

DRAFT ENVIRONMENTAL IMPACT STATEMENT

HREN PROPERTY

Change of Zone Application

Hamlet of Huntington
Town of Huntington
Suffolk County, New York

**Volume 1 of 2
Main Text, Appendices &
Conceptual Plot Plan**

NP&V Project No. 84016

November, 1999

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Hamlet of Huntington, Town of Huntington
Suffolk County, New York

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SUMMARY



SUMMARY

Introduction

This document is a Draft Environmental Impact Statement (DEIS) prepared for a Change of Zone application involving a 31.10 acre site in the Hamlet of Huntington, Town of Huntington, New York. The project involves two areas of development: a 9-lot residential subdivision on 11.52 acres and 69,000 SF of retail/commercial space on 10.07 acres, separated by 9.51 acres of retained naturally-vegetated open space. The project site is located on the south side of Jericho Turnpike, west of its intersection with Dix Hills Road. The property is presently vacant; it had previously been used for growing plants and trees for the Hren Nursery.

The rezone application involves 6.80-acres, for a minimum 210-foot deep strip adjacent and along the southerly boundary of the existing C-6 area, summarized as follows:

	EXISTING	PROPOSED
C-6 zone	3.27 acres	10.07 acres
R-40 zone	27.83 acres	21.03 acres

The project described in this document represents the Applicant's interpretation of the optimum yield of the site, in consideration of the size, location, physical conditions, adjacent uses and economics of the site, as well as the pertinent development restrictions and recommendations.

Description of the Proposed Action

Structures

The property will be divided into two separate projects. The first will involve the construction of 69,000 SF of a retail/commercial building with a height of less than 35 ft, in the north central portion of the property. The total developed area for this portion of the project will be 10.07 acres with 1.58 acres utilized for the building footprint, 4.78 acres of paved surfaces to be used for parking and 1.64 acres of landscaping. The remaining 2.07 acres will be retained natural vegetation. The facility will face towards the west and will be accessed by two entrances, each located to the east and west of the building along Jericho Turnpike. The westernmost entrance will be provided with a traffic signal to mediate the flow of traffic in and out of the parking lot along Jericho Turnpike. A three-bay loading dock and compactor pad will be located at the rear (east side) of the building. The parking lot will be provided with nine outdoor lighting poles which will be shielded to prevent glare from impacting adjacent properties. The sidewalk will be extended on the south side of Jericho Turnpike to the eastern most edge of the property.

The residential development will occupy 21.03 acres of the southern portion of the site with 0.72 acres for the combined building footprints, 1.30 acres of paved areas consisting of the road and driveways and 4.13 acres of total landscaped area. The remaining 14.88 acres will remain natural vegetation. The development will consist of nine lots ranging from 1.03 to 1.40 acres in size with access provided by a cul de sac entering from Dix Hills Road. Each home will consist



of a 2-story structure which will not exceed 35 ft. in height and 7,000 SF of living space. In addition, each residence will have a driveway a minimum of 50 ft. in length consistent with R-40 zoning requirements.

In addition 4,450 SF along Dix Hills Road and 5,725 SF along Jericho Turnpike will be dedicated to the Town of Huntington and the State of New York, respectively for right-of-way purposes.

In conformance with a Town Department of Planning & Environment request, the soils on-site have been sampled and analyzed to determine whether the chemicals used in the previous nursery operation on the property (fertilizers, pesticides, herbicides, etc.) are present in detectable concentrations. The test results are also intended to determine whether such chemicals, if present, are of a type or concentration which exceed applicable standards. The test results revealed that analyzed pesticide constituents were typical of residential Long Island soils. Furthermore, analysis of lead and arsenic were either not detectable or very low in concentration. Since the concentrations were not excessive, no further action is recommended for the subject property.

The proposed retail/commercial area will be provided with decorative landscaping consisting of trees, shrubbery and grassy groundcovers to provide a transition between roadways, parking areas and preserved natural vegetation. It is expected that the fertilization requirements for all landscaping will be low and will not require follow-up applications to further enhance vegetation growth.

Access, Circulation and Parking

Roadway and/or traffic mitigation measures proposed for the application include:

1. Construction of a 3-phase traffic signal at the main site access on Jericho Turnpike
2. Construction of eastbound and westbound right-turn lanes at the site driveway on Jericho Turnpike

Access to the retail/commercial portion of the property will be provided along the property frontage on Jericho Turnpike. An area of 4.78 acres consisting of 414 stalls will be provided for parking. This exceeds the 345 spaces required by the Town of Huntington which requires 1 stall per 200 SF of floor area. The residential development will be provided with a single access point consisting of a cul de sac roadway off Dix Hills Road, approximately 1,050 ft. south of Jericho Turnpike. The remaining perimeter of the property will be fenced, with no additional motorized or pedestrian access provided. By providing separate access points to both the proposed retail area and residential development, traffic flow patterns will remain consistent with existing conditions and will minimize traffic within the adjacent residential areas.



Drainage and Utilities

For the proposed retail/commercial facility, an on-site drainage system will be provided to accept runoff from impervious surface areas. The drainage system will consist of a series of catch basins which will overflow to a series of leaching pools beneath the parking area. These will be distributed in a manner to eliminate flooding within the parking lot. With regard to the residential development portion of the proposed project each of the developed lots will be graded to promote surface runoff to the street. Drainage from the street will be provided by the installation of roadside catch basins to accept surface runoff. These drainage systems will be sized and engineered in accordance with SCDPW regulations.

Electrical service for both portions of the proposed project will be provided by the Long Island Power Authority (LIPA) through connections to the overhead power lines located along the south side of Jericho Turnpike. Potable water will be provided by the Greenlawn Water District (GWD).

Water will be supplied to the proposed retail/commercial area through a service main connected to the supply main located along Jericho Turnpike. A separate fire service main will parallel that of the supply main. Water supply to the proposed residential development will be provided from the supply main along Dix Hills Road.

Sanitary wastes for both proposed developments will be disposed via individual on-site sanitary waste disposal systems. This form of disposal is acceptable provided the projected wastewater design flow does not exceed the standards established by the Suffolk County Department of Health Services (SCDHS); the Applicant does not anticipate that this standard will be exceeded. The system design provides protection of groundwater quality from elevated nitrogen concentrations that result from septic wastes. This design promotes the removal of nitrogen gas and the removal of nitrogen through natural denitrification processes. In addition, the subsurface soils underlying the project site will act as a removal mechanism of nitrogen and bacteria associated with wastewater discharges.

The project site is located within Groundwater Management Zone I as defined by the SCDHS. Based on the requirements of Article 6, no more than 600 gallons may be discharged per acre on a daily basis within this zone. The site acreage used for determining this Population Density Equivalent must not include wetlands, surface waters, or land in flood zones. The subject site is 31.10 acres in size and does not contain surface waters or wetlands. Thus, the Population Density Equivalent (total allowable flow) on the subject site is calculated as:

$$31.10 \text{ acres} \times 600 \text{ gpd/acre} = 18,660 \text{ gallons per day (gpd)}$$

The project sponsor intends to utilize conventional subsurface sewage disposal systems on site, therefore, the total design flow must not exceed the Population Density Equivalent calculated above.

In order to provide a conservative (i.e., upper limit) estimate of water use/wastewater generation, a supermarket use of the retail/commercial area was assessed. The current design sewage flow applied by the SCDHS for such a facility is 0.05 gpd/SF, of which 0.03 gpd/SF is sanitary flow



and 0.02 gpd/SF is kitchen flow. This results in an estimated sewage flow for the proposed 69,000 SF building of 3,450 gpd. In addition, the current design sewage flow standard for single-family residential units is 300 gpd; therefore it is estimated that the 9 proposed residences will generate approximately 2,700 gpd of sewage flow. As a result it is estimated that the proposed project will generate approximately 6,150 gpd of sewage flow. This is 12,510 gpd less than allowed by the SCDHS under its current regulations, therefore, conventional on-site sanitary systems may be used for this development.

Construction Process

The construction process will begin with establishment of flagged clearing limits, followed by installation of staked hay bales and silt fencing in critical areas for erosion control purposes. Then, the site clearing operations can begin; construction equipment and vehicles will be parked and loaded/unloaded within the site. "Rumble strips" will be placed at the site entrance, to prevent soil on truck tires from being tracked onto Jericho Turnpike and Dix Hills Road.

Grading operations will take place next. In order to minimize the time span that denuded soil is exposed to erosive elements, excavations for the curbs, roads, building foundations, wastewater systems, drainage system/recharge basin and utilities will take place immediately after grading operations have been completed. Construction of the retail/commercial building and houses can then begin, concurrent with the utility connections and paving of the internal roads. Once heavy construction is complete, finish grading will occur, followed by soil preparation using topsoil and installation of the landscaping, which will be performed while the structures are completed.

Jericho Turnpike and Dix Hills Road will only be used for site access. Neither of these roadways will be used for construction equipment, vehicle/material storage or construction worker parking. As a result, no significant or long-term construction impacts to the adjacent businesses and residences are anticipated. Construction activities are not anticipated to occur outside weekday daytime hours (8 AM to 5 PM), unless adherence to the construction schedule would require weekend work. In such a case, it is expected that the same hours of operation as weekdays would be followed.

It is anticipated that the construction period (clearing, grading, construction and finishing) will take approximately 10 to 12 months.

Significant Environmental Impacts

Geology

Topography

The project site is generally flat with a slight slope to the west and the topography of the site does not impose any constraints on development. There are no steep slopes, and the topography ranges from 190 ft in the central portion of the property to 180 ft along the western boundary. Only minimal grading will be necessary for construction of the supermarket, proposed roadway



or development of the individual subdivision lots. Creation of steep slopes will not be necessary, and none will be present following construction of roads and homesites.

Surface Soils

The surface soils found on the subject site are not expected to pose a significant constraint on the proposed development based on review of soil constraints provided in the Suffolk County Soil Survey. Topsoil will be stockpiled and re-utilized in landscaped areas in order to minimize adverse affects associated with long term exposed soils. The site is comprised of Montauk-Haven-Riverhead Association soils which are deep, nearly level to strongly sloping, well drained to moderately well drained with moderately coarse textured and medium-textured soils. The constraints associated with the soils are predominantly minor. Constraints on the construction of sewage systems, homesites, streets and parking lots are slight. The Soil Survey notes that due to the rapid permeability of the soil types existing at the site, development may present potential pollution problems to lakes, springs or shallow wells. However, the depth to groundwater is more than adequate for leaching of sanitary waste and there are no lakes, springs or shallow wells on or in the vicinity of the subject site. Thus, the permeability of the soils should not constrain development. Severe constraints exist for landscaping and lawns due to the sandy surface layer in the Plymouth loamy sands present at the site. This should not adversely impact development of the site. The establishment of homesites, streets, lawns and commercial development is typical for the area where the subject site is located.

Subsurface Geology

Excavation during the project is not anticipated to significantly extend into the subsurface soils beneath the subject site. Therefore, there should be no impacts related to or from subsurface geological features.

Water Resources

The primary water resource impacts expected as a result of development of the project site involve changes in groundwater quality. There is no surface water on the site, and thus no impacts to surface water are expected. Reduction of groundwater quality is typically the result of sanitary discharge and degradation of recharge on the site. An increase in the amount of water that is recharged is also expected as a result of the increase in impervious surfaces on site, although this will not result in a significant change in the regional hydrogeological regime.

Hydrologic Water Budget

The SONIR computer model was run to determine the existing and proposed water budget resulting from recharge. Under the proposed development the project site will recharge a total of 23.19 million gallons per year (MGY) resulting in an increase of 7.51 MGY. Analysis of the computer model results indicate that 89% of total site recharge under proposed conditions would result from precipitation, while 10% would result from wastewater recharge with the final 1% resulting from irrigation. Increases in recharge are primarily the result of reduction of natural area which are replaced with impervious surfaces. This results in a reduction of evapotranspiration by vegetation and the concentration of surface water available for recharge. This increase is not expected to cause a significant adverse impact since the depth to



groundwater beneath the site is approximately 110 ft below ground surface (bgs) and will not result in flooding related concerns.

Groundwater Quality

The primary groundwater quality concern associated with development at the subject site is nitrogen loading due to on-site disposal of sanitary waste effluent and the use of fertilizer for lawns and landscaping.

Wastewater will be generated as a result of the proposed residential and commercial development of the site. All sanitary wastewater effluent is proposed to be disposed of via individual on-site sanitary waste disposal systems. This form of disposal is allowed provided the projected wastewater design flow does not exceed standards established by the SCDHS, which were developed to protect groundwater resources within the County. The proposed project will conform to SCDHS standards in order to limit the impact to groundwater quality, as is discussed below.

The SONIR model was also run to determine the concentration of nitrogen in recharge, which would be expected, following residential and commercial development under the proposed density. The model accounts for the following primary nitrogen sources: precipitation, sanitary waste, fertilizer and water supply. In addition, the model accounts for recharge from the following sources: lawn and landscaped area recharge, natural area recharge, irrigation recharge, impervious area recharge, unvegetated area recharge and wastewater recharge. For the purposes of this analysis, it was assumed that the landscaped portion of each residential lot would be fertilized, but that the buffer areas would be naturalized with non-fertilizer dependent vegetation.

The SONIR printout indicates that the concentration of nitrogen in recharge resulting from sanitary disposal, precipitation and fertilization will be 3.75 milligrams per liter (mg/l) under full build conditions, with maximum sanitary flow allowed under Article 6. The nitrogen concentration in recharge originates primarily from wastewater (91.1% by weight) with the remainder originating from fertilizing (8.0% by weight), precipitation (0.5% by weight) and irrigation (0.4% by weight). This results from the higher concentration of nitrogen found in wastewater as opposed to the other contributing constituents. The anticipated concentration of nitrogen contributed by the site following the proposed development is less than the NYSDEC drinking water standard of 10 mg/l. This concentration is also less than the more stringent 6 mg/l limit established for Pine Barrens areas. Therefore, the proposed project is not expected to result in significant adverse effects to groundwater quality with regard to nitrogen loading.

Surface Water and Drainage

Stormwater runoff will be generated from impervious surfaces such as roads, parking areas, roofs, sidewalks, and driveways. Runoff from some types of land uses may carry such pollutants as heavy metals, petroleum hydrocarbons, bacteria, and nitrogen. Extensive monitoring associated with the NURP Study found a significant reduction in concentrations of heavy metals, hydrocarbons, and bacteria, in groundwater as compared with surface runoff, indicating that such contaminants are attenuated in soil or volatilized in stormwater transport. The proposed project will utilize leaching pools and road side leaching catch basins for recharge of stormwater, and therefore the findings of the NURP study are applicable to this project.



Under the NURP Study, a number of different land use sites were studied to determine the impact of stormwater recharge on groundwater, including: strip commercial development, a shopping mall parking lot, low density residential development (one acre lots), a major highway, and medium density residential development (quarter acre lots).

None of the parameters examined within the NURP Study exceeded standards for the reported constituents at either of the two sites. Thus, recharge of stormwater from residential or strip commercial development was not found to cause significant groundwater impacts. Hydrocarbons from automobile use are volatilized or of such low concentration as to not be significant, and metals such as lead are effectively attenuated in soils of typical residential drainage systems.

The proposed actions at the project site may result in alteration of drainage flow or surface water patterns through the creation of impervious surfaces. However, it should be noted that the site has low slopes with few swales which could concentrate runoff into pools, and is underlain by soils having good percolation characteristics. In accordance with SCDPW regulations all surface run-off generated on-site must be contained on-site, therefore all run-off will be directed to roadside leaching catch basins and stormwater leaching pools

Ecology

The impacts to the ecological resources of a project site are generally a direct result of clearing of natural vegetation and the resulting loss and fragmentation of wildlife habitat and increase in human activity on the property.

Vegetation

The proposed plan will require clearing of approximately 45% of the vegetation on the property, although some areas of natural vegetation will remain as buffers along the property boundaries and throughout the majority of the center and northwestern corner of the site. The cleared vegetation will be partially replaced by landscaping species; however, the proposed development will have localized impacts on vegetation.

Regional impacts will be negligible, as the project site is small in size and represents only a small portion of the natural vegetation in the area. In addition, the project site is not unique or unusual in terms of native vegetation or habitat, and is characterized by remaining nursery stock and successional vegetation which is followed by disturbance. Limited woodland will remain in the southern portion of the property, with the exception of the southern and eastern borders. It is anticipated that any larger diameter trees will remain within the residential portion of the site where possible. In the residential areas and borders around the proposed retail/commercial parking area, the habitat will be disturbed due to site development activities, but will be supplemented through extensive landscaping throughout the developed portions of the site. This includes the perimeter of the site, street trees along Dix Hills Road, Jericho Turnpike and the proposed cul de sac and landscape islands and strips within the proposed parking lot. Approximately one third of the natural vegetation will remain.



The majority of the vegetation on the property is currently dominated by remaining nursery stock and successional vegetation. The existing woodland habitat in the area is somewhat fragmented due to the surrounding developed areas and similar successional habitat is found throughout the general area. Additionally, clearing of the nursery stock found on site is not expected to impact plant species. The property is not be expected to act as a refuge for rare native flora, and impacts to plant species should be minimal.

Wildlife

The early successional vegetation found on the project site provides habitat for several wildlife species which are tolerant of human activity. Most of these species will utilize a range of habitats, including suburban yards, and thus would be expected to utilize the buffers and newly landscaped portions of the site to a limited degree. Although much of the proposed site will be cleared under the proposed plan, the site represents only a small portion of the early successional habitat in the vicinity. Species which avoid human activity or are particularly vulnerable to habitat fragmentation are not expected under existing conditions. Landscape plants may also offer benefits to wildlife, particularly if native and near native species are chosen which provide food and shelter.

The proposed project will favor those wildlife species that prefer edge and suburban habitats and those that are tolerant of human activity. As successional woodland is found throughout the area and wildlife species generally not tolerant of human activity are not expected under current conditions, the regional impacts to this habitat are not expected to be significant.

In the short term, the proposed clearing of the site would be expected to displace individuals from the property onto adjacent lands, with some direct loss of individuals. Ultimately, interspecific and intraspecific competition should result in a net decrease in population size for most species within the local area, with some species recovering slightly as landscaping becomes established and provides cover. Although local populations will be impacted, the overall effect on the density and diversity of regional populations should be minimal, as the area represents only a small portion of the successional shrubland and woodland habitat available in the vicinity. The impacts of habitat losses are cumulative, however, and impacts need to be considered in light of regional planning.

Transportation

The traffic generated by the assumed supermarket and 9 single family dwellings will have an imperceptible impact at the intersections of Jericho Turnpike and Dix Hills Road/Greenlawn Road, and Jericho Turnpike and Park Avenue.

The site driveway on Jericho Turnpike for the Supermarket will experience operational difficulty during the PM and Saturday peak hours, without construction of a new signal. However, this intersection meets traffic signal warrants one and two of the Manual for Uniform Traffic Control Devices. It will operate at a LOS "B" in the "Build" condition, if a three-phase signal control were constructed as well as new eastbound and westbound left turn lanes.



Land Use, Zoning and Plans

Land Use

The existing site use is not considered a permanent use, as the site is vacant. The property under discussion is split into two zoning designations. The front portion along Jericho Turnpike is zoned "C-6 General Business District", and the rear portion is zoned "R-40 Residence District". The project site is located in a mixed land use area. The front portion of the site is situated within the Jericho Turnpike commercial corridor, with business uses to the north, east and west. The rear portion of the site lies within a residential land use pattern, with housing of varying densities to the east, west and south. The only minor exception is the commercial use that extends from Jericho Turnpike along a small section of the parcel's eastern perimeter. The mixed land use pattern requires that the proposed use address the difficult circumstance of harmonizing with varying surrounding land use activities. Evidence that the proposed use complements the existing land use pattern is as follows:

- The front portion of the site, extending four hundred and fifty (450) feet south from Jericho Turnpike, is proposed to house a 69,000 square foot retail/commercial development. The proposed development lies within the established Jericho Turnpike commercial corridor, with a lot depth that corresponds to neighboring business uses to the east. The project will result in a long-term use that will complement adjacent properties and strengthen the commercial land use pattern designated in the Town of Huntington Comprehensive Plan-1993 for Jericho Turnpike.
- The southern portion of the project site is proposed to house a nine- (9) lot residential subdivision on 11.52 acres of land. The proposed housing units will be developed on one (1) acre lots with each home having three (3) or four (4) bedrooms. This proposed residential land use will complement the existing neighborhood housing that surrounds the southern portion of the project site. Further, a naturally vegetated buffer area will extend along Dix Hills Road, screening the proposed homes from the roadway and the residences to the west.
- The project site design includes an 9.51 acre open space buffer between the planned commercial development fronting on Jericho Turnpike, and the proposed nine (9) lot residential subdivision to be developed on the southern portion of the property. The proposed buffer area has a minimum width of two-hundred and ten (210) feet, and extends from the subject parcel's western border along Dix Hills Road to its eastern perimeter. The proposed development will maintain the subject buffer area in its current natural state, thereby providing a transitional area between the Jericho Turnpike commercial corridor and the proposed and existing residential developments to the south, east and west.
- Access to both the proposed 69,000 square foot commercial development and the planned residential subdivision will be controlled and limited. Commercial traffic entering the project site will be limited to access points along Jericho Turnpike, thereby eliminating potential traffic impacts on the surrounding neighborhoods. With respect to the residential subdivision, access will be via a cul-de-sac roadway. This street design extends access to residents, and prevents related traffic impacts on surrounding land uses.



Zoning

The project site is currently divided between two zoning designations, “R-40 Residence District” and “C-6 General Business District”, as depicted on the *Town of Huntington Zoning Map*. The northern portion of the site, extending the site’s entire one-thousand (1,000) foot frontage along Jericho Turnpike, and with a depth of one-hundred and fifty (150) feet is zoned C-6 General Business. This area encompasses approximately 3.27 acres of the subject site’s total acreage of 31.10 acres. The remaining 27.83 acres of the site lies within an R-40 Residence District. The zoning surrounding the project site includes a mix of business and residential zoning, that for the most part, represents existing land use.

The proposal involves extending the existing C-6 zone boundary line from its existing depth of one hundred and fifty (150) feet from Jericho Turnpike, to a maximum depth of four hundred and eighty feet (480). The proposal will complement the Town’s existing zoning pattern in the project vicinity based on the following observations:

- The proposed zone boundary shift will complement the existing land uses to the east and west; further, the proposed extension of the commercial zone will provide adequate land area for a well-designed, modern retail center.
- The residential zoning areas, to the west, east and south of the retail component of the project, will be protected from commercial encroachment in the future. The proposed site design incorporates a significant open space area between the retail and residential components of the project that will serve as a permanent buffer between the Jericho Turnpike commercial zoning and the subject residential zones. Further, the extensive open space buffer will eliminate the inevitable zoning conflicts that generally occur between strip commercial developments and the adjacent residential neighborhoods.
- The proposed residential subdivision, included within the development plan, contains only nine (9) homes on 11.52 acres. This low-density residential development will provide a permanent use that will blend with the surrounding residential zoning. The potential infringement of commercial or multi-family zoning onto this site in the future will be eliminated.

Town Comprehensive Plan Update

The proposed project will be in conformance with the Town Comprehensive Plan Update in regard to land use type. In addition, the recommendations of the Update will be followed by the project.

Town Open Space Index

The proposed project will reduce the acreage of Town Open Space Index parcel SE-1 by approximately 47%. However, the site does not contain any significant environmental features (such as steep slopes, wetlands, or significant vegetation or habitats). The project will clear approximately 14.15 acres (45%) of the site, while retaining 16.95 acres (55%) as naturally-vegetated open space.



Community Services

Taxes

The proposed project will generate significantly more tax revenue to the impacted jurisdictions relative to the existing situation. The proposed mixed-use development is projected to provide a total of \$367,710 in tax revenue, this is \$308,313, or approximately eighty-four (84) percent more than it currently generates. This represents a significant positive impact on the affected taxing jurisdictions resulting from the development of the project.

Educational Facilities

The impact of any development project, which has a significant residential component, will be dependent upon the number of school age children that will be generated, coupled with the ability of the school district to provide educational services for these children. In addition, the school tax generated by the project must be considered as a means of providing some of the funds for necessary improvements and expansion of the educational system. The ability of a school district to handle increase demand for educational services depends primarily upon the adequacy of long-term planning within the district, in combination with revenue received for education from the State of New York and tax revenue generated from real property development. Commercial development incorporated into a development plan generally provides a direct subsidy to education services, since it generates tax revenue, without increasing school enrollments and related costs.

A BOCES-derived estimate of 9 school-age children was assumed for the proposed project. The South Huntington Union Free School District currently spends approximately \$11,711 per capita to provide educational services to the district. Based on recent trends, it may be expected that the State of New York will provide funding for approximately twenty (20) percent of the costs per pupil for education services in the South Huntington District.

It may be concluded that the proposed commercial and residential project will provide a net benefit in terms of tax revenues to the affected school district, relative to the associated costs for education. The proposal will provide a surplus of \$151,414 to the South Huntington Union Free School District, this represents a 297 percent increase relative to the tax revenues currently being generated to the affected school district.

Police Protection

The project site is located within the Suffolk County Fourth Police Precinct. The property is currently vacant, and therefore there is the potential for unauthorized use of the site, which may be detrimental and require police response. The proposed project will result in a permanent use of the site that will include business and residential activities and improved site security. It is not anticipated that the proposed development will require additional staffing or patrols in the Fourth Precinct, or necessitate the purchase of new police equipment. However, it is projected that the new development will provide \$59,205 in tax revenues to Suffolk County, an increase of \$49,642 relative to the revenues currently being generated by the property. A portion of this increase will be earmarked to support the operations of the Police Department.



Fire Protection

The Huntington Manor Fire District was contacted and it was confirmed that the proposed project would receive fire protection from this district. The subject fire district has three (3) station locations, its Headquarters, Fire Station #2, and Fire Station #3 that have the capacity to respond to any fire emergency occurring at the proposed project site. It is not anticipated that the proposed project will require the recruitment of additional fire district volunteers, or the purchase of new fire fighting equipment. Based on the current tax rates, it is estimated that when the proposed project is completed, it will generate an additional \$11,645 in tax revenue to the Huntington Manor Fire District. The projected revenue is expected to offset any anticipated increase in the fire district's expenditures to cover additional service needs associated with the project.

Water Supply

The proposed project is located within the service area of the Greenlawn Water District for the supply of drinking water. Water service is available via a connection to an existing 12-inch water main along the south side of Jericho Turnpike, as well as an 8-inch water main along Dix Hills Road. Further information will be provided to the Greenlawn Water District when fire and water supply demand is known.

Wastewater Treatment

The proposed project will generate a total of 6,150 gpd of sanitary wastewater (as: 2,700 gpd from the residences and 3,450 gpd from the retail/commercial facility). As the allowable wastewater generation for this site is 18,660 gpd, no community sewer system or public sewer connection is required; individual on-site septic tank/leaching pool systems (for each residence and one for the retail/commercial facility) will be provided.

Solid Waste Disposal

The Town of Huntington has an effective solid waste management program, which includes a Resource Recovery Plant that it operates in cooperation with the Town of Smithtown. Presently, the plant does not have any problems accommodating additional waste capacity. It is anticipated that the proposal will increase the population of the Town of Huntington by twenty-seven (27) residents, or less than .15 percent of the Town's total population. In terms of waste generation, it is estimated that seven (7) pounds of solid waste per person per day will be generated by the proposed project. Based on these factors, it is estimated that the project will generate a total of 396,390 pounds of solid waste annually. This increase should not have an appreciable impact on the solid waste services provided by the Town of Huntington.

Commercial solid waste collected from the retail portion of the proposed project will be handled privately.

Energy

Electric and gas services will be provided to the project site by KeySpan Energy. Long Island Power Authority operates a power generating station at Northport that services the area. Gas service will be provided via a four-(4) inch steel gas main with 60 PSIG located on the south side of Jericho Turnpike.



Correspondence received from KeySpan representatives did not indicate that there would be any problem in providing utility services to the subject development site.

Community Character

Visual Resources

The project area is currently comprised of several undeveloped parcels fronting along Jericho Turnpike and Dix Hills Road, two major roadways within a suburban setting. The view of the site from all observation points in the project vicinity is one of a large, overgrown vacant property. In addition, illegal dumping on the site detracts from the general attractiveness of the project vicinity. The visual appearance of the project site will be changed by the proposed retail development, and residential subdivision, along with related site improvements. However, the potential impact on the visual character of the site as a result of the proposed development will be reduced due to the design and layout of the project, and the limited view of the site from most points surrounding the site.

The majority of individuals viewing the site observe it from the north, either as motorists traveling along Jericho Turnpike, or from the commercial businesses on the north side of Jericho Turnpike. The proposed project will provide a modern retail establishment that harmonizes with the existing visual nature of the Jericho Turnpike commercial corridor. In addition, the project will eliminate illegal dumping, and include landscaping amenities and attractive lighting that will heighten the attractiveness of the site to individuals viewing it from the north. As a result, it may be concluded that the proposal will have a positive visual impact on individuals observing the site from the north.

The view from the west is limited to motorists traveling along Dix Hills Road, a roadway that carries considerably less traffic than Jericho Turnpike, and patrons using the commercial facilities that are west of the site. In addition, a limited number of residential homes that front on the west side of Dix Hills Road are able to view the property boundary from the west. The impacted commercial facilities include the Cablevision Center and Fernandez Plaza, which are directly adjacent to the subject site, and the Town House Diner III, situated on the southwest corner of the Jericho Turnpike/Dix Hills Road intersection. Since the retail component of the project and the impacted businesses to the west all lie within the established Jericho Turnpike commercial corridor, it may be concluded that the planned development will have a positive visual impact on these neighboring uses. The proposal will provide a new commercial development with various site improvements that will visually complement the existing commercial uses.

The project will also have a minimal visual impact with respect to the existing residences extending along the west side of Dix Hills Road. The residential portion of the project generally corresponds to the impacted residents. The site design for the project includes a landscaped buffer area with a depth of at least one hundred (100) feet along the entire western perimeter of the subject site, adjacent to Dix Hills Road. Further, the planned 9.51 acre open space area located between the retail and residential components of the project, provides an open space view along the corresponding frontage of Dix Hills Road for two-hundred and fifty (250) feet.



Therefore, residents and motorists viewing the project site from the west will not be adversely impacted by the site's ultimate development.

The views of the site from the south and east are limited due to the existing pattern of development and open space. For the most part, residences along the southern and eastern perimeters of the development site have the rear portions of their properties adjacent to the project site. Therefore, existing setbacks and the site orientation of the impacted residences minimize the potential visual impact of the proposal. Further, the proposed residential homes will complement these existing residential neighborhoods, and create a sense of visual harmony.

It must also be noted that a commercial use, Haven Pools borders the front portion of proposed project site to the east. Therefore, customers visiting this business may also view the proposed project from the east. The Haven Pools property extends approximately four-hundred and fifty (450) feet south from Jericho Turnpike, along the project site's eastern perimeter. The depth of this existing commercial establishment corresponds to the proposed business zone expansion and the retail component of the planned development. As a result, by providing a modern, attractive retail building within an established commercial corridor, the project will have a positive visual impact on this neighboring business. Immediately south of this business, on the north side of Elk Place, is the residence nearest the proposed retail/commercial facility. However, the nearest property line of this lot is 230 feet from the proposed building, of which the 100 feet nearest the residence is to be preserved natural vegetation. As a result, no visual impact is anticipated for this residence.

In summary, the visual character of the site will be changed as a result of the proposed project; however, this change will be in keeping with the existing visual character of the impacted commercial and residential areas. In addition, the planned open space area, will provide an extensive visual barrier between the existing and proposed commercial development along Jericho Turnpike, and the existing and new homes planned to the south.

Archaeological Resources

There are no known prehistoric sites in the area. There are no known historic houses or historic sites near-by. There are no standing structures on site. No further study is recommended.

Mitigation Measures

Geology

- Erosion preventive measures to be taken during the construction period may include: groundcovers (vegetative or artificial), drainage diversions, soil traps, minimizing the area of soil exposed to erosive elements at one time, and minimizing the time span that soil is exposed to erosive elements. During project site activities soil removed to provide proper grading and slopes for roadway construction and from the excavation for the recharge basin will be used for backfill to produce acceptable slopes for construction on lots scheduled for residential development. Applicable Town of Huntington standards and construction practices specified by the appropriate Town agencies will be followed.



- Dust raised during grading operations may be minimized and controlled by the use of water sprays, truck cleaning stations at the construction exit, and implementation of any dust suppression systems specified by the appropriate Town agencies.
- Excess excavated soil not used for grading or other appropriate purpose on-site will be removed, and sold as fill, or if of unacceptable quality for such use, will be taken to an appropriate landfill.
- Truck movements and construction activities will be undertaken on the site during the hours of approximately 8 AM-5 PM or as specified by the Town Code. Truck routes to and from the site will be limited to Jericho Turnpike and Dix Hills Road, thereby minimizing noise, dust and potential safety impacts to residential communities adjacent to the site.

Water Resources

- The proposed project will consist of a retail/commercial area and nine single-family residences; therefore no toxic or hazardous chemicals are anticipated to be present or utilized on the site. Consequently, no impact to groundwater quality is anticipated from this source.
- The retail/commercial facility and each residence will utilize an individual sewerage system for disposal of sanitary wastes. Nitrogen concentrations of 3.75 mg/l will result from sanitary discharges and stormwater runoff. The anticipated concentration is less than the NYSDEC drinking water standard of 10 mg/l and therefore, the proposed project is not expected to result in significant adverse effects to groundwater quality with regard to nitrogen loading.
- The expected wastewater flow from individual sewerage systems for the entire project will be approximately 6,150 gpd resulting in 197.7 gpd per acre. This conforms to Article 6 of the Suffolk County Sanitary Code which allows 600 gpd per acre or a project site specific total of 18,660 gpd.
- SONIR computer model results for the proposed project indicate that a total of 23.19 MG/yr of water will be recharged on the site. Of this anticipated recharge volume, stormwater will account for 89% of the total recharge with wastewater contributing 10% and irrigation contributing 1%. In conformance with the Town of Huntington Engineering and Subdivision requirements, all stormwater runoff generated on developed surfaces will be retained on-site, to be recharged to groundwater in proposed stormwater catchbasins and overflow leaching pools.
- The project site will utilize public water, to be supplied by the GWD via an existing main beneath Jericho Turnpike and Dix Hills Road. The potable water requirement of the project, 6,150 gpd, is not anticipated to impact the ability of the GWD to serve the public in the vicinity.

Ecology

- Minimize disturbance to the maximum extent practicable, including delineating clearing limits at the site prior to construction in order to avoid inadvertent clearing.
- Trees and large shrubs with a caliper of over 6 inches should be flagged and retained during clearing where possible within the proposed residential lots.



