-26	19-29	15-26	LoSa	10YR4/3	A
	2b	26-36	24-34	26-36	29-39	26-35	LoSa	10YR4/3	A
	3	36-49	34-49	36-50	39-55	35-53	LoSa	10YR4/3&5/6	A/B
	4	49-59	49-59	50-60	55-65	53-63	LoSa	10YR5/6	B

Note: transferprint to 2B

3	1	19-24	25-37	8-13	16-22	15-21	rootmat,humus,leaves		A/O
	2a	24-30	37-38	13-31	22-35	21-37	LoSa	10YR4/3&6/4	A/&overburden
	2b	30-44	38-46	31-38	35-45	37-42	LoSa	10YR4/3	A
	3	44-55	46-58	38-53	45-50	42-59	LoSa	10YR4/3&5/6	A/B
	4	55-65	58-68	53-63	50-60	59-69	LoSa	10YR5/6	B

Note: 1 modern debris to 2B, historics to Lv 3

4	1	9-15	12-16	10-17	14-22	16-17	rootmat,humus,leaves		A/O
	2a	15-26	16-26	17-28	22-29	17-28	LoSa	10YR4/3	A
	2b	26-36	24-36	28-37	29-37	28-37	LoSa	10YR4/3	A
	3	36-47	36-49	37-47	37-47	37-49	LoSa	10YR4/3&5/6	A/B
	4	47-57	49-59	47-57	47-57	49-59	LoSa	10YR5/6	B

Note:historics to 2B

APPENDIX 3

MAP DOCUMENTED STRUCTURES

LOCATION	MAP	ON OR ADJACENT TO PROJECT AREA	OWNER	ECO-NICHE	COMMENT
Indain Hills Golf Course and Drive Range	1858	possibly adjacent	Wm. Gardiner	agricultural/ commercial, residential	Fig. 4
Same as above	1873	possibly adjacent	L.I. Brick Co.	same as above	Fig. 5
Same as above	1896	nearby or possibly adjacent	Brick Yard	agricultural/ commercial, residential	Fig. 6
Same as above	1904	possibly adjacent	na	rural	Fig. 7

APPENDIX 4

INDIAN HILLS PHASE I & II

CAT	SF	ST	TU	LV	ARB	FT	GP	CL	MAT	MOR	DESCRIPTION	CT	WT
1		29					10	3	54	29	tertiary quartzite	1	
2		43					10	6	78	52	black/olive green Drill/Utilized Flake	1	
3		49					10	7	54	81	very small Biface	1	
4		56					10	3	54	27	primary	1	
5		86					10	3	54	27	primary	1	
6		99					10	7	78	75	black/olive green glass Utilized Flake	1	
7		100					10	3	54	29	tertiary	1	
8		310			12.5'N		10	3	54	29	tertiary	1	0.20
9		290			12.5'N		10	3	54	29	tertiary brown & white	1	3.50
10		296			12.5'S		10	3	54	29	teriary	2	2.40
11		241			1mN		10	7		81	Biface, metamorphic/Ig	1	186.90
12		295			1mS		10	3	54	29	teriary	1	1.00
13		262			1mW		10	3	54	27	primary white/yellow	1	1.60
14			1	2	A		10	3	54	29	tetiary	5	1.60
15			1	2	B		10	3	54	29	tertiary	14	9.60
16			1	2	B		10	3	54	28	secondary	2	4.50
17			1	2	B		10	7	54	81	Biface frag	1	23.20
18			1	2	B		1	1	4		black transferprint whiteware, post 1825	1	
19			1	2	B		1	1	4		hand painted polychrome pearlware, 1795-1815	1	
20			1	3			10	3	54	29	tertiary	8	5.00
21			1	3			10	3	54	28	secondary	1	1.30
22			1	3			1	1	4		brown transferprint ww, post 1825	1	
23			2	2	A		10	3	54	29	tertiary	4	1.70
24			2	2	A		10	3	54	28	secondary	3	3.60
25			2	2	A		1	2	78		olive green bottle glass frag wine/liquor	1	
26			2	2	A		1	1	4		blue transferprint ww, post 1820	3	
27			2	2	B		10	3	54	29	teretiary	7	2.00
28			2	2	B		10	3	54	28	secondary	2	2.10
29			2	2	B		10	9	54		FCR?, pink cobble	1	53.30

INDIAN HILLS PHASE I & II

CAT	SF	ST	TU	LV	ARB	FT	GP	CL	MAT	MOR	DESCRIPTION	CT	WT
30			2	2	B		1	2	78		aqua bottle lip	1	
31			2	2	B		1	1	4		blue painted pearlware	1	
32			2	3			10	3	54	29	tertiary	2	0.90
33			3	2	B		10	3	54	29	tertiary	4	1.30
34			3	2	B		10	3	54	28	secondary	2	1.60
35			3	2	B		10	3	54	29	tertiary, grey	1	0.60
36			3	2	B		10	8	54	97	white quartzite cyrstal?	1	3.50
37			3	2	B		3	1	78		aqua window glass	1	
38			3	2	B		1	2	78		clear bottle glass	1	
39			3	2	B		1	1	4		blue transferprint ww, post 1820	1	
40			3	3			10	3	54	29	tertiary	18	16.80
41			3	3			10	3	54	29	tertiary, grey	1	0.90
42			3	3			10	3	54	28	secondary	3	17.50
43			3	3			10	3	54	27	primary	2	6.10
44			3	3			10	1	54	1	Point, Rossville-like (Late Archaic-Early Woodland	1	5.60
45			3	3			3	1	78		aqua window glass	1	
46			3	3			10	3	54		olive green wine/liquor	3	
47			4	1			10	3	54	29	tertiary	2	1.20
48			4	2	A		10	3	54	29	tertiary	11	7.00
49			4	2	A		10	3	54	27	primary	1	0.40
50			4	2	A		10	3	54	28	secondary	1	2.80
51			4	2	B		10	3	54	29	tertiary	39	17.10
52			4	2	B		10	3	54	29	tertiary, pink	5	1.70
53			4	2	B		10	3	54	27	primary	4	7.70
54			4	2	B		10	3	54	28	secondary	1	0.60
55			4	2	B		10	1	54	1	Point tip	1	1.80
56			4	2	B		10	7	54	81	Biface, marginal	1	5.60
57			4	2	B		1	1	4		brown transferprint ww,post 1825	1	
58			4	2	B		1	1	4		plain pearlware	1	