- Native and near native plant species which provide food and shelter to wildlife will be utilized in the landscaped areas where possible. This may encourage ongoing use of the site by avian species which would otherwise abandon the site. Species which will be utilized include the following: serviceberry, hackberry, dogwood, persimmon, American holly, red cedar, crabapple, mulberry, pin cherry, chokecherry, sassafras, mountain ash, devil's walkingstick, Russian olive, autumn olive, huckleberry, inkberry, juniper, honeysuckle, rye grass, redbud, and fescue. This will also improve the hardiness and reduce the fertilizer/irrigation dependency of the vegetation.
- Nesting boxes should be installed along the edge of existing vegetation to encourage use of the site by avian species and help mitigate loss of natural nest sites through clearing. Some of the native species which commonly utilize nest boxes include the eastern bluebird, house wren, tree swallow, and purple martin. The non-native starling and house sparrow also utilize nest boxes, sometimes displacing native birds. The boxes should be monitored to discourage use by these two species. The New York Audubon Society's Nest Box Network provides specifications for constructing and locating boxes, as well as information on follow-up monitoring.

Transportation

- A new road on the east side of Dix Hills Road will be constructed for the single family dwellings. The new intersection will operated at good to excellent levels of service.
- The New York State Department of Transportation (NYSDOT) currently has plans to change the alignment of the five-way intersection at Jericho Turnpike and Dix Hills Road/Greenlawn Road. Two alternatives are under review, both align Jericho Turnpike and Dix Hills Road to a four way intersection. However this project is not scheduled until 2006, after the proposed project will be completed. Therefore it was not included in the "No Build" or "Build" analysis. This project, when completed will improve the level of service at Jericho Turnpike and Dix Hills.
- The traffic generated by the proposed development will have no impact to the overall level of service at any of the study intersections with the new lane configuration and the recommended signalization of the site driveway.

Land Use, Zoning and Plans

- The proposed commercial portion of the project lies within the established Jericho Turnpike commercial corridor, with a lot depth that corresponds to neighboring business uses to the east. The project will result in a long-term use that will complement adjacent properties and strengthen the commercial land use pattern designated in the Town of Huntington Comprehensive Plan for Jericho Turnpike.
- The proposed residential land use will complement the existing neighborhood housing that surrounds the southern portion of the project site. Further, a naturally vegetated buffer area will extend along Dix Hills Road, screening the proposed homes from the roadway and the residences to the west.
- The project includes a 9.51-acre open space buffer between the commercial development fronting on Jericho Turnpike, and the residential subdivision to be developed on the southern portion of the property. This buffer area has a minimum width of 210 feet, and extends from the subject parcel's western border along Dix Hills Road to its eastern perimeter. The proposed development will



maintain the subject buffer area in its current natural state, thereby providing a transitional area between the Jericho Turnpike commercial corridor and the proposed and existing residential developments to the south, east and west.

- The separate accesses to the commercial development and the residential subdivision will be controlled and limited. Commercial traffic entering the commercial portion will be limited to access points along Jericho Turnpike, thereby eliminating potential traffic impacts on the surrounding neighborhoods. With respect to the residential subdivision, access will be via a cul-de-sac roadway off Dix Hills Road. This street design extends access to residents, and prevents related traffic impacts on surrounding land uses.
- The proposed zone boundary shift will complement the existing land uses to the east and west; further, the proposed extension of the commercial zone will provide adequate land area for a well-designed, modern, single-user retail center.
- The residential zoning areas, to the west, east and south of the retail component of the project, will be protected from commercial encroachment in the future. The proposed site design incorporates a significant open space area between the retail and residential components of the project that will serve as a permanent buffer between the Jericho Turnpike commercial zoning and the subject residential zones. Further, the extensive open space buffer will eliminate the inevitable zoning conflicts that generally occur between strip commercial developments and the adjacent residential neighborhoods.
- The proposed residential subdivision, included within the development plan, contains only nine (9) homes on 11.52 acres. This low-density residential development will provide a permanent use that will blend with the surrounding residential zoning. The potential infringement of commercial or multi-family zoning onto this site in the future will be eliminated.
- The proposed project will be in conformance with the Town Comprehensive Plan Update in regard to land use type. In addition, the recommendations of the Update will be followed by the project, in regard to transportation, environmental conditions, housing, retail development and open space.
- Though the proposed project will reduce the acreage of Town Open Space Index parcel SE-1 by approximately 47%, the site does not contain any significant environmental features (such as steep slopes, wetlands, or significant vegetation or habitats). The project will retain 16.95 acres (55%) as naturally-vegetated open space.

Community Services

- The significant increase in property taxes paid by the project (as well as the increase in sales taxes provided by the supermarket) will partially offset the increased costs to police and fire/ambulance services caused by the project.
- The proposed commercial and residential project will provide a net benefit in terms of tax revenues to the South Huntington Union Free School District, relative to the associated costs for education. The proposal will provide a surplus of \$151,414, which represents a 297 percent increase relative to the tax revenues currently being generated to the affected school district.



- Provision of security alarms for the residences and supermarket (possibly supplemented by patrols/surveillance systems for the supermarket) will increase the level of security on the entire property.
- Use of fire resistant building materials, as well as adherence to the NYS Fire Code will increase the level of safety from fires and minimize the potential for use of ambulance services.
- Use of water-saving plumbing fixtures and equipment will minimize the increase in water use on the property.
- As the volume of wastewater generated by the project (6,150 gpd) is anticipated to be well below the volume at which a community system or public sewer connection would be required (18,660 gpd), the individual on-site septic tank/leaching pool systems will treat and recharge all sanitary wastewater generated. Design and installation of such systems will be subject to the review and approval of the SCDHS.
- The solid waste generated on the site is not anticipated to contain any toxic or hazardous substances, as such materials are not expected to be used, stored or sold in either the residential or commercial portions of the project. The residential portion will participate in the town recycling program, and the commercial portion will recycle corrugated paper as well.
- Use of energy-conserving equipment and building materials will minimize the increase in the use of electrical and natural gas resources.

Community Character

- The potential visual impact of the proposed development will be mitigated due to the design and layout of the project, and by the limited view of the site from most points surrounding the site. In addition, the project will eliminate illegal dumping, and include landscaping amenities and attractive lighting that will heighten the attractiveness of the site to individuals viewing it from the north (anticipated to be the largest group of viewers).
- The visual character of the site will be changed as a result of the proposed project; however, this change will be in keeping with the existing visual character of the adjacent and nearby commercial and residential areas. In addition, the planned central open space area will provide an extensive visual buffer between the existing and proposed commercial development along Jericho Turnpike, and the existing and new homes planned to the south.

Conformance to Town Code Requirements

The project will be developed in accordance with the following design requirements of **Section 198-27(A)(11)** for C-6 commercial development and **Section 198-14(A, B, C, D, E)** for R-40 residential development:

C-6 Commercial Development

1. *Use regulations. In the C-6 General Business District, a building or premises shall be used only for the following purposes:*



2. *Restaurants, food shops, bakery, candy, confectionery or ice-cream shop but not drive-in restaurant except where authorized as a special exemption by the Zoning Board on findings pursuant to § 198-66.*
3. *[Amended 12-15-1992 by Ord. No. 92-ZC-291]*

In addition, Article IX places limits on the height, area, and bulk regulations. In terms of height, buildings constructed in C-6 zoning districts must not exceed 3-stories or a maximum height of 45 ft.

R-40 Residential Development

1. *Use regulations. In the R-40 Residence District, a building or premises shall be used only for the following purposes:*
 1. *Any use permitted in the R-80 Residence District.*
 2. *Any accessory use or structure permitted in the R-80 Residence District, subject to the same limitations and restrictions enumerated in § 198-13B.*
- A. *Off-street parking and loading regulations. See Articles VII and VIII.*
- B. *Height, area and bulk regulations. See Article IX.*
- C. *Supplementary use regulations and conditionally permitted uses. See Article XI.*
- D. *Supplementary height, area and bulk regulations. See Article IX.*

According to Article IX, these structures are not to exceed 2-stories or a maximum height of 35 ft. Yards in these zoning districts must have a minimum front and rear yard depth of 50 ft. with a minimum of 2 side yards. Side yards for interior lots must have a minimum width of 25 ft. for one side yard and a combined minimum width of 50 ft. for two side yards. Corner lots must have a minimum width of 50 ft. on street sides and 25 ft. on interior sides. Each lot must be at least 1 acres in size with a minimum width of 125 ft. and a minimum lot frontage of 40 ft.

Permits and Approvals Required

This Draft EIS is intended to provide the Town of Huntington Town Board with the information necessary to render a decision on the proposed Hren Property change of zone application. This document is intended to comply with the SEQRA requirements as administered by the Town of Huntington. Once accepted, the document will be the subject of public review, followed by the preparation of a Final Environmental Impact Statement (FEIS). Upon completion of the FEIS, the Town Board will be responsible for the preparation of a Statement of Findings, which will form the basis for the final decision on the project. Following this process, should the Town Board receive this application favorably, the following additional approvals would have to be obtained prior to commencement of project construction:

- Town Department of Buildings - Building Permits
- Town Department of Highways - Roadwork Permit
- Town Planning Board - Site Plan Review
- Suffolk County Dept. of Health Services - Article 6 (Sanitary System design review)
- Suffolk County Dept. of Health Services - Article 4 (Water Supply System design review)
- NYSDOT - Roadwork Permit

SECTION 1.0

DESCRIPTION OF THE PROPOSED ACTION



1.0 DESCRIPTION OF THE PROPOSED ACTION

1.1 Project Background, Need and Benefits

1.1.1 Project Background

In late 1985, the Bande Development Corporation, in concert with the property owner, Dorothy Hren, submitted a Special Use Permit application to the Huntington Zoning Board of Appeals (ZBA). The application was for commercial development of a portion of the overall 32.30-acre Hren holdings. The project, titled **Hren Shopping Center**, involved construction of 40,000 square feet (SF) of retail space and 3,500 SF of restaurants. The Hren site, now reduced to 31.10 acres following leasing of 1.20 acres to the adjacent Cablevision property, was then and remains zoned C-6 (Business) along the south side of Jericho Turnpike to a depth of 150 feet; the remainder was then and remains zoned R-40 (Residence). The Hren Shopping Center, however, was designed to develop the C-6 portion of the site, as well as the adjacent 100 feet of R-40 land, to a depth of approximately 250 feet. Therefore, a depth extension of 100 feet was required, which necessitated the Special Use permit application. Following is the chronology of the Hren Shopping Center application, based upon a review of Town records:

- **December 12, 1985** - ZBA hearing on Bande Development Special Use Permit application designated #11883), for extension of business depth in order to erect a commercial shopping center.
- **January 12, 1988** - Final EIS on Bande application filed
- **May 5, 1988** - Notice of Completion of Final EIS and ZBA Findings Statement on Bande application filed
- **April 27, 1989** - ZBA approves Bande application, with Conditions
- **May 19, 1990** - Date on which the depth extension approval will expire; later extended by ZBA to May 19, 1991
- **October 12, 1990** - Site Plan application for Hren Shopping Center submitted to Town Planning Board
- **April 17, 1991** - Town Planning Board issues Findings Statement on the Site Plan application, in consideration of prior Conditions and Findings Statement of ZBA
- **May 19, 1991** - Date on which the depth extension approval will expire; later extended by ZBA to May 19, 1992
- **August 21, 1991** - Town Planning Board approval of Site Plan application
- **May 19, 1992** - Date on which the depth extension approval will expire

Based on reviews of Town Planning Department records, it does not appear that the Depth Extension was renewed beyond May of 1992. However, the Applicant anticipates that renewal of the Depth Extension could be accomplished, based on the prior approval and in consideration of the land use pattern in the vicinity.

Appendix A contains copies of the above-referenced Town documents. Subsequent to the Site Plan approval, the Applicant determined that, in consideration of the regional economic situation and the type of retail development planned, development of the project at that time was not

appropriate. Therefore, the Hren Shopping Center was not constructed. By mid-1999, the Applicant determined that economic and business conditions in the region had recovered to the point where commercial development of the property would be economically justified, though the prior retail development plan was no longer appropriate for the site. Therefore, the Applicant has revised the Conceptual Plot Plan, to yield 69,000 SF of retail/commercial space on the C-6 zoned portion of the site, with 9 detached single-family residences on the R-40 zoned area. A significant (9.51 acre) open space would be retained across the center of the site, separating the two land uses. However, similar to the Hren Shopping Center application (where a 100-foot deep depth extension was requested), a minimum 210-foot deep zone change is requested for the Hren Property application, summarized as follows:

	EXISTING	PROPOSED
C-6 zone	3.27 acres	10.07 acres*
R-40 zone	27.83 acres	21.03 acres

* Following rezoning of 6.80 acres of R-40 to C-6

1.1.2 Project Need and Benefits

The need for the proposed project may be established by analysis of the following three parameters (see **Sections 2.5** and **3.5** for detailed discussions):

- 1) conformance of the project with adjacent land uses and with the land use pattern in the vicinity;
- 2) conformance of the project with its zoning, with the zoning of adjacent sites, and with the zoning pattern in the vicinity, and;
- 3) conformance of the project with the recommendations of the Town Comprehensive Plan Update.

The residential portion of the project conforms to the adjacent low-density residential land use, as well as to the low-density residential land use pattern in the vicinity, for land south of the commercially-developed corridor along Jericho Turnpike. This residential development is intended to be in conformance with the R-40 zoning of this portion of the site, as well as to the recommended low-density residential use specified in the Town Comprehensive Plan Update. The commercial portion of the project will require a change of zone (from R-40 to C-6) for approximately 6.80 acres, as a minimum 210-foot deep strip along the south side of the existing commercially-zoned land fronting the south side of Jericho Turnpike. As for the residential portion of the project, the commercial portion has been designed to conform to the pertinent land use, zoning (except for the required zone change) and Town Comprehensive Plan Update recommendations.

Therefore, it may be inferred that development of the type represented by the proposed project was contemplated by the Town when determining the above-referenced development restrictions for the site.

The Applicant is seeking to provide a use that will fulfill a community need, be compatible with the surrounding land uses and at the same time have a negligible impact on the environment and

on area traffic. The project sponsor is the Breslin Realty Development Corporation of Garden City, New York, which intends to provide high-quality residential homes and retail space in an attractive setting which complements the hamlet of Huntington.

The benefits of the proposed project are based on social, economic and land use considerations. A retail/commercial facility well-matched to the consumer needs in its adjacent residential area fulfills a social need by allowing for convenient consumables purchases for patrons. This community enhancement improves the quality of life for the residential portion of the project and the community as a whole.

The community will benefit economically from the increased value of the property; the project will have a positive impact on real property tax revenues generated to applicable taxing jurisdictions with minor consequent impacts on services such as solid waste collection or schools. In addition, a number of temporary construction jobs and an approximate employee roster of 69 are anticipated.

Both the residential and retail/commercial portions of the proposal are in accordance with the goals and objectives of the Town Plan for the area, and will promote sound development practices by, (following approval of the requested change of zone), adhering to applicable setback, clearing and design requirements and guidelines. The substantial open space retained on the property will provide an appropriate and valuable buffer between the low-density residential area on the south and the commercial area on the north



1.2 Location

1.2.1 Geographic Boundaries of the Project Site

The subject parcel is 31.10 acres in size as defined by a compilation of survey and tax map information for planning purposes and the completion of the study. The subject property is located on the south side of Jericho Turnpike (NYS 25) between Dix Hills Road and residential properties along State Place in the Town of Huntington, New York (**Figure 1-1**). The site is comprised of three lots identified by Suffolk County Tax Map 400 as Section 208, Block 01, Lots 5, 8 and 27. The site is currently vacant woodland.

The site is bounded by Jericho Turnpike to the north, residential properties fronting State Place to the east, Dix Hills Road to the west, and a single residence and undeveloped property to the south.

The land use in the area is comprised of mixed residential/commercial properties. Residential properties surround the site along the southern, western and eastern boundaries. Properties along Jericho Turnpike are comprised of several commercial properties consisting of an auto dealership, retail nursery, a cablevision facility, a diner and a vacant parcel.

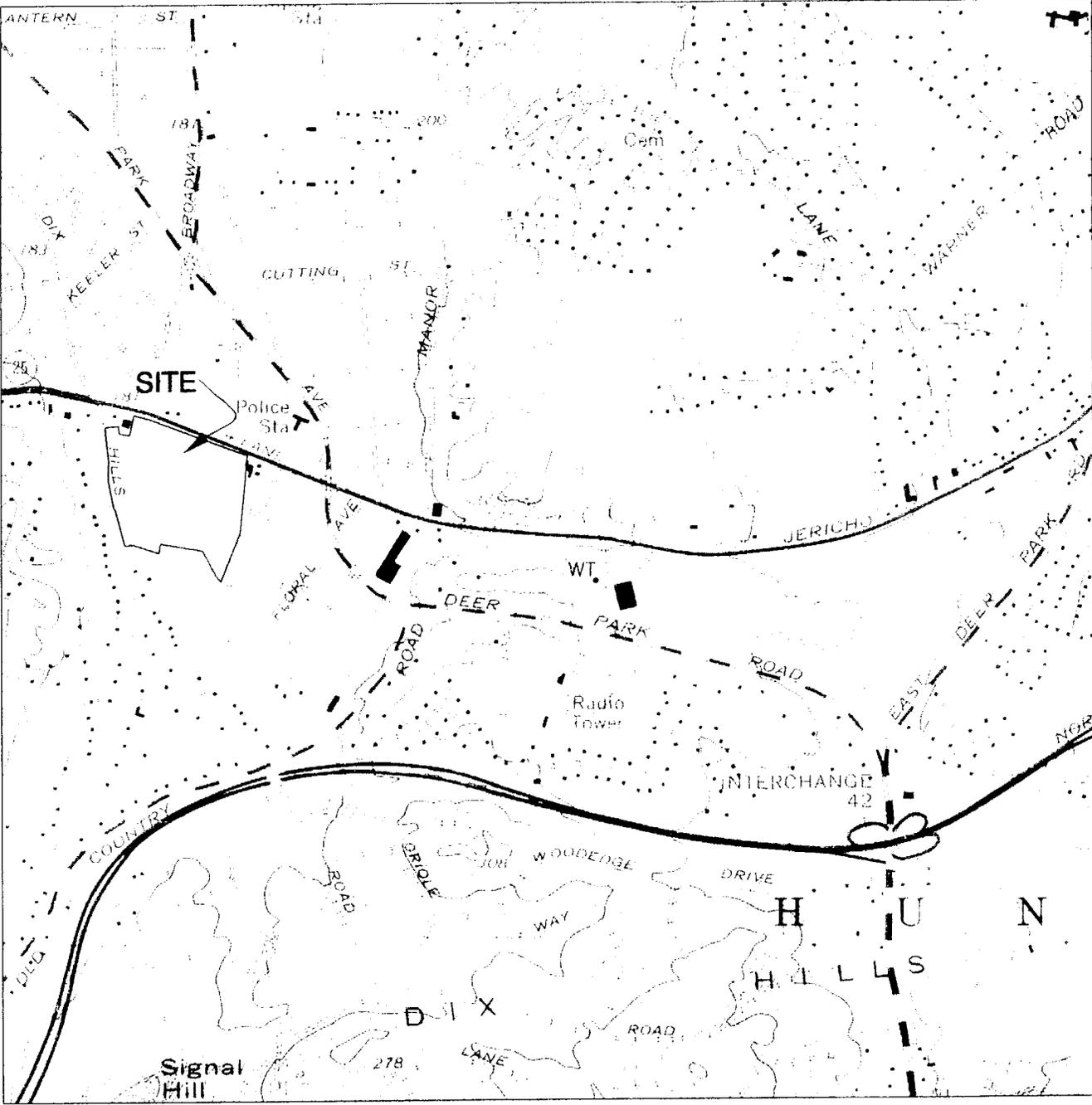
1.2.2 Site Zoning

The site is currently zoned for C-6 development along the northern border of the property to a depth of 150 ft. from Jericho Turnpike. A depth extension of 100 ft. was granted by the Town of Huntington on August 21, 1991 allowing for C-6 development to extend a total of 250 ft. south of Jericho Turnpike. The extension is believed to have expired. The remaining area of the property is currently zoned for residential R-40 development. The exact zoning configuration and area zoning is presented in greater detail in **Section 2.5.2**.



FIGURE 1-1

LOCATION MAP



Source: USGS Topographic Map, Greenlawn Quadrangle
Scale: 1" = 1,500'



1.3 Project Design and Layout

1.3.1 General Site Description

The following provides a detailed description of the proposed project as shown on the **Conceptual Plot Plan** prepared by Nelson and Pope Engineers, LLP on November 19, 1999 (in folder at rear). **Table 1-1** provides a listing of project characteristics proposed for this project.

The project will be developed in accordance with the following design requirements of **Section 198-27(A)(11)** for C-6 commercial development and **Section 198-14(A, B, C, D, E)** for R-40 residential development:

C-6 Commercial Development

1. *Use regulations. In the C-6 General Business District, a building or premises shall be used only for the following purposes:*
2. *Restaurants, food shops, bakery, candy, confectionery or ice-cream shop but not drive-in restaurant except where authorized as a special exemption by the Zoning Board on findings pursuant to § 198-66.*
3. *[Amended 12-15-1992 by Ord. No. 92-ZC-291]*

In addition, Article IX places limits on the height, area, and bulk regulations. In terms of height, buildings constructed in C-6 zoning districts must not exceed 3-stories or a maximum height of 45 ft.

R-40 Residential Development

1. *Use regulations. In the R-40 Residence District, a building or premises shall be used only for the following purposes:*
 1. *Any use permitted in the R-80 Residence District.*
 2. *Any accessory use or structure permitted in the R-80 Residence District, subject to the same limitations and restrictions enumerated in § 198-13B.*
- A. *Off-street parking and loading regulations. See Articles VII and VIII.*
- B. *Height, area and bulk regulations. See Article IX.*
- C. *Supplementary use regulations and conditionally permitted uses. See Article XI.*
- D. *Supplementary height, area and bulk regulations. See Article IX.*

According to Article IX, these structures are not to exceed 2-stories or a maximum height of 35 ft. Yards in these zoning districts must have a minimum front and rear yard depth of 50 ft. with a minimum of 2 side yards. Side yards for interior lots must have a minimum width of 25 ft. for one side yard and a combined minimum width of 50 ft. for two side yards. Corner lots must have a minimum width of 50 ft. on street sides and 25 ft. on interior sides. Each lot must be at least 1 acres in size with a minimum width of 125 ft. and a minimum lot frontage of 40 ft.

The proposed retail/commercial area will be provided with decorative landscaping consisting of trees, shrubbery and grassy groundcovers to provide a transition between roadways, parking areas and preserved natural vegetation. It is expected that the fertilization requirements for all landscaping will be low and will not require follow-up applications to further enhance vegetation growth.

**TABLE 1-1
PROJECT CHARACTERISTICS**

Parameters	Existing Conditions	Proposed Project	
		Commercial Portion	Residential Portion
Coverages:	---	---	---
Building (ac)	0	1.58	0.72
Impervious/Paved (ac)	0.62	4.78	1.30
Landscaped (ac)	0	1.64	4.13
Natural Vegetation (ac)	30.48	2.07	14.88*
TOTAL (ac)	31.10	10.07	21.03
Trip Generation:	---	---	---
PM Peak Hour (vph)	0	628	12
Saturday Peak Hour (vph)	0	716	19
Water Resources:	---	---	---
Water Use/Wastewater (gpd)	0	3,450	2,700
Recharge Volume (MGY)	15.68 MG/yr	23.19 MG/yr	
Nitrogen Conc. (mg/l)	0.02 mg/l	3.75 mg/l	
Miscellaneous:	---	---	---
Property Taxes (\$/yr)	\$59,397	\$367,710	
Solid Waste (lbs/day)	0	897	189

* Includes 9.51 acres of Open Space

A total of 16.95 acres (55% of the property) will not be developed and will remain in its natural vegetative state. This will consist of 2.07 acres within the area for the proposed retail area, 5.37 acres within the area for the proposed residential development and the central 9.51 acres of the site which will be left as Open Space. In addition 4,450 SF along Dix Hills Road and 5,725 SF along Jericho Turnpike will be dedicated to the Town of Huntington and the State of New York, respectively for right-of-way purposes.

In conformance with a Town Department of Planning & Environment request, the soils on-site have been sampled and analyzed to determine whether the chemicals used in the previous nursery operation on the property (fertilizers, pesticides, herbicides, etc.) are present in detectable concentrations. The test results are also intended to determine whether such chemicals, if present, are of a type or concentration which exceed applicable standards. The results are reported in a Pesticide Report prepared by NP&V included in **Appendix B** of this document. Following is the Summary and Conclusions section of that report:

This investigation was completed in order to determine if certain pesticide related compounds were present in the soils of the subject property. A sampling and analysis program (SAP) was designed in accordance with recommendations of the NYSDOH to determine if any concentrations of pesticides, herbicides, lead or arsenic were present in the soils of the subject property. The SAP consisted of collection of discreet soil samples at depths of 0-3 and 3-6 inches in locations expected to yield "worst case" results. Laboratory analysis of the soil samples were performed using analytical test methods consistent with expected parameters and NYSDOH guidance. The following presents an evaluation of the results of this investigation.



1. Soil samples collected from the subject property were analyzed for the presence of pesticides, herbicides, lead and arsenic. The laboratory analysis revealed that analyzed pesticide constituents were typical of residential Long Island soils. Furthermore, analysis of lead and arsenic were either not detectable or very low in concentration.

In summary, the soils on the subject property have been sampled and analyzed for the presence of pesticides, lead and arsenic. Since the concentrations were not excessive, no further action is recommended for the subject property.

Based on this report, soil management measures are not considered necessary on the project site.

1.3.2 Structures

The property will be divided into two separate projects. The first will involve the construction of a 69,000 SF retail/commercial building with a height of less than 35 ft, in the north central portion of the property. The total developed area for this portion of the project will be 10.07 acres with 1.58 acres utilized for the building footprint, 4.78 acres of paved surfaces to be used for parking and 1.64 acres of landscaping. The remaining 2.07 acres will be retained natural vegetation. The facility will face towards the west and will be accessed by two entrances, each located to the east and west of the building along Jericho Turnpike. The westernmost entrance will be provided with a traffic signal to mediate the flow of traffic in and out of the parking lot along Jericho Turnpike. A three-bay loading dock and compactor pad will be located at the rear (east side) of the building. The parking lot will be provided with nine outdoor lighting poles which will be shielded to prevent glare from impacting adjacent properties. The sidewalk will be extended on the south side of Jericho Turnpike to the eastern most edge of the property.

The residential development will occupy 21.03 acres of the southern portion of the site with 0.72 acres for the combined building footprints, 1.30 acres of paved areas consisting of the road and driveways and 4.13 acres of total landscaped area. The remaining 14.88 acres will remain natural vegetation. The development will consist of nine lots ranging from 1.03 to 1.40 acres in size with access provided by a cul de sac entering from Dix Hills Road. Each home will consist of a 2-story structure which will not exceed 35 ft. in height and 7,000 SF of living space. In addition, each residence will have a driveway a minimum of 50 ft. in length consistent with R-40 zoning requirements.

1.3.3 Access, Circulation and Parking

Mitigation measures proposed for the application include:

1. Construction of a 3-phase traffic signal at the main site access on Jericho Turnpike
2. Construction of eastbound and westbound right-turn lanes at the site driveway on Jericho Turnpike

Access to the retail/commercial portion of the property will be provided along the property frontage on Jericho Turnpike. An area of 4.78 acres consisting of 414 stalls will be provided for

parking. This exceeds the 345 spaces required by the Town of Huntington which requires 1 stall per 200 SF of floor area. The residential development will be provided with a single access point consisting of a cul de sac roadway off Dix Hills Road, approximately 1,050 ft. south of Jericho Turnpike. The remaining perimeter of the property will be fenced, with no additional motorized or pedestrian access provided. By providing separate access points to both the proposed retail area and residential development, traffic flow patterns will remain consistent with existing conditions and will minimize traffic within the adjacent residential areas.

1.3.4 Drainage and Utilities

For the proposed retail/commercial facility, an on-site drainage system will be provided to accept runoff from impervious surface areas. The drainage system will consist of a series of catch basins which will overflow to a series of leaching pools beneath the parking area. These will be distributed in a manner to eliminate flooding within the parking lot. With regard to the residential development portion of the proposed project each of the developed lots will be graded to promote surface runoff to the street. Drainage from the street will be provided by the installation of roadside catch basins to accept surface runoff. These drainage systems will be sized and engineered in accordance with SCDPW regulations.

Electrical service for both portions of the proposed project will be provided by the Long Island Power Authority (LIPA) through connections to the overhead power lines located along the south side of Jericho Turnpike. Potable water will be provided by the Greenlawn Water District (GWD).

Water will be supplied to the proposed retail/commercial area through a service main connected to the supply main located along Jericho Turnpike. A separate fire service main will parallel that of the supply main. Water supply to the proposed residential development will be provided from the supply main along Dix Hills Road.

Sanitary wastes for both proposed developments will be disposed via individual on-site sanitary waste disposal systems. This form of disposal is acceptable provided the projected wastewater design flow does not exceed the standards established by the Suffolk County Department of Health Services (SCDHS); the Applicant does not anticipate that this standard will be exceeded. The system design provides protection of groundwater quality from elevated nitrogen concentrations that result from septic wastes. This design promotes the removal of nitrogen gas and the removal of nitrogen through natural denitrification processes. In addition, the subsurface soils underlying the project site will act as a removal mechanism of nitrogen and bacteria associated with wastewater discharges.

Article 6 of the Suffolk County Sanitary Code (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. No community sewerage system exists in the vicinity of the subject site, and the Applicant will conform to all applicable design standards.

The project site is located within Groundwater Management Zone I as defined by the SCDHS. Based on the requirements of Article 6, no more than 600 gallons may be discharged per acre on a daily basis within this zone. The site acreage used for determining this Population Density Equivalent must not include wetlands, surface waters, or land in flood zones. The subject site is 31.10 acres in size and does not contain surface waters or wetlands. Thus, the Population Density Equivalent (total allowable flow) on the subject site is calculated as:

$$31.10 \text{ acres} \times 600 \text{ gpd/acre} = 18,660 \text{ gallons per day (gpd)}$$

The project sponsor intends to utilize conventional subsurface sewage disposal systems on site, therefore, the total design flow must not exceed the Population Density Equivalent calculated above.

In order to provide a conservative (i.e., upper limit) estimate of water use/wastewater generation, a supermarket use of the retail/commercial area was assessed. The current design sewage flow applied by the SCDHS for such a facility is 0.05 gpd/SF, of which 0.03 gpd/SF is sanitary flow and 0.02 gpd/SF is kitchen flow. This results in an estimated sewage flow for the proposed 69,000 SF building of 3,450 gpd. In addition, the current design sewage flow standard for single-family residential units is 300 gpd; therefor it is estimated that the 9 proposed residences will generate approximately 2,700 gpd of sewage flow. As a result it is estimated that the proposed project will generate approximately 6,150 gpd of sewage flow. This is 12,510 gpd less than allowed by the SCDHS under its current regulations, therefore, conventional on-site sanitary systems may be used for this development.

1.4 Construction Process

The construction process will begin with establishment of flagged clearing limits, followed by installation of staked hay bales and silt fencing in critical areas for erosion control purposes. Then, the site clearing operations can begin; construction equipment and vehicles will be parked and loaded/unloaded within the site. "Rumble strips" will be placed at the site entrance, to prevent soil on truck tires from being tracked onto Jericho Turnpike and Dix Hills Road.

Grading operations will take place next. In order to minimize the time span that denuded soil is exposed to erosive elements, excavations for the curbs, roads, building foundations, wastewater systems, drainage system/recharge basin and utilities will take place immediately after grading operations have been completed. Construction of the retail/commercial building and houses can then begin, concurrent with the utility connections and paving of the internal roads. Once heavy construction is complete, finish grading will occur, followed by soil preparation using topsoil and installation of the landscaping, which will be performed while the structures are completed.

Jericho Turnpike and Dix Hills Road will only be used for site access. Neither of these roadways will be used for construction equipment, vehicle/material storage or construction worker parking. As a result, no significant or long-term construction impacts to the adjacent businesses and residences are anticipated. Construction activities are not anticipated to occur outside weekday daytime hours (8 AM to 5 PM), unless adherence to the construction schedule would require weekend work. In such a case, it is expected that the same hours of operation as weekdays would be followed.

It is anticipated that the construction period (clearing, grading, construction and finishing) will take approximately 10 to 12 months.

1.5 Permits and Approvals Required

This Draft EIS is intended to provide the Town of Huntington Town Board with the information necessary to render a decision on the proposed Hren Property change of zone application. This document is intended to comply with the SEQRA requirements as administered by the Town of Huntington. Once accepted, the document will be the subject of public review, followed by the preparation of a Final Environmental Impact Statement (FEIS). Upon completion of the FEIS, the Town Board will be responsible for the preparation of a Statement of Findings, which will form the basis for the final decision on the project. Following this process, should the Town Board receive this application favorably, the following additional approvals would have to be obtained prior to commencement of project construction:

- Town Department of Buildings - Building Permits
- Town Department of Highways - Roadwork Permit
- Town Planning Board - Site Plan Review
- Suffolk County Dept. of Health Services - Article 6 (Sanitary System design review)
- Suffolk County Dept. of Health Services - Article 4 (Water Supply System design review)
- NYSDOT - Roadwork Permit

SECTION 2.0
ENVIRONMENTAL SETTING



2.0 ENVIRONMENTAL SETTING

2.1 Geology

This section describes the surface, subsurface and topographic features of the subject property. Information for this section was obtained from the Suffolk County Soil Survey (**Warner et al., 1975**), Geological Survey Water-Supply Paper 1669-D (**Lubke, 1964**), other relevant papers of the US Geological Survey, topographic maps and on-site field inspections.

2.1.1 Topography

The subject site exhibits a maximum elevation of 186 ft. above mean sea level (amsl) in the north central portion of the property and a low elevation of 168 ft. amsl in the southwestern corner of the property. A majority of the property is relatively flat and extends gently to the southwest exhibiting a slope of approximately 1%. More steeply sloped surfaces are encountered in the southwestern section of the property with slopes of approximately 5%. Regionally the site lies within a glacial outwash channel which exhibits gently sloping topography (<1%) from the north to south-west with more steeply sloping topography (8-10%) observed along the eastern and western edges of the channel.

2.1.2 Surface Soils

The USDA Soil Survey of Suffolk County, New York (**Warner et al., 1975**) provides a complete categorization, mapping and description of soil types found in Suffolk County. Soils are classified by similar characteristics and depositional history into soil series, which are in turn grouped into associations. These classifications are based on profiles of the surface soils down to the parent material, which is changed little by leaching or the action of plant roots. An understanding of soil character is important in environmental planning as it aids in determining vegetation type, slope, engineering properties and land use limitations. These descriptions are general, however, and soils can vary greatly within an area, particularly soils of glacial origin. The slope identifiers noted in this subsection are generalized based upon regional soil types; the more detailed subsection on topography should be consulted for analysis of slope constraints.

The soil survey identifies the subject site as lying within an area characterized by Montauk-Haven-Riverhead Association soils (**Warner et al., 1975**). These are deep, nearly level to strongly sloping, well drained to moderately well drained, with moderately coarse textured and medium-textured soils on glacial moraines.

A total of four (4) soil types have been identified on-site; the locations of these soils are depicted in **Figure 2-1**. Specific descriptions of the soils found on-site follow (**Warner et al., 197**



Haven loam, 0 to 2% slopes (HaA) – These soils consist of deep, well-drained, medium textured soils that formed in a loamy or silty mantle over stratified coarse sand and gravel.

These soils are found generally on outwash plains with nearly level slopes. These soils are also present on moraines and on top of slightly undulating, low-lying hills. Most of these areas are large, but on moraines the areas are smaller and are irregular in shape. The hazard of erosion is moderate to slight for the soils of this unit. Management concerns are controlling runoff and erosion and keeping the surface loose and free from crusting. These soils have a high to moderate available moisture capacity with a low natural fertility. Permeability is moderate in the surface layer and subsoil and rapid or very rapid in the substratum. Internal drainage is good.

Plymouth loamy sand, 0 to 3% slopes (PIA) - These soils consist of deep, excessively drained, coarse-textured soils that formed in a mantle of loamy sand or sand over thick layers of stratified coarse sand and gravel. These soils are located mainly on outwash plains south of the Ronkonkoma moraine but are also located on flat hill tops and in drainageways on morainic deposits. The hazard of erosion is slight. These soils have a low to very low available moisture capacity with naturally low fertility. Permeability is rapid in all of these soils except where silty substratum is present. Internal drainage is good.

Plymouth loamy sand, 3 to 8% slopes (PIB) – The description of these soils is similar to that of the *PIA* soils described above. This soil type is located on moraines and outwash plains. Slopes are undulating, or they are comprised of single slopes along the sides of intermittent drainageways. The undulating areas are generally large. The areas along intermittent drainageways follow the drainage channel and are narrow and long. The hazard of erosion is slight and tends to be droughty. The available moisture capacity, fertility, permeability and drainage are similar to that described for *PIA* soils.

Riverhead sandy loam, 0 to 3% slopes (RdA) – These soils consist of deep, well-drained, moderately coarse textured soils that formed in the mantle of sandy loam or fine sandy loam over thick layers of coarse sand and gravel. These soils occur in rolling or steep areas on moraines and in level to gently sloping areas on outwash plains. These soils range from nearly level to steep; however, they generally are often nearly level to gently sloping. The hazard of erosion is slight and is limited only by moderate droughtiness in the moderately coarse textured strata. These soils have a moderate to high available moisture capacity with good internal drainage. Permeability is moderately high in the surface layer and subsoil and very rapid in the substratum. Natural fertility is low.

The soil survey was also consulted for information on the potential limitations on development which the soils may present. These constraints on development posed by these soils are summarized in **Table 2-1**. As noted in the table, the four soils which occupy the property present slight to severe limitations for development, due to their permeability, sandy surface layer and high water.

**TABLE 2-1
SOIL LIMITATIONS**

SOIL FEATURES AFFECTING:	Haven loam, 0 to 2% slopes (HaA)	Plymouth loamy sand 0 to 3% slopes (PIA)	Plymouth loamy sand 3 to 8% slopes (PIB)	Riverhead sandy loam, 0 to 3% slopes (RdA)
Highway location	Very shallow cuts have nonuniform subgrade in places.	*	*	*
Embankment foundation	Strength generally adequate for high embankments; slight settlement.	Strength generally adequate for high embankments; slight settlement.	Strength generally adequate for high embankments; slight settlement.	Strength generally adequate for high embankments; slight settlement.
Foundations for low buildings	Low compressibility.	Low compressibility.	Low compressibility.	Low compressibility.
Irrigation	No unfavorable features.	Very low available moisture capacity; rapid water intake.	Very low available moisture capacity; rapid water intake.	Moderate to rapid water intake; moderate available moisture capacity.
LIMITS FOR:	---	---	---	---
Sewage disposal fields	Slight, possible pollution hazards to lakes, springs or shallow wells in these rapidly permeable soils.	Slight, possible pollution hazards to lakes, springs or shallow wells in these rapidly permeable soils.	Slight, possible pollution hazards to lakes, springs or shallow wells in these rapidly permeable soils.	Slight, possible pollution hazards to lakes, springs or shallow wells in these rapidly permeable soils.
Homesites	Slight	Slight	Slight	Slight
Streets and parking lots	Slight	Slight	Slight	Slight
Lawns and landscaping	Slight	Severe: sandy surface layer.	Severe: sandy surface layer.	Slight
Paths and trails	Slight	Severe: high water	Severe: high water	Slight
Picnic/play areas	Slight	Moderate: sandy surface layer	Moderate: sandy surface layer	Slight
Athletic fields and intensive play areas	Slight	Moderate: sandy surface layer	Moderate: sandy surface layer	Slight

* Per Soil Survey, not included because characteristics are too variable to estimate



2.1.3 Subsurface Geology

Long Island is located within the Atlantic Coastal Plain, a general physiographic province in which substantial sediment deposits overlie the base, or bedrock (**Fuller, 1914**). The surface topography of the Island is primarily a product of glacial history and subsequent human activity. Understanding the geologic history and stratigraphy of Long Island is important in relating potential impacts of the project to hydrogeologic resources and their importance in Long Island's future.

The bedrock beneath Long Island consists of a complex of igneous and metamorphic rock of Precambrian age that strikes to the east-northeast with a southeastward trending slope of approximately 80 ft. per mile. The elevation of the top of the bedrock is approximately 1,000 ft. below sea level in the area of the site. Bedrock is overlain by sediments of Cretaceous and Quaternary age containing three major aquifers consisting of the Lloyd, Magothy and Upper Glacial (**Lubke, 1964**). **Figure 2-2** provides a cross section of Long Island for a profile running from Long Island Sound to the Atlantic Ocean in the vicinity of the project site (**Jensen and Soren, 1974**).

The primary Cretaceous deposits on Long Island are the Raritan and Magothy Formations, which were deposited atop the bedrock during the mid to late Cretaceous period (138 to 65 million years ago) as a result of sediment transport from highlands to the north of the Island (**Koszalka, 1983**). The deposits directly overlying the bedrock consist of the Raritan formation that is comprised of the Lloyd Sand Member and the overlying Raritan Clay (**Lubke, 1964**). The Lloyd Aquifer is contained within the Lloyd Sand Member and rests unconformably on bedrock at an elevation of approximately 800 ft. below sea level in the area of the site indicating a thickness of 200 ft. Sediments within this formation consist of white to pale yellow fine to coarse-grained sands and gravel with some clay and layers of silt and clay. The clay member of the Raritan formation that overlies the Lloyd Sand Member is located at an elevation of 700 ft. below sea level and indicating a thickness of 100 ft. This deposit is composed chiefly of beds of gray, white and red variegated clay and silt, with interbedded layers of sand in some places. The material of this clay layer is of relatively low permeability and acts as an aquiclude which confines the water in the underlying Lloyd and retards interchange of water from overlying formations (**Lubke, 1964**).

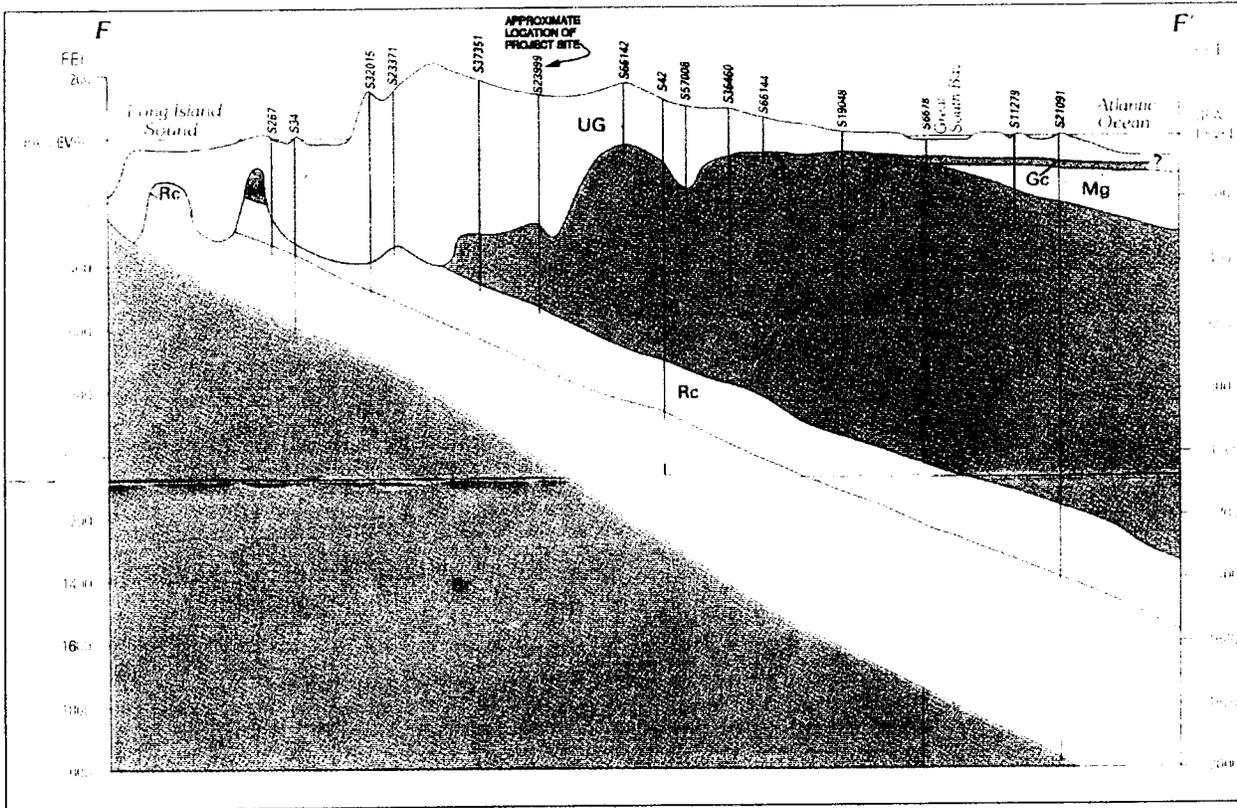
Resting above the Raritan Clay lies the Magothy Formation and Matawan Group which form the Magothy Aquifer, and were deposited in the late Cretaceous approximately 75 million years ago following a period of erosion of the Raritan Clay. These deposits are found in the vicinity of the site at an elevation equivalent to sea level indicating a thickness of approximately 700 ft. (**Lubke, 1964**). The lower portion of the Magothy rests directly on the clay member of the Raritan formation and consists largely of brown and gray coarse sand, gravel with some clay. The upper portion of the Magothy includes white, gray and brown interbedded clay, fine to medium sand and silt and some lignite.

During the Tertiary period (65 million to 2 million years ago) there was erosion of Cretaceous deposits over much of Long Island due to hydrologic processes such as stream formation.



FIGURE 2-2

GEOLOGIC CROSS-SECTION



LEGEND:

UG	Upper Glacial
Gc	Glacial
Mg	Marine
Rc	Recent

Source: Jensen and Soren, 1974



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Sea level was low, and a large valley formed north of Long Island in what is now Long Island Sound. Most of the surface sediments evident on Long Island were deposited during the glacial advances of the Pleistocene epoch, Quaternary period (2 million years ago to 10,000 years ago). The Pleistocene was marked by cycles of glacial advance and subsequent retreat producing morainal and glaciofluvial (outwash) sediments on top of the Magothy Formation and Matawan Group. These Quaternary sediments, which consist of clay, silt, sand, gravel, and boulders, comprise the deposits of the Upper Glacial Aquifer. The glacial outwash deposits of the Upper Glacial Aquifer are found at an elevation of 150 ft. above sea level corresponding to the land surface indicating a thickness of 150 ft. (**Lubke, 1964**). These sediments predominantly consist of brown, yellow and gray sands and gravels with localized clay lenses. The Ronkonkoma and Harbor Hills Terminal Moraines were deposited as part of this Upper Glacial deposit along the spine and the North Shore of Long Island as the glaciers retreated during the Wisconsin stage of the Late Pleistocene (approximately 25,000 to 10,000 years ago) (**Koszalka, 1983, p. 15**). Low, flat outwash plains formed southward as erosional processes carried sediments away from the moraines, and coastal processes formed barrier beaches along the south shore as sea level rose.



2.2 Water Resources

This section describes the groundwater and surface water resources in the vicinity of the site. Information for this section was obtained from relative papers or publications of the Suffolk County Department of Health Services (**SCDHS, 1985 and SCDHS, 1987-2**), the United State Geological Survey (**Lubke, 1964, Jensen and Soren, 1974 and Koszalka, 1983**) and the Long Island Regional Planning Board (**Koppelman, 1992**) as well as on-site field inspections and review of topographic maps.

2.2.1 Groundwater

2.2.1.1 Groundwater Hydrology

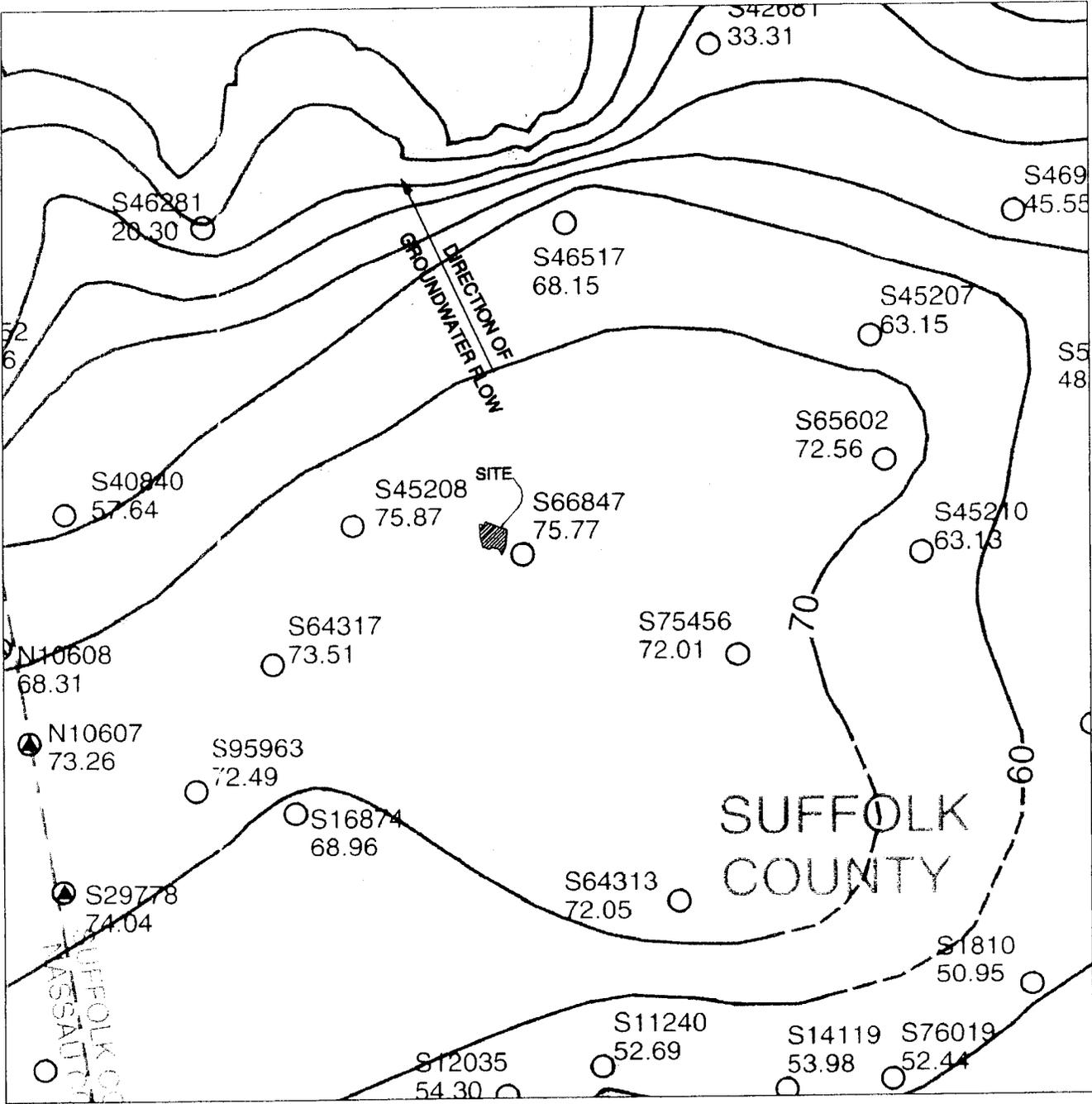
Groundwater on Long Island is derived from precipitation. Precipitation entering the soils in the form of recharge passes through the unsaturated zone to a level below which all strata are saturated. This level is referred to as the water table. In general, the groundwater table coincides with sea level 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. Differences in groundwater elevation create a hydraulic gradient which causes groundwater to flow perpendicular to the contours of equal elevation, or generally toward the north and south shores from the middle of the Island (**Freeze and Cherry, 1979**). Near the shore, water entering the system tends to flow horizontally in a shallow flow system through the Upper Glacial Aquifer to be discharged from subsurface systems into streams or marine surface waters as subsurface outflow. Water that enters the system farther inland generally flows vertically to deeper aquifers before flowing toward the shores (**Krulikas, 1986**). Regionally groundwater flows horizontally toward the northwest (**Figure 2-3**) and exhibits some vertical component due to the sites proximity to the center of Long Island and the regional groundwater divide which the site lies within. Groundwater present beneath the site is encountered at approximately 110 ft below surface grade.

There are three major water-bearing units beneath the site, which are comprised of the Upper Glacial, Magothy and Lloyd aquifers (**Jensen and Soren, 1974; Koszalka, 1983**). The top altitude of the Upper Glacial aquifer is equal to the topographic elevation of the property which is approximately 150 feet above sea level. The sediments within this aquifer consist of moderately to highly permeable outwash and ice-contact deposits, which yield groundwaters that are generally fresh and unconfined. Groundwater from this aquifer is utilized as the chief source of water for domestic, public-supply, industrial and agricultural purposes in the region surrounding the site. The top of the Magothy lies at sea level with a saturated thickness of 700 ft. (**Lubke, 1964**). The sediments of the Magothy are moderately to highly permeable with the more permeable soils found in the lower portions of the formation. The Magothy formation is also a primary source of subsurface water used for domestic and industrial purposes. The upper contact of the Lloyd aquifer lies at an elevation of 800 ft. below sea level with a saturated thickness of 200 ft. in the vicinity of the site (**Lubke, 1964**). These sediments are considered moderately permeable and may be utilized as sources of water supply but currently are not



FIGURE 2-3

WATER TABLE CONTOUR MAP



Source: USGS Water-Resources Investigations Report 98-4019
Scale: 1" = 7,500'



extensively developed. Bedrock is present at a depth of about 1,000 feet below sea level. The bedrock formation is relatively impermeable resulting in low water-yielding potential. As a result bedrock is not utilized as a source of groundwater.

The Long Island Regional Planning Board, 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**). The subject site is located in Groundwater Management Zone I, a system characterized by a deep flow system as delineated by the Suffolk County Department of Health Services for the purpose of 208 recommendation implementation (**SCDHS, 1985**). Water recharged in this zone is likely to contribute to the middle and lower portions of the Magothy Aquifer and is a primary source of drinking water in Suffolk County.

2.2.1.2 Groundwater Quality

Several sources of information were investigated in order to characterize the existing groundwater quality in the vicinity of the site. The Suffolk County Comprehensive Water Resources Management Plan (SCCWRMP) provides general information concerning groundwater quality in Suffolk County based upon file review at the time of preparation of the study, which was released in 1987. The SCCWRMP (**SCDHS, 1987-2**) provides information on water quality from 0 to 100 feet below the water table based on observation wells as well as public and private water supply and well monitoring. With respect to nitrate-nitrogen at a depth into the aquifer of between 0 and 400 feet, the Plan shows the subject site as lying within a "good" area in terms of water quality (1 to 6 mg/l of nitrogen) (**SCDHS, 1987-2; Plates 4 and 5**). The Plan also provides information regarding concentrations of Volatile Organic Compounds (VOC's) in groundwater. Groundwater quality in the vicinity of the site is also good (less than 60% of applicable guidelines), although there are detectable levels of some compounds at a depth of 0 to 400 feet (**SCDHS, 1987-2; Plates 6 and 7**). VOC's are synthetic organic compounds such as degreasers, oil additives, solvents and pesticides. They are typically introduced to groundwater through chemical manufacturing, dry cleaning, fuel spills, agricultural practices and improper disposal of both household and industrial wastes.

Based on information provided by the Greenlawn Water district (GWD, **Appendix A**), the level of nitrate in potable water averages 5.63 mg/l in the vicinity. For comparison, the NYS Drinking Water Standard for nitrogen is 10 mg/l. Thus, it appears that both organic and inorganic water quality in the vicinity of the site is good to excellent.

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: Median values of total recoverable lead in runoff samples ranged from 275 µg/l at the Plainview recharge basin, which drains a major highway, to 19 µg/l at the Laurel Hollow recharge basin, which drains a low density residential area containing only minor roadways. Between these two, in order of decreasing lead concentrations, were Centereach (strip commercial with major roadway), Huntington (parking lot), and Syosset (medium density residential with minor roadways).



Conclusion: Lead concentrations in runoff entering a recharge basin appear to be directly related to the extent and characteristics of the road network and the type and volume of traffic in the drainage area served by the basin.

Finding: The number of coliform and fecal streptococcal indicator bacteria in stormwater range from 10^8 MPN to 10^{10} MPN per acre per inch of precipitation. Except in a few cases, these bacteria were not detected in the groundwater beneath the recharge basins studied. Where they were present, they were found in concentrations at or near the analytical detection limit.

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

In general, stormwater runoff will be generated from impervious surfaces such as roofs and driveways. Runoff may carry such pollutants as heavy metals, petroleum hydrocarbons, bacteria, and nitrogen. Extensive monitoring associated with the NURP Study found that direct discharge of stormwater to surface water caused significant water quality impairment; however, on site stormwater discharge utilizing leaching facilities significantly reduces such impacts. Groundwater monitoring beneath recharge basins found a significant reduction in concentrations of heavy metals, hydrocarbons, and bacteria, indicating that such contaminants are attenuated in soil or volatilized in stormwater transport (**Koppelman, 1982**).

In the NURP Study, a 100 acre drainage area in Laurel Hollow and a 553 acre drainage area in Centereach were selected as the sites for monitoring of recharge which is characteristic of a low density residential neighborhood and strip commercial store, respectively. These data are included in this report as an example of stormwater impacts from a low-density residential area. No direct comparisons of the project vicinity to the project area are intended; however, it is speculated that stormwater impacts from the proposed development would be similar to those reported in connection with the Laurel Hollow and Centereach areas.

Groundwater samples collected directly beneath the recharge basin at the Laurel Hollow and Centereach sites were tested for a number of parameters. The results of these analyses are presented in **Table 2-2**. The data in **Table 2-2** provide information regarding the potential stormwater impact in a low-density residential and strip commercial areas. As previously indicated, it is expected that heavy metals associated with automobile usage of roads may be present in stormwater, particularly lead and chromium. In addition, nitrogen and bacteria (coliform) would also be expected due to animal waste in paved areas. The Nationwide Urban Runoff Program and the data presented in **Table 2-2** indicate that most of the constituents commonly present in stormwater are reduced in concentration in groundwater beneath stormwater leaching basins. Elevated heavy metals were detected in groundwater as expected; however, their concentrations were significantly reduced presumably through attenuation. It is noted that the concentration of lead complies with drinking water standards. In addition, the pH level is in excess of the acceptable range; however, pH in groundwater is often on the acidic side due to recharge of acidic precipitation (**SCDHS, 1987-2**).

The data presented herein are for developed areas with public roads. The proposed project will be a low density residential housing site and a supermarket similar to strip commercial development. The project will be developed at an intensity similar to the Laurel Hollow and

TABLE 2-2

**GROUNDWATER IMPACTS OF STORMWATER
 LOW DENSITY RESIDENTIAL AND STRIP COMMERCIAL USES**

Parameter	Low Density Residential	Strip Commercial	Standard
Spec. Cond. (umhos)	61	104	[n]
PH (standard units)	6.1	6.75	6.5-8.5 ¹
Turbidity (NTU)	0.4	5.45	*
Hardness (mg/l)	15.0	33	[n]
Calcium (mg/l)	4.5	7.5	[n]
Magnesium (mg/l)	0.9	1.4	[n]
Sodium (mg/l)	3.7	9.5	[n]
Potassium (mg/l)	0.7	1.65	[n]
Sulfate (mg/l)	11.0	11	250.0
Flouride (mg/l)	0.1	0.1	1.5
Chloride (mg/l)	4.3	8.1	250.0
Nitrate-Tot (mg/l)	1.0	0.91	10.0
Phosphorus (mg/l)	0.01	0.01	[n]
Cadmium (mg/l)	0.0	0.001	0.01
Chromium (mg/l)	0.003	0.003	0.05
Lead (mg/l)	0.0	0.0045	0.025
Arsenic (mg/l)	0.0	0.001	0.025
Coliform (MPN)	3	3	**
Coliform, fecal	2	3	[n]

Source: Koppelman, 1982

Notes: Standards from NYS, 1984, Section 703.5 Classes and quality Standards for Groundwaters, except as noted.

1. Standards indicate limit except where exceeded due to natural conditions.
- * Standard for Total Dissolved Solids for Class "AA" surface water (Drinking purposes), is 500 mg/l, NYS, 1984; Section 701.19)
- ** Standard for coliform for Class "AA" surface water, indicates the monthly median coliform value for 100 ml of sample shall not exceed 50 from a minimum of five examinations and provided that not more than 20% of the samples shall exceed a coliform value of 240 for 100 ml of sample (NYS, 1984; Section 701.19).
- [n] no standards for parameter.

Centreach areas, therefore the impact will be similar to the Laurel Hollow and Centreach areas studied in the NURP report. It is possible that stormwater emanating from the project site will contain slightly elevated levels of heavy metals; however, based upon the documented attenuation associated with recharge of stormwater by use of catch basins, these impacts are not expected to be significant. The section dealing with Land Use Plans should be reviewed as regards the recommendations of the NURP Study for stormwater management. The proposed project will conform with the recommendations of this report for best management in terms of stormwater disposal.

The project site is currently a vacant wooded parcel and is not connected to any water supply or public sewer system. Therefore, site recharge only results from regional precipitation and is the sole contributor of water for the sites hydrologic budget.

2.2.1.3 Water Balance

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:

$$R = P - (E + Q)$$

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** (Simulation Of Nitrogen In Recharge), 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 basis for this method of nitrogen budget analysis is well established, and 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 (BURBS - A Simulation of the Nitrogen Impact of Residential Development on Groundwater). The **SONIR** model includes four sheets of computations: 1) Data Input Field; 2) Site Recharge Computations; 3) Site Nitrogen Budget; and 4) Final Computations. 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 C-1**.

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 (see **Table 1-1**). The 31.10-acre site currently has a total site recharge of 15.68 million gallons per year (MGY), with a total nitrogen concentration of 0.02 milligrams per liter (mg/l). The results of this analysis are presented in **Appendix C-2**. All of the site recharge and nitrogen result from regional precipitation.

2.2.2 Surface Water and Drainage

There are no permanent surface water bodies located on or in the vicinity of the site. The only surface water features present within a mile of the property consist of recharge basins located to



the north, south, east and west which may flood during significant rainfall events. None of these recharge utilities are located within ¼ mile of the subject property. Refer to **Figure 1-1** for locations of the recharge basins. Regionally run-off flows to the south-west along the contour of the outwash channel described in **Section 3.1.1**. Run-off along the surface of the site is towards the west across the site specific contour along the properties topography.



2.2 Ecology

2.3.1 Vegetation

The subject parcel is characterized by successional forested vegetation. There are several overgrown trails running throughout the site, which were previously maintained trails utilized by the former nursery. There are several small excavated depressions and small piles of concrete debris located throughout the site, which is also presumed to be associated with the former nursery. Vegetation communities found on the site include successional shrubland and successional forest habitats as defined within the classification system developed by the NYS Department of Environmental Conservation (**Reschke, 1990**) and areas consist of remnants of remaining nursery stock. These two vegetation communities are stages in the process of secondary succession, by which an area has been cleared or otherwise disturbed reverts to the original vegetational community or a similar assemblage.

Successional hardwood forest, shrubland and old field habitats are stages in the process of secondary succession, a process by which an area which has been cleared or otherwise disturbed reverts to the original vegetation. The first species to colonize a cleared area are generally herbaceous weeds and other plants with wide seed dispersal. These early successional species are replaced first by woody shrubs, then by saplings of tree species which seed in from adjacent wooded habitat or landscaped areas. As time progresses, the trees dominate in both abundance and height, and light penetration is reduced. The tree and shrub species which first colonized the area are then replaced by more shade tolerant species. The resulting forest generally resembles the original forest, although there may be significant differences in species composition, particularly if non-native species have been introduced in the surrounding area. This final habitat is referred to as a climax community.

Successional old field is the first stage in the process of succession. **Reschke (1990)**, defines an old field as "*a meadow dominated by forbs and grasses that occurs on sites that have been cleared or plowed, and then abandoned*". Woody species may be present, but coverage by trees and shrubs is less than 50 percent as defined by **Reschke (1990)**. Successional old field vegetation is found on site, although is best included in the successional shrubland and forested habitats.

Successional shrubland follows old field vegetation in the process of succession. The two habitats are similar in species composition; however, within the shrubland, woody species dominate rather than forbs and grasses. The successional shrubland habitat found on site is located throughout the site and among patches of successional forested vegetation. As defined by **Reschke (1990)** a successional shrubland is "*a shrubland that occurs on sites that have been cleared or otherwise disturbed. This community has at least 50% cover of shrubs. Trees may be present, but occupy less than 40 percent of the canopy.*" This area has been previously cleared, although has reestablished with native and nursery species though to have been left by the former nursery.

The successional shrubland found on site is dominated by saplings which have colonized by native vegetation. Beech, Norway maple, Russian olive, black cherry and cedar are dominant

with several species of oak saplings, honeysuckle, holly, juniper, black locust and grape also present. Herbaceous ground cover found throughout the site is dominated by poison ivy, with ragweed, orchard grass, Virginia creeper, timothy and striped pipsissewa also present.

The successional hardwood forest habitat contains similar herbaceous and shrubland species, and was most likely colonized by species remaining from the former nursery and landscaping in the vicinity. It is dominated by Norway maple, white oak, swamp white oak, black oak, beech, hemlock, and black cherry. Also present is ailanthus, sumac, mulberry, wax myrtle, pin oak and cedar. The majority of the canopy is relatively closed, although there is a dense understory throughout the site. The understory consists of poison ivy, with seedlings of the major tree species, grape and other herbaceous species mentioned above also present.

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 or wildlife in the vicinity. The Program does not identify this area as a Significant Wildlife Habitat, nor does it list rare plants with historical records in the vicinity. **Appendix D-1** includes a copy of the correspondence received from the N.Y. Natural Heritage Program.

Striped pipsissewa is the only "exploitably vulnerable" species identified on the subject property. "Exploitably vulnerable" plants are species which are not currently threatened or endangered, but which are commonly collected for flower arrangements or other uses. Regardless, under ECL 1503.3, no person may "*knowingly pick, pluck, sever, damage by the application of herbicides or defoliants or carry, without the consent of the owner thereof, protected plants*" (NYSDEC, 1975). As per this section of the ECL the project sponsor (i.e. owner) would not be restricted in utilizing the site for the intended purpose. Therefore, the presence of any protected plants would not restrict use of the site under the NYS Environmental Conservation Law.

2.3.2 Wildlife

The successional vegetation found on-site provides habitat for a number of wildlife species. Most wildlife species found in successional habitats adjust well to human activity, and the surrounding developments make it unlikely that an abundance of sensitive species are present. Thus, the species present on site are likely to be relatively common suburban species, with some forest species also likely to utilize the site. **Appendix D-2** presents a computer generated list of species expected on site given the habitat available. This list is provided as a supplement to site specific discussions included herein, and also includes information on the biological needs of each species. Nelson, Pope & Voorhis, LLC developed the model, as a tool to supplement site specific inventory and discussions, and is described more fully in the introductory statements contained in **Appendix D-2**.

The 1988 Breeding Bird Survey for the census block which contains the site was obtained from the New York State Department of Environmental Conservation (**Appendix D-3**). This study surveyed the Entire State by 25 km² census blocks over a five year period to determine the bird species which breed within the State. Most of the species listed by the DEC breeding bird survey are likely to be found on site, with the exception of species restricted to wetlands or other



habitats not found on site. Birds that prefer a mix of woodland and urban habitats may be present on the property. No threatened, endangered, or species of special concern were listed on the breeding bird survey.

Avian species which might be expected on the property include a variety of woodpeckers, wrens, titmice, nuthatches, kinglets, thrushes, creepers, flycatchers, swallows, warblers, corvids, thrashers, orioles and blackbirds, doves, starling, grosbeaks, finches, towhees, juncos, and sparrows. A limited number of game birds such as the ring-necked pheasant, ruffed grouse and bobwhite may also be present, and owls and raptors may use the site occasionally for hunting, but are not expected to breed on site. The American crow, northern mocking bird, gray catbird, northern flicker, and American cardinal were observed utilizing the site. Several European starlings, crows and American robins were also observed on the adjacent residential parcels.

A variety of small mammals would also be expected, although only the gray squirrel was observed. Other rodents and insectivores are likely to be the most abundant mammals on site, and include the eastern chipmunk, house mouse, white-footed mouse, Norway rat, eastern mole, short-tailed shrew, masked shrew, and meadow vole. One small burrow entrance was observed among the leaf litter on the overgrown trail. Of the larger mammals, the Virginia opossum and raccoon would also be expected. Bats may also be present, although it is expected that they would use the open suburban areas adjacent to the site in which to feed. The red fox might be present in the area, although the existing development probably already excludes the species.

There are no wetlands in the vicinity of the site, and thus relatively few reptiles and amphibians are likely to be found on the property. The spadefoot toad is expected, as it is found upland habitats, and the Fowler's toad might also be present. The most likely reptiles to be present on site are the colubrid snakes, including the eastern garter snake, eastern hognose snake, worm snake, black racer and eastern milk snake.

2.4 Transportation

The site is presently undeveloped and vacant; it generates no vehicle trips. DEIS contains the Traffic Impact Study (TIS) prepared for this application. current traffic characteristics and Level of Service (LOS) of the site and vicinity, the

The exact nature of the retail/commercial occupants are not known at the present. Therefore, in order to provide a conservative analysis, this Study will assume that retail/commercial project is a supermarket. Analysis of the trip generation characteristics of the two types of users (see Volume 2, Table 3) indicates that a supermarket would generate more trips than the same amount of a group of retail users, thereby confirming that this assumption yield a conservative analysis.