INDIAN HILLS PHASE I & II

CAT	SF	ST	TU	LV	ARB	FT	GP	CL	MAT	MOR	DESCRIPTION	CT	WT
59			4	2	B		1	1	4		hand painted ploychorme pw, 1795-1815	1	
60			4	3			10	3	54	27	primary	1	3.80
61			4	3			10	3	54	29	tertiary	13	13.10
62			4	3			10	7	54	81	Biface frag?	1	1.90

APPENDIX 5

NEW YORK STATE PREHISTORIC ARCHAEOLOGICAL SITE INVENTORY FORM
NYS OFFICE OF PARKS, RECREATION & HISTORIC PRESERVATION
(518) 237-8643

For Office Use Only--Site Identifier_____

Project Identifier_____INDIAN HILLS_____ Date ___10/2/15

Your Name___Alfred Cammisa_____ Phone (845) 783-4082
Address_____62 Pickerel Rd.
_____Monroe, NY
Organization (if any) _____TRACKER Archaeology Inc.
1. SITE IDENTIFIER(S)
2. COUNTY____Suffolk_____One of the following: CITY
TOWNSHIP_____Huntington
INCORPORATED VILLAGE
UNINCORPORATED VILLAGE OR HAMLET

3. PRESENT OWNER
Address_____Indian Hills Golf Club

4. SITE DESCRIPTION (check all appropriate categories):
Site

__Stray Find	___Cave/Rockshelter	__x_Workshop
__Pictograph	___Quarry	___Mound
__Burial	__ Shell Midden	___Village
__Surface Evidence	___Camp	___Material in plow zone
__Material below plow zone	_x_Buried evidence	___Intact Occupation floor
__Single component	___Evidence of features	___Stratified
	_x_Multicomponent	

Location

___Under cultivation	___Never cultivated	___Previously cultivated
___Pastureland	_x_Woodland	___Floodplain
__ Upland		___ Sustaining erosion

Soil Drainage: excellent _x__ good ___ fair ___ poor___
Slope: flat _x__ gentle ___ moderate ___ steep ___
Distance to nearest water from site (approx.) ___600 ft_____
Elevation: ____50 ft amsl_____

5. SITE INVESTIGATION (append additional sheets, if necessary):
Surface--date(s)____8-7 to 8-10/2015_____
___Site map (Submit with form)
___Collection

Subsurface--date(s)___same_____
Testing: shovel _x__ coring ___ other_____ unit size___30cm_____
no. of units ___324_____ (Submit plan of units with form)
Excavation: unit size _1m_____ no. of units ___4

Investigator ___ALFRED G CAMMISA_____
Manuscript or published report(s) (reference fully):

Phase I and Phase II Archaeological Investigations at the Indian Hills Prehistoric Site for the proposed Improvements to the Indian Hills Golf Course Northport, Township of Huntington, Suffolk County, New York

Present repository of materials _____TRACKER_____

6. COMPONENT(S) (cultural affiliation/dates):
Rossville-like (Terminal Archaic to Early Woodland, or Early-Middle Woodland)

7. LIST OF MATERIAL REMAINS (be specific as possible in identifying object and material):

170 flakes inc. primary, secondary, tertiary flakes, 2 points (1 Rossville-like), 4 bifaces, FCR (all quartzite/quartz), quartz crystal, glass utilized flake and glass drill, transferprint whiteware, pearlware

If historic materials are evident, check here and fill out historic site form __x__

8. MAP REFERENCES

USGS 7.5 Minute Series Quad. Name ___Northport, NY_____

UTM Coordinates _____

9. Photography

NEW YORK STATE HISTORIC ARCHAEOLOGICAL SITE INVENTORY FORM
NYS OFFICE OF PARKS, RECREATION & HISTORIC PRESERVATION
(518) 237-8643

For Office Use Only--Site Identifier_

Project Identifier

Your Name_____Alfred Cammisa_____ Date _10-13-15_____
Address_____62 Pickerel Rd_____ Phone (845) _783-4082_____
_____Monroe, NY 10950
Organization (if any) _____TRACKER Archaeology
1. SITE IDENTIFIER(S)_____Indian Hills
2. COUNTY_____Suffolk_____One of the following: CITY
TOWNSHIP___Huntington
INCORPORATED VILLAGE
_ UNINCORPORATED VILLAGE OR HAMLET

3. PRESENT OWNER
Address

4. SITE DESCRIPTION (check all appropriate categories):Structure/site
Superstructure: complete___ partial___ collapsed ___ not evident _x__
Foundation: above ___ below ___ (ground level) not evident _x____
___ Structural subdivisions apparent ___Only surface traces visible
___ Buried traces detected
List construction materials (be as specific as possible):na

Grounds
___Under cultivation ___Sustaining erosion _x_Woodland ___Upland
___Never cultivated ___Previously cultivated ___Floodplain ___Pastureland
Soil Drainage: excellent _x__ good __fair ___ poor ___
Distance to nearest water from structure (approx.) _____600'_____
Elevation: ___50' amsl_____

5. Site Investigation (append additional sheets, if necessary):
Surface -- date (s) ___8-7 to 8-10-15_ Site map (submit with form*)
Collection
Subsurface -- date(s) same as above
Testing: shovel _x__ coring ___ other ___ unit size __30cm_____
no. units __324_____ (Submit plan of units with form*)

Excavation: unit size __1___ no. of units __4_____
(Submit plan of units with form*)
* Submission should be 8 ½" by 11", if feasible

Investigator _Alfred Cammisa_____
Manuscript or published report (s) (reference fully):

Phase I and Phase II Archaeological Investigations at the Indian Hills Prehistoric Site for the proposed Improvements to the Indian Hills Golf Course Northport, Township of Huntington, Suffolk County, New York

Present repository of materials _____TRACKER_____

6. Site inventory:
   a. Date constructed or occupation period____na_____
   b. Previous owners, if known _____na_____
   c. Modifications, if known _____
   (append additional sheets, if necessary)

7. Site documentation (append additional sheets, if necessary):
   a. Historic map references
      1) Name_____ Date _____ Source _____
         Present location of original, if known _____
      2) Name_____ Date _____ Source _____
         Present location of original, if known _____
   b. Representation in existing photography
      1) Photo date _____ Where located _____
      2) Photo date _____ Where located _____

   c. Primary and secondary source of documentation (reference fully)

   d. Persons with memory of site
      1) Name_____ Address _____
      2) Name _____ Address _____

8. List of material remains other than those used in construction (be as specific as possible in identifying object and material):

- 170 flakes inc. primary, secondary, tertiary flakes, 2 points (1 Rossville-like), 4 bifaces, FCR (all quartzite/quartz), quartz crystal, glass utilized flake and glass drill, transferprint whiteware, pearlware

If prehistoric materials are evident, check here and fill out prehistoric site form. _x__