The study methodology used for this investigation consisted of a detailed review of use, roadway, and traffic conditions in the vicinity of the proposed site at the intersections listed below were determined from field counts

1. Jericho Turnpike and Dix Hills Road
2. Jericho Turnpike and Franks Road
3. Jericho Turnpike and P.

The data was used in conjunction with the subject intersections

Roadway C
Jericho

Change of Zone

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2.4 Transportation

The site is presently undeveloped and vacant; it generates no vehicle trips. **Volume 2** of this DEIS contains the Traffic Impact Study (TIS) prepared for this application. In regard to the current traffic characteristics and Level of Service (LOS) of the site and vicinity, the TIS states:

The exact nature of the retail/commercial occupants are not known at the present time. Therefore, in order to provide a conservative analysis, this Study will assume that the retail/commercial project is a supermarket. Analysis of the trip generation characteristics of these two types of users (see **Volume 2, Table 3**) indicates that a supermarket would generate more trips than the same amount of a group of retail users, thereby confirming that this assumption will yield a conservative analysis.

The study methodology used for this investigation consisted of a detailed review of existing land-use, roadway, and traffic conditions in the vicinity of the proposed site. Existing traffic volumes at the intersections listed below were determined from field counts conducted in February 1999:

1. Jericho Turnpike and Dix Hills Road/Greenlawn Road
2. Jericho Turnpike and Franks Nursery/Site Access
3. Jericho Turnpike and Park Avenue/Deer Park Road

The data was used in conjunction with field observations to develop the existing levels of service for the subject intersections.

Roadway Conditions

Jericho Turnpike (NYS RTE 25), an east-west arterial under the jurisdiction of the New York State Department of Transportation (NYSDOT) provides east-west access. The cross-section consists of two lanes in each direction with left turn lanes where necessary. **Table 2-3** contains a summary of the lane configurations and traffic control experienced at the study intersections.

Traffic

Traffic volume turning movement counts were collected at the study intersections on Tuesday February 9, 1999 during the weekday P.M. peak (4:00-6:00 P.M.) period and on Saturday February 6, 1999 during the weekend Saturday peak (11:00-2:00 P.M.) period.

These volumes were then used to determine the existing capacity and level of service (LOS) of the study intersections. The analyses were performed in accordance with guidelines set forth in the **1998 Highway Capacity Manual (Special Report 209)** published by the **Transportation Research Board**.

Table 2-4 contains a level of service summary for the existing conditions. The capacity analysis/level of service worksheets are contained in **Volume 2**.

Upon a review of this table, it can be seen that the five-way intersection at Jericho Turnpike and Dix Hills Road/Greenlawn Road fails during both peak periods. The intersection at Jericho Turnpike and Park Avenue operates at LOS "D" or better during both peak periods. The third intersection at Jericho Turnpike and the Site Access operates at LOS "C" during the PM peak hour and at LOS "E" during the Saturday peak hour.



**TABLE 2-3
LANE CONFIGURATIONS**

Location	Dir.	Mvmt.	No. of Lanes	Width	Control
Jericho Turnpike and Dix Hills Road	NB	Left			SEMI-ACTUATED CONTROL
		Through	1-LT	10 ft	
		Right	1	10 ft	
	SB	Left			
		Through	1-LTR	10 ft	
		Right			
	EB	Left	1	12 ft	
		Through	2-T/R	12 ft	
		Right			
		Right			
Greenlawn Road	WB	Left	1	11 ft	
		Through	2-T/R	11 ft	
		Right			
		Right			
Jericho Turnpike and Franks Nursery/Site Access	SB	Left			TWO-WAY STOP CONTROL
		Through	1-L/T	10 ft	
		Right	1	10 ft	
	NB	Left			
		Through	1-LTR	15 ft	
		Right			
Jericho Turnpike and Park Avenue	EB	Left	1	10 ft	SEMI-ACTUATED CONTROL
		Through	1	10 ft	
		Right	1*	10 ft	
	WB	Left	1	11 ft	
		Through	1	11 ft	
		Right	1	9 ft	
	EB	Left	1	12 ft	
		Through	2	12 ft	
		Right	1*	13 ft	
	WB	Left	1	12 ft	
		Through	2	12 ft	
		Right	1*	10 ft	

* CHANNELIZED RIGHT TURN LANE
L=LEFT T=THROUGH R=RIGHT

**TABLE 2-4
 LOS – EXISTING CONDITIONS**

Location	Condition	PM Peak Hour			Saturday Peak Hour		
		Inter./Movm't Delay (sec/veh)	Critical V/C Ratio	Inter./Movm't LOS	Inter./Movm't Delay (sec/veh)	Critical V/C Ratio	Inter./Movm't LOS
Jericho Turnpike and Dix Hills Road/Greenlawn Road	Existing	*	0.83	*	526.6	0.86	F
Jericho Turnpike and Franks Nursery/Site Access	Existing	19.7	0.04	C	36.9	0.27	E
Jericho Turnpike and Park Avenue	Existing	40.1	0.97	D	22.8	0.83	C

2.5 Land Use, Zoning and Plans

2.5.1 Land Use

The subject property is located south of Jericho Turnpike (NYS Route 25) and west of Dix Hills Road, and has extensive frontage along both roadways. The project site has approximately one thousand (1,000) feet of frontage along the south side of Jericho Turnpike, representing the entire northern perimeter of the site. In addition, the western perimeter of the site has frontage totaling about one thousand and one hundred (1,100) feet along the west side of Dix Hills Road. The northern and western perimeters of the parcel do not meet at the Dix Hills Road/Jericho Turnpike intersection due to the location of three commercial outparcels, situated at the subject intersection. The project site is undeveloped and does not have any standing structures. The vegetation consists primarily of hardwood trees, grasses, forbs and brush.

The land use in the general vicinity of the site is a mix of retail, commercial and residential development (see **Figure 2-4**). As previously indicated, the northern boundary of the property lies along the south side of Jericho Turnpike. The land use on the north side of Jericho Turnpike is generally comprised of large-scale retail/commercial uses extending from the Jericho Turnpike/Dix Hills intersection eastward. Directly north of the project site lies Frank's Nursery, a large-scale retail garden center. To the west of Frank's, extending to the Jericho Turnpike/Dix Hills intersection, lies the Huntington Honda Car Dealership. The land use east of Frank's Nursery, corresponding to the remaining northern frontage of the project site, is comprised of two other large-scale car dealerships. A large-lot single family residence, with an extensive setback from Jericho Turnpike, is situated directly to the east of the car dealership. The land use continues to the east, beyond the project vicinity, in a retail/commercial pattern.

The land use pattern to the west of the project site provides a mix of retail, commercial and residential use. The parcel adjacent to the west of the proposed development site is occupied by the Cablevision Communications Center. A retail/commercial strip shopping center, the Fernandez Plaza, lies west of the Cablevision facility, and extends to the Jericho Turnpike/Dix Hills intersection. The corresponding property to the west of Fernandez Plaza, located on the southwestern corner of the Jericho Turnpike/Dix Hills intersection, houses the Town House III Diner. The land use pattern to the west of the diner, along Jericho Turnpike, maintains its retail/commercial character. The majority of the western border of the project site, south of the commercial uses on Jericho Turnpike, is comprised of wooded areas that front directly on Dix Hills Avenue. The land use extending west of Dix Hills Avenue is characterized by large-lot single-family residential development. This low-density residential land use pattern is maintained around the southern perimeter of the site, extending southward beyond the general project vicinity. For the most part, the property adjacent to the southern border of the project site is undeveloped, except for an existing single-family residence.

The eastern perimeter of the project site is also comprised of a mix of residential and commercial properties. The Haven Pools Commercial Center directly abuts the proposed development site to the east on Jericho Turnpike, and extends southward approximately five hundred (500) feet along the eastern perimeter of the subject site. The land use continues to the east along Jericho Turnpike in a mixed retail/commercial pattern. The remaining land use adjacent to the eastern





Source: Aerial Photo
Scale: 1" = 200'

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perimeter of the development site, south of Haven Pools, is comprised of medium to high-density single-family residential uses. These residential homes front on State Place; with the rear lots of the subject houses directly border the project site. Residential development continues further to the east, extending beyond the scope of the project vicinity.

2.5.2 Zoning

The project site is currently divided between two zoning designations, “R-40 Residence District” and “C-6 General Business District”, as depicted on the *Town of Huntington Zoning Map*. The northern portion of the site, extending the site’s entire one-thousand (1,000) foot frontage along Jericho Turnpike, and with a depth of one-hundred and fifty (150) is zoned C-6 General Business. This area encompasses approximately 3.27 acres of the subject site’s total acreage of 31.10 acres. The remaining 27.83 acres of the site lie within an R-40 Residence District (see **Figure 2-5**).

The R-40 Residence District is designated for single-family residences on one (1) acre lots. Buildings in this district are limited to a maximum height of thirty-five (35) feet or 2.5 stories, with minimum front and rear yard setbacks of fifty (50) feet. The C-6 General Business District permits a broad range of uses, including, but not limited to, retail sales, office use, personal service establishments, religious and municipal uses. In addition, the zone limits the outside storage and display of inventory, except in situations where a special use permit is granted by the Zoning Board of Appeals. The C-6 General Business District expressly prohibits new residential dwellings and manufacturing, assembly and general warehousing uses.

The properties to the east and west of the project site, fronting on Jericho Turnpike, and those across from the site on the north side of the Turnpike, are also zoned C-6 General Business. This zoning designation is maintained throughout this entire section of the Jericho Turnpike commercial corridor, extending from Paumonok Drive (in West Hills) on the west, to Manor Road on the east. This zoning designation is applied in order to maintain the retail/commercial nature of the corridor.

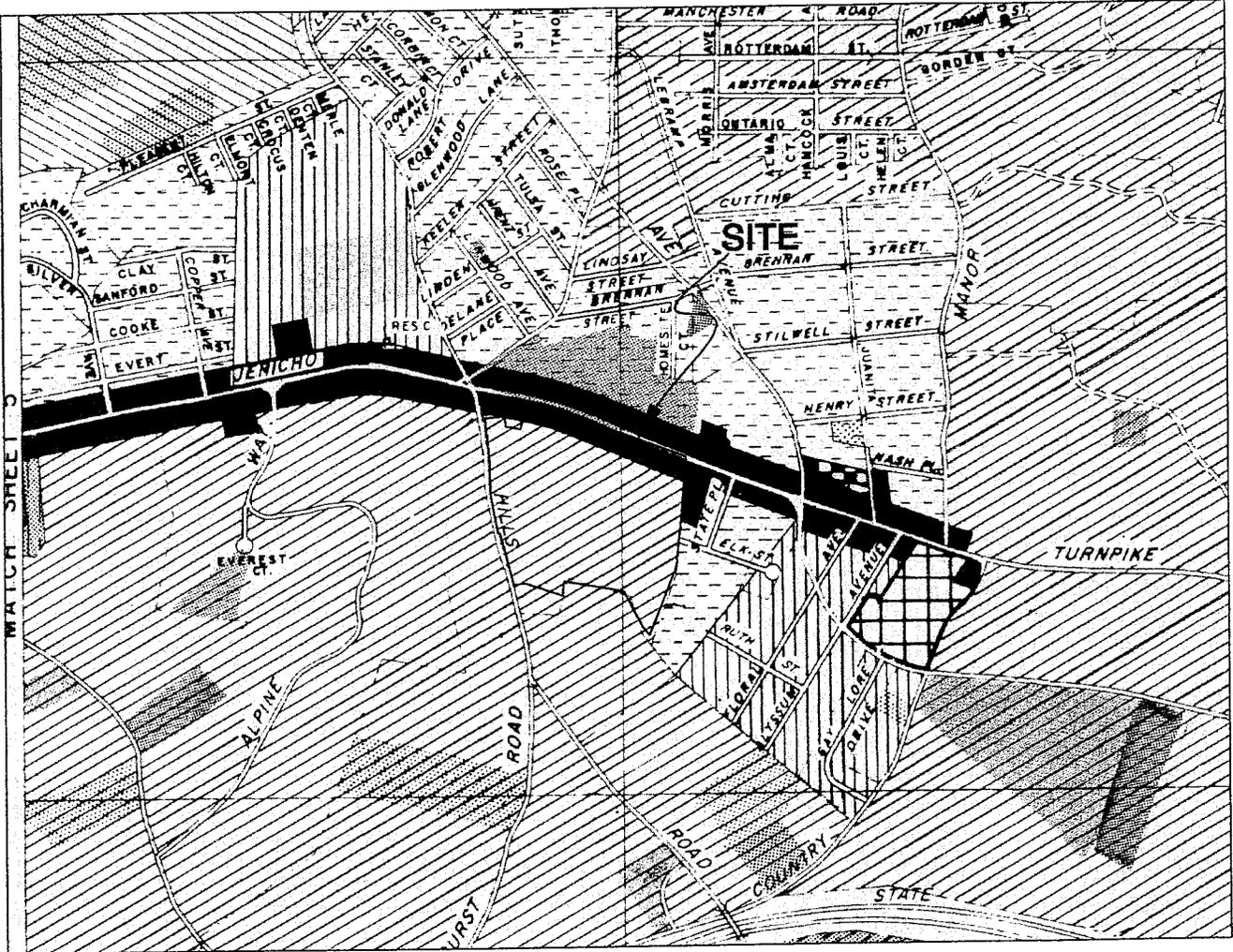
The zoning north of the proposed development site, beyond the commercial properties fronting on Jericho Turnpike, is comprised of basically two zoning designations within the project vicinity, R-5 Residential and R-40 Residential. The R-5 Residence District is a higher density zoning category, relative to the R-40 classification, allowing one unit per 5,000 square feet of lot area.

The areas to the west of the project site and south of Jericho Turnpike are zoned R-40 Residence. This residential zoning pattern includes all the property that lies to the west of Dix Hills Road. The property directly abutting the project site to the south, and extending beyond the project vicinity is also designated R-40 Residence District.

The eastern perimeter of the project site is bounded by the C-6 General Business District and the R-5 Residence District. The C-6 General Business District extends approximately four hundred

FIGURE 2-5

ZONING MAP



LEGEND:

	R-5 RESIDENCE		C-4 NEIGHBORHOOD BUSINESS
	R-10 RESIDENCE		C-6 GENERAL BUSINESS
	R-20 RESIDENCE		C-8 GENERAL BUSINESS "A"
	R-40 RESIDENCE		

Source: Town of Huntington Zoning Map
 Scale: 1" = 1,200'



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and fifty (450) feet southward from Jericho Turnpike along the site's eastern perimeter. This designation corresponds to the existing Haven Pools facility housed on the property adjoining the project site. The remaining eastern perimeter of the project site, and the areas directly to the east are primarily zoned R-5 Residence District. Beyond the adjacent R-5 Residence District, the zoning pattern shifts to R-10 Residence District. The R-10 Residence classification allows for slightly lower density single-family residential housing relative to the R-5 district, requiring 10,000 square feet per housing unit.

2.5.3 Plans

2.5.3.1 Town Comprehensive Plan Update

The Town of Huntington Comprehensive Plan (the "Plan") was updated in 1993 for the Town Planning Board; it is intended "... to reflect the issues the Town must confront associated with further growth and development based on its remaining resources." Similar to the zoning pattern, the Plan recommends (see **Figure 2-6**) Low Density Residential use for the residentially-zoned portion of the site, and Highway Business use for the commercially-zoned area along Jericho Turnpike. Property along both sides of Jericho Turnpike to both the east and west is designated for Highway Business use; north of this corridor, land is planned for medium and high density residential use, while land south of the corridor is designated for low density residential use. Adjoining the site to the west is low density residential land, with medium density residential land contiguous to the east.

Recommendations of the Plan pertinent to the proposed project include:

Transportation

- Encourage complementary land uses with peak-hour traffic characteristics at times other than the typical commuter travel periods.
- Review all development applications (e.g., site plan, subdivision, variance, special use permit and rezoning) with regard to scheduled and proposed roadway improvements. This would include widening, realignment, intersection and traffic signal improvements to be approved pursuant to the recommendations of the town Department of Engineering Services, Transportation and Traffic Safety Division, the town Highway Department and any other agencies having jurisdiction over the particular roadway segment. Development applications should also be reviewed with regard not only to pedestrian safety but also to creating links between adjoining uses and safe walkways for crossing major arterials.

Environmental Conditions

- Direct more intensive development to less environmentally-sensitive areas and assure that sufficient infrastructure support is provided.

Housing

- Minimize disruptions or alterations to established neighborhoods and development densities. This will help preserve property values in areas accommodating additional development.



FIGURE 2-6

TOWN COMPREHENSIVE PLAN UPDATE MAP



LEGEND:

NORTH



Source: Town of Huntington Comprehensive Plan
 Scale: 1" = 1,500'



- Design new residential developments which respect all environmental limitations.

Retail Development

- Re-map portions of Jericho Turnpike to increase the allowable depth accorded business depth extensions to provide additional landscape and buffer areas and achieving greater flexibility in site design, particularly for improved on-site circulation.

Open Space

- Pursue all avenues for preservation of significant open space, consistent with the strategic Open Space Plan to include land swaps, conservation easements, and selective tax abatements, seek “negotiating rights” or rights of “first refusal” for properties with the highest preservation priorities, as well as a town initiated Natural Areas Bond program to acquire fee title or development rights to important open space parcels.
- Insure that all actions, occurring wholly or partially within or substantially contiguous to any publicly owned or operated parkland, recreation area or designated open space be reviewed by the most stringent standards available in the SEQRA regulations.

2.5.3.2 Town Open Space Index

The Town of Huntington Open Space Index, prepared in 1974 (the “Index”) is intended to aid in the preservation and conservation of open lands in the Town that promote a sense of natural or rural spaciousness. The subject site is located on a portion of Index Parcel #SE-1, which occupies the former Hren Nursery property, which totaled approximately 60.5 acres of land astride Jericho Turnpike. The descriptor listed for this parcel justifying its designation is “*Field, farm, meadow, nursery; now or previously under cultivation. Also includes areas excavated for sand and gravel.*” The parcels listed in the Index are given a “priority” designation, based upon the perceived need to preserve the parcel. The Index indicates a priority of “6” for Parcel #SE-1. For Priority 6, the Index states:

This category includes all open area not otherwise classified. There is a continuing need for open areas for groundwater recharge, for “urban shaping” and for continued deployment as farmland. These areas must be reviewed on a case-by-case basis.

2.6 Community Services

Refer to **Appendix A** for correspondence with the following community services providers.

2.6.1 Taxes

The subject site consists of three (3) Suffolk County Tax Map parcels, 0400-208.00-01.00-005.000 (27.0 acres), 0400-208.00-01.00-008.000 (1.7 acres), and 0400-208.00-01.00-027.000 (2.4 acres). The total site acreage equals approximately 31.10 acres. To obtain the amount of revenue currently generated by the site, the 1998/99 tax bills for the subject parcels were reviewed. The total current assessment for the three parcels that comprise the development site is \$35,000.

Table 2-5 provides a summary of the tax districts, tax rate and assessed valuation compiled for the entire proposed development site. During the 1998/99 tax year the project site will generate a total of \$59,397 to the local taxing jurisdictions. The future taxes generated by the proposed project will be discussed in more detail in **Section 3.0** of this document.

TABLE 2-5
EXISTING SITE 1998/99 TAX GENERATION

DISTRICT	RATE (\$/\$100 ASSESSED)	ASSESSED VALUE	TAXES PAID
So. Huntington School & Library Districts	113.576	\$35,000	\$39,752
Suffolk County (a)	27.324	\$35,000	\$9,563
Town of Huntington (b)	19.576	\$35,000	\$6,852
Huntington Manor Fire District	6.410	\$35,000	\$2,244
Greenlawn Water District	2.819	\$35,000	\$987
TOTAL TAXES	169.705	-	\$59,397

Source: Town of Huntington Tax Bills

Notes: (a) County District includes General and Police.

(b) Town District includes Town General, Highway, Ambulance and Lighting District.

2.6.2 Educational Facilities

The proposed project lies within the South Huntington Union Free School District. **Table 2-6** presents various educational indicators associated with the operation of the subject school district. The administrative offices for the South Huntington Union Free School District are located on 60 Weston Street, Huntington Station, New York 11746. The district maintains two



(2) primary center schools, (2) two intermediate schools, (1) one middle school and one (1) high school.

TABLE 2-6

**SOUTH HUNTINGTON UNION FREE SCHOOL DISTRICT
SUMMARY DATA**

1998-1999 FISCAL DATA	DOLLARS
Per Pupil Expenditures	\$11,711
Per Pupil Full Valuation	\$429,651

Source: South Huntington UFSD, 1999

1997-1998 DEMOGRAPHICS	NUMBER/RATIO
Pupils	5,590
Teachers	403
Pupils per Teacher	13.4

Source: Long Island Market Facts, 1999

In addition to local property taxes, the South Huntington Union Free School District receives significant financial aid to provide educational services to the community. **Table 2-7** shows the total State aid the District received in the past two years. Trends in State financial support indicate that the State of New York will provide about twenty (20) percent of the per capita cost of education for the South Huntington Central School District.

TABLE 2-7

**NY STATE FINANCIAL AID
1997-99**

YEAR	TOTAL STATE FUNDS	FUNDS PER PUPIL
1997-8	\$14,906,712	\$2,666
1998-9	\$13,078,646	\$2,381

Source: NYS Education Department

Beyond the public school system, there are six (6) colleges and universities that lie within close proximity to the project site. The six (6) colleges and universities and their enrollment are shown in **Table 2-8**.

TABLE 2-8

COLLEGES AND UNIVERSITIES

INSTITUTION	LOCATION	UNDERGRADUATE ENROLLMENT '97-'98	GRADUATE ENROLLMENT '97-'98
SUNY @ Stony Brook	Stony Brook	11,769	6,062
SC Community College	Selden (a)	19,214	---
Polytech. University	Farmingdale	380	300
SUNY/Empire State	Old Westbury	800	---
NY Inst. of Technology	Westbury (b)	7,248	3,773
SUNY @ Farmingdale	Farmingdale	5,508	---

Source: Long Island Market Facts, 1999

Notes: (a) Local campus is located in Brentwood.
 (b) Local campus is located in Central Islip.

2.6.3 Police Protection

The project site lies within the protection area of the Suffolk County Police Department Second Precinct, patrol sector 210. The headquarters for this precinct is located at 1071 Park Avenue in Huntington.

2.6.4 Fire Protection

Fire protection is provided by the Huntington Manor Fire Department. The headquarters of the Huntington Manor Fire District are located at 650 New York Avenue, New York. The subject project site will be serviced by three firehouses in the event of a fire or related need for emergency services. The firehouses servicing the site are the Headquarters, Firehouse #2 located on New York Avenue, and Firehouse # 3, located on Totten Avenue. Firehouse #3 is the nearest fire house to the project site, situated less than 0.75 miles to the west.

Fire protection for the district is provided through the efforts of volunteer fire fighters from within the community. Enrollment is currently sufficient to man equipment and provide protection. Funding for fire protection is received through real property taxes collected on property within the fire district.

2.6.5 Utilities and Services

2.6.5.1 Water Supply

The proposed project is located within the service area of the Greenlawn Water District for supply of drinking water. The Authority maintains a water supply distribution system in the Greenlawn area. There is a 12-inch water main along the south side of Jericho Turnpike, and a smaller 8-inch main located along Dix Hills Road. Water supply is available to the subject site

via this distribution system. Additional water supply information on the water supply aspects of the project is provided in the Water Resources section of this report.

2.6.5.2 Wastewater Treatment

As the project site is undeveloped, it generates no sanitary wastewater, and no sanitary wastewater system is present. As indicated in **Section 2.2**, if and when developed, up to 19,002 gpd of wastewater could be generated on the site before a community treatment system (either a denitrification system or connection to public sewers) would be required.

2.6.5.3 Solid Waste Disposal

The Town of Huntington collects solid waste and transports it to the Huntington Resource Recovery Plant. The Town operates the plant under a cooperative agreement with the Town of Smithtown. The project site lies within established carting routes operated by the Town's disposal system. Since the project site is currently undeveloped, it does not generate any solid waste. However, as a result of its current status, the property has been subject to the illegal dumping of debris.

2.6.5.4 Energy

Electric and gas services will be provided to the project site by KeySpan Energy. Long Island Power Authority operates a power generating station at Northport that services the area. Gas service will be provided via a four-(4) inch steel gas main with 60 PSIG located on the south side of Jericho Turnpike.

2.7 Community Character

2.7.1 Visual Resources

The visual character of the project area may generally be described as mixed-use suburban that has reached a mature state of development. The commercial nature of the project vicinity results from the retail and business uses that front along Jericho Turnpike to the east, west and north of the subject property. The Jericho Turnpike commercial corridor generally has a depth of one-hundred and fifty (150) feet, which corresponds to the front section of the proposed development site. The residential visual character is supported by the single-family residential neighborhood established to the west of Dix Hills Road, and the residences that abut the project site to the south and east.

The majority of individuals viewing the site are motorists traveling on Jericho Turnpike and Dix Hills Road, or residents living in homes on the west side of Dix Hills Road. The site appears as a large open space with old field characteristics and associated vegetation from both Jericho Turnpike and Dix Hills Road vantage points. However, the existing trees, and the overgrown nature of the various grasses and site vegetation on the subject site prevents viewing the interior of the property. From the perspective of motorists traveling along Jericho Turnpike and Dix Hills Road, the visual amenities offered by the site in terms of natural vegetation and topography are limited. The view of the site from the commercial areas north of the subject site is similar to that experienced by motorists. However, due to the higher land elevations found to the west, the residents fronting on Dix Hills Road are able to view the project site to a greater extent, relative to motorists. Although the elevations are not high enough to afford residents an expansive view of the site, they are able to see the interior portions of the wooded areas of the proposed development site.

The limited residential use and existing open space along the southern boundary of the project site, for the most part, prevents most individuals from viewing the site. Views of the site from the east are also limited due to the location of the Haven Pools site, extending from Jericho Turnpike along the project site's eastern perimeter, along with the residential homes that front on Street. The development site may only clearly be viewed from the east by individuals utilizing the commercial site and its related parking, or from the rear yards of the State Place residential parcels.

2.7.2 Archaeological Resources

Appendix E contains the Phase I Cultural Resources Assessment (CRA) prepared for the project site. The following general description of the site history and cultural resources sensitivity is taken from that document:

European colonists probably settled the general region late in the 18th century, at which time the more fertile lands were selected and cleared for farming and pasture. The low-lying sandy loam soil of the subject property made it valuable as pastureland and for crop. It was probably cleared early of its primeval forest for this reason.



By mid 19th century in response to better transportation systems crop farming had expanded in the region replacing pastoral pursuits. Families such as the Sopers, Valentines, Willis' and Jacksons occupied the area east of Janes Hill and west of Dix Hill in southern Huntington Township. The soil was suitable for small scale farming in this region. The Soper family may have owned the parcel south of Middle Post Road that included the subject parcel. Sometime between 1858 and 1896 the western portion of the old Kings Highway between Jericho and Coram was improved and widened. Tollbooths were installed at intervals along the highway to collect fees. Farms expanded and new generations of agriculturists were attracted to till and toil on the soils of the region. The O. Carll family supplanted the Sopers north of the subject property and probably continued to crop the fields of the subject parcel to early in the 20th century. In the latter part of the 19th century and early 20th century many farms in the region were abandoned as a consequence of the general economic climate. Places formerly used as cropland or as pasture for cattle were permitted to return to forest. Land prices plummeted during this period. Entrepreneurs were attracted to the area to purchase tracts of less desirable agricultural or forested land for subdivision and speculation. Soon afterward, early in the 20th century, an influx of urban dwellers from New York City were attracted to region for its open spaces, its clean air and varied recreational resources. They sought inexpensive land as locations for small farms, businesses and recreational and summer residences. Soon summer cottages were to be found extending along many of the existing roads. According to members of the Melville Boulevard Civic Association who were interviewed for this report, it was about this time than Anton Hren purchased the former Carll farm. He is reported to have begun a tree and foundation plant nursery around mid-century. He and his family occupied the former Carll House located on the north side of Jericho Turnpike just east of the subject parcel. From at least 1965 the entire subject property was devoted to growing shrubs, foundation plants and trees. A 1970 aerial survey of the site indicates that the property had been planted to a variety of plant types, which were arranged into small rectangular patterns. The patterns were much smaller than what would normally be used for traditional field crops and probably represent plantings of various species of shrubs and trees. In recent years the Nursery has been known as "Franks Nursery". The northern portion of the original Hren parcel was sold as commercial property and was developed as strip retail shops. The former nursery was abandoned more than a decade ago and has reverted to post-agricultural forest.

SECTION 3.0

SIGNIFICANT ENVIRONMENTAL IMPACTS



3.0 SIGNIFICANT ENVIRONMENTAL IMPACTS

3.1 Geology

3.1.1 Topography

As described in **Section 2.0** the project site is generally flat with a slight slope to the west and the topography of the site does not impose any constraints on development. There are no steep slopes, and the topography ranges from 190 ft in the central portion of the property to 180 ft along the western boundary. Only minimal grading will be necessary for construction of the supermarket, proposed roadway or development of the individual subdivision lots. Creation of steep slopes will not be necessary, and none will be present following construction of roads and homesites.

3.1.2 Surface Soils

The surface soils found on the subject site are not expected to pose a significant constraint on the proposed development based on review of soil constraints provided in the Suffolk County Soil Survey (**Warner et al, 1975**). Topsoil will be stockpiled and re-utilized in landscaped areas in order to minimize adverse affects associated with long term exposed soils. The site is comprised of Montauk-Haven-Riverhead Association soils which are deep, nearly level to strongly sloping, well drained to moderately well drained with moderately coarse textured and medium-textured soils. The constraints associated with the soils were identified in **Table 2-1** and are predominantly minor. Constraints on the construction of sewage systems, homesites, streets and parking lots are slight. The Soil Survey notes that due to the rapid permeability of the soil types existing at the site, development may present potential pollution problems to lakes, springs or shallow wells. However, the depth to groundwater is more than adequate for leaching of sanitary waste and there are no lakes, springs or shallow wells on or in the vicinity of the subject site. Thus, the permeability of the soils should not constrain development. Additional information concerning sanitary waste disposal and potential groundwater impacts is presented in **Section 3.2**. Severe constraints exist for landscaping and lawns due to the sandy surface layer in the Plymouth loamy sands present at the site. This should not adversely impact development of the site. The establishment of homesites, streets, lawns and commercial development is typical for the area where the subject site is located.

3.1.3 Subsurface Geology

Excavation during the project is not anticipated to significantly extend into the subsurface soils beneath the subject site. Therefore, there should be no impacts related to or from subsurface geological features. However, the characteristics and lithology of subsurface geology at the project site influence the movement of groundwater and transport of sanitary wastes through the subterranean environment. The impacts as they relate to these properties will be discussed in **Section 3.2**.

3.2 Water Resources

The primary water resource impacts expected as a result of development of the project site involve changes in groundwater quality. There is no surface water on the site, and thus no impacts to surface water are expected. Reduction of groundwater quality is typically the result of sanitary discharge and degradation of recharge on the site. An increase in the amount of water that is recharged is also expected as a result of the increase in impervious surfaces on site, although this will not result in a significant change in the regional hydrogeological regime. The following analyzes changes in water quality and quantity, which may result from implementation of the proposed project.

3.2.1 Groundwater

3.2.1.1 Hydrologic Water Budget

Using the site coverage quantities established in **Table 1-1**, the SONIR model was run to determine the existing and proposed water budget resulting from recharge. The results of the model for existing on-site conditions were discussed in **Section 2.0**. Under the proposed development the project site will recharge a total of 23.19 million gallons per year (MGY) resulting in an increase of 7.51 MGY. Analysis of the computer model results indicate that 89% of total site recharge under proposed conditions would result from precipitation, while 10% would result from wastewater recharge with the final 1% resulting from irrigation. The results of this analysis are presented in **Appendix C-3**. Increases in recharge are primarily the result of reduction of natural area which are replaced with impervious surfaces. This results in a reduction of evapotranspiration by vegetation and the concentration of surface water available for recharge. This increase is not expected to cause a significant adverse impact since the depth to groundwater beneath the site is approximately 110 ft below ground surface (bgs) and will not result in flooding related concerns.

3.2.1.2 Groundwater Quality

The primary groundwater quality concern associated with development at the subject site is nitrogen loading due to on-site disposal of sanitary waste effluent and the use of fertilizer for lawns and landscaping.

Wastewater will be generated as a result of the proposed residential and commercial development of the site. All sanitary wastewater effluent is proposed to be disposed of via individual on-site sanitary waste disposal systems. This form of disposal is allowed provided the projected wastewater design flow does not exceed standards established by the SCDHS, which were developed to protect groundwater resources within the County. The proposed project will conform to SCDHS standards in order to limit the impact to groundwater quality, as is discussed below.



Using the site coverage quantities established in **Table 1-1**, the SONIR model was run to determine the concentration of nitrogen in recharge, which would be expected, following residential and commercial development under the proposed density. The model accounts for the following primary nitrogen sources: precipitation, sanitary waste, fertilizer and water supply. In addition, the model accounts for recharge from the following sources: lawn and landscaped area recharge, natural area recharge, irrigation recharge, impervious area recharge, unvegetated area recharge and wastewater recharge. For the purposes of this analysis, it was assumed that the landscaped portion of each residential lot would be fertilized, but that the buffer areas would be naturalized with non-fertilizer dependent vegetation.

The results of the SONIR model for the proposed project are presented in **Appendix B-3**. The printout indicates that the concentration of nitrogen in recharge resulting from sanitary disposal, precipitation and fertilization will be 3.75 milligrams per liter (mg/l) under full build conditions, with maximum sanitary flow allowed under Article 6. The nitrogen concentration in recharge originates primarily from wastewater (91.1% by weight) with the remainder originating from fertilizing (8.0% by weight), precipitation (0.5% by weight) and irrigation (0.4% by weight). This results from the higher concentration of nitrogen found in wastewater as opposed to the other contributing constituents. The anticipated concentration of nitrogen contributed by the site following the proposed development is less than the NYSDEC drinking water standard of 10 mg/l. This concentration is also less than the more stringent 6 mg/l limit established for Pine Barrens areas. Therefore, the proposed project is not expected to result in significant adverse effects to groundwater quality with regard to nitrogen loading.

Stormwater runoff will be generated from impervious surfaces such as roads, parking areas, roofs, sidewalks, and driveways. Runoff from some types of land uses may carry such pollutants as heavy metals, petroleum hydrocarbons, bacteria, and nitrogen. Extensive monitoring associated with the NURP Study (**Koppelman, 1982**) found a significant reduction in concentrations of heavy metals, hydrocarbons, and bacteria, in groundwater as compared with surface runoff, indicating that such contaminants are attenuated in soil or volatilized in stormwater transport (**Koppelman, 1982, p. 116**). The proposed project will utilize leaching pools and road side leaching catch basins for recharge of stormwater, and therefore the findings of the NURP study are applicable to this project.

Under the NURP Study, a number of different land use sites were studied to determine the impact of stormwater recharge on groundwater, including: strip commercial development, a shopping mall parking lot, low density residential development (one acre lots), a major highway, and medium density residential development (quarter acre lots). The NURP Study results for low residential land and strip commercial uses are shown in **Table 2-1**.

None of the parameters examined within the NURP Study exceeded standards for the reported constituents at either of the two sites. Thus, recharge of stormwater from residential or strip commercial development was not found to cause significant groundwater impacts. Hydrocarbons from automobile use are volatilized or of such low concentration as to not be significant, and metals such as lead are effectively attenuated in soils of typical residential drainage systems (**Koppelman, 1982**).

3.2.2 Surface Water and Drainage

The proposed actions at the project site may result in alteration of drainage flow or surface water patterns through the creation of impervious surfaces. However, it should be noted that the site has low slopes with few swales which could concentrate runoff into pools, and is underlain by soils having good percolation characteristics. In accordance with SCDPW regulations all surface run-off generated on-site must be contained on-site, therefore all run-off will be directed to roadside leaching catch basins and stormwater leaching pools



3.2 Ecology

The impacts to the ecological resources of a project site are generally a direct result of clearing of natural vegetation and the resulting loss and fragmentation of wildlife habitat and increase in human activity on the property.

3.3.1 Vegetation

The proposed plan will require clearing of approximately 45% of the vegetation on the property, although some areas of natural vegetation will remain as buffers along the property boundaries and throughout the majority of the center and northwestern corner of the site. The cleared vegetation will be partially replaced by landscaping species; however, the proposed development will have localized impacts on vegetation.

Regional impacts will be negligible, as the project site is small in size and represents only a small portion of the natural vegetation in the area. In addition, the project site is not unique or unusual in terms of native vegetation or habitat, and is characterized by remaining nursery stock and successional vegetation which is followed by disturbance. Limited woodland will remain in the southern portion of the property, with the exception of the southern and eastern borders. It is anticipated that any larger diameter trees will remain within the residential portion of the site where possible. In the residential areas and borders around the proposed retail/commercial parking area, the habitat will be disturbed due to site development activities, but will be supplemented through extensive landscaping throughout the developed portions of the site. This includes the perimeter of the site, street trees along Dix Hills Road, Jericho Turnpike and the proposed cul de sac and landscape islands and strips within the proposed parking lot. Approximately one third of the natural vegetation will remain.

The majority of the vegetation on the property is currently dominated by remaining nursery stock and successional vegetation. The existing woodland habitat in the area is somewhat fragmented due to the surrounding developed areas and similar successional habitat is found throughout the general area. Additionally, clearing of the nursery stock found on site is not expected to impact plant species. The property is not be expected to act as a refuge for rare native flora, and impacts to plant species should be minimal.

3.3.2 Wildlife

Section 2.3.2 provides a discussion of the wildlife populations associated with the subject site. In addition, **Appendix D-4** includes the results of a microcomputer model developed for use by NP&V. The model is used to establish baseline information of species associated with various habitats, as well as relevant information concerning abundance, habits, and seasonal fluctuations.

Appendix D-4 contains a computer-generated table labeled "Species Adaptability". This list is another component of the program developed for NP&V used for the preparation of the Wildlife Habitat computer model; however, in this application the "Adaptability" of the observed and



expected species is shown. The "Adaptability" as indicated in the table, refers to whether an individual species may potentially benefit from (+) a habitat change from natural to a developed setting; or be adversely impacted (-), or remain constant (=), as a result of this change. This Appendix is included to provide the reader with the benefit of the literature which was consulted in connection with the Wildlife-Habitat model in terms of generalized species dynamics resulting from land use. These values are general indicators of the response of each species to alteration of its natural habitat by a mixture of residential, commercial and industrial development. The following text considers the site-specific aspects of the proposed development in regard to individual species, and supplements the predictions of the more general model. In some cases the predicted response of a species at the site may differ from the general prediction of the model because of site-specific information.

The early successional vegetation found on the project site provides habitat for several wildlife species which are tolerant of human activity. Most of these species will utilize a range of habitats, including suburban yards, and thus would be expected to utilize the buffers and newly landscaped portions of the site to a limited degree. Although much of the proposed site will be cleared under the proposed plan, the site represents only a small portion of the early successional habitat in the vicinity. Species which avoid human activity or are particularly vulnerable to habitat fragmentation are not expected under existing conditions. Landscape plants may also offer benefits to wildlife, particularly if native and near native species are chosen which provide food and shelter.

The proposed project will favor those wildlife species that prefer edge and suburban habitats and those that are tolerant of human activity. As successional woodland is found throughout the area and wildlife species generally not tolerant of human activity are not expected under current conditions, the regional impacts to this habitat are not expected to be significant.

In the short term, the proposed clearing of the site would be expected to displace individuals from the property onto adjacent lands, with some direct loss of individuals. Ultimately, interspecific and intraspecific competition should result in a net decrease in population size for most species within the local area, with some species recovering slightly as landscaping becomes established and provides cover. Although local populations will be impacted, the overall effect on the density and diversity of regional populations should be minimal, as the area represents only a small portion of the successional shrubland and woodland habitat available in the vicinity. The impacts of habitat losses are cumulative, however, and impacts need to be considered in light of regional planning.

3.4 Transportation

The following discussion of the anticipated traffic impacts of the proposed project is taken from the TIS (see **Volume 2**):

As part of this investigation estimates were made of the volume of vehicular traffic that would be generated by the proposed development. Estimates were based on the average trip generation rates for the assumed supermarket (Land Use Code 850) and single family dwellings (Land Use Code 210) as presented in the manual, **Trip Generation, 6th Edition**, prepared by the **Institute of Transportation Engineers (ITE) (1998)**. However, the ITE manual recommends that local or site specific data be used to augment or even replace the rates contained in the manual. The ITE rates are not realistic, they do not reflect the actual trip generation of a free standing supermarket. Trip generation rates calculated from data collected as part of a study of Stop & Shop supermarkets conducted in July 1994 were used to estimate the trips generated by the proposed supermarket. This study included seven local supermarkets in the area and is a more accurate source of data for trip generation of supermarkets. As per the supplied data, estimates were prepared for the weekday PM and Saturday midday periods.

It is important to consider that a portion of the vehicles entering the supermarket from the adjacent street system will be "pass-by" trips. In other words, these trips originate directly from the traffic stream passing the facility on the adjacent street system and are not newly generated vehicles. The ITE manual allows for a 36% pass-by trip reduction during the weekday, a conservative approach was determined to account for these "pass-by" trips, a reduction of 25% was assumed for the weekday and 20% was assumed for the Saturday peak periods.

For the purposes of this investigation, it was estimated that peak site-generated traffic would coincide with peak traffic periods on the adjacent roadway system. Therefore, estimates were prepared for the weekday P.M. peak commuter period and weekend Saturday peak period. These trip generation estimates are contained in **Table 3-1**.

This results in estimates for the future traffic volumes at the study intersections. These volumes were used to perform the capacity analyses for the "No Build" and "Build" conditions. These analyses were performed using the procedures outlined in the **1998 Highway Capacity Manual (Special Report 209)** published by the **Transportation Research Board**. The procedures listed in the **Highway Capacity Manual** permit the computation of intersection capacity and level of service (LOS). The capacity and LOS of an intersection has previously been defined in the existing conditions segment of this report.

The results of these analyses are summarized in **Table 3-2**. The capacity analysis/level of service worksheets are contained in **Volume 2**.

Upon a review of this table, the following can be stated:

1. The traffic generated by the assumed supermarket and 9 single family dwellings will have an imperceptible impact at the intersections of Jericho Turnpike and Dix Hills Road/Greenlawn Road, and Jericho Turnpike and Park Avenue.
2. The site driveway on Jericho Turnpike for the Supermarket will experience operational difficulty during the PM and Saturday peak hours, without construction of a new signal. However, this intersection meets traffic signal warrants one and two of the Manual for Uniform Traffic Control Devices. It will



**TABLE 3-1
 TRIP GENERATION**

Time Period	Proposed 69,000 s.f. Single Family Dwellings	Proposed Supermarket	Total Trip Generation:
	Land Use Code 210	Stop and Shop Rates	
PM Peak Hour	Enter: 8 tph	Enter: 310 tph	Enter: 318 tph
	Exit: 4 tph	Exit: 318 tph	Exit: 322 tph
	Total: 12 tph	Total: 628 tph	Total: 640 tph
Saturday Peak Hour	Enter: 10 tph	Enter: 362 tph	Enter: 372 tph
	Exit: 9 tph	Exit: 354 tph	Exit: 363 tph
	Total: 19 tph	Total: 716 tph	Total: 735 tph

tph = trips per hour

**TABLE 3-2
 LOS – PROPOSED CONDITIONS**

Location	Condition	PM Peak Hour			Saturday Peak Hour		
		Inter./movm't Delay (sec/veh)	Critical V/C Ratio	Inter./movm't LOS	Inter./movm't Delay (sec/veh)	Critical V/C Ratio	Inter./movm't LOS
Jericho Turnpike and Dix Hills Road/Greenlawn Road	No Build	*	0.92	*	*	0.89	*
	Build	*	0.95	*	*	0.96	*
Jericho Turnpike and Franks Nursery/Site Access	No Build	20.6	0.04	C	40.1	0.29	E
	Build	21039.3	12.54	F	39883.4	22.92	F
	Build W/Signal	16.2	0.79	B	17.5	0.81	B
Jericho Turnpike and Park Avenue	No Build	48.4	0.96	D	23.9	0.85	C
	Build	50.1	0.99	D	27.8	0.92	C

operate at a LOS "B" in the "Build" condition, if a three-phase signal control were constructed as well as new eastbound and westbound left turn lanes.



3.5 Land Use, Zoning and Plans

3.5.1 Land Use

The existing site use is not considered a permanent use, as the site is vacant. The property under discussion is split into two zoning designations. The front portion along Jericho Turnpike is zoned "C-6 General Business District", and the rear portion is zoned "R-40 Residence District". As demonstrated in **Section 2.5**, the project site is located in a mixed land use area. The front portion of the site is situated within the Jericho Turnpike commercial corridor, with business uses to the north, east and west. The rear portion of the site lies within a residential land use pattern, with housing of varying densities to the east, west and south. The only minor exception is the commercial use that extends from Jericho Turnpike along a small section of the parcel's eastern perimeter. The mixed land use pattern requires that the proposed use address the difficult circumstance of harmonizing with varying surrounding land use activities. Evidence that the proposed use complements the existing land use pattern is as follows:

- The front portion of the site, extending four hundred and fifty (450) feet south from Jericho Turnpike, is proposed to house a 69,000 square foot retail/commercial development. The proposed development lies within the established Jericho Turnpike commercial corridor, with a lot depth that corresponds to neighboring business uses to the east. The project will result in a long-term use that will complement adjacent properties and strengthen the commercial land use pattern designated in the Town of Huntington Comprehensive Plan-1993 for Jericho Turnpike.
- The southern portion of the project site is proposed to house a nine- (9) lot residential subdivision on 11.52 acres of land. The proposed housing units will be developed on one (1) acre lots with each home having three (3) or four (4) bedrooms. This proposed residential land use will complement the existing neighborhood housing that surrounds the southern portion of the project site. Further, a naturally vegetated buffer area will extend along Dix Hills Road, screening the proposed homes from the roadway and the residences to the west.
- The project site design includes an 9.51 acre open space buffer between the planned commercial development fronting on Jericho Turnpike, and the proposed nine (9) lot residential subdivision to be developed on the southern portion of the property. The proposed buffer area has a minimum width of two-hundred and ten (210) feet, and extends from the subject parcel's western border along Dix Hills Road to its eastern perimeter. The proposed development will maintain the subject buffer area in its current natural state, thereby providing a transitional area between the Jericho Turnpike commercial corridor and the proposed and existing residential developments to the south, east and west.
- Access to both the proposed 69,000 square foot commercial development and the planned residential subdivision will be controlled and limited. Commercial traffic entering the project site will be limited to access points along Jericho Turnpike, thereby eliminating potential traffic impacts on the surrounding neighborhoods. With respect to the residential subdivision, access will be via a cul-de-sac roadway. This street design extends access to residents, and prevents related traffic impacts on surrounding land uses.



3.5.2 Zoning

As presented in **Section 2.5**, the project site is currently divided between two zoning designations, “R-40 Residence District” and “C-6 General Business District”, as depicted on the *Town of Huntington Zoning Map*. The northern portion of the site, extending the site’s entire one-thousand (1,000) foot frontage along Jericho Turnpike, and with a depth of one-hundred and fifty (150) feet is zoned C-6 General Business. This area encompasses approximately 3.27 acres of the subject site’s total acreage of 31.10 acres. The remaining 27.83 acres of the site lies within an R-40 Residence District. The zoning surrounding the project site includes a mix of business and residential zoning, that for the most part, represents existing land use.

The proposal involves extending the existing C-6 zone boundary line from its existing depth of one hundred and fifty (150) feet from Jericho Turnpike, to a maximum depth of four hundred and eighty feet (480). The proposal will complement the Town’s existing zoning pattern in the project vicinity based on the following observations:

- The proposed zone boundary shift will complement the existing land uses to the east and west; further, the proposed extension of the commercial zone will provide adequate land area for a well-designed, modern retail center.
- The residential zoning areas, to the west, east and south of the retail component of the project, will be protected from commercial encroachment in the future. The proposed site design incorporates a significant open space area between the retail and residential components of the project that will serve as a permanent buffer between the Jericho Turnpike commercial zoning and the subject residential zones. Further, the extensive open space buffer will eliminate the inevitable zoning conflicts that generally occur between strip commercial developments and the adjacent residential neighborhoods.
- The proposed residential subdivision, included within the development plan, contains only nine (9) homes on 11.52 acres. This low-density residential development will provide a permanent use that will blend with the surrounding residential zoning. The potential infringement of commercial or multi-family zoning onto this site in the future will be eliminated.

3.5.3 Plans

3.5.3.1 Town Comprehensive Plan Update

The proposed project will be in conformance with the Town Comprehensive Plan Update in regard to land use type. In addition, the recommendations of the Update will be followed by the project, as follows:

Transportation

- *Encourage complementary land uses with peak-hour traffic characteristics at times other than the typical commuter travel periods.*



The proposed retail and residential uses are complementary in nature, in that the residents would tend to patronize the adjacent retail/commercial area. While the commuter period trips generated by the residential portion of the project are anticipated to occur at the same time as the peak-hour pattern along Jericho Turnpike, the relatively small number of residences (9) is not anticipated to result in a significant impact to LOS on this roadway. The peak-hour trip generation associated with the retail area does not generally occur during the AM or PM peak travel hours. In addition, the nearby auto dealerships are characterized by peak hour trip generations which occur during evening and weekends, which are outside the weekday peak hour commuter periods.

- *Review all development applications (e.g., site plan, subdivision, variance, special use permit and rezoning) with regard to scheduled and proposed roadway improvements. This would include widening, realignment, intersection and traffic signal improvements to be approved pursuant to the recommendations of the town Department of Engineering Services, Transportation and Traffic safety Division, the town Highway Department and any other agencies having jurisdiction over the particular roadway segment. Development applications should also be reviewed with regard not only to pedestrian safety but also to creating links between adjoining uses and safe walkways for crossing major arterials.*

Two land dedications for roadway expansion will occur as part of the proposed project, along Jericho Turnpike (5,725 SF) and Dix Hills Road (4,550 SF).

Environmental Conditions

- *Direct more intensive development to less environmentally-sensitive areas and assure that sufficient infrastructure support is provided.*

The project site does not contain environmentally-sensitive areas such as wetlands, steep slopes or significant habitats. In addition, infrastructure support exists in the area, and will be utilized.

Housing

- *Minimize disruptions or alterations to established neighborhoods and development densities. This will help preserve property values in areas accommodating additional development.*

The large lots proposed for the residential portion, along with the extensive amount of open space preservation, are anticipated to minimize the potential for impact to the existing residential uses in the vicinity.

- *Design new residential developments which respect all environmental limitations.*

As the project site does not contain environmentally-sensitive land, and the project includes extensive retentions of naturally-vegetated lands, the project respects the recommendation for preservation of sensitive lands.

Retail Development

- *Re-map portions of Jericho Turnpike to increase the allowable depth accorded business depth extensions to provide additional landscape and buffer areas and achieving greater flexibility in site design, particularly for improved on-site circulation.*

The proposed project will not utilize the now-expired 100-foot depth extension previously granted for the site. Rather, the proposed zone change for the minimum depth of 210 feet of land contiguous to the C-6 zoned area will increase commercially zoned land on the site to a maximum depth of 480 feet



from Jericho Turnpike. The project will provide a significant amount of landscaping in this buffer area along and within the parking areas for the proposed commercial area, in addition to the retained open space along Jericho Turnpike.

Open Space

- *Pursue all avenues for preservation of significant open space, consistent with the strategic Open Space Plan to include land swaps, conservation easements, and selective tax abatements, seek "negotiating rights" or rights of "first refusal" for properties with the highest preservation priorities, as well as a town initiated Natural Areas Bond program to acquire fee title or development rights to important open space parcels.*

The project site is part of a Town-designated Open Space parcel (SE-1), which was the site of the prior Hren Nursery. However, the majority of that parcel is now developed as the nursery operation across Jericho Turnpike, and the project site does not contain significant or valuable vegetation, wetlands or habitat. To date, the Town has not expressed any interest in acquiring the site for open space preservation.

- *Insure that all actions, occurring wholly or partially within or substantially contiguous to any publicly owned or operated parkland, recreation area or designated open space be reviewed by the most stringent standards available in the SEQRA regulations.*

Because the project site is located within a portion of a Town-designated Open Space parcel, the Change of Zone application submitted by the Applicant was classified as a Type 1 action under SEQRA, and has been issued a Positive Declaration by the Town Board. This requires the preparation of this DEIS, which reviews and analyzes the potential impacts of the project, as well as the mitigation measures proposed.

3.5.3.2 Town Open Space Index

The proposed project will reduce the acreage of Town Open Space Index parcel SE-1 by approximately 47%. However, the site does not contain any significant environmental features (such as steep slopes, wetlands, or significant vegetation or habitats). The project will clear an approximately 14.15 acres (45%) of the site, while retaining 16.95 acres (55%) as naturally-vegetated open space.

3.6 Community Services

3.6.1 Taxes

The impact of the project upon the tax structure will be a significant increase in the amount of tax revenue generated from the subject parcel to the taxing jurisdictions. The present taxes on the property, as well as the distribution of the taxes is described in the Environmental Setting section of this document. This fiscal analysis evaluates the impact of the proposed development plan on the previously discussed affected taxing jurisdictions.

In order to quantify the tax impact of the proposed development upon the Town tax structure, it is first necessary to estimate the assessed value of its commercial and residential components. The assessed value for residential units is determined by the Town Tax Assessor by adjusting the subject property's current market or sales value by a factor called the *residential assessment ratio*. Theoretically, the *residential assessment ratio* accounts for differences in property values due to sales dates occurring over a period of time, and "equalizes" them based on a set date in time. For 1999, the residential assessment ratio is 1.81 in the Town of Huntington. The Town Tax Assessor determines the assessed value for commercial properties by applying a similar factor, the *equalization rate* to a subject property's market value. Currently, the *equalization rate* for the Town of Huntington is 1.94 (**Town of Huntington, Sole Assessor**).

Based on a review of current market sales activity by the project sponsor, it is estimated that the proposed residential units for this particular site will have a sales price of \$250,000, including the land component. Adjusting the estimated market value by the current equalization rate yields an assessed value of \$4,850 ($\$250,000 \times .0181$ equals \$4,850) per residential unit. Under the proposed scenario, the project will result in the construction of nine (9) single-family houses, thereby yielding an assessed value of \$43,650 ($\$4,850 \times 9$) for the residential portion of the development.

A survey and review of retail commercial space conducted for this DEIS in the proposed project vicinity along Jericho Turnpike did not reveal any similar new developments. However, there were several older retail projects with adjusted market values in the \$50 to \$53 per square foot range. Based on the fact that the proposed project will provide new retail space in a modern facility, it is conservatively estimated that the market value per square foot will equal \$60.00 per square foot. Adjusting the estimated market value by the current equalization rate yields an assessed value of \$1.16 ($\$60 \times .0194$ equals \$1.16) per square foot of retail commercial space. Under the proposed scenario, the project will yield 69,000 square feet, resulting in a projected assessed value of \$80,040 for the retail building area.

The survey of developed retail property along the Jericho commercial corridor revealed land values that ranged from \$327,000 to \$625,000 per acre. For the purposes of this fiscal analysis, a mid-range value of \$476,000 per acre was applied. This value results in an estimated assessed value of \$9,234 ($\$476,000 \times .0194$) per acre. Based on the proposed realignment of the zoning boundaries incorporated into the proposal, the project will include 10.07 acres of commercially zoned property. This results in a total projected land assessment of \$92,986 ($\$9,234 \times 10.07$) for the retail portion of the project. By adding the estimated retail building

assessment of \$80,040 to the land assessment of \$92,986, the retail component of the proposal is projected to have a total assessment of \$173,026. The total project assessed value, including the residential and commercial components, is estimated to equal \$216,676.

Table 3-3 compares the existing tax revenues of the subject parcel to the total revenues that may be anticipated under the proposed project. The tax revenues are based on the current tax rates (see **Section 2.6**) and the projected assessed values. The table details the revenue changes that will occur to the impacted taxing jurisdictions as a result of the project.

TABLE 3-3

CHANGES IN TAX REVENUE

DISTRICT	RATE (\$/\$100 ASSESSED)	EXISTING CONDITIONS	PROPOSED PROJECT	INCREASE IN REVENUE
So. Huntington School & Library Districts	113.576	\$39,752	\$246,092	\$206,340
Suffolk County (a)	27.324	\$9,563	\$59,205	\$49,642
Town of Huntington (b)	19.576	\$6,852	\$42,416	\$35,564
Huntington Manor Fire District	6.410	\$2,244	\$13,889	\$11,645
Greenlawn Water District	2.819	\$987	\$6,108	\$5,121
TOTAL TAXES	169.705	\$59,397	\$367,710	\$308,313

Source: Town of Huntington Tax Bills

Notes: (a) County District includes General and Police.

(b) Town District includes Town General, Highway, Ambulance and Lighting District.

As demonstrated in **Table 3-3**, the proposed project will generate significantly more tax revenue to the impacted jurisdictions relative to the existing situation. The proposed mixed-use development is projected to provide a total of \$367,710 in tax revenue, this is \$308,313, or approximately eighty-four (84) percent more than it currently generates. This represents a significant positive impact on the affected taxing jurisdictions resulting from the development of the project.

3.6.2 Educational Facilities

The impact of any development project, which has a significant residential component, will be dependent upon the number of school age children that will be generated, coupled with the ability of the school district to provide educational services for these children. In addition, the school tax generated by the project must be considered as a means of providing some of the funds for necessary improvements and expansion of the educational system. The ability of a school district to handle increase demand for educational services depends primarily upon the adequacy of long-term planning within the district, in combination with revenue received for education from the State of New York and tax revenue generated from real property



development. Commercial development incorporated into a development plan generally provides a direct subsidy to education services, since it generates tax revenue, without increasing school enrollments and related costs.

The following analysis projects the costs associated for educating the school children that will result from the development of the residential housing provided for in the proposed plan. The estimated education costs are then compared to the revenues that may be anticipated from both the commercial and residential components of the proposed plan, along with New York State funds for education.

The number of school children attending public schools was estimated using data provided by the New Practitioner's Guide to Fiscal Impact Analysis – 1985. According to this data, single-family homes in the Middle Atlantic region of the United States generate 0.847 school age children (Blended Bedroom Factor) per household. Further, 85.82 percent, or 0.73 children per single-family residence will attend public schools according to the New Practitioner's Guide. As a result, it is estimated that the proposed plan will generate the following number of children to the public school system:

9 Single-family homes: 9 times 0.73 equals 6.57 or 7 children.

For comparison, the most recent values for school-age child generation, based upon Rutgers University, Center for Urban Policy Research and Western Suffolk BOCES computations, was calculated. In this way, the most conservative estimate for school-age children generated by the project could be determined. The BOCES rates indicate that for a detached, single-family residence having 4 bedrooms, 1.12 school-age children will be generated, of which 87% attend public schools:

9 Single-family, detached homes (4-bedrooms): 9 times 1.12 times 0.87 equals 8.77 or 9 children

Therefore, the BOCES-derived estimate of 9 school-age children will be assumed for the proposed project. As presented in **Section 2.6**, the South Huntington Union Free School District currently spends approximately \$11,711 per capita to provide educational services to the district. Based on recent trends, it may be expected that the State of New York will provide funding for approximately twenty (20) percent of the costs per pupil for education services in the South Huntington District. **Table 3-4** compares the costs and revenues associated with the proposed development utilizing the preceding data.

Based on the information provided in **Table 3-4**, it may be concluded that proposed commercial and residential project will provide a net benefit in terms of tax revenues to the affected school district, relative to the associated costs for education. The proposal will provide a surplus of \$151,414 to the South Huntington Union Free School District, this represents a 297 percent increase relative to the tax revenues currently being generated to the affected school district.



TABLE 3-4

**COST/REVENUE ANALYSIS FOR DEVELOPMENT
 PROPOSED DEVELOPMENT**

DEVELOPMENT STATUS	COSTS FOR EDUCATION (1)	REVENUES (2)	NET BENEFIT
Current (Undeveloped)	---	\$ 38,078	\$ 38,078
Proposed Project	\$84,319	\$2345,733	\$151,414

Notes:

- (1) Assumes State of NY provides 20% of the cost of education per pupil.
- (2) Based on 1998/99 School Tax Rate – 108.795

3.6.3 Police Protection

As indicated in **Section 2.6**, the project site is located within the Suffolk County Fourth Police Precinct. The property is currently vacant, and therefore there is the potential for unauthorized use of the site, which may be detrimental and require police response. The proposed project will result in a permanent use of the site that will include business and residential activities and improved site security. It is not anticipated that the proposed development will require additional staffing or patrols in the Fourth Precinct, or necessitate the purchase of new police equipment. However, it is projected that the new development will provide \$59,205 in tax revenues to Suffolk County, an increase of \$49,642 relative to the revenues currently being generated by the property. A portion of this increase will be earmarked to support the operations of the Police Department.

3.6.4 Fire Protection

The Huntington Manor Fire District was contacted and it was confirmed that the proposed project would receive fire protection from this district. The subject fire district has three (3) station locations, its Headquarters, Fire Station #2, and Fire Station #3 that have the capacity to respond to any fire emergency occurring at the proposed project site. It is not anticipated that the proposed project will require the recruitment of additional fire district volunteers, or the purchase of new fire fighting equipment. Based on the current tax rates, it is estimated that when the proposed project is completed, it will generate an additional \$11,645 in tax revenue to the Huntington Manor Fire District. The projected revenue is expected to offset any anticipated increase in the fire district's expenditures to cover additional service needs associated with the project.



3.6.5 Utilities and Services

3.6.5.1 Water Supply

The proposed project is located within the service area of the Greenlawn Water District for the supply of drinking water. Water service is available via a connection to an existing 12-inch water main along the south side of Jericho Turnpike, as well as an 8-inch water main along Dix Hills Road. Further information will be provided to the Greenlawn Water District when fire and water supply demand is known.

3.6.5.2 Wastewater Treatment

As shown on the **Conceptual Plot Plan** (in folder at rear), the proposed project will generate a total of 6,150 gpd of sanitary wastewater (as: 2,700 gpd from the residences and 3,450 gpd from the retail/commercial facility). As the allowable wastewater generation for this site is 18,660 gpd, no community sewer system or public sewer connection is required; individual on-site septic tank/leaching pool systems (for each residence and one for the retail/commercial facility) will be provided.

3.6.5.3 Solid Waste Disposal

The Town of Huntington has an effective solid waste management program, which includes a Resource Recovery Plant that it operates in cooperation with the Town of Smithtown. Presently, the plant does not have any problems accommodating additional waste capacity. It is anticipated that the proposal will increase the population of the Town of Huntington by twenty-seven (27) residents, or less than .15 percent of the Town's total population. In terms of waste generation, it is estimated that seven (7) pounds of solid waste per person per day will be generated by the proposed project. Based on these factors, it is estimated that the project will generate a total of 396,390 pounds of solid waste annually. This increase should not have an appreciable impact on the solid waste services provided by the Town of Huntington.

Commercial solid waste collected from the retail portion of the proposed project will be handled privately.

3.6.5.4 Energy

Electric and gas services will be provided to the project site by KeySpan Energy. Long Island Power Authority operates a power generating station at Northport that services the area. Gas service will be provided via a four-(4) inch steel gas main with 60 PSIG located on the south side of Jericho Turnpike.

Correspondence received from KeySpan representatives did not indicate that there would be any problem in providing utility services to the subject development site.

3.7 Community Character

3.7.1 Visual Resources

The project area is currently comprised of several undeveloped parcels fronting along Jericho Turnpike and Dix Hills Road, two major roadways within a suburban setting. The view of the site from all observation points in the project vicinity is one of a large, overgrown vacant property. In addition, illegal dumping on the site detracts from the general attractiveness of the project vicinity. The visual appearance of the project site will be changed by the proposed retail development, and residential subdivision, along with related site improvements. However, the potential impact on the visual character of the site as a result of the proposed development will be reduced due to the design and layout of the project, and the limited view of the site from most points surrounding the site.

The majority of individuals viewing the site observe it from the north, either as motorists traveling along Jericho Turnpike, or from the commercial businesses on the north side of Jericho Turnpike. The proposed project will provide a modern retail establishment that harmonizes with the existing visual nature of the Jericho Turnpike commercial corridor. In addition, the project will eliminate illegal dumping, and include landscaping amenities and attractive lighting that will heighten the attractiveness of the site to individuals viewing it from the north. As a result, it may be concluded that the proposal will have a positive visual impact on individuals observing the site from the north.

The view from the west is limited to motorists traveling along Dix Hills Road, a roadway that carries considerably less traffic than Jericho Turnpike, and patrons using the commercial facilities that are west of the site. In addition, a limited number of residential homes that front on the west side of Dix Hills Road are able to view the property boundary from the west. The impacted commercial facilities include the Cablevision Center and Fernandez Plaza, which are directly adjacent to the subject site, and the Town House Diner III, situated on the southwest corner of the Jericho Turnpike/Dix Hills Road intersection. Since the retail component of the project and the impacted businesses to the west all lie within the established Jericho Turnpike commercial corridor, it may be concluded that the planned development will have a positive visual impact on these neighboring uses. The proposal will provide a new commercial development with various site improvements that will visually complement the existing commercial uses.

The project will also have a minimal visual impact with respect to the existing residences extending along the west side of Dix Hills Road. The residential portion of the project generally corresponds to the impacted residents. The site design for the project includes a landscaped buffer area with a depth of at least one hundred (100) feet along the entire western perimeter of the subject site, adjacent to Dix Hills Road. Further, the planned 79.51 acre open space area located between the retail and residential components of the project, provides an open space view along the corresponding frontage of Dix Hills Road for two-hundred and fifty (250) feet.



Therefore, residents and motorists viewing the project site from the west will not be adversely impacted by the site's ultimate development.

The views of the site from the south and east are limited due to the existing pattern of development and open space. For the most part, residences along the southern and eastern perimeters of the development site have the rear portions of their properties adjacent to the project site. Therefore, existing setbacks and the site orientation of the impacted residences minimize the potential visual impact of the proposal. Further, the proposed residential homes will complement these existing residential neighborhoods, and create a sense of visual harmony.

It must also be noted that a commercial use, Haven Pools borders the front portion of proposed project site to the east. Therefore, customers visiting this business may also view the proposed project from the east. The Haven Pools property extends approximately four-hundred and fifty (450) feet south from Jericho Turnpike, along the project site's eastern perimeter. The depth of this existing commercial establishment corresponds to the proposed business zone expansion and the retail component of the planned development. As a result, by providing a modern, attractive retail building within an established commercial corridor, the project will have a positive visual impact on this neighboring business. Immediately south of this business, on the north side of Elk Place, is the residence nearest the proposed retail/commercial facility. However, the nearest property line of this lot is 230 feet from the proposed building, of which the 100 feet nearest the residence is to be preserved natural vegetation. As a result, no visual impact is anticipated for this residence.

In summary, the visual character of the site will be changed as a result of the proposed project; however, this change will be in keeping with the existing visual character of the impacted commercial and residential areas. In addition, the planned open space area, will provide an extensive visual barrier between the existing and proposed commercial development along Jericho Turnpike, and the existing and new homes planned to the south.

3.7.2 Archaeological Resources

As indicated in the Phase I CRA, (see **Appendix E**):

There are no known prehistoric sites in the area. There are no known historic houses or historic sites near-by. There are no standing structures on site. No further study is recommended.



SECTION 4.0
MITIGATION MEASURES



4.0 MITIGATION MEASURES

4.1 Geology

- Erosion preventive measures to be taken during the construction period may include: groundcovers (vegetative or artificial), drainage diversions, soil traps, minimizing the area of soil exposed to erosive elements at one time, and minimizing the time span that soil is exposed to erosive elements. During project site activities soil removed to provide proper grading and slopes for roadway construction and from the excavation for the recharge basin will be used for backfill to produce acceptable slopes for construction on lots scheduled for residential development. Applicable Town of Huntington standards and construction practices specified by the appropriate Town agencies will be followed.
- Dust raised during grading operations may be minimized and controlled by the use of water sprays, truck cleaning stations at the construction exit, and implementation of any dust suppression systems specified by the appropriate Town agencies.
- Excess excavated soil not used for grading or other appropriate purpose on-site will be removed, and sold as fill, or if of unacceptable quality for such use, will be taken to an appropriate landfill.
- Truck movements and construction activities will be undertaken on the site during the hours of approximately 8 AM-5 PM or as specified by the Town Code. Truck routes to and from the site will be limited to Jericho Turnpike and Dix Hills Road, thereby minimizing noise, dust and potential safety impacts to residential communities adjacent to the site.



4.2 Water Resources

- The proposed project will consist of a retail/commercial area and nine single-family residences; therefore no toxic or hazardous chemicals are anticipated to be present or utilized on the site. Consequently, no impact to groundwater quality is anticipated from this source.
- The retail/commercial facility and each residence will utilize an individual sewerage system for disposal of sanitary wastes. Nitrogen concentrations of 3.75 mg/l will result from sanitary discharges and stormwater runoff. The anticipated concentration is less than the NYSDEC drinking water standard of 10 mg/l and therefore, the proposed project is not expected to result in significant adverse effects to groundwater quality with regard to nitrogen loading.
- The expected wastewater flow from individual sewerage systems for the entire project will be approximately 6,150 gpd resulting in 197.7 gpd per acre. This conforms to Article 6 of the Suffolk County Sanitary Code which allows 600 gpd per acre or a project site specific total of 18,660 gpd.
- SONIR computer model results for the proposed project indicate that a total of 23.19 MG/yr of water will be recharged on the site. Of this anticipated recharge volume, stormwater will account for 89% of the total recharge with wastewater contributing 10% and irrigation contributing 1%. In conformance with the Town of Huntington Engineering and Subdivision requirements, all stormwater runoff generated on developed surfaces will be retained on-site, to be recharged to groundwater in proposed stormwater catchbasins and overflow leaching pools.
- The project site will utilize public water, to be supplied by the GWD via an existing main beneath Jericho Turnpike and Dix Hills Road. The potable water requirement of the project, 6,150 gpd, is not anticipated to impact the ability of the GWD to serve the public in the vicinity.