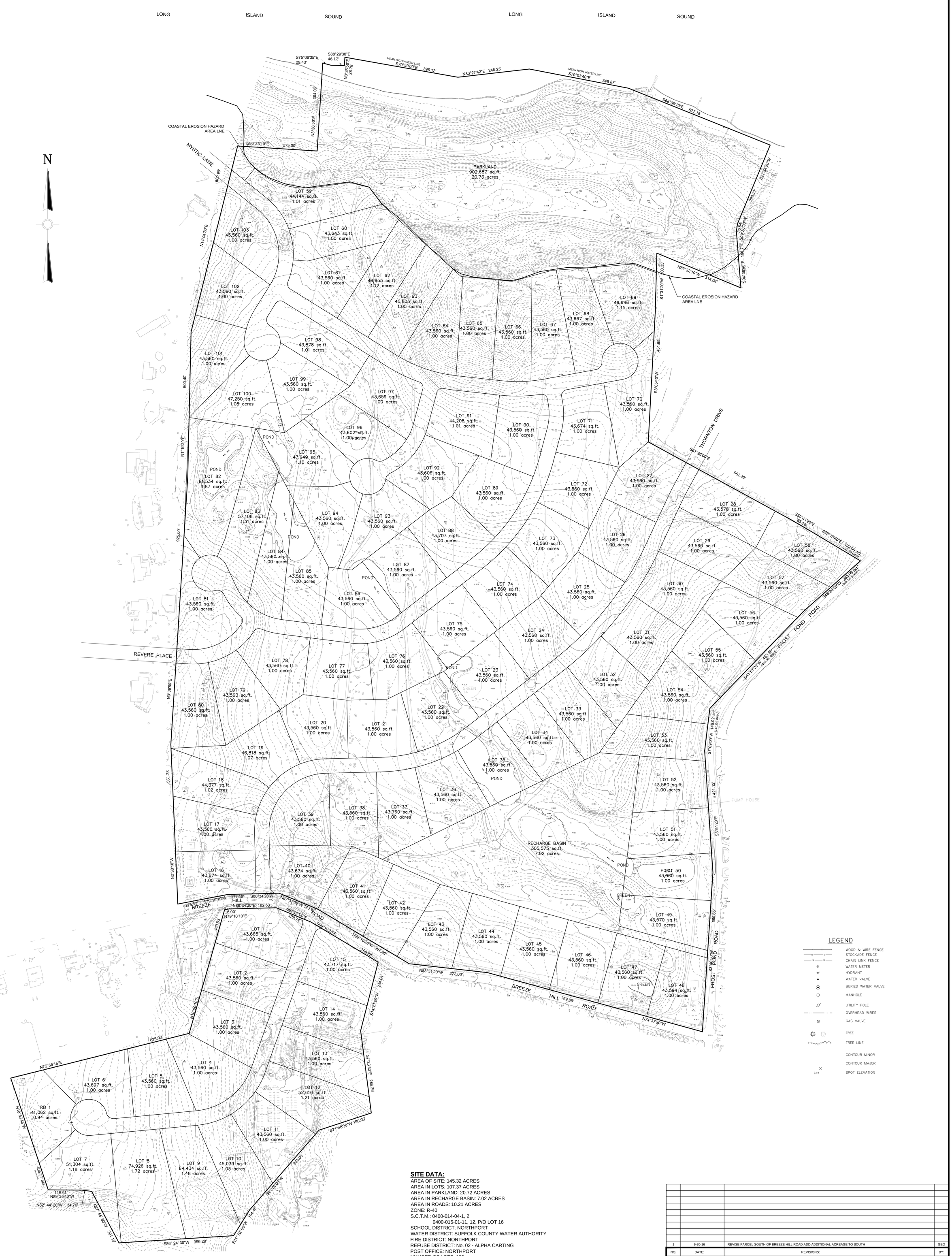
9. Map References: Map or maps showing exact location and extent of site must accompany this form and be identified by source and date. Keep this submission to 8½" x 11", if possible.

USGS 71/2 Minute Series Quad. Name _____Northport, NY_____
For Office Use Only--UTM Coordinates

10. Photography (optional for environmental impact survey): Please submit a 5"x7" black and white print(s) showing the current state of the site. Provide a label for the print(s) on a separate sheet.

ATTACHMENTS

Attachment 1
Yield Map



LEGEND

- WOOD & WIRE FENCE
- STOCKADE FENCE
- CHAIN LINK FENCE
- WATER METER
- HYDRANT
- WATER VALVE
- BURIED WATER VALVE
- MANHOLE
- UTILITY POLE
- OVERHEAD WIRES
- GAS VALVE
- TREE
- TREE LINE
- CONTOUR MINOR
- CONTOUR MAJOR
- 92.8 SPOT ELEVATION

SITE DATA:

AREA OF SITE: 145.32 ACRES
AREA IN LOTS: 107.37 ACRES
AREA IN PARKLAND: 20.72 ACRES
AREA IN RECHARGE BASIN: 7.02 ACRES
AREA IN ROADS: 10.21 ACRES
ZONE: R-40
S.C.T.M.: 0400-014-04-1, 2
0400-015-01-11, 12, P/O LOT 16
SCHOOL DISTRICT: NORTHPORT
WATER DISTRICT: SUFFOLK COUNTY WATER AUTHORITY
FIRE DISTRICT: NORTHPORT
REFUSE DISTRICT: No. 02 - ALPHA CARTING
POST OFFICE: NORTHPORT
NUMBER OF LOTS: 103

BOUNDARY INFORMATION WAS COMPILED FROM A TOPOGRAPHIC SURVEY PREPARED BY O'CONNOR-PETITO, LLP DATED JUNE 11, 2012 AND IS SUBJECT TO ANY STATE OF FACTS AN ACTUAL SURVEY MAY FIND.