4.3 Ecology

- Minimize disturbance to the maximum extent practicable, including delineating clearing limits at the site prior to construction in order to avoid inadvertent clearing.
- Trees and large shrubs with a caliper of over 6 inches should be flagged and retained during clearing where possible within the proposed residential lots.
- Native and near native plant species which provide food and shelter to wildlife will be utilized in the landscaped areas where possible. This may encourage ongoing use of the site by avian species which would otherwise abandon the site. Species which will be utilized include the following: serviceberry, hackberry, dogwood, persimmon, American holly, red cedar, crabapple, mulberry, pin cherry, chokecherry, sassafras, mountain ash, devil's walkingstick, Russian olive, autumn olive, huckleberry, inkberry, juniper, honeysuckle, rye grass, redbud, and fescue. This will also improve the hardiness and reduce the fertilizer/irrigation dependency of the vegetation.
- Nesting boxes should be installed along the edge of existing vegetation to encourage use of the site by avian species and help mitigate loss of natural nest sites through clearing. Some of the native species which commonly utilize nest boxes include the eastern bluebird, house wren, tree swallow, and purple martin. The non-native starling and house sparrow also utilize nest boxes, sometimes displacing native birds. The boxes should be monitored to discourage use by these two species. The New York Audubon Society's Nest Box Network provides specifications for constructing and locating boxes, as well as information on follow-up monitoring.

4.4 Transportation

- A new road on the east side of Dix Hills Road will be constructed for the single family dwellings. The new intersection will operated at good to excellent levels of service.
- The New York State Department of Transportation (NYSDOT) currently has plans to change the alignment of the five-way intersection at Jericho Turnpike and Dix Hills Road/Greenlawn Road. Two alternatives are under review, both align Jericho Turnpike and Dix Hills Road to a four way intersection. However this project is not scheduled until 2006, after the proposed project will be completed. Therefore it was not included in the “No Build” or “Build” analysis. This project, when completed will improve the level of service at Jericho Turnpike and Dix Hills.
- The traffic generated by the proposed development will have no impact to the overall level of service at any of the study intersections with the new lane configuration and the recommended signalization of the site driveway.

4.5 Land Use, Zoning and Plans

- The proposed commercial portion of the project lies within the established Jericho Turnpike commercial corridor, with a lot depth that corresponds to neighboring business uses to the east. The project will result in a long-term use that will complement adjacent properties and strengthen the commercial land use pattern designated in the Town of Huntington Comprehensive Plan for Jericho Turnpike.
- The proposed residential land use will complement the existing neighborhood housing that surrounds the southern portion of the project site. Further, a naturally vegetated buffer area will extend along Dix Hills Road, screening the proposed homes from the roadway and the residences to the west.
- The project includes a 9.51-acre open space buffer between the commercial development fronting on Jericho Turnpike, and the residential subdivision to be developed on the southern portion of the property. This buffer area has a minimum width of 210 feet, and extends from the subject parcel's western border along Dix Hills Road to its eastern perimeter. The proposed development will maintain the subject buffer area in its current natural state, thereby providing a transitional area between the Jericho Turnpike commercial corridor and the proposed and existing residential developments to the south, east and west.
- The separate accesses to the commercial development and the residential subdivision will be controlled and limited. Commercial traffic entering the commercial portion will be limited to access points along Jericho Turnpike, thereby eliminating potential traffic impacts on the surrounding neighborhoods. With respect to the residential subdivision, access will be via a cul-de-sac roadway off Dix Hills Road. This street design extends access to residents, and prevents related traffic impacts on surrounding land uses.
- The proposed zone boundary shift will complement the existing land uses to the east and west; further, the proposed extension of the commercial zone will provide adequate land area for a well-designed, modern, single-user retail center.
- The residential zoning areas, to the west, east and south of the retail component of the project, will be protected from commercial encroachment in the future. The proposed site design incorporates a significant open space area between the retail and residential components of the project that will serve as a permanent buffer between the Jericho Turnpike commercial zoning and the subject residential zones. Further, the extensive open space buffer will eliminate the inevitable zoning conflicts that generally occur between strip commercial developments and the adjacent residential neighborhoods.
- The proposed residential subdivision, included within the development plan, contains only nine (9) homes on 11.52 acres. This low-density residential development will provide a permanent use that will blend with the surrounding residential zoning. The potential infringement of commercial or multi-family zoning onto this site in the future will be eliminated.
- The proposed project will be in conformance with the Town Comprehensive Plan Update in regard to land use type. In addition, the recommendations of the Update will be followed by the project, in regard to transportation, environmental conditions, housing, retail development and open space.
- Though the proposed project will reduce the acreage of Town Open Space Index parcel SE-1 by approximately 47%, the site does not contain any significant environmental features (such as steep

slopes, wetlands, or significant vegetation or habitats). The project will retain 16.95 acres (55%) as naturally-vegetated open space.



4.6 Community Services

- The significant increase in property taxes paid by the project (as well as the increase in sales taxes provided by the supermarket) will partially offset the increased costs to police and fire/ambulance services caused by the project.
- The proposed commercial and residential project will provide a net benefit in terms of tax revenues to the South Huntington Union Free School District, relative to the associated costs for education. The proposal will provide a surplus of \$151,414, which represents a 297 percent increase relative to the tax revenues currently being generated to the affected school district.
- Provision of security alarms for the residences and supermarket (possibly supplemented by patrols/surveillance systems for the supermarket) will increase the level of security on the entire property.
- Use of fire resistant building materials, as well as adherence to the NYS Fire Code will increase the level of safety from fires and minimize the potential for use of ambulance services.
- Use of water-saving plumbing fixtures and equipment will minimize the increase in water use on the property.
- As the volume of wastewater generated by the project (6,150 gpd) is anticipated to be well below the volume at which a community system or public sewer connection would be required (18,660 gpd), the individual on-site septic tank/leaching pool systems will treat and recharge all sanitary wastewater generated. Design and installation of such systems will be subject to the review and approval of the SCDHS.
- The solid waste generated on the site is not anticipated to contain any toxic or hazardous substances, as such materials are not expected to be used, stored or sold in either the residential or commercial portions of the project. The residential portion will participate in the town recycling program, and the commercial portion will recycle corrugated paper as well.
- Use of energy-conserving equipment and building materials will minimize the increase in the use of electrical and natural gas resources.

4.7 Community Character

- The potential visual impact of the proposed development will be mitigated due to the design and layout of the project, and by the limited view of the site from most points surrounding the site. In addition, the project will eliminate illegal dumping, and include landscaping amenities and attractive lighting that will heighten the attractiveness of the site to individuals viewing it from the north (anticipated to be the largest group of viewers).
- The visual character of the site will be changed as a result of the proposed project; however, this change will be in keeping with the existing visual character of the adjacent and nearby commercial and residential areas. In addition, the planned central open space area will provide an extensive visual buffer between the existing and proposed commercial development along Jericho Turnpike, and the existing and new homes planned to the south.

SECTION 5.0

ADVERSE IMPACTS THAT CANNOT BE AVOIDED



5.0 ADVERSE IMPACTS THAT CANNOT BE AVOIDED

The site has been characterized, and the potential impacts to the existing site have been assessed. Some impacts may still exist for which no mitigation is available. The impacts themselves have been quantitatively and qualitatively discussed in previous sections of this document. The impacts of the proposed project will be minimized where possible, but this section acknowledges those impacts which may still occur:

- Temporary increases in the potential for fugitive dust and construction traffic and noise during the construction period.
- Increase in the concentration of nitrogen in recharge as compared to the current site nitrogen load, from 0.02 mg/l to 3.75 mg/l.
- Removal of vegetation on the interior of the commercial and residential areas, although the existing vegetation will remain around the periphery, between the two portions and as buffers between residential lots.
- Displacement and/or loss of forest interior species and those species unable to adapt to human influences.
- Increase in vehicle trips generated on the site and on area roadways.



SECTION 6.0
ALTERNATIVES



6.0 ALTERNATIVES

The State Environmental Quality Review Act requires the investigation of alternatives to a proposed project in order to determine the merits of the project as compared to other possible uses, site locations and technologies. The discussion and analysis of each alternative should be conducted at a level of detail sufficient to allow for the comparison of various impact categories by the decision-making agencies. For this document, the alternatives include the following:

- **Alternative 1: No Action**-the site remains in its present use and condition
- **Alternative 2: Existing Zoning (with Depth Extension)**-development similar to that of the proposed project, but with a commercial portion limited to the existing C-6 area (though the prior depth extension is assumed to be renewed)
- **Alternative 3: Mini-Storage Warehouse**-development similar to that of the proposed project, but with the commercial portion (and prior depth extension) utilized for a mini-storage warehouse.
- **Alternative 4: Existing Zoning (without Depth Extension)**-development similar to that of the proposed project, but with a commercial portion limited to the existing C-6 area (assuming the prior depth extension is not renewed)

Table 6-1 presents a point-by-point comparison of each alternative against those of the proposed project.

6.1 Alternative 1: No Action

This alternative is intended to provide a baseline of existing conditions on the site, in order to have a basis for comparison with impacts from the other alternatives and the proposed project.

If the site is not developed and remains in its existing condition and use, neither the retail/commercial area nor the 9 residences would be built; the site would remain vacant and developable. The existing 3.27 acres of C-6 zoned land, (as well as the abutting 3.08 acres of R-40 land on which a commercial depth extension had once been granted) would remain undeveloped. The remaining 24.75 acres of R-40 zoned land would not be developed.

If left undisturbed, the site will generate no traffic, solid wastes or wastewater; it would not use potable water; and would not generate employees or residents. There would continue to be no enrollment impacts to the South Huntington School District, as no schoolchildren would be generated.

Until the site is redeveloped, the owner would not be able to realize an economic return on his property, but would continue to pay taxes on it. The two proposed roadway dedications (on Dix Hills Road and Jericho Turnpike) will not be made.

This alternative does not allow the project sponsor the opportunity to gain economic return on his land. This alternative would not provide residential housing opportunities or a new retail facility for residents in the area.

TABLE 6-1
COMPARISON OF ALTERNATIVES

PARAMETER	ALTERNATIVE 1		ALTERNATIVE 2		ALTERNATIVE 3		ALTERNATIVE 4		PROPOSED PROJECT	
	C-6*	R-40	C-6*	R-40	C-6*	R-40	C-6**	R-40	C-6***	R-40
Acres	6.35	24.75	6.35	24.75	6.35	24.75	3.27	27.83	10.07	21.03
Use/Yield	N/A	N/A	23,900 SF	9 resid	23,900 SF	9 resid	12,100 SF	9 resid	69,000 SF	9 resid
Open Space (ac)	N/A	N/A	N/A	9.51	N/A	9.51	N/A	20.92	N/A	9.51
Dedications (ac)	N/A	N/A	5,725	4,550	5,725	4,550	5,725	4,550	5,725	4,550
Coverages:	---	---	---	---	---	---	---	---	---	---
Building (ac)	0	0	0.55	0.72	0.55	0.72	0.28	0.72	1.58	0.72
Impervious/Paved (ac)	0	0	1.66	1.30	0.40	1.30	0.76	1.30	4.78	1.30
Landscaped (ac)	0	0	0.44	4.13	0.44	4.13	0.94	4.13	1.64	4.13
Natural (ac)	6.35	24.75	3.70	18.60	4.96	18.60	1.29	21.68	2.07	14.88
Water Resources:	---	---	---	---	---	---	---	---	---	---
Recharge (MGY)	15.68		19.64		19.00		18.91		23.19	
Nitrogen Conc. (mg/l)	0.02		2.10		2.38		1.87		3.75	
Trip Generation:	---	---	---	---	---	---	---	---	---	---
PM Peak Hour (vph)	0	0	236	12	7	12	120	12	628	12
Saturday Peak Hour (vph)	0	0	331	19	10	19	168	19	716	19
Miscellaneous:	---	---	---	---	---	---	---	---	---	---
Parking Required (spaces)	N/A	N/A	120	9	48	9	61	9	345	9
Parking provided (spaces)	0	0	223	18	54	18	102	18	386	18
Solid Waste (lbs/day)	0	0	364	189	0	189	160	189	897	189
Water/Wastewater (gpd)	0	0	717	2,700	956	2,700	363	2,700	3,450	2,700
Demography:	---	---	---	---	---	---	---	---	---	---
Employees (capita)	0	0	120	0	5	0	12	0	69	0
Residents (capita)	0	0	0	27	0	27	0	27	0	27
School-age Children (capita)	0	0	0	9	0	9	0	9	0	9

* As 3.27 acres of C-6 land and 3.08 acres in approved Depth Extension

** As 3.27 acres of C-6 land

*** As 3.27 acres of C-6 land and Change of Zone for abutting 6.80 acres of R-40 land to C-6

6.2 Alternative 2: Existing Zoning (with Depth Extension)

This alternative assumes that the site is redeveloped with 23,900 SF of retail space on the northerly 6.35 acres (3.27 acres zoned C-6 and 3.08 acres within the once-approved 100-foot depth extension), as well as 9 residential lots on the remaining 24.75 acres. The 9.51 acres of Open Space retained in the proposed project would be provided in this alternative, as well as the same two roadway dedications (on Jericho Turnpike and Dix Hills Road).

The same vehicle access points would be utilized as in the proposed project; the main commercial access would be located at the mid-point of the northerly boundary, opposite the access to the nursery across Jericho Turnpike. These two site accesses would be controlled by a new traffic signal. A second, unsignalized commercial access would be placed at the northeasterly corner of the site. This access would be configured for right turns in and out only. Finally, the separate, unsignalized residential access point would be placed onto Dix Hills Road to the west. It would be configured for all movements. The residential and commercial portions of the site would not be linked by internal roadways.

The commercial portion of the site would generate a substantial number of vehicle trips, all of which would utilize Jericho Turnpike. The site would require an estimated 3,417 gpd of potable water, all of which would exit the site as in the on-site septic systems. The calculated recharge volume of 19.64 MGY (3.54 MGY less than that of the proposed project) would have a nitrate/nitrogen concentration of 2.10 mg/l (1.65 mg/l less than that of the proposed project). A total of 120 employees are anticipated in the commercial area, with the same 27 residents and 9 school-age children in the residential portion as in the proposed project. Approximately 553 lbs/day of solid waste would be generated, which is 51% of the corresponding value of the proposed project.

It is anticipated that, as the assessed value of the site would be substantially increased in this alternative, there would be a corresponding substantial increase in the amount of property taxes paid. This would enable substantial offsetting of the cost to public agencies in providing public services to the property.

In this alternative, the property owner would realize a substantial economic return on his property, which would offset the cost of the increased taxes paid by the property owner.

6.3 Alternative 3: Mini-Storage Warehouse

This alternative assumes that the site is redeveloped with 23,900 SF of mini-storage warehouse space on the northerly 6.35 acres (3.27 acres zoned C-6 plus 3.08 acres within the approved 100-foot depth extension), as well as 9 residential lots on the southerly 24.75 acres. The 9.51 acres of Open Space retained in the proposed project would be provided in this alternative, as well as the same two roadway dedications (on Jericho Turnpike and Dix Hills Road).

The same vehicle access points would be utilized as in the proposed project; the main commercial access would be located at the mid-point of the northerly boundary, opposite the access to the nursery across Jericho Turnpike. These two site accesses would be controlled by a new traffic signal. A second, unsignalized commercial access would be placed at the northeasterly corner of the site. This access would be configured for right turns in and out only. Finally, the separate, unsignalized residential access point would be placed onto Dix Hills Road to the west. It would be configured for all movements. The residential and commercial portions of the site would not be linked by internal roadways.

The commercial portion of the site would generate a small number of vehicle trips, all of which would utilize Jericho Turnpike. The site would require an estimated 3,656 gpd of potable water, all of which would exit the site as in the on-site septic systems. The calculated recharge volume of 19.00 MGY (4.19 MGY less than that of the proposed project) would have a nitrate/nitrogen concentration of 2.38 mg/l (1.37 mg/l less than that of the proposed project). A total of 5 employees are anticipated in the commercial area, with the same 27 residents and 9 school-age children in the residential portion as in the proposed project. Approximately 189 lbs/day of solid waste would be generated (17% of the corresponding value of the proposed project), all of which is anticipated to come from the residential area. The tenants of the mini-storage warehouse would not generate solid waste, and the small office operation in this facility would generate only minor amounts of solid waste.

It is anticipated that, as the assessed value of the site would be substantially increased in this alternative, there would be a corresponding substantial increase in the amount of property taxes paid. This would enable substantial offsetting of the cost to public agencies in providing public services to the property.

In this alternative, the property owner would realize a substantial economic return on his property, which would offset the cost of the increased taxes paid by the property owner.

6.4 Alternative 4: Existing Zoning (without Depth Extension)

This alternative assumes that the site is redeveloped with 12,100 SF of retail space on the northerly 3.27 acres and 9 residential lots on the remaining 27.83 acres. The amount of Open Space retained in this alternative would be increased to 20.92 acres. The same two roadway dedications (on Jericho Turnpike and Dix Hills Road) would be provided.

The same vehicle access points would be utilized as in the proposed project; the main commercial access would be located at the mid-point of the northerly boundary, opposite the access to the nursery across Jericho Turnpike. These two site accesses would be controlled by a new traffic signal. A second, unsignalized commercial access would be placed at the northeasterly corner of the site. This access would be configured for right turns in and out only. Finally, the separate, unsignalized residential access point would be placed onto Dix Hills Road to the west. It would be configured for all movements. The residential and commercial portions of the site would not be linked by internal roadways.

The commercial portion of the site would not generate a substantial number of vehicle trips, all of which would utilize Jericho Turnpike. The site would require an estimated 3,063 gpd of potable water, all of which would exit the site as in the on-site septic systems. The calculated recharge volume of 18.91 MGY (4.28 MGY less than that of the proposed project) would have a nitrate/nitrogen concentration of 1.87 mg/l (1.88 mg/l less than that of the proposed project). A total of 12 employees are anticipated in the commercial area, with the same 27 residents and 9 school-age children in the residential portion as in the proposed project. Approximately 349 lbs/day of solid waste would be generated, which is 32% of the corresponding value of the proposed project.

It is anticipated that, as the assessed value of the site would be substantially increased in this alternative, there would be a corresponding substantial increase in the amount of property taxes paid. This would enable substantial offsetting of the cost to public agencies in providing public services to the property.

In this alternative, the property owner would realize a substantial economic return on his property, which would offset the cost of the increased taxes paid by the property owner.

APPENDICES



APPENDIX A
CORRESPONDENCE





Subject to compliance with all of the code requirements of the Town of Huntington

TONI RETTALIATA, Supervisor

This is not a building permit, see Article 111, Rule 7 enclosed.

April 27, 1989

RECEIVED

MAY 22 1989

JEROME RUBIN ARCHITECT P.C.

ZONING BOARD OF APPEALS

ROGER H. BOHRER
Chairman

LAWRENCE J. LAMANNA
Vice Chairman

MORTON BERSON
Secretary

MEMBERS

THOMAS M. COLE

IRENE M. FEENEY

FREDERICK J. HELLMERS

MICHAEL P. SCHOENFELD

Meeting of the ZONING BOARD OF APPEALS of the Town of Huntington held at Town hall on THURSDAY, DECEMBER 12, 1985 at 7:30 p.m.

APPLICATION #11883 - BANDE DEVELOPMENT CORP., 500 Old Country Road, Garden City, N.Y. Owner: DOROTHY H. HREN, 1145 East Jericho Turnpike, Huntington, N.Y. Request extension of business depth in order to erect a commercial shopping center. Property located on s/s/o Jericho Turnpike, approx. 300' e/o Dix Hills Road, Huntington, SCTM #0400-208-01-005 & p/o 8.

DECISION: On a motion made by Mrs. Feeney, seconded by Mr. Lamanna and carried, application is

GRANTED WITH CONDITIONS

The property that is the subject of this application is zoned C-6 and R-5 and has been so zoned since 1934.

The applicant seeks permission to erect a shopping center. To do so, a 100 ft. business depth extension of the C-6 portion of the subject property into the R-40 portion of the subject property is necessary. The shopping center would consist of 3,500 square feet for restaurants and 40,000 square feet for boutique shops and paved parking for 471 cars.

After hearing all the evidence, examining the exhibits and reviewing the Final Environmental Impact Statement, the Board is of the opinion that the applicant needs the depth extension use of the property in question. As long as the conditions imposed by this Board are complied with, the proposed construction will have no adverse impact on the traffic flow, environment, property values or appearance of the areas surrounding the site of this development on the south side of Jericho Turnpike, east of Dix Hills Road.

Therefore, this application is granted, providing a 100 ft. business depth extension on condition that the following requirements are met:

April 27, 1989

1. The shopping center shall have no mode of ingress from or egress on to Dix Hills Road;
2. A minimum 50 ft. wide dense evergreen buffer, 25 ft. each on the commercial and residential sides of the proposed depth extension line, would be an essential mitigation measure to intensified use of the site;
3. The phrase "all surface waters will be contained on site" should be omitted from the FEIS;
4. Under potential environmental impacts, the entire second paragraph (re: parking, buffers) is actually part of the reason why the subject document is not complete. This paragraph should at least be omitted from the "Notice of Completion," if the FEIS is to be accepted;
5. Greater buffering is recommended and should be made a part of this proposal; and
6. The use of low maintenance vegetation in landscaping and retention of natural habitat should be included among the mitigation measures.

Accordingly, upon determination that the above conditions have been met, the Department of Engineering, Building and Housing is authorized to issue the necessary building permits to construct a shopping center as more fully described on the site plan marked Exhibit #1 at the hearing, subject, however, to whatever site plan review the Planning Department may be entitled to.

Messrs. Berson, Hellmers, Lamanna and Mrs. Feeney voted to grant this application with the above conditions. Messrs Schoenfeld and Bohrer voted to grant this application with the above conditions after review of the file and because of their familiarity with the site. Mr. Cole abstained.

This is not a building permit,
see Article 111, Rule 7
enclosed

RECEIVED

OCT 12 1990

HUNTINGTON TOWNSHIP
PLANNING DEPT

Subject to compliance with all
of the code requirements of the
Town of Huntington

FILED MAY 19 1989

617.21
Appendix I
State Environmental Quality Review
FINDINGS STATEMENT

Pursuant to Article 8 (State Environmental Quality Review Act—SEQR) of the Environmental Conservation Law and 6 NYCRR Part 617, the ZONING BOARD OF APPEALS as lead or involved agency, makes the following findings.

Name of Action: Bande Development aka Bell Tower Square

Description of Action: The applicant proposes to construct a shopping center of 3,500 square feet for restaurants and 40,000 sq. ft. for boutique shops, paved parking for 471 cars, all surface waters will be contained on site.

Location: (Include street address and the name of the municipality and county.)

s/s Jericho Turnpike, approx. 320' east of Dix Hills Road, Dix Hills, Town of Huntington, Suffolk County, N.Y.
SCTM #0400-208-1-5.

Agency Jurisdiction(s):

The Zoning Board of Appeals has jurisdiction to grant variance.

Date Final EIS Filed: January 12, 1988.

Facts and Conclusions in the EIS Relied Upon to Support the Decision:

(Attach additional sheets, as necessary)

1. A minimum 50-foot wide dense evergreen buffer, 25 feet each on the commercial and residential sides of the proposed depth extension line, would be an essential mitigation measure to intensified use of the site.
2. The phrase "all surface waters will be contained on site" should be omitted from the FEIS.
3. Under Potential environmental impacts, the entire second paragraph (re: parking, buffers) is actually part of the reason why the subject document is not complete. This paragraph should at least be omitted from the "Notice of Completion", if the FEIS is to be accepted.
4. Greater buffering is recommended and should be made a part of this proposal.
5. The use of low maintenance vegetation in landscaping and retention of natural habitat should be included among the mitigation measures.

Identification Number 11883

Name of Action Bande Development aka Bell Tower Square

CERTIFICATION OF FINDINGS TO APPROVE/FUND/UNDERTAKE

Having considered the Draft and Final EIS, and having considered the preceding written facts and conclusions relied upon to meet the requirements of 6 NYCRR 617.9, this Statement of Findings certifies that:

1. The requirements of 6 NYCRR Part 617 have been met;
2. Consistent with the social, economic and other essential considerations from among the reasonable alternatives thereto, the action approved is one which minimizes or avoids adverse environmental effects to the maximum extent practicable; including the effects disclosed in the environmental impact statement, and
3. Consistent with social, economic and other essential considerations, to the maximum extent practicable, adverse environmental effects revealed in the environmental impact statement process will be minimized or avoided by incorporating as conditions to the decision those mitigative measures which were identified as practicable.
4. (and, if applicable) Consistent with the applicable policies of Article 42 of the Executive Law, as implemented by 19 NYCRR 600.5, this action will achieve a balance between the protection of the environment and the need to accommodate social and economic considerations.

ZONING BOARD OF APPEALS

Name of Agency



Signature of Responsible Official

Morton Berson

Name of Responsible Official

Secretary

Title of Responsible Official

5/5/88

Date

Town Hall, 100 Main Street, Huntington, NY 11743

Address of Agency

OR

CERTIFICATION OF FINDINGS TO DENY

Having considered the Draft and Final EIS, and having considered the preceding written facts and conclusions relied upon to meet the requirements of 6 NYCRR 617.9, this Statement of Findings certifies that:

1. The requirements of 6 NYCRR Part 617 have not been met;
2. Consistent with the social, economic and other essential considerations from among the reasonable alternatives thereto, the action denied is one which fails to adequately minimize or avoid adverse environmental effects to the maximum extent practicable; and/or
3. Consistent with social, economic and other essential considerations, to the maximum extent practicable, adverse environmental effects revealed in the environmental impact statement process cannot be adequately minimized or avoided by the mitigation measures identified as practicable.
4. (and, if applicable) Consistent with the applicable policies of Article 42 of the Executive Law, as implemented by 19 NYCRR 600.5, this action will not adequately achieve a balance between the protection of the environment and the need to accommodate social and economic considerations.

ZONING BOARD OF APPEALS

Name of Agency

Signature of Responsible Official

Secretary

Title of Responsible Official

Morton Berson

Name of Responsible Official

Date

Town Hall, 100 Main Street, Huntington, NY 11743

5/9/88 - FINDINGS STATEMENT sent to:

Department of Environmental Control, Town of Huntington

Suffolk County Department of Health Services

Environmental Notice Bulletin
NYS Dept. of Environmental Conservation
50 Wolf Road
Albany, N.Y. 12233

NYS Dept. of Transportation
Attention: Frank Wibben, Regional Design Engineer
New York State Office Building
Veterans Memorial Highway
Hauppauge, NY 11787

Applicant's Attorney: Robert R. Caputi, 44 Elm Street, Huntington

Commissioner
Department of Environmental Conservation
50 Wolf Road
Albany, NY 12233-0001

5/24/88 - sent to:

William Bonesso, Assistant Town Attorney

617.21

Appendix H

State Environmental Quality Review

Notice of Completion of Draft/Final EIS

Project Number 11883Date 5/5/88

This notice is issued pursuant to Part 617 of the implementing regulations pertaining to Article 8 (State Environmental Quality Review Act) of the Environmental Conservation Law.

A Draft or Final (check one) Environmental Impact Statement has been completed and accepted by the ZONING BOARD OF APPEALS, as lead agency, for the proposed action described below. Comments on the Draft EIS are requested and will be accepted by the contact person until June 5, 1988.

Name of Action: Bande Development aka Bell Tower Square

Description of Action: The applicant proposes to construct a shopping center of 3,500 square feet for restaurants and 40,000 sq. ft. for boutique shops, paved parking for 471 cars, all surface waters will be contained on site.

Location: (Include street address and the name of the municipality/county. A location map of appropriate scale is also recommended.)

s/s Jericho Turnpike, approx. 320' east of Dix Hills Road,
Dix Hills, Town of Huntington, Suffolk County, N.Y.
SCTM #0400-208-1-5.

Potential Environmental Impacts:

1. A minimum 50-foot wide dense evergreen buffer, 25 feet each on the commercial and residential sides of the proposed depth extension line, would be an essential mitigation measure to intensified use of the site.
2. The phrase "all surface waters will be contained on site" should be omitted from the FEIS.
3. Under Potential environmental impacts, the entire second paragraph (re: parking, buffers) is actually part of the reason why the subject document is not complete. This paragraph should at least be omitted from the "Notice of Completion," if the FEIS is to be accepted.
4. Greater buffering is recommended and should be made a part of this proposal.
5. The use of low maintenance vegetation in landscaping and retention of natural habitat should be included among the mitigation measures.

A Copy of the Draft/Final EIS may be obtained from:

Contact Person: Morton Berson, Zoning Board of Appeals
 Town Hall - 100 Main Street
 Address: Huntington, NY 11743
 Telephone Number: (516) 351-3123

A Copy of this Notice and Draft/Final EIS Sent to:

- * Commissioner, Department of Environmental Conservation, 50 Wolf Road, Albany, New York 12233-0001
- * Appropriate Regional Office of the Department of Environmental Conservation
- * Office of the Chief Executive Officer of the political subdivision in which the action will be principally located.

Persons Requesting Draft EIS

- * Other involved agencies (if any)
- * Suffolk County Department of Health Services
- * NYS Dept. of Transportation
- * Department of Environmental Control, Town of Huntington
- * Applicant
- * Environmental Notice Bulletin

7/1/88 - Notice of Completion of Draft/Final EIS sent to:

Department of Environmental Control, Town of Huntington

Suffolk County Department of Health Services

Environmental Notice Bulletin
NYS Dept. of Environmental Conservation
50 Wolf Road
Albany, NY 12233

NYS Dept. of Transportation
Attention: Frank Wibben, Regional Design Engineer
NYS Office Building
Veterans Memorial Highway
Hauppauge, NY 11787

Commissioner
Department of Environmental Conservation
50 Wolf Road
Albany, NY 12233-0001

Applicant's Attorney: Robert R. Caputi, 44 Elm Street, Huntington

William Bonesso, Assistant Town Attorney

Identification Number _____

Name of Action Hren Shopping Center (A.K.A., Bande Development)

CERTIFICATION OF FINDINGS TO APPROVE/FUND/UNDERTAKE

Having considered the Draft and Final EIS, and having considered the preceding written facts and conclusions relied upon to meet the requirements of 6 NYCRR 617.9, this Statement of Findings certifies that:

1. The requirements of 6 NYCRR Part 617 have been met;
2. Consistent with the social, economic and other essential considerations from among the reasonable alternatives thereto, the action approved is one which minimizes or avoids adverse environmental effects to the maximum extent practicable; including the effects disclosed in the environmental impact statement, and
3. Consistent with social, economic and other essential considerations, to the maximum extent practicable, adverse environmental effects revealed in the environmental impact statement process will be minimized or avoided by incorporating as conditions to the decision those mitigative measures which were identified as practicable.
4. (and, if applicable) Consistent with the applicable policies of Article 42 of the Executive Law, as implemented by 19 NYCRR 600.5, this action will achieve a balance between the protection of the environment and the need to accommodate social and economic considerations.

Huntington Town Planning Board



 Name of Agency

Richard Machtay

 Name of Responsible Official

Director of Planning

 Title of Responsible Official

4-17-91

 Date

100 Main Street, Huntington, New York 11743

 Address of Agency

OR

CERTIFICATION OF FINDINGS TO DENY

Having considered the Draft and Final EIS, and having considered the preceding written facts and conclusions relied upon to meet the requirements of 6 NYCRR 617.9, this Statement of Findings certifies that:

1. The requirements of 6 NYCRR Part 617 have not been met;
2. Consistent with the social, economic and other essential considerations from among the reasonable alternatives thereto, the action denied is one which fails to adequately minimize or avoid adverse environmental effects to the maximum extent practicable; and/or
3. Consistent with social, economic and other essential considerations, to the maximum extent practicable, adverse environmental effects revealed in the environmental impact statement process cannot be adequately minimized or avoided by the mitigation measures identified as practicable.
4. (and, if applicable) Consistent with the applicable policies of Article 42 of the Executive Law, as implemented by 19 NYCRR 600.5, this action will not adequately achieve a balance between the protection of the environment and the need to accommodate social and economic considerations.

Name of Agency

Signature of Responsible Official

Name of Responsible Official

Title of Responsible Official

Date

Address of Agency

cc: Other Involved Agencies and the Applicant

HUNTINGTON TOWN PLANNING BOARD

MEETING OF APRIL 17, 1991

The following resolution was offered by **V. Earing**

and seconded by **S. Klein**

WHEREAS, Bande Development Corporation, 500 Old Country Road, Garden City, New York 11530, has submitted a site plan application for the Hren Shopping Center (A.K.A. Bande Development) property located on the south side of Jericho Tpk (NYS Rte. 25), 300 feet east of Dix Hills Road, in Huntington, indicated as parcel 0400-208-01-005 & 008 on the Suffolk County Tax Map, and

WHEREAS, the proposed action was the subject of a "coordinated" SEQR review, with the ZBA established as lead agency, for which an FEIS and findings statement were prepared culminating with the granting of a business depth extension, and

WHEREAS, the Planning Board having taken part in the coordinated review as an "involved agency" for the purpose of site plan approval has pursuant to section 617.9 (c) of the SEQR regulations, considered the FEIS, now therefore be it

RESOLVED, that the Huntington Town Planning Board hereby adopts the Findings Statement annexed to this resolution and hereby authorizes the Director of the Planning Department to file said statement in accordance with section 617.10 (i) of the SEQR regulations, and be it further

RESOLVED, that consistent with 617.3(b) in the SEQR regulations, the mitigating measures described in the appended Findings Statement as well as those in the findings statement of the ZBA, must be incorporated into the proposed project and that upon the applicants submission of such a plan the requirements of 6 NYCRR Part 617 (SEQR) will be met.

VOTE: 5 AYES: 5 NOES: 0
ABSENT: A. Cisternino

The resolution was thereupon declared to be duly adopted.

617.21
Appendix I
State Environmental Quality Review
FINDINGS STATEMENT

Pursuant to Article 8 (State Environmental Quality Review Act - SEQR) of the Environmental Conservation Law and 6 NYCRR Part 617, the Huntington Town Planning Board as an involved agency, makes the following findings.

Name of Action: Hren Shopping Center (A.K.A. Bande Development)

Description of Action:

The applicant proposes to construct a 43,500 square foot shopping center with 3,500 square feet of restaurant use and 40,000 square feet of boutique shop use and paved parking for 305 cars.