OWNER:
I.H.C.C., INC.
21 BREEZE HILL ROAD
NORTHPORT, NY, 11768

NO.	DATE:	REVISIONS:	BY:
1	9-30-16	REVISE PARCEL SOUTH OF BREEZE HILL ROAD ADD ADDITIONAL ACREAGE TO SOUTH	GEO

TOWN ZONING (R-40 RES) YIELD MAP
FOR
INDIAN HILLS GOLF COURSE
SITUATED AT
NORTHPORT
TOWN OF HUNTINGTON, SUFFOLK COUNTY, NEW YORK
S.C.T.M.: DISTRICT: 0400, SECT. 014, BLK. 04, LOTS 1, 2
DISTRICT 0400, SECT. 015, BLK. 01, LOTS 11, 12

NELSON & POPE
ENGINEERS & SURVEYORS
572 WALT WHITMAN ROAD, MELVILLE, N.Y. 11747
PHONE (631) 427-5665 FAX (631) 427-5620
WWW.NELSONPOPE.COM

PROJECT NO.:	86047
DRAWN BY:	GEO
CHECKED BY:	RC
DATE:	JAN. 2016
SCALE:	1"=100'
FILE NO.:	400-014-
CADD:	84067\DWG\YIELDMAPS\ 84067YM 4
DRAWING NO.:	101
SHEET NO.:	1 OF 1

Attachment 2
Project Plans

THE PRESERVE AT INDIAN HILLS

DRAINAGE CALCULATIONS

DRAINAGE AREA "A"

REQUIRED STORAGE:

IMPERVIOUS: 123,821 SQ.FT. X 9/12 X 0.9 = 83,579.2 CU.FT.
LANDSCAPE: 196,783 SQ.FT. X 9/12 X 0.2 = 29,517.5 CU.FT.
UNDISTURBED: 22,276 SQ.FT. X 9/12 X 0.1 = 1,670.7 CU.FT.
TOTAL: 114,767.4 CU.FT.

PROVIDED STORAGE:

PONDS A - E
TOTAL STORAGE: 231,294.5 CU.FT.

DRAINAGE AREA "C"

REQUIRED STORAGE:

IMPERVIOUS: 72,318 SQ.FT. X 9/12 X 0.9 = 48,814.7 CU.FT.
LANDSCAPE: 71,622 SQ.FT. X 9/12 X 0.2 = 10,743.3 CU.FT.
TOTAL: 59,558 CU.FT.

PROVIDED STORAGE:

PONDS A - E
TOTAL STORAGE: 231,294.5 CU.FT.

DRAINAGE AREA "B-1"

REQUIRED STORAGE:

IMPERVIOUS: 18,987 SQ.FT. X 5/12 X 0.9 = 7,120.1 CU.FT.
UNDISTURBED: 41,677 SQ.FT. X 5/12 X 0.1 = 1,736.5 CU.FT.
TOTAL: 8,856.6 CU.FT.

PROVIDED STORAGE:
(9) 12'Ø LP W/ 10' ED = 9,079.2 CU.FT.

DRAINAGE AREA "B-2"

REQUIRED STORAGE:

IMPERVIOUS: 60,364 SQ.FT. X 5/12 X 0.9 = 22,636.5 CU.FT.
LANDSCAPE: 2,000 SQ.FT. X 5/12 X 0.2 = 166.6 CU.FT.
UNDISTURBED: 64,772 SQ.FT. X 5/12 X 0.1 = 2,698.8 CU.FT.
TOTAL: 25,501.9 CU.FT.

PROVIDED STORAGE:
(26) 12'Ø LP W/ 10' ED = 31,474.56 CU.FT.

DRAINAGE AREA "B-3"

REQUIRED STORAGE:

IMPERVIOUS: 32,383 SQ.FT. X 5/12 X 0.9 = 12,143.6 CU.FT.
LANDSCAPE: 73,385 SQ.FT. X 5/12 X 0.2 = 6,115.4 CU.FT.
UNDISTURBED: 10,000 SQ.FT. X 5/12 X 0.1 = 416.6 CU.FT.
TOTAL: 18,675.6 CU.FT.

PROVIDED STORAGE:
(19) 12'Ø LP W/ 10' ED = 23,000.6 CU.FT.

DRAINAGE AREA "B-4"

REQUIRED STORAGE:

LANDSCAPE: 76,132 SQ.FT. X 5/12 X 0.2 = 6,344.3 CU.FT.
UNDISTURBED: 42,405 SQ.FT. X 5/12 X 0.1 = 1,766.8 CU.FT.
TOTAL: 8,111.1 CU.FT.

PROVIDED STORAGE:
(9) 12'Ø LP W/ 10' ED = 9,079.2 CU.FT.

DRAINAGE AREA "B-5"

REQUIRED STORAGE:

IMPERVIOUS: 41,140 SQ.FT. X 9/12 X 0.9 = 27,769.5 CU.FT.
LANDSCAPE: 48,843 SQ.FT. X 9/12 X 0.2 = 7,326.4 CU.FT.
UNDISTURBED: 48,844 SQ.FT. X 9/12 X 0.1 = 3,663.3 CU.FT.
TOTAL: 38,759.2 CU.FT.

PROVIDED STORAGE:
POND F = 42,228 CU.FT.

DRAINAGE AREA "B-6"

REQUIRED STORAGE:

IMPERVIOUS: 98,450 SQ.FT. X 9/12 X 0.9 = 66,453.7 CU.FT.
LANDSCAPE: 173,971 SQ.FT. X 9/12 X 0.2 = 26,095.6 CU.FT.
TOTAL: 92,549.3 CU.FT.

PROVIDED STORAGE:
POND G & POND H = 93,654 CU.FT.

SITE DATA:

AREA OF SITE: ___ ACRES
ZONE: R-40
S.C.T.M.: 0400-014-04-1, 2
0400-015-01-11, 12
SCHOOL DISTRICT: NORTHPORT
WATER DISTRICT: SUFFOLK COUNTY WATER AUTHORITY
FIRE DISTRICT: NORTHPORT
REFUSE DISTRICT: No. 02 - ALPHA CARTING
POST OFFICE: NORTHPORT
NUMBER OF UNITS: 108

OWNER:

I.H.C.C., INC.
21 BREEZE HILL ROAD
NORTHPORT, NY, 11768

BOUNDARY INFORMATION WAS COMPILED FROM A TOPOGRAPHIC SURVEY PREPARED BY O'CONNOR-PETITO, LLP DATED JUNE 11, 2012 AND IS SUBJECT TO ANY STATE OF FACTS AN ACTUAL SURVEY MAY FIND.

INDIAN HILLS C.C.C.

NO.	DATE:	REVISIONS:	BY:
-	-	-	-

P.E. SEAL AND SIGNATURE

CONCEPT SKETCH
FOR
THE PRESERVE AT INDIAN HILLS
SITUATED AT
NORTHPORT
TOWN OF HUNTINGTON, SUFFOLK COUNTY, NEW YORK
S.C.T.M.: DISTRICT: 0400, SECT. 014, BLK. 04, LOTS 1, 2
DISTRICT 0400, SECT. 015, BLK. 01, LOTS 11, 12

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WWW.NELSONPOPE.COM

PROJECT NO.:	86047
DRAWN BY:	GEO
CHECKED BY:	RC
DATE:	APRIL, 2016
SCALE:	1"=120'
FILE NO.:	400-014-
CADD:	84067 CP 9
DRAWING NO.:	102
SHEET NO.:	2 OF 13

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THE PRESERVE AT INDIAN HILLS

INDIAN HILLS C.C.