Location: (Include street address and the name of the municipality and county.)

South side of Jericho Turnpike (NYS Rte. 25), 300 feet east of Dix Hills Road, Huntington, Suffolk County, New York
Suffolk County Tax Map: District 0400, Section 208, Block 1, Lots 005 and 008.

Agency Jurisdiction(s): The Huntington Town Planning Board has site plan review within the C-6 General Business zone district.

Date Final EIS Filed: January 12, 1988

Facts and Conclusions in the EIS Relied Upon to Support the Decision: (Attach additional sheets, as necessary)

Please refer to the attachment.

**Hren Shopping Center
Site Plan**

SEORA FINDINGS:

The Zoning Board of Appeals (ZBA) of the Town of Huntington conducted a "coordinated" SEQR review on the application for business depth extension (#11883 - Bande Development A.K.A. Hren Shopping Center) for property designated on the Suffolk County Tax Map as 0400-208-01-005 & 008, and located on the south side of Jericho Turnpike and 300 feet east of Dix Hills Road. The ZBA prepared an FEIS for the coordinated review and a Findings Statement that addressed those issues within their jurisdiction. As a result of coordination the FEIS addressed issues that were within the jurisdiction of all of the "involved agencies" including the Planning Board of the Town of Huntington.

In order for the Planning Board to conclude its "reasoned elaboration" of the project pursuant to SEQR it must consider those issues in the FEIS that are within their jurisdiction and prepare a findings statement based on the information provided therein. Those issues that were addressed by the ZBA in its portion of the coordinated review will not be further considered in the Planning Board's Findings Statement.

The Planning Board finds the following:

- 1) The FEIS did not address the future development of the residentially zoned portion of the subject site that is not a part of the depth extension. Therefore, this action is defined as a segmented review pursuant to section 617.2 (gg). Any future application to the Planning Board for the residential portion of the property or to further intensify the commercially used portion of the property will require additional review pursuant to the SEQR regulations.
- 2) The ZBA granted the applicant's request for a business depth extension for a 43,500 square foot shopping center with 3,500 square feet of restaurant use and 40,000 square feet of boutique shop use and paved parking for 471 cars. The Town Code requires a minimum of 247 parking stalls based on the proposed development's square foot usage (40,000 square feet of general retail use at 1 parking stall per 200 square feet; and 3,500 square feet of restaurant use at 1 parking stall per 75 square feet). The applicant's site design yields an overage of 224 stalls; roughly 90% greater than that required per Town Code. As the above plan depicted an inordinate number of parking stalls for the size retail/restaurant center proposed, the Planning Department requested justification of the additional stalls or reduction in the number of stalls which would, in turn, provide greater area to be left in its present vegetative state.

Not discussed in the FEIS, but nevertheless pertinent, is the latest site plan submitted to the Planning Department (revision dated 1-23-91) which shows the same building square footage with the same ratio of site uses, however, the number of parking stalls have been reduced to 305, in turn, yielding an overage of 58 stalls; roughly 23% greater than that required per Town Code. The applicant has indicated to the Planning Board that the parking lot overage is planned for use in connection with the adjacent off-site Cablevision building (located contiguously to the west) via lease agreement between the applicant and Cablevision. The Cablevision building presently has substandard parking since it predates the Town's relevant parking codes (constructed in 1964; building permit # 12712).

Town parking regulations would normally require 45 parking stalls for the 9,000 square foot Cablevision building at 1 stall per 200 square feet of general retail use. If parking for both on and off-site uses are considered in the design of the proposed new parking field, there would be a negligible overage of 13 stalls; roughly 4.5% greater than required per code.

- 3) It is understood that sewage disposal facilities for the new commercial development will be in compliance with the requirements of the Suffolk County Department of Health Services before final site plan approval by the Planning Board.
- 4) The subject property's former use was a nursery. Many of the earlier native and near-native nursery stock remain and have subsequently flourished and propagated, in turn, naturalizing the site. The site now contains many large well-established 50 foot tall evergreens with an associated understory of vines and large shrubs. This naturalized woodland yields suitable habitat for suburban-adapted wildlife. The subject property is currently haven for numerous wildlife species (to include reptiles, small mammals, perching and migratory birds) located in a part of town encircled by commercial and residential uses. Significant loss of on-site vegetation, though naturalized, could pose substantial adverse impacts to the site's existing wildlife population.

To better retain existing vegetation and to better comply with the conditions of the ZBA grant and Findings Statement, the applicant shall appropriately revise the site and landscape plans to depict the following:

- A) Specifically note on the site and/or landscape plan that there will be no disturbance to portions of the subject property not presently slated for development (the larger southern residentially zoned portion of the property).

- B) Depict specific limits of clearing and grading on both the site and landscape plans. The plans shall also include a note stating that "existing vegetation not situated within the clearing limits will be retained". This will therefore include retaining the existing vegetation found within the proposed 50 foot wide buffer (located between the proposed commercially used and remaining residentially zoned portions of the property).
- C) Because areas of the aforementioned buffer may currently be deficient of existing vegetation, the landscape plan shall depict supplemental low maintenance plantings to form a dense evergreen screen for the full fifty (50) foot buffer width (25 feet each on the commercial and residential sides of the depth extension; as noted in #1 of the ZBA Findings Statement Facts and Conclusions).
- D) To better mitigate loss of existing vegetation, to provide additional local habitat for on-site wildlife from that presently proposed (via recent site and landscape plans submitted) and to lessen adverse visual and noise impacts from adjacent commercial and future residential parcels consequential to the development proposed, it is suggested that the parking lot be strategically fashioned to preserve the larger naturalized trees and tree stands. This would require revising the site and landscape plans to include the mapping of all the site's large trees (eight (8) inch caliper and greater) within proposed commercially used areas for determination as to where trees will be saved and how the parking field can be re-oriented to accommodate such. Any parking lot islands formed as a consequence of retaining the trees (and/or tree stands) could than be supplemented with compatible low maintenance plantings for increased wildlife enhancement and better visual aesthetics.

Having considered the Draft and Final EIS, and having considered the preceding written facts and conclusions relied upon to meet the requirements of 6 NYCRR 617.9, to include the additional mitigation measures noted above, it is the conclusion of the Planning Board that impacts will be satisfactorily mitigated.

Send a copy of this notice with the attached Town Planning Board resolution and findings statement to:

- * Commissioner, Department of Environmental Conservation, 50 Wolf Road, Albany, New York 12233-0001
- * Appropriate Regional Office of the Department of Environmental Conservation -- Region I
- * Office of the Chief Executive Officer of the political subdivision in which the action will be principally located -- Town of Huntington Supervisor Stephen C. Ferraro
- * Applicant
Bande Development Corporation
500 Old Country Road
Garden City, New York 11530
- * Other involved agencies (if any)
 - Town of Huntington Zoning Board of Appeals
 - NYS DOT
 - Suffolk County Department of Health Services, Wastewater Management Division
 - Town Clerk
- * Interested agencies (if any)
 - Huntington Town Attorney

RECEIVED

III 19 1999

EA

NELSON & POPE, LLP

HUNTINGTON TOWN PLANNING BOARD

MEETING OF AUGUST 21, 1991

The following resolution was offered by W. G. Asher and seconded by S. Levin

WHEREAS, BANDE DEVELOPMENT CORPORATION, 500 Old Country Road, Garden City, New York 11530 submitted a site plan application for THE HREN SHOPPING CENTER, located on the south side of Jericho Turnpike (NYS Rte. 25), approximately 300 ft. east of Dix Hills Road, Dix Hills, New York, indicated as 0400-208-01-005 and 008 on the Suffolk County Tax map; and

WHEREAS, the Planning Board has reviewed said site plan, staff reports and other related papers, and finds that the plan conforms in all respects to the requirements of the Building Zone Ordinance and the Subdivision Regulations and Site Improvement Specifications of the Town, and special use permits granted by the Zoning Board of Appeals under application #11883 on April 27, 1989 and extended by the Zoning Board until May 19, 1992; and

WHEREAS, the Zoning Board caused a review of the amended site plan to be made pursuant to the State Environmental Quality Review Act (SEQRA) and has determined that there will not be any significant environmental impacts provided that all findings and recommendations of Part III of the SEQRA Environmental Assessment Form are met, and the Planning Board has issued a Negative Declaration and the SEQRA review is complete, now therefore be it

RESOLVED, that the Planning Board hereby approves said amended site plan application consisting of the following elements:

	DATED	REVISED	RECEIVED
Site Alignment Plan	1/2/91	7/26/91	7/26/91
Site Grading Plan	1/2/91	7/26/91	7/26/91
Overall Site Plan	-----	7/22/91	7/26/91
Landscape Plan	4/22/90	7/24/91	7/25/91
Floor & Elevations Plan A-2	2/22/91	-----	7/25/91
Entrance Elevations Plan A-3	2/22/91	-----	7/25/91

and be it further

Post-It® Fax Note	7671	Date	7/16	# of pages	2
To	Eric Anesen	From	Planning Dept.		
Co./Dept.	Nelson & Pope	Co.			
Phone #		Phone #			
Fax #		Fax #			

DISTRIBUTION	
SENT TO	DATE
APPLICANT	
ATTORNEY	
ENG: SURVEYOR	
ENGINEERING	
BUILDING & HOUSING	
TOWN ATTORNEY	
PLANNING BOARD MEMBERS	
SUPERVISOR	
TOWN BOARD MEMBERS	
ENVIRONMENTAL PROTECTION	
ZONING BOARD OF APPEALS	
OTHER (SPECIFY)	

THE HREN SHOPPING CENTER

RESOLVED, that it is the responsibility of the applicant to supply copies of all the above referenced approved plans, in addition to the normally required items, to the Department of Engineering, Building and Housing when applying for a building permit, that the findings set forth in the Negative Declaration Resolution shall be fulfilled prior to the issuance of a Certificate of Occupancy, and finally that no Certificate of Occupancy shall be issued until the site has been inspected by representatives of the Planning Department to ensure compliance with all Planning Board requirements.

VOTE: 4 AYES: 4 NOES: 0

CHAIRMAN VOTING .

ABSENT: R. Hennessey
S. Klein

The resolution was thereupon declared to be duly adopted.



NELSON, POPE & VOORHIS, LLC

ENVIRONMENTAL • PLANNING • CONSULTING

CHARLES J. VOORHIS, CEP, AICP • ARTHUR J. KOERBER, P.E. • VINCENT G. DONNELLY, P.E.
• VICTOR BERT, P.E. • JOSEPH R. EPIFANIA, P.E. • ROBERT G. NELSON, JR., P.E.
• CHRISTOPHER W. ROBINSON, P.E.

December 17, 1998

Greenlawn Water District
45 Railroad Street
Greenlawn, New York 11740
attn: Mr. Robert Santoriello, Superintendent

Re: **Hren Property**
SCTM #0400-208-01-5, 8 & 27

Dear Superintendent:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently preparing a Draft Environmental Impact Statement (DEIS) for the construction of a 69,000 SF commercial facility and 9 single family residences, at the southeast corner of the Jericho Turnpike/Dix Hills Road intersection (see enclosed location map). It is anticipated that the project will consume 13,050 gallons of water daily. The nearest wellfields to the site are #'s 6, 10 and 15.

I am writing to obtain information in regard to the above-referenced water supply facilities which may be pertinent to the project. Specifically, I am requesting the following:

- The most recent water quality test results for each wellfield;
- A Letter of Water Availability for the project;

Your responses will be included in the DEIS for review by the Town; if you have any additional information which would be pertinent, please include it.

If you should have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

Phillip A. Malicki, AICP
Senior Environmental Scientist

enc.



GREENLAWN WATER DISTRICT
45 RAILROAD STREET
GREENLAWN, NEW YORK 11740-1297

COMMISSIONERS

EDWARD R. FROEHLICH
JOHN T. McLAUGHLIN
WILLIAM M. WIECK

516/261-0926
516/261-0874

December 23, 1998

Mr. Phillip A. Malicki
Nelson, Pope & Voorhis, LLC
572 Walt Whitman Road
Melville, NY 11747-2188

Re: Hren Property
Tax ID 400-208-01-5, 8 & 27

Dear Mr. Malicki:

This is to advise that water is available for the above referenced property,
subject to District review and approval.

As requested, recent water quality tests for the wells servicing that location
are enclosed for your information.

Please feel free to contact me should you have any questions.

Very truly yours,

GREENLAWN WATER DISTRICT

Robert Santoriello
Superintendent

RS:mh
Enc.

RECEIVED
DEC 28 1998 PM
NELSON & POPE, LLP VD

M LABS, INC.

575 Broad Hollow Road, Melville, N.Y. 11747
(516)694-3040 FAX:(516)420-8436 NYSDOH ID# 10478

LAB NO: 9832385

E ILAWN WATER DISTRICT
RAILROAD STREET
EENLAWN, NY 11740

TYPE..... POTABLE WATER
ROUTINE
ORIGIN.... WELL
WELL TYPE. RAW

T COLLECTED. 10/07/98
M COLLECTED. 0615 HRS.
TE RECEIVED.. 10/07/98
L ECTED BY... RS99
D ID..... 5103271

POINT NO: S18058
LOCATION: WELL #6
REMARKS:

<u>PARAMETER (S)</u>	<u>RESULTS UNITS</u>	<u>LIMIT</u>
TOTAL COLIFORM BACT.	negative -----	negative
E. COLI.	absent -----	absent

- Result(s) Reported meet(s) NEW YORK STATE/USEPA limits for potable water.

CC IES TO: SCHD

DATE ISSUED 10/21/98

ORIGINAL

Stanley J. ...
LABORATORY DIRECTOR

GREENLAWN WATER DISTRICT
 45 RAILROAD STREET
 GREENLAWN, NY 11740

TYPE..... POTABLE WATER
 ROUTINE
 ORIGIN.... WELL
 WELL TYPE. RAW

DATE COLLECTED. 10/07/98
 TIME COLLECTED. 0615 HRS.
 DATE RECEIVED.. 10/07/98
 COLLECTED BY... RS99
 FIELD ID..... 5103271

POINT NO: S18058
 LOCATION: WELL #6
 REMARKS:

VOLATILE ORGANICS (METHOD 502.2) - (ug/l)

<u>PARAMETER (S)</u>	<u>RESULT</u>	<u>LIMIT</u>	<u>PARAMETER (S)</u>	<u>RESULT</u>	<u>LIMIT</u>
DICHLORODIFLUOROMETHANE	<0.5	5.0	1,2,3-TRICHLOROPROPANE	<0.5	5.0
CHLOROMETHANE	<0.5	5.0	2-CHLOROTOLUENE	<0.5	5.0
VINYL CHLORIDE	<0.5	2.0	4-CHLOROTOLUENE	<0.5	5.0
BROMOMETHANE	<0.5	5.0	M-DICHLOROBENZENE	<0.5	5.0
CHLOROETHANE	<0.5	5.0	P-DICHLOROBENZENE	<0.5	5.0
FLUOROTRICHLOROMETHANE	<0.5	5.0	O-DICHLOROBENZENE	<0.5	5.0
1,1-DICHLOROETHENE	<0.5	5.0	1,2,4-TRICHLOROBENZENE	<0.5	5.0
METHYLENE CHLORIDE	<0.5	5.0	HEXACHLOROBUTADIENE	<0.5	5.0
TRANS-1,2-DICHLOROETHENE	<0.5	5.0	1,2,3-TRICHLOROBENZENE	<0.5	5.0
1,1-DICHLOROETHANE	<0.5	5.0	BENZENE	<0.5	5.0
CIS-1,2-DICHLOROETHENE	<0.5	5.0	TOLUENE	<0.5	5.0
2,2-DICHLOROPROPANE	<0.5	5.0	ETHYLBENZENE	<0.5	5.0
BROMOCHLOROMETHANE	<0.5	5.0	1,3-XYLENE	<0.5	5.0
CHLOROFORM	<0.5	50	1,4-XYLENE	<0.5	5.0
1,1,1-TRICHLOROETHANE	<0.5	5.0	1,2-XYLENE	<0.5	5.0
CARBON TETRACHLORIDE	<0.5	5.0	STYRENE	<0.5	5.0
1,1-DICHLOROPROPENE	<0.5	5.0	ISOPROPYLBENZENE (CUMENE)	<0.5	5.0
1,2-DICHLOROETHANE	<0.5	5.0	N-PROPYLBENZENE	<0.5	5.0
TRICHLOROETHENE	<0.5	5.0	1,3,5-TRIMETHYLBENZENE	<0.5	5.0
1,2-DICHLOROPROPANE	<0.5	5.0	TERT-BUTYLBENZENE	<0.5	5.0
DIBROMOMETHANE	<0.5	5.0	1,2,4-TRIMETHYLBENZENE	<0.5	5.0
BROMODICHLOROMETHANE	<0.5	50	SEC-BUTYLBENZENE	<0.5	5.0
TRANS-1,3-DICHLOROPROPENE	<0.5	5.0	P-ISOPROPYLTOLUENE	<0.5	5.0
CIS-1,3-DICHLOROPROPENE	<0.5	5.0	N-BUTYLBENZENE	<0.5	5.0
1,1,2-TRICHLOROETHANE	<0.5	5.0	METHYL TERT.BUTYL ETHER	<0.5	50
TETRACHLOROETHENE	<0.5	5.0			
1,3-DICHLOROPROPANE	<0.5	5.0			
CHLORODIBROMOMETHANE	<0.5	50			
CHLOROBENZENE	<0.5	5.0			
1,1,1,2-TETRACHLOROETHANE	<0.5	5.0			
BROMOFORM	<0.5	50			
BROMOBENZENE	<0.5	5.0			
1,1,2,2-TETRACHLOROETHANE	<0.5	5.0			

Result(s) Reported meet(s) NEW YORK STATE/USEPA limits for potable water.

COPIES TO: SCHD

DATE ISSUED 10/21/98

DATE RUN..... 10/15/98
 DATE REPORTED.. 10/19/98

ORIGINAL

Stanley J. ...
 LABORATORY DIRECTOR

JM LABS, INC.

575 Broad Hollow Road, Melville, N.Y. 11747
(516)694-3040 FAX:(516)420-8436 NYSDOH ID# 10478

LAB NO: 9832654

GREENLAWN WATER DISTRICT
45 RAILROAD STREET
GREENLAWN, NY 11740

TYPE..... POTABLE WATER
ROUTINE
ORIGIN.... WELL
WELL TYPE. RAW

DATE COLLECTED. 10/08/98
TIME COLLECTED. 1005 HRS.
DATE RECEIVED.. 10/08/98
COLLECTED BY... RS99
FED-ID..... 5103271

POINT NO: S23997
LOCATION: WELL #10

REMARKS:

<u>PARAMETER (S)</u>	<u>RESULTS UNITS</u>	<u>LIMIT</u>
TOTAL COLIFORM BACT.	negative -----	negative
E. COLI.	absent -----	absent

- Result(s) Reported meet(s) NEW YORK STATE/USEPA limits for potable water.

COPIES TO: SCHD

DATE ISSUED 11/12/98

ORIGINAL

J. M. Flavin
LABORATORY DIRECTOR

GREENLAWN WATER DISTRICT
 15 RAILROAD STREET
 GREENLAWN, NY 11740

TYPE..... POTABLE WATER
 ROUTINE
 ORIGIN.... WELL
 WELL TYPE. RAW

DATE COLLECTED. 10/08/98
 TIME COLLECTED. 1005 HRS.
 DATE RECEIVED.. 10/08/98
 COLLECTED BY... RS99
 LAB-ID..... 5103271

POINT NO: S23997
 LOCATION: WELL #10
 REMARKS:

VOLATILE ORGANICS (METHOD 502.2) - (ug/l)

<u>PARAMETER (S)</u>	<u>RESULT</u>	<u>LIMIT</u>	<u>PARAMETER (S)</u>	<u>RESULT</u>	<u>LIMIT</u>
DICHLORODIFLUOROMETHANE	<0.5	5.0	1,2,3-TRICHLOROPROPANE	<0.5	5.0
CHLOROMETHANE	<0.5	5.0	2-CHLOROTOLUENE	<0.5	5.0
VINYL CHLORIDE	<0.5	2.0	4-CHLOROTOLUENE	<0.5	5.0
BROMOMETHANE	<0.5	5.0	M-DICHLOROBENZENE	<0.5	5.0
CHLOROETHANE	<0.5	5.0	P-DICHLOROBENZENE	<0.5	5.0
FLUOROTRICHLOROMETHANE	<0.5	5.0	O-DICHLOROBENZENE	<0.5	5.0
1,1-DICHLOROETHENE	<0.5	5.0	1,2,4-TRICHLOROBENZENE	<0.5	5.0
METHYLENE CHLORIDE	<0.5	5.0	HEXACHLOROBUTADIENE	<0.5	5.0
TRANS-1,2-DICHLOROETHENE	<0.5	5.0	1,2,3-TRICHLOROBENZENE	<0.5	5.0
1,1-DICHLOROETHANE	0.5	5.0	BENZENE	<0.5	5.0
CIS-1,2-DICHLOROETHENE	<0.5	5.0	TOLUENE	<0.5	5.0
2,2-DICHLOROPROPANE	<0.5	5.0	ETHYLBENZENE	<0.5	5.0
BROMOCHLOROMETHANE	<0.5	5.0	1,3-XYLENE	<0.5	5.0
CHLOROFORM	<0.5	50	1,4-XYLENE	<0.5	5.0
1,1,1-TRICHLOROETHANE	1.2	5.0	1,2-XYLENE	<0.5	5.0
CARBON TETRACHLORIDE	<0.5	5.0	STYRENE	<0.5	5.0
1,1-DICHLOROPROPENE	<0.5	5.0	ISOPROPYLBENZENE (CUMENE)	<0.5	5.0
1,2-DICHLOROETHANE	<0.5	5.0	N-PROPYLBENZENE	<0.5	5.0
TRICHLOROETHENE	1.3	5.0	1,3,5-TRIMETHYLBENZENE	<0.5	5.0
1,2-DICHLOROPROPANE	<0.5	5.0	TERT-BUTYLBENZENE	<0.5	5.0
DIBROMOMETHANE	<0.5	5.0	1,2,4-TRIMETHYLBENZENE	<0.5	5.0
BROMODICHLOROMETHANE	<0.5	50	SEC-BUTYLBENZENE	<0.5	5.0
TRANS-1,3-DICHLOROPROPENE	<0.5	5.0	P-ISOPROPYLTOLUENE	<0.5	5.0
CIS-1,3-DICHLOROPROPENE	<0.5	5.0	N-BUTYLBENZENE	<0.5	5.0
1,1,2-TRICHLOROETHANE	<0.5	5.0	METHYL TERT.BUTYL ETHER	<0.5	50
TETRACHLOROETHENE	<0.5	5.0			
1,3-DICHLOROPROPANE	<0.5	5.0			
CHLORODIBROMOMETHANE	<0.5	50			
CHLOROBENZENE	<0.5	5.0			
1,1,1,2-TETRACHLOROETHANE	<0.5	5.0			
BROMOFORM	<0.5	50			
BROMOBENZENE	<0.5	5.0			
1,1,2,2-TETRACHLOROETHANE	<0.5	5.0			

Result(s) Reported meet(s) NEW YORK STATE/USEPA limits for potable water.

COPIES TO: SCHD

DATE ISSUED 11/12/98

DATE RUN..... 10/15/98
 DATE REPORTED.. 10/19/98

ORIGINAL

J. M. Alavina
 LABORATORY DIRECTOR

JM LABS, INC.

575 Broad Hollow Road, Melville, N.Y. 11747
(516)694-3040 FAX:(516)420-8436 NYSDOH ID# 10478

LAB NO: 9832661

GREENLAWN WATER DISTRICT
#5 RAILROAD STREET
GREENLAWN, NY 11740

TYPE..... POTABLE WATER
ROUTINE
ORIGIN.... WELL
WELL TYPE. RAW

DATE COLLECTED. 10/08/98
TIME COLLECTED. 1000 HRS.
DATE RECEIVED.. 10/08/98
COLLECTED BY... RS99
LAB-ID..... 5103271

POINT NO: S80073
LOCATION: WELL #15

REMARKS:

<u>PARAMETER (S)</u>	<u>RESULTS UNITS</u>	<u>LIMIT</u>
TOTAL COLIFORM BACT.	negative -----	negative
E. COLI.	absent -----	absent
NITRATE (AS N)	5.8 mg/l	10.0

- Result(s) Reported meet(s) NEW YORK STATE/USEPA limits for potable water.

COPIES TO: SCHD

DATE ISSUED 11/12/98

ORIGINAL

J. M. Flavin
LABORATORY DIRECTOR

GREENLAWN WATER DISTRICT
 45 RAILROAD STREET
 GREENLAWN, NY 11740

TYPE..... POTABLE WATER
 ROUTINE
 ORIGIN.... WELL
 WELL TYPE. RAW

DATE COLLECTED. 10/08/98
 TIME COLLECTED. 1000 HRS.
 DATE RECEIVED.. 10/08/98
 COLLECTED BY... RS99
 FED-ID..... 5103271

POINT NO: S80073
 LOCATION: WELL #15
 REMARKS:

VOLATILE ORGANICS (METHOD 502.2) - (ug/l)

<u>PARAMETER (S)</u>	<u>RESULT</u>	<u>LIMIT</u>	<u>PARAMETER (S)</u>	<u>RESULT</u>	<u>LIMIT</u>
DICHLORODIFLUOROMETHANE	<0.5	5.0	1,2,3-TRICHLOROPROPANE	<0.5	5.0
CHLOROMETHANE	<0.5	5.0	2-CHLOROTOLUENE	<0.5	5.0
VINYL CHLORIDE	<0.5	2.0	4-CHLOROTOLUENE	<0.5	5.0
BROMOMETHANE	<0.5	5.0	M-DICHLOROBENZENE	<0.5	5.0
CHLOROETHANE	<0.5	5.0	P-DICHLOROBENZENE	<0.5	5.0
FLUOROTRICHLOROMETHANE	<0.5	5.0	O-DICHLOROBENZENE	<0.5	5.0
1,1-DICHLOROETHENE	<0.5	5.0	1,2,4-TRICHLOROBENZENE	<0.5	5.0
METHYLENE CHLORIDE	<0.5	5.0	HEXACHLOROBUTADIENE	<0.5	5.0
TRANS-1,2-DICHLOROETHENE	<0.5	5.0	1,2,3-TRICHLOROBENZENE	<0.5	5.0
1,1-DICHLOROETHANE	<0.5	5.0	BENZENE	<0.5	5.0
CIS-1,2-DICHLOROETHENE	<0.5	5.0	TOLUENE	<0.5	5.0
2,2-DICHLOROPROPANE	<0.5	5.0	ETHYLBENZENE	<0.5	5.0
BROMOCHLOROMETHANE	<0.5	5.0	1,3-XYLENE	<0.5	5.0
CHLOROFORM	<0.5	50	1,4-XYLENE	<0.5	5.0
1,1,1-TRICHLOROETHANE	1.0	5.0	1,2-XYLENE	<0.5	5.0
CARBON TETRACHLORIDE	<0.5	5.0	STYRENE	<0.5	5.0
1,1-DICHLOROPROPENE	<0.5	5.0	ISOPROPYLBENZENE (CUMENE)	<0.5	5.0
1,2-DICHLOROETHANE	<0.5	5.0	N-PROPYLBENZENE	<0.5	5.0
TRICHLOROETHENE	1.1	5.0	1,3,5-TRIMETHYLBENZENE	<0.5	5.0
1,2-DICHLOROPROPANE	<0.5	5.0	TERT-BUTYLBENZENE	<0.5	5.0
DIBROMOMETHANE	<0.5	5.0	1,2,4-TRIMETHYLBENZENE	<0.5	5.0
BROMODICHLOROMETHANE	<0.5	50	SEC-BUTYLBENZENE	<0.5	5.0
TRANS-1,3-DICHLOROPROPENE	<0.5	5.0	P-ISOPROPYLTOLUENE	<0.5	5.0
CIS-1,3-DICHLOROPROPENE	<0.5	5.0	N-BUTYLBENZENE	<0.5	5.0
1,1,2-TRICHLOROETHANE	<0.5	5.0	METHYL TERT.BUTYL ETHER	<0.5	50
TETRACHLOROETHENE	<0.5	5.0			
1,3-DICHLOROPROPANE	<0.5	5.0			
CHLORODIBROMOMETHANE	<0.5	50			
CHLOROBENZENE	<0.5	5.0			
1,1,1,2-TETRACHLOROETHANE	<0.5	5.0			
BROMOFORM	<0.5	50			
BROMOBENZENE	<0.5	5.0			
1,1,2,2-TETRACHLOROETHANE	<0.5	5.0			

Result(s) Reported meet(s) NEW YORK STATE/USEPA limits for potable water.

COPIES TO: SCHD

DATE ISSUED 11/12/98

DATE RUN..... 10/16/98
 DATE REPORTED.. 10/19/98

ORIGINAL

J. M. Flavin
 LABORATORY DIRECTOR



NELSON, POPE & VOORHIS, LLC

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CHARLES J. VOORHIS, CEP, AICP • ARTHUR J. KOERBER, PE. • VINCENT G. DONNELLY, PE.
• VICTOR BERT, PE. • JOSEPH R. EPIFANIA, PE. • ROBERT G. NELSON, JR., PE.
• CHRISTOPHER W. ROBINSON, PE.

December 17, 1998

South Huntington Union Free School District
60 Weston Street
Huntington Station, New York 11746
attn: Mrs. Marilyn Zaretsky, Superintendent

**Re: Hren Property
SCTM #0400-208-01-5, 8 & 27**

Dear Superintendent:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently preparing a Draft Environmental Impact Statement (DEIS) for the construction of a 69,000 SF commercial facility and 9 single family residences, at the southeast corner of the Jericho Turnpike/Dix Hills Road intersection (see enclosed location map). We anticipate that a total of 22 school-age children will be generated.

I am writing to obtain information in regard to school district facilities and characteristics which may be pertinent to the project. Specifically, I am requesting the following:

- Names and locations of the schools which will serve the students generated;
- Current enrollments of each school;
- Overall school district expenditures, on a per-student basis;
- Projected enrollments at each school.

Your responses will be included in the DEIS for review by the Town. If you have any additional information or comments which would be pertinent (e.g., Is there a school district plan extant, and if so, will the proposed project be in conflict with it? Is it expected that additional classroom space, staffing, facilities, etc. will be made necessary?), please include it.

If you should have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

Phillip A. Malicki, AICP
Senior Environmental Scientist

enc.



NELSON, POPE & VOORHIS, LLC

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• VICTOR BERT, P.E. • JOSEPH R. EPIFANIA, P.E. • ROBERT G. NELSON, JR., P.E.
• CHRISTOPHER W. ROBINSON, P.E.

December 17, 1998

Suffolk County Police Department (SCPD)
Management Services Section
30 Yaphank Avenue
Yaphank, New York 11980
attn: Lieutenant Cornelius McKenna,
Commanding Officer

Re: **Hren Property**
SCTM #0400-208-01-5, 8 & 27

Dear Lt. McKenna:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently preparing a Draft Environmental Impact Statement (DEIS) for the construction of a 69,000 SF commercial facility and 9 single family residences, at the southeast corner of the Jericho Turnpike/Dix Hills road intersection (see attached location map).

I am writing to obtain information in regard to SCPD facilities and services which may be pertinent to the project. Specifically, I am requesting the following:

- Precinct in which the project site is located;
- Location of the stationhouse;
- Patrol sector assigned to the site.

Your responses will be included in the DEIS for review by the Town; if you have any additional information which would be pertinent (e.g., Will there be a change in the amount of protection necessary with this change in land use? Is it expected that additional patrol cars will be necessary, or that additional personnel would be needed?), please include it.

If you should have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

Phillip A. Malicki, AICP
Senior Environmental Scientist

enc.

COUNTY OF SUFFOLK



DEC 23 1998 PM

ROBERT J. GAFFNEY
COUNTY EXECUTIVE

JOHN C. GALLAGHER
POLICE COMMISSIONER

POLICE DEPARTMENT

December 23, 1998

Mr. Phillip A. Malicki, AICP
Senior Environmental Scientist
Nelson, Pope & Voorhis, Inc.
572 Walt Whitman Road
Melville, N.Y. 11747

Dear Mr. Malicki,

I am writing in response to your letter of December 17, 1998 regarding the construction of a 69,000 SF commercial facility and nine single-family residences at the southeast corner of Jericho Turnpike and Dix Hills Road in Huntington.

The project site is located in the 2nd Precinct. The Commanding Officer of the 2nd Precinct is Inspector Thomas L. Hamann. The patrol sector that covers the project site is sector 210. The 2nd Precinct is located at 1071 Park Avenue, Huntington, NY 11743. The telephone number is (516) 854-8200.

The proposed construction would clearly have an impact on the workload of the 4th Precinct of the Suffolk County Police Department. However, the exact impact is difficult to determine because factors such as population, certain demographics, traffic patterns, police hazards, etc. impact and determine the police workload in various ways.

There is no one set factor examined when determining the number of officers that are necessary for any one area. The judgement of the number of officers necessary is made by considering a host of factors, some of which I have noted above.

I hope that this information will be of assistance to you.
If you need any further information, please do not hesitate
to contact me at (516) 852-6091.

Sincerely,

JoAnn McLaughlin PO 3758/2110

JoAnn McLaughlin PO 3758/2110
Management Services Section



NELSON, POPE & VOORHIS, LLC

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• VICTOR BERT, P.E. • JOSEPH R. EPIFANIA, P.E. • ROBERT G. NELSON, JR., P.E.
CHRISTOPHER W. ROBINSON, P.E.

December 17, 1998

Huntington Manor Fire District
1650 New York Avenue
Huntington Manor, New York 11746
attn: Phyllis, Secretary

Re: **Hren Property**
SCTM #0400-208-01-5, 8 & 27

Dear Phyllis:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are currently preparing a Draft Environmental Impact Statement (DEIS) for the construction of a 69,000 SF commercial facility and 9 single family residences, at the southeast corner of the Jericho Turnpike/Dix Hills road intersection (see attached location map).

I am writing to obtain information in regard to the Huntington Manor Fire District facilities, services, and capabilities which may be pertinent to the project. Specifically, I am requesting the following:

- The location of the 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;

Your responses will be included in the DEIS for review by the Town; if you have any additional information which would be pertinent, please include it. Finally, if you feel that this project may have an adverse impact on the District's ability to provide services, or may require additional equipment purchases or firefighter training, please indicate this.

If you should have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

Phillip A. Malicki, AICP
Senior Environmental Scientist

enc.