SITE DATA:
AREA OF SITE: 145.32 ACRES
AREA OF OPEN SPACE: 130.91 ACRES
ZONE: R-40
S.C.T.M.: 0400-014-04-1, 2
0400-015-01-11, 12
SCHOOL DISTRICT: NORTHPORT
WATER DISTRICT: SUFFOLK COUNTY WATER AUTHORITY
FIRE DISTRICT: NORTHPORT
REFUSE DISTRICT: No. 02 - ALPHA CARTING
POST OFFICE: NORTHPORT
NUMBER OF UNITS: 108

OWNER:
I.H.C.C., INC.
21 BREEZE HILL ROAD
NORTHPORT, NY, 11768

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NO.	DATE:	REVISIONS:	BY:
-	-	-	-

P.E. SEAL AND SIGNATURE

CONCEPT SKETCH
FOR
THE PRESERVE AT INDIAN HILLS
SITUATED AT
NORTHPORT
TOWN OF HUNTINGTON, SUFFOLK COUNTY, NEW YORK
S.C.T.M.: DISTRICT: 0400, SECT. 014, BLK. 04, LOTS 1, 2
DISTRICT 0400, SECT. 015, BLK. 01, LOTS 11, 12

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PROJECT NO.:	86047
DRAWN BY:	GEO
CHECKED BY:	RC
DATE:	APRIL, 2016
SCALE:	1"=120'
FILE NO.:	400-014-
CADD:	84067 CP 9
DRAWING NO.:	103
SHEET NO.:	3 OF 13

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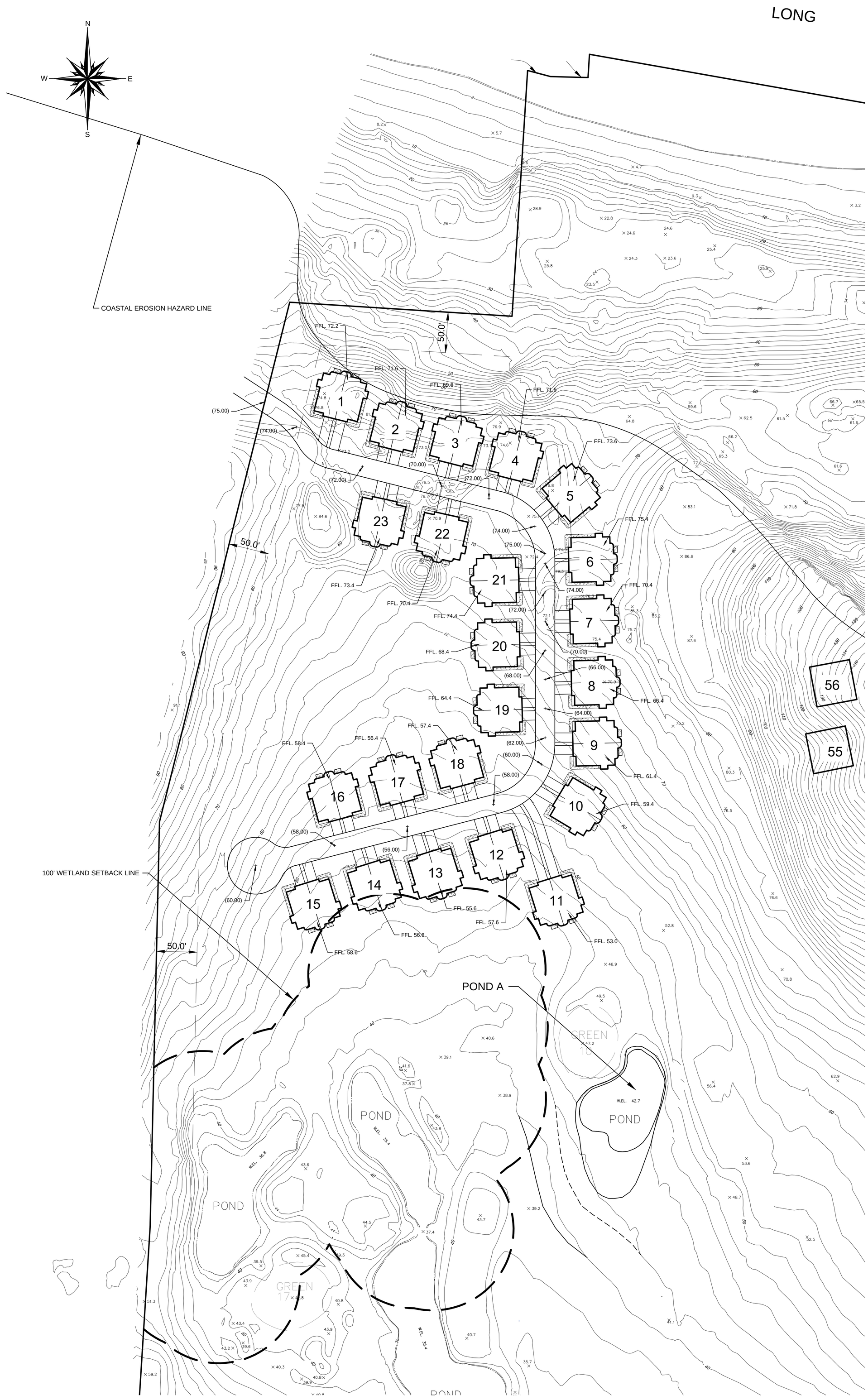

NO.	DATE:	REVISIONS:	BY:
-	-	-	-

P.E. SEAL AND SIGNATURE

CONCEPTUAL PLAN 1
FOR
THE PRESERVE AT INDIAN HILLS
SITUATED AT
NORTHPORT
TOWN OF HUNTINGTON, SUFFOLK COUNTY, NEW YORK
S.C.T.M.: DISTRICT: 0400, SECT. 014, BLK. 04, LOTS 1, 2
DISTRICT 0400, SECT. 015, BLK. 01, LOTS 11, 12

NELSON & POPE
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PROJECT NO.:	86047
DRAWN BY:	GEO
CHECKED BY:	RC
DATE:	APRIL, 2016
SCALE:	1" = 80'
FILE NO.:	400-014-
CADD:	84067 CP 9
DRAWING NO.:	104
SHEET NO.:	4 OF 13