Huntington Manor Fire District

1650 NEW YORK AVENUE
HUNTINGTON STATION, N.Y. 11746-2443
TEL (516) 427-1669 FAX (516) 427-1142

BOARD OF FIRE COMMISSIONERS

LOUIS AGIESTA
Chairman

VITO ALTIERI
CHRISTOPHER FUSARO
KENNETH LYGREN
JOSEPH J. LYNCH

PHYLLIS M. MCDONALD
Treasurer

JOYCE HARRISON
Secretary

February 5, 1999 -

Phillip A. Malicki, AICP
Senior Environmental Scientist
Nelson, Pope & Voorhis, LLC
572 Walt Whitman Road
Melville, NY 11746

RECEIVED
FEB 11 1999 PM
NELSON & POPE, LLP

RE: Hren Property
SCTM #0400-208-01-5, 8 & 27

Dear Mr. Malicki:

As per your request of December 17, 1998, our Chief, Domenick Pastore has marked the locations of the tree firehouses that will serve the site in question.

At headquarters, there are two class A pumpers, one rescue truck, one 110 ft. Ladder truck, and seven assorted utility vehicles.

At house #2, there is one class A pumper, one rescue pumper, and one 75 ft. Tower ladder truck.

At house #3, there is one Quint, one rescue pumper and one Haz Mat truck.

The Huntington Manor Fire Department is made up of 130 members. The members respond to the closest house at the time of alarm. The actual division of membership response to each house is: 80 members at headquarters and 25 members at both house #2 and #3.

Our department has special training for Haz Mat Incidents, Confined Space Rescue and Water Rescue. All of the members of this Department are volunteers.

Phillip A. Malicki, Nelson, Pope & Voorhis, con't.

With regard to the inquiry considering whether the Board of Fire Commissioners of the Huntington Manor Fire District feels it would be necessary to provide additional equipment or make changes in the fire department because of this construction, not enough information is furnished. We need to know how many stories the commercial building will be and what type of fire protection will be installed in the building. Please provide any other additional information you have regarding the building.

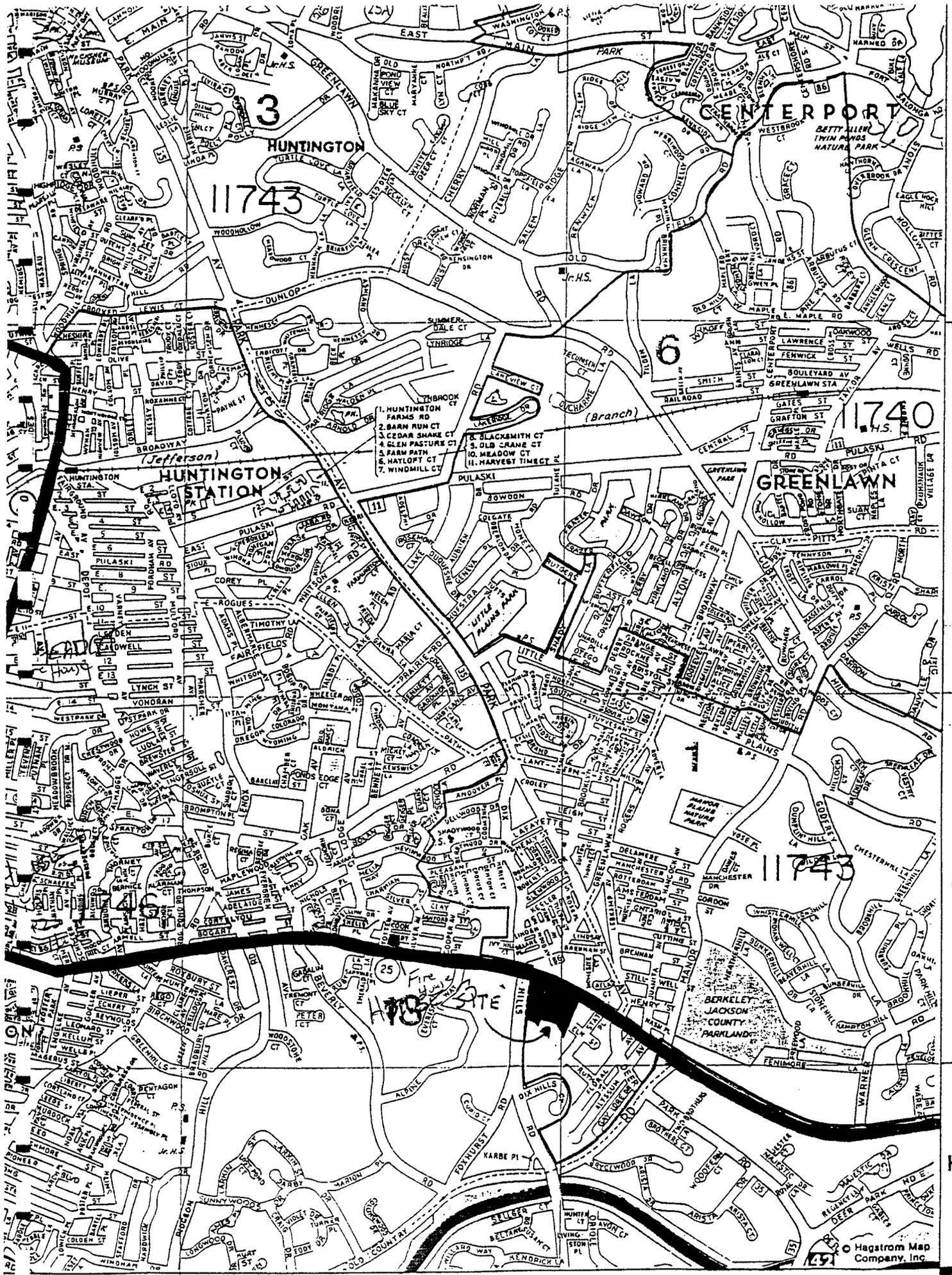
We hope this information will be helpful. If you have any questions, you can reach Chief Domenick Pastore at 427-1629, or myself at 427-1669. Thank you.

Very truly yours,

A handwritten signature in cursive script that reads "Phyllis McDonald". The signature is written in dark ink and is positioned above the typed name.

Phyllis McDonald,
Treasurer

Encl.



3

HUNTINGTON

11743

CENTERPORT

BETTY ALLER
TWIN POND
NATURE PARK

6

11740

GREENLAWN

HUNTINGTON
STATION

- 1. HUNTINGTON FARMS RD
- 2. BARN RUN CT
- 3. CEDAR SHANE CT
- 4. GLEN PASTURE CT
- 5. FARM PATH
- 6. HAYLOFT CT
- 7. WINDMILL CT
- 8. BLACKSMITH CT
- 9. OLD PLANE CT
- 10. MEADOW CT
- 11. HARVEST TIMECT

(Branch)

11743

BERKELEY
JACKSON
COUNTY
PARKLAND

11743



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• VICTOR BERT, P.E. • JOSEPH R. EPIFANIA, P.E. • ROBERT G. NELSON, JR., P.E.
• CHRISTOPHER W. ROBINSON, P.E.

December 17, 1998

Town of Huntington
Resource Recovery Facility
99 Town Line Road
East Northport, New York 11731
attn: Robert Sobieski

**Re: Hren Property
SCTM #0400-208-01-5, 8 & 27**

Dear Mr. Sobieski:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are preparing a Draft Environmental Impact Statement (DEIS) for a 69,000 SF commercial facility and 9 single family residences, at the southeast corner of the Jericho Turnpike/Dix Hills road intersection (see attached location map). It is anticipated that the project will generate a total of approximately 7,150 pounds of solid waste daily.

I am writing to obtain information in regard to the solid waste facilities which may be pertinent to the project. Specifically, I am requesting the following:

- The yearly tonnage of solid waste disposed of at this facility
- The percentage or tonnage breakdown of waste disposition (i.e. recycled, incinerated, landfilled), and where is waste disposed of via these routes?
- Confirmation that the Town will accept waste from the project; and are there any waste regulations specific to these uses which should be considered in connection with this application?

Your responses will be included in the DEIS for review by the Town; if you have any additional information which would be pertinent, please include it.

If you should have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

Phillip A. Malicki, AICP
Senior Environmental Scientist

enc.



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• VICTOR BERT, P.E. • JOSEPH R. EPIFANIA, P.E. • ROBERT G. NELSON, JR., P.E.
• CHRISTOPHER W. ROBINSON, P.E.

December 17, 1998

Mr. Ron Angst
Corporate Sales and Marketing Department
Long Island Power Authority
1393 Veteran's Memorial Highway
Hauppauge, New York 11788

**Re: Hren Property
SCTM #0400-208-01-5, 8 & 27**

Dear Mr. Angst:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are preparing a Draft Environmental Impact Statement (DEIS) for a 69,000 SF commercial facility and 9 single family residences, at the southeast corner of the Jericho Turnpike/Dix Hills Road intersection (see attached location map).

I am writing to obtain information in regard to electric service. Specifically, I am requesting the following:

- The location and capacity of the electric lines serving the site or area;
- Confirmation that LIPA will serve the project;

Your responses will be included in the DEIS for review by the Town; if you have any additional information which would be pertinent, please include it.

If you should have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

Phillip A. Malicki, AICP
Senior Environmental Scientist

enc.



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• VICTOR BERT, PE. • JOSEPH R. EPIFANIA, PE. • ROBERT G. NELSON, JR., PE.
• CHRISTOPHER W. ROBINSON, PE.

December 17, 1998

Mr. Paul Morea
Gas Marketing Department
Brooklyn Union Gas
1393 Veteran's Memorial Highway
Happague, N.Y. 11788

**Re: Hren Property
SCTM #0400-208-01-5, 8 & 27**

Dear Mr. Morea:

Nelson, Pope & Voorhis, LLC is an environmental and planning consulting firm located in Melville. We are preparing a Draft Environmental Impact Statement (DEIS) for a 69,000 SF commercial facility and 9 single family residences, at the southeast corner of the Jericho Turnpike/Dix Hills Road intersection (see attached location map).

I am writing to obtain information in regard to the natural gas supply capabilities in the vicinity of the project. Specifically, I am requesting the following:

- The location(s) and sizes of the nearest natural gas lines in the vicinity;
- Confirmation that the project can be served with natural gas.

Your responses will be included in the DEIS for review by the Town; if you have any additional information which would be pertinent, please include it.

If you should have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

Phillip A. Malicki, AICP
Senior Environmental Scientist

enc.



1393 Vets Memorial Highway
Hauppauge, NY 11788

January 18, 1999

RECEIVED
JAN 22 1999 PM

Nelson & Pope, LLP
572 Walt Whitman Road
Melville, NY 11747-2188

NELSON & POPE, LLP

Attn: Phillip A. Malicki, AICP

Re: South East Corner of Jericho Tpke. And Dix Hills Rd.
So. Huntington, New York

Dear Mr. Malicki:

As requested, please be advised that KeySpan Energy will provide electric and gas service to the above referenced project in accordance with our filed tariff and schedules in effect at the time service is required.

A 4" steel gas main with 60 PSIG is located on the south side of Jericho Turnpike.

Please feel free to contact me at (516) 382-2075, if you require any further information.

Very truly yours,

Louis Cabibi
Residential New Construction Representative

sm

G&Eavail



KeySpan Energy
1650 Islip Avenue
Brentwood, NY 11717

January 20, 1999

Nelson, Pope & Voorhis
Attn: Phillip Malicki
572 Walt Whitman Rd.
Melville, NY 11747-2188

RE: Hren Property - Huntington
Ref. # 92204-930

Dear Mr. Malicki,

As requested, please be advised that the Long island Power Authority will provide service to the above referenced project in accordance with our filed tariff and schedules in effect at the time service is required.

Please feel free to contact Larry Wilburn at (516) 348-6297 if you require any further information.

Very truly use,

A handwritten signature in cursive script, appearing to read "Robert S. Parkinson".

Robert S. Parkinson
Regional Supervisor
Western Suffolk Division

APPENDIX B
PESTICIDE REPORT



Pesticide Report

Hren Property

Dix Hills, New York

N&P Project No. 84016

November 28, 1999

Pesticide Report

Hren Property

Dix Hills, New York

THIS DOCUMENT CONTAINS 9 PAGES OF TEXT

Prepared For:

Breslin Realty Development Corp.
500 Old Country Road
Garden City, New York 11530

Prepared By:

Mr. Charles J. Voorhis, CEP, AICP
Nelson, Pope & Voorhis, LLC
572 Walt Whitman Road
Melville, NY 11747
(516) 427-5665

American Analytical Laboratories, Inc.
56 Toledo Street
Farmingdale, New York 11735

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NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

Pesticide Report

Hren Property

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3.0	<u>LABORATORY ANALYSIS</u>	Page 4 of 9
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4.0	<u>QUALITY ASSURANCE/QUALITY CONTROL</u>	Page 5 of 9
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Pesticide Report

Hren Property

1.0 INTRODUCTION AND PURPOSE

Nelson, Pope & Voorhis, LLC has been contracted to prepare a Pesticide Report for the subject property. This report is intended to determine the concentration of lead, arsenic, and pesticides (including PCB's, DDT and its metabolites, and chlordane) in soil, because these substances (particularly lead, arsenic, and DDT) were widely used for weed and pest control in Long Island agricultural practice. The subject property is currently vacant by had been utilized as nursery in the past.

The project site is located in the Town of Huntington, Suffolk County, New York. It is located on the east side of Dix Hills Road and the south side of Jericho Turnpike. The subject property is a 31.10 acre parcel of land which is identified on the Suffolk County Tax Map as: District 0400, Section 208 Block 01, Lots 5, 8 & 27. **Figure 1** provides a location map depicting the subject property and the areas surrounding the property.

The 31.10 acre property has been left fallow for the past approximately 20 years. Prior to that the property had been utilized as a nursery growing ornamental landscape species. This document will be used to assist in evaluating the environmental and/or public health implications regarding the current concentrations of agricultural chemicals in on-site soils.

The sampling program was designed and supervised by NP&V. Laboratory analytical data was prepared by American Analytical Laboratories. The protocol used to direct this investigation was based upon the guidance offered by the New York State Department of Health Bureau of Toxic Substance Assessment to the local health department in particular, with general consideration of sampling and analysis protocol as documented in New York State Department of Environmental Conservation Documents, Technical Administrative Guidance Manual (TAGM) # 4046 Determination of Soil Cleanup Objectives and Cleanup Levels and Suffolk County Department of Health Services (SCDHS) SOP 9-95. The following sections detail the site and area characteristics, sampling program, protocol and quality assurance, lab analysis and results.

The soils on the subject property were sampled and analyzed for the presence of pesticides, lead and arsenic due to the past uses of the property as a nursery. The laboratory analysis of the soil samples revealed that several of the analyzed constituents exhibited elevated concentrations. However, none of the constituents exceeded the regulatory standards. The following sections of this report outline the sampling measures taken and provide a map illustrating the location of the samples collected. Appropriate recommendations are provided in Section 5.0.



2.0 SAMPLING AND ANALYSIS PROGRAM (SAP)

2.1 SAMPLE COLLECTION

A total of four (4) soil samples were collected on October 27, 1999 from the southern portion of the property. Two (2) samples were collected from each of the four (4) sample locations, at a depth of zero to three (0-3) and three to six (3-6) inches. These depths were selected to provide a profile of the soil located on the subject property. The sampling scheme employed was consistent with guidance available from the New York State Department of Health.

A stainless steel hand auger decontaminated between uses (see Section 4.0), was used to extract all of the soil samples from the subject property. **Figure 1** provides a map that identifies the various locations from which the soil samples were collected. The topography of the subject property is flat.

2.2 SAMPLING PROGRAM RATIONALE

The New York State Department of Health (NYSDOH) provides guidance for such soil sampling through the Suffolk County Department of Health Services (SCDHS). Soil samples were collected in accordance with the recommendations of the NYSDOH, noted as follows:

- samples were collected at depths of 0-3 and 3-6 inches.
- samples were directed toward those areas likely to have accumulated the highest contaminant levels.
- samples were analyzed for lead, arsenic and DDT and its metabolites.

Consistent with the NYSDOH letter if elevated levels of pesticides, lead or arsenic were found in the 0-3 inch range, a sample was collected from the 3-6 inch range to determine depth of occurrence and vertical mixing. Laboratory analysis results are discussed in Section 3.0. Since the proposed property will be used for a residential subdivision, the concentration of lead and arsenic is an important issue.

In accordance with NYSDOH recommendations, the sampling and analysis program was intended to determine:

- if site activities had caused degradation of soil quality on site;
- if a soils management plan (SMP) is appropriate given the concentration of contaminants and the intended use of the site.

The following section provides the laboratory analysis for the site samples, including test methods and analytical results.

3.0 LABORATORY ANALYSIS

3.1 ANALYTICAL TEST METHODS

The soil samples were transported to a New York State Certified Commercial ELAP Laboratory for analysis. Selection of the analytical test methods for soil samples was based on the NYSDOH recommended soil sampling parameters for agricultural soils on Long Island. Analysis of the initial soil samples included organo chlorine pesticides based on USEPA Test Method 8081 (including DDT and its metabolites and chlordane), as well as, total lead and arsenic.

3.2 ANALYTICAL RESULTS

The results of the soil samples indicated the presence of some pesticide constituents, however, levels appear to be typical of background concentrations in residential Long Island soils (see NYSDOH letter, **Attachment A**). **Table 1** provides a comparison of the constituents that exhibited elevated concentrations and the regulatory standards. The laboratory data sheets are contained in **Attachment B** of this document.

Table 1

Parameter	SS-1 (0-3) ppb	SS-2 (0-3) ppb	SS-3 (0-3) ppb	SS-4 (0-3) ppb
Chlordane	1,900	69	ND	ND
4,4 DDD	150	70	140	90
4,4 DDE	400	170	300	340
4,4 DDT	650	210	670	370
Dieldrin	47	ND	ND	ND
Endosulfan I	24	ND	ND	ND
Heptachlor epoxide	58	ND	ND	ND

ND - Not Detected
 Bold indicates an excesses of standard
 NA - Not Applicable

Samples were also collected for arsenic, with results all less than 1.0 mg/kg, which is the limit of laboratory detection. Lead concentrations ranged from 15.8 mg/kg to 35.1 mg/kg, as compared to a Suffolk County Action Level of 400 mg/kg (SCDHS SOP 9-95).

4.0 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES (QA/QC)

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 soil-gas and soil sampling.

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 subject property and between sample locations, the hand auger was 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, log book 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.



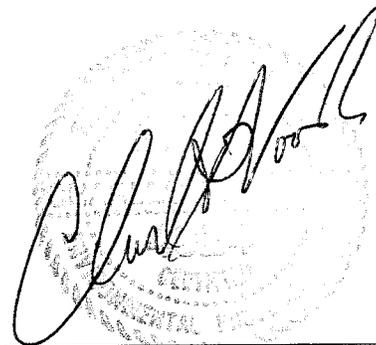
5.0 SUMMARY AND CONCLUSION

This investigation was completed in order to determine if certain pesticide related compounds were present in the soils of the subject property. A sampling and analysis program (SAP) was designed in accordance with recommendations of the NYSDOH to determine if any concentrations of pesticides, herbicides, lead or arsenic were present in the soils of the subject property. The SAP consisted of collection of discreet soil samples at depths of 0-3 and 3-6 inches in locations expected to yield "worst case" results. Laboratory analysis of the soil samples were performed using analytical test methods consistent with expected parameters and NYSDOH guidance. The following presents an evaluation of the results of this investigation.

1. Soil samples collected from the subject property were analyzed for the presence of pesticides, herbicides, lead and arsenic. The laboratory analysis revealed that analyzed pesticide constituents were typical of residential Long Island soils. Furthermore, analysis of lead and arsenic were either not detectable or very low in concentration.

In summary, the soils on the subject property have been sampled and analyzed for the presence of pesticides, lead and arsenic. Since the concentrations were not excessive, no further action is recommended for the subject property.

11/28/99
Date of Completion



Charles J. Voorhis, CEP, AICP,
NELSON, POPE & VOORHIS, LLC

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.

NYSDEC, 1994, Technical Administrative Guidance Memorandum, HWR-94-4046, Determination of soil cleanup objectives and cleanup levels, Division of Hazardous Waste Remediation, Albany, New York.

NYSDOH, 1996, letter dated July 15, 1996 from Edward Horn, Ph.D., Director Bureau of Toxic Substance Assessment to Frank Randall, Chief, Inspection Services Bureau SCDHS.

SCDHS, 1995, Standard Operating Procedure for the Administration of Article 12 of the Suffolk County Sanitary Code - Article 12~SOP No. 9-95 Pumpout and Soil Cleanup Criteria.



ATTACHMENTS



ATTACHMENT A

**NEW YORK STATE DEPARTMENT OF HEALTH
(NYSDOH) LETTER**





STATE OF NEW YORK
DEPARTMENT OF HEALTH

2 University Place

Albany, New York 12203-3399

Barbara A. DeBuono, M.D., M.P.H.
Commissioner

Dennis P. Whalen
Executive Deputy Commissioner

File in...
FYE
CC - V. M...
D. Moran
S. Costal
FYL
W
EYE

April 18, 1997

F...
Log...
...

Mr. Joseph Baier, P.E.
Director of Environmental Quality
Suffolk County Department of Health
225 Rabro Drive East
Hauppauge, NY 11787

Dear Mr. Baier:

In a letter dated December 18, 1996, from Mr. Richard Machtay, Director of Planning for the Town of Huntington, we were requested to review materials that we subsequently received from MAC Consultants, Inc., regarding the McGovern-Barbash property in Melville, New York. We have reviewed these materials, which deal with the presence of organic contaminants in surface soils at the proposed subdivision. Because local health departments have greater familiarity with land uses than we do and because approaches used to address elevated contaminant levels in surface soils at residential subdivisions may have implications for the design of septic/sewerage and water supply systems, it is important that our guidance on a particular project does not work at cross purposes to the efforts of the local health department. Therefore, requests of this type, and our responses, should go through the local health department. For the sake of expediency in this instance, we are sending a copy of this letter directly to Mr. Machtay, along with a letter suggesting that any future inquiries on this or other projects be directed to your office.

Based on a January 9, 1997, telephone conversation with Mr. Scott Robin of the Planning Office, we understand that the proposed project would involve the conversion of a sod farm to mixed residential use with single family homes, townhouses, condominiums and common areas. Mr. Machtay requested a letter from us evaluating a soil investigation report prepared in November 1996 and any recommendations for remediating or mitigating impacts of past land uses in consideration of the proposed use. These points are addressed below. We understand from the materials provided that a previous round of sampling occurred several years ago; we cannot comment on these results, as they have not been provided to us.

I believe that you are familiar with our usual recommendations to collect and analyze soil samples from the uppermost 2-3 inches and a second interval from the

bottom of the first to a depth of 6 inches, discussed later in this letter. We usually compare sampling results for surface soils to available data describing the typical levels of the same analytes that can be found in surface soils in other residential settings ("background" levels). The soil samples in this investigation were collected from two intervals: 0-2 feet; and 4-6 feet. With the exception of sample 3-5, nothing was detected in any of the samples from the 4-6 foot interval. Low levels of some organic compounds were reported in six of the seven 0-2 foot samples from area 1, in two of the five samples from area 2, and in three of the six samples from area 3. The highest results were for DDT and its metabolites (DDD and DDE), a pesticide that had agricultural and residential uses, and for chlordane, which has been used in the past for termite control in houses and insect control on turf. Although the results are consistent with background levels, neither of these sampling intervals is likely to be representative of surface soil exposures in a residential setting. In addition, since DDT and its metabolites and chlordane tend not to be very mobile in soils, it is possible that most of the contamination is present in a portion of the 0-2 foot interval that is closer to the surface. If we assume that all of the contamination present in the 0-2 foot interval was present in the uppermost two inches, then potential concentrations for the 0-2 inch interval can be estimated by multiplying the 0-2 foot positive results by 12 (we are unable to estimate results for the analytes that were not detected). For example, the range of results for DDT, DDD and DDE could be <4-11160 ppb (<0.004 -11.2 ppm), <2-2400 ppb (<0.002-2.4 ppm) and <2-4080 ppb (<0.002-4.08 ppm), respectively; and for chlordane, the range could be <8-5880 ppb (<0.008-5.88 ppm). Typical background levels of DDT, DDD and DDE in residential soils tend to range 0.01-6 ppm, 0.01-5 ppm and 0.01-7 ppm, respectively; total DDT residues (the sum of these three analytes) tend to range 0.01-18 ppm. It is not possible to definitively determine what levels of DDT and its metabolites are present in surface soils from these sampling results. The maximum estimated DDT concentration is slightly above the range of typical values, however, the maximum concentration of total DDT residues (approximately 17 ppm) is within the commonly detected range. We have not compiled data that characterize the typical occurrence of chlordane in New York State soils. Some data from surveys of U.S. soils have been summarized in various journals and reference works. The estimated results for chlordane in these samples are consistent with published ranges commonly found in soil.

In the absence of reliable information about what products were probably applied to a particular property, we typically recommend that samples be analyzed for lead and arsenic in addition to DDT and its metabolites, because products containing these analytes were widely used for many purposes in the past. For example, it has been common practice to apply a broad spectrum of fungicides and herbicides to turf, and turf-use products have contained arsenic as an active ingredient in the past. Metals, such as lead and arsenic, tend to accumulate in surface soils. We do not know if the sample analytes represent the full spectrum of pesticide active ingredients that were used at the site and that might be persistent in surface soil. We also do not know

whether products containing lead or arsenic were used at the McGovern-Barbash property.

The soil sampling found no significant residues on most of the property and indicate that a soils management plan would not be needed for residential development. However, the area represented by samples 1-1 through 1-4 could have DDT levels that are near the high end of background levels. This may indicate heavier pesticide use in this area than elsewhere on the property and could be considered for further evaluation or remediation if the area will become residential yards.

In the event that you receive an application to convert a similar property to residential or other public use in the future, or if you decide that additional soil sampling is appropriate for this project, you may find the following generic guidance for subdivisions to be helpful.

- We will not accept requests for our assistance from Town Boards or other agencies except through the county health department.
- Where soil contamination from past land uses is suspected, we recommend collecting soil samples from the surface to a depth of two or three inches, to represent potential exposures to soil contaminants when children play in and incidentally ingest soil. Six-inch samples can be collected, saving the bottom interval of the samples for analysis pending the results of the surface samples. If contaminant levels in surface soil significantly exceed background ranges, we typically suggest that the county health department consider requesting the applicant to analyze the deeper soil samples and to prepare a soils management plan (SMP) to address the areas of elevated contamination. Analytical results from this second interval are often useful for determining the vertical extent of contamination that permits an assessment of the potential for exposure to contaminants from consumption of homegrown vegetables and for evaluating various options proposed by the developer or his agent for addressing areas with elevated contaminant levels during the normal course of on-site activities. The scope of a SMP is related to the goals of the developer, the nature of the site and the extent of elevated levels, but does not necessarily involve the removal of material from the site.
- We also typically recommend that the sampling plan take into account the proposed development plan and the likely mechanism of exposure (e.g., gardening, children playing, etc.). Initial sampling efforts can focus on areas that are likely to have accumulated the highest contaminant levels (such as potential pesticide mixing areas) and that reflect the areas that are most likely to be frequented by children once the development is complete (such as residential yards, play areas and common

areas). Collecting samples from areas that are proposed to be paved over or from which soil is intended to be removed to establish final grades is less important. Similarly, sampling can be less important in areas that will be under buildings, driveways, parking lots, or other features that make it unlikely that young children could come into contact with these soils. However, notification mechanisms such as deed restrictions or notification may be appropriate for these areas, if left unsampled or contamination is not addressed, to prevent excavation of contaminated soils during future construction or maintenance activities.

- We typically recommend that the samples be analyzed for lead, arsenic and DDT and its metabolites, because these were widely used in agriculture and are persistent. It is appropriate to substitute or supplement these analyses based on the extent of your knowledge (or that of the developer or landowner) of the property and its potential past uses. Samples should be analyzed by a laboratory that is certified through the State Health Department's Environmental Laboratory Approval Program (ELAP).
- We generally recommend against compositing samples from a large area or from disparate areas, because of the added difficulty of interpreting the results. This difficulty is increased as the number of locations composited into a single sample is increased and as the locations composited are further apart.

Please contact me at (518) 458-6376 if you have any questions concerning these remarks.

Sincerely,

Edward G. Horn, Ph. D.
Director
Bureau of Toxic Substance Assessment

cc: Mr. Michelen
Dr. Kim
Mr. Knudsen
Mr. Chinery/Mr. Ridenour

Ms. Metzger
Mr. Wakeman
Mr. Machtay

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STATE OF NEW YORK
DEPARTMENT OF HEALTH

11 University Place Albany, New York 12203-3399

Karen Schimke
Executive Deputy Commissioner

Office of Public Health

Barbara A. DoBuono, M.D., M.P.H.
Commissioner

July 15, 1996

Mr. Frank Randall, Chief
Inspection Service Bureau
Suffolk County Department of Health Services
225 Rabro Drive E.
Hauppauge, NY 11787

Dear Mr. Randall:

As directed by your letter of May 16, 1996 to Mr. Richard Machtay, Director of Planning for the Town of Huntington, Mr. Gary Cluen of GZA GeoEnvironmental, Inc., sent us a copy of the Phase I Environmental Site Assessment prepared for an 11-acre parcel of vacant land on Republic Road in Melville, New York. Avalon Properties, Inc., is seeking to develop this parcel, which was formerly used for agricultural purposes, into a residential apartment complex. From his letter, it appears that Mr. Cluen is under the impression that we have an oversight responsibility relative to the remediation of contaminated soils at former agricultural lands that could be developed into residential property. In your discussions with property owners, developers and their consultants, please explain that the role of the Bureau of Toxic Substance Assessment in these matters is restricted to responding to requests from local health departments for technical assistance in support of their activities related to permitting of subdivisions. Thus, this letter provides you with our impression of the results of soil analyses presented in the Phase I report. Please feel free to share this information with the developer as you wish.

Nine samples from the uppermost four to six inches of soil were analyzed for metals and chlorinated pesticides/herbicides. Figure 3 (following page 22 of the text) shows that a grid pattern was used, with samples spaced approximately 150 feet apart. GZA compared the analytical results to a Technical and Administrative Guidance Memorandum of the Division of Hazardous Waste Remediation within the New York State Department of Environmental Conservation (HWR-94-4046). This guidance is not relevant to subdivisions. It was developed as a tool for evaluating the potential for soil contamination at hazardous waste sites to cause impacts to groundwater, and does not address the potential for direct exposure to contaminated soils, as would be expected to occur in a residential setting (e.g., ingestion of soil by children or consumption of homegrown vegetables).

In the nine samples, the pesticide and herbicide scans detected only DDT and its degradates. Their concentrations were very low and were consistent with typical background ranges. With the exception of arsenic, metals levels were also consistent with background ranges. Typical average background levels of arsenic in surface soils tend to range 10-20 parts per million (ppm); arsenic levels in these samples ranged 17.8-37.7 ppm, with seven of the nine samples exceeding 20 ppm. The arsenic concentrations are slightly above typical background levels. Arsenic and other metals may interact with organic matter and has been uniformly distributed through the entire interval sampled (for example, by past agricultural practices at this site), arsenic levels at the surface of these samples could be higher (by a factor of two or three or perhaps more) than these results suggest. Because these results represent the average level over the whole four- to six-inch sample, you may want to consider whether it may be useful to determine whether arsenic is more concentrated in the surface interval of the soil if a request for subdivision approval is forthcoming. Given the industrial character of the properties surrounding this particular parcel, you may also wish to consider whether this or the adjacent properties could have been affected by other

non-agricultural past uses not identified by this investigation. We have no way to assess the thoroughness of this investigation in this regard.

In the event that you receive an application to subdivide this or another parcel in the future, you may find the following generic guidance for subdivisions to be helpful.

- We usually suggest collecting soil samples from the surface to a depth of two or three inches, to represent the interval typically involved when children play in and incidentally ingest soil. If contaminant levels in surface soil exceed background ranges, we typically suggest that the local health department consider requesting the applicant to prepare a soils management plan (SMP) to address the elevated areas. In light of this, it may be prudent to collect samples from the bottom of the first interval to a depth of six inches at the time the upper interval is sampled, and to archive these pending the results of the surface samples. Analytical results from this second interval are often useful for determining the vertical extent of contamination and for evaluating various options proposed by the developer or his agent for addressing areas with elevated contaminant levels during the normal course of on-site activities. The scope of a SMP is related to the goals of the developer, the nature of the site and the extent of elevated levels, but does not necessarily involve removal of material from the site.
- We also typically recommend that the sampling plan take into account the proposed development plan and the likely mechanism of exposure, e.g., gardening, children playing, etc. It is often useful to focus initial sampling efforts on areas that are likely to have accumulated the highest contaminant levels, (such as potential pesticide mixing areas) and that reflect the areas that in the future are most likely to be frequented by children (such as residential yards, play areas and common areas). It is less important to sample areas that are proposed to be paved over or from which soil is intended to be removed to establish final grades. Similarly, elevated levels are of less concern if they occur in areas that will be under buildings, driveways, parking lots, or other features that make it unlikely that young children could come into contact with these soils.
- With regard to analytes, we typically recommend that the samples be analyzed for lead, arsenic and DDT and its metabolites, because these were widely used in agriculture and are persistent. It is appropriate to substitute or supplement these analyses based on the extent of your knowledge of the property and its potential past uses (or that of the developer or landowner).

Please feel free to contact Mr. Jim Ridenour at (518) 458-6409 if you have any questions concerning these remarks. If requested to do so, we can assist you further with evaluating additional sampling and analysis plans and/or SMPs, if you think they might be warranted.

Sincerely,



Edward G. Horn, Ph.D.
Director
Bureau of Toxic Substance Assessment

cap/96163PRO0192

cc: Dr. Kim
Mr. Wakeman
Dr. Soto
Mr. Knudsen
Mr. Chinery/Mr. Ridenour

ATTACHMENT B
LABORATORY DATA SHEETS

American Analytical Laboratories, Inc.





NYSDOH ELAP 11418
AIHA PAT, LPAT 102391
CTDOH PH-0205

October 29, 1999

Steven J. McGinn
Nelson, Pope & Voorhis, LLC
572 Walt Whitman Rd.
Melville, NY 11747

Re: Hren Property

Dear Mr. McGinn;

Enclosed please find the Laboratory Analysis Report(s) for sample(s) received on October 27, 1999. American Analytical Laboratories analyzed the samples through November 02, 1999 for the following;

CLIENT ID	ANALYSIS
SS-1 0-3	EPA 8081 Pesticides, Total Lead, Total Arsenic
SS-2 0-3	EPA 8081 Pesticides, Total Lead, Total Arsenic
SS-3 0-3	EPA 8081 Pesticides, Total Lead, Total Arsenic
SS-4 0-3	EPA 8081 Pesticides, Total Lead, Total Arsenic

If you have any questions or require further information, please call at your convenience. American Analytical Laboratories would like to thank you for the opportunity to be of service to you.

Best Regards,

American Analytical Laboratories, Inc.

Client: Nelson, Pope & Voorhis, LLC	Client ID: Hren Property (See Below)
Date received: 10/27/99	Laboratory ID: See Below
Date extracted: 10/29/99	Matrix: Soil
Date analyzed: 11/01/99	Contractor: 11418

METALS RESULTS

LABORATORY