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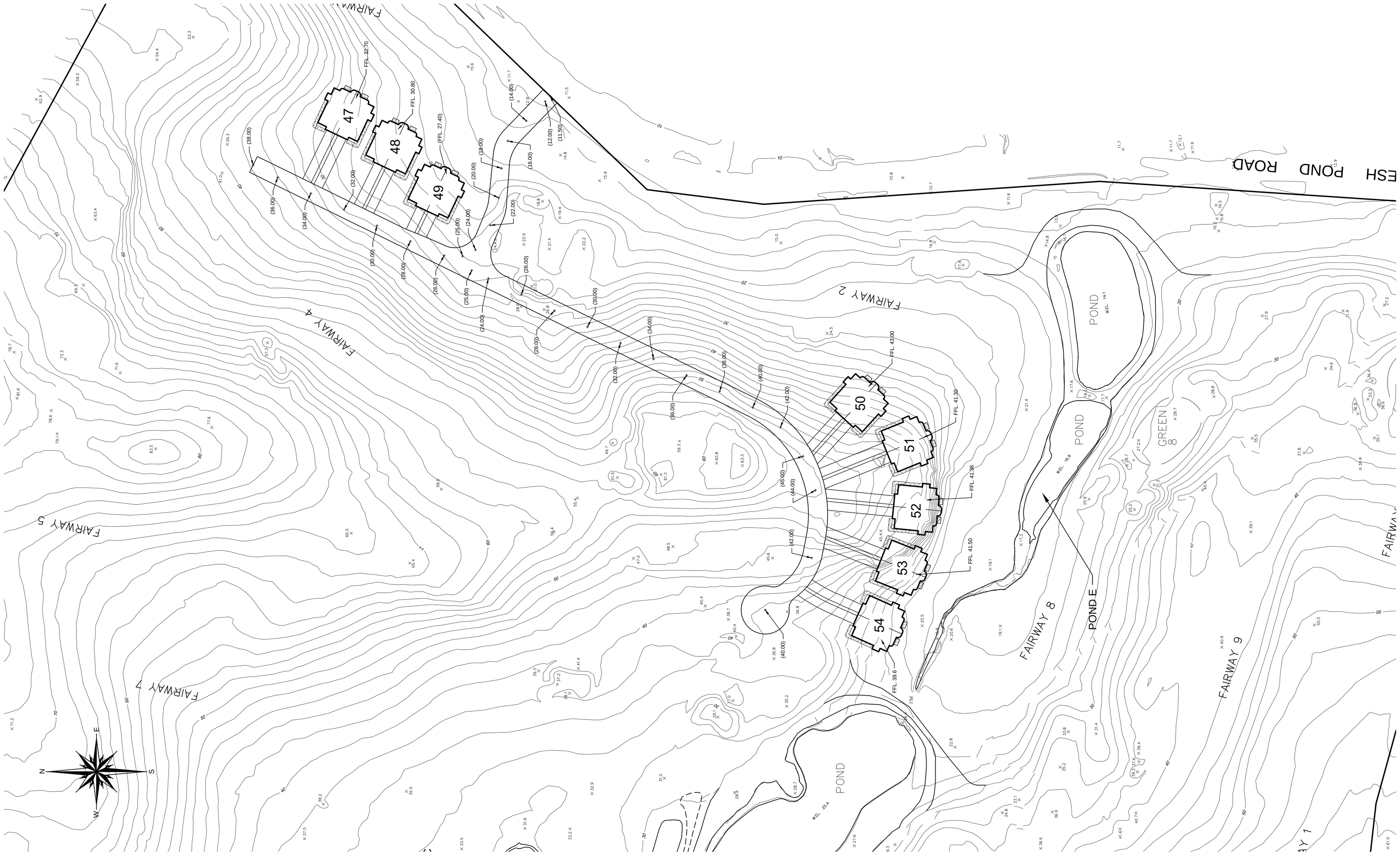

REVISIONS:

NO.	DATE:	BY:

CONCEPTUAL PLAN 2

FOR

THE PRESERVE AT INDIAN HILLS

SITUATED AT

NORTHPORT

TOWN OF HUNTINGTON, SUFFOLK COUNTY, NEW YORK

S.C.T.M.: DISTRICT: 0400, SECT: 014, BLK: 04, LOTS 1, 2

DISTRICT: 0400, SECT: 035, BLK: 01, LOTS 11, 12

NELSON & POPE

ENGINEERS & SURVEYORS
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PHONE (631) 427-5665 FAX (631) 427-5620
WWW.NELSONPOPE.COM

PROJECT NO.:	86047
DRAWN BY:	GEO
CHECKED BY:	RC
DATE:	APRIL, 2016
SCALE:	1" = 80'
FILE NO.:	400-014-
CADD:	84087 CP 9
DRAWING NO.:	105
SHEET NO.:	5 OF 13

P.E. SEAL AND SIGNATURE

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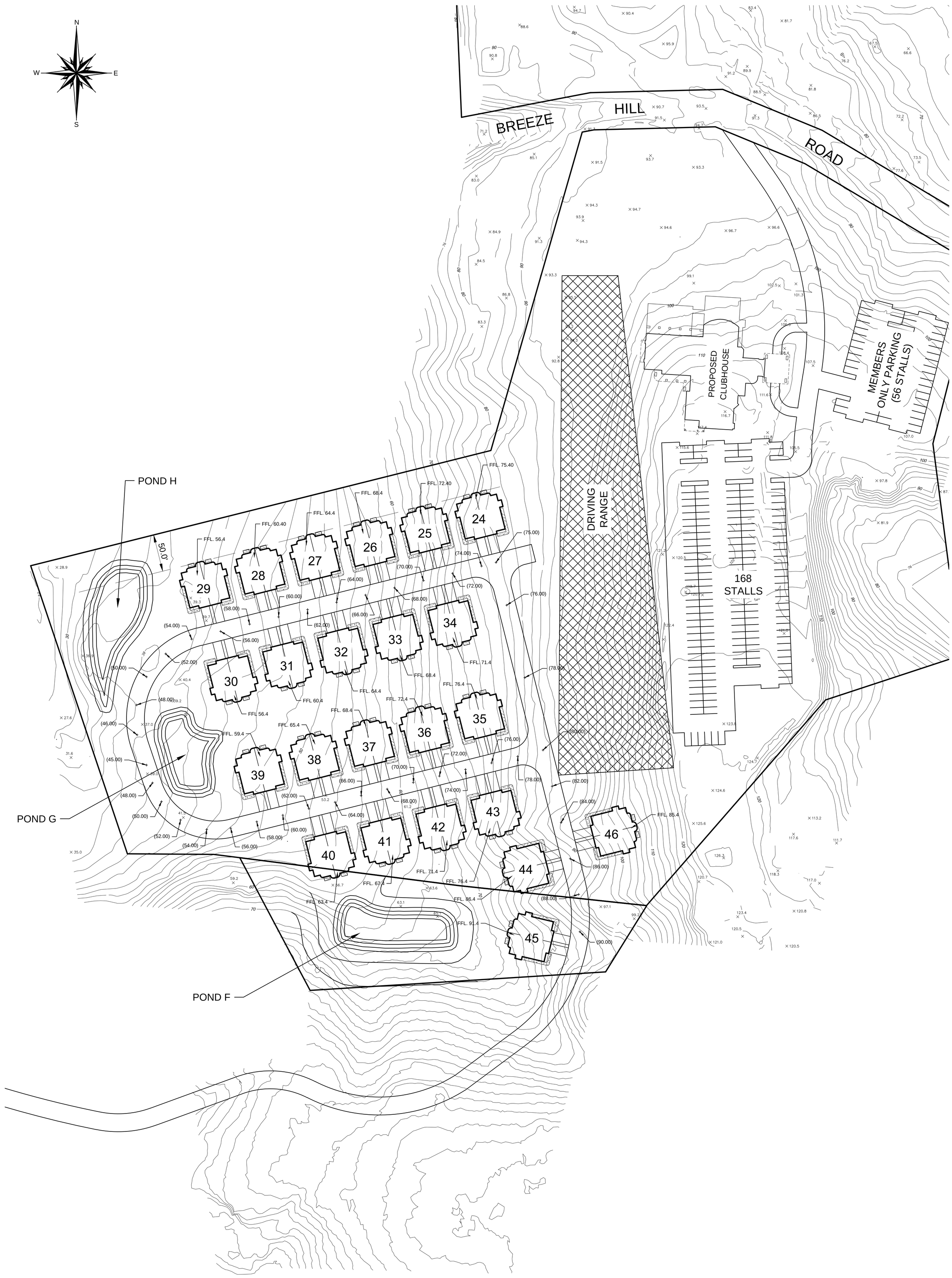

NO.	DATE:	REVISIONS:	BY:
-	-	-	-

CONCEPTUAL PLAN 3
FOR
THE PRESERVE AT INDIAN HILLS
SITUATED AT
NORTHPORT
TOWN OF HUNTINGTON, SUFFOLK COUNTY, NEW YORK
S.C.T.M.: DISTRICT: 0400, SECT. 014, BLK. 04, LOTS 1, 2
DISTRICT 0400, SECT. 015, BLK. 01, LOTS 11, 12

P.E. SEAL AND SIGNATURE

NELSON & POPE
ENGINEERS & SURVEYORS
572 WALT WHITMAN ROAD, MELVILLE, N.Y. 11747
PHONE (631) 427-5665 FAX (631) 427-5620
WWW.NELSONPOPE.COM

PROJECT NO.:	86047
DRAWN BY:	GEO
CHECKED BY:	RC
DATE:	APRIL, 2016
SCALE:	1" = 80'
FILE NO.:	400-014-
CADD:	84067 CP 9
DRAWING NO.:	106
SHEET NO.:	6 OF 13

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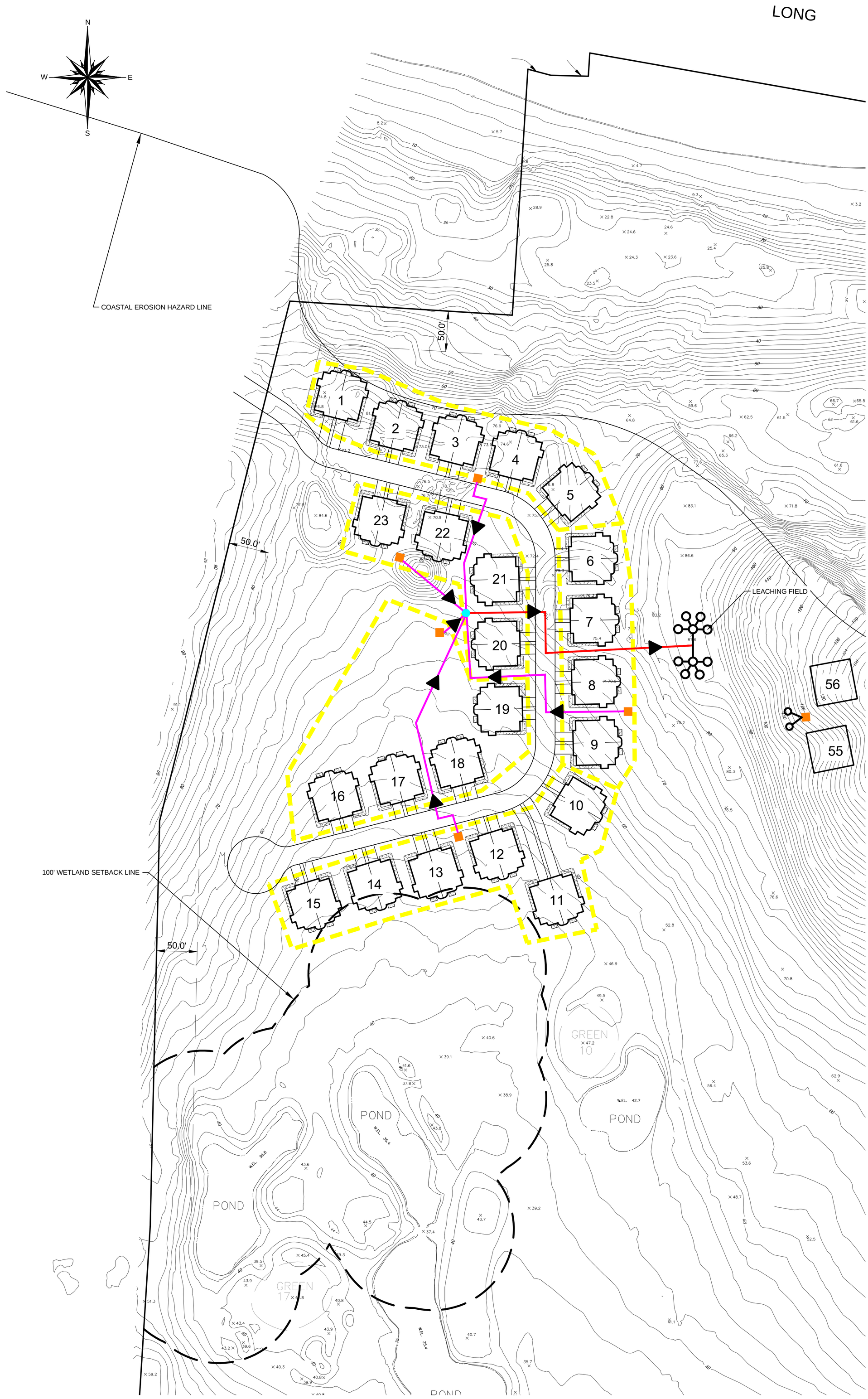

TREATMENT SYSTEM

PUMP STATION

NO.	DATE:	REVISIONS:	BY:
-	-	-	-

P.E. SEAL AND SIGNATURE

CONCEPTUAL SANITARY SYSTEM PLAN 1
FOR
THE PRESERVE AT INDIAN HILLS
SITUATED AT
NORTHPORT
TOWN OF HUNTINGTON, SUFFOLK COUNTY, NEW YORK
S.C.T.M.: DISTRICT: 0400, SECT. 014, BLK. 04, LOTS 1, 2
DISTRICT 0400, SECT. 015, BLK. 01, LOTS 11, 12

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PROJECT NO.:	86047
DRAWN BY:	GEO
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DATE:	APRIL, 2016
SCALE:	1" = 80'
FILE NO.:	400-014-
CADD:	84067 CP 9
DRAWING NO.:	107
SHEET NO.:	7 OF 13

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NO.	DATE:	REVISIONS:	BY:
-	-	-	-

CONCEPTUAL SANITARY SYSTEM PLAN 2
FOR
THE PRESERVE AT INDIAN HILLS
SITUATED AT
NORTHPORT
TOWN OF HUNTINGTON, SUFFOLK COUNTY, NEW YORK
S.C.T.M.: DISTRICT: 0400, SECT. 014, BLK. 04, LOTS 1, 2
DISTRICT 0400, SECT. 015, BLK. 01, LOTS 11, 12

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PROJECT NO.:	86047
DRAWN BY:	GEO
CHECKED BY:	RC
DATE:	APRIL, 2016
SCALE:	1" = 80'
FILE NO.:	400-014-
CADD:	84067 CP 9
DRAWING NO.:	108
SHEET NO.:	8 OF 13

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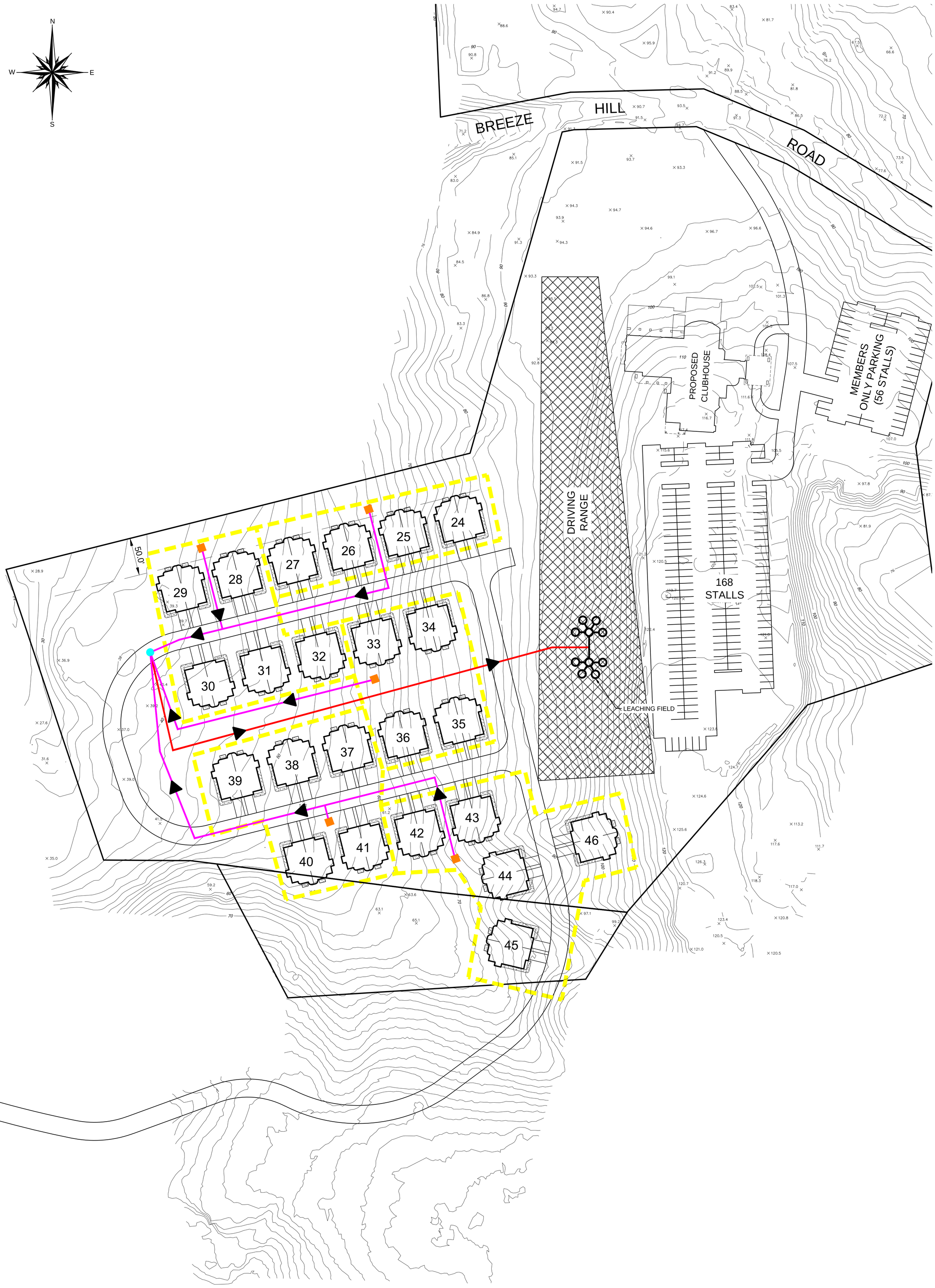

TREATMENT SYSTEM

PUMP STATION

NO.	DATE:	REVISIONS:	BY:
-	-	-	-

CONCEPTUAL SANITARY SYSTEM PLAN 3
FOR
THE PRESERVE AT INDIAN HILLS
SITUATED AT
NORTHPORT
TOWN OF HUNTINGTON, SUFFOLK COUNTY, NEW YORK
S.C.T.M.: DISTRICT: 0400, SECT. 014, BLK. 04, LOTS 1, 2
DISTRICT 0400, SECT. 015, BLK. 01, LOTS 11, 12

PROJECT NO.:	86047
DRAWN BY:	GEO
CHECKED BY:	RC
DATE:	APRIL, 2016
SCALE:	1" = 80'
FILE NO.:	400-014-
CADD:	84067 CP 9
DRAWING NO.:	109
SHEET NO.:	9 OF 13

P.E. SEAL AND SIGNATURE

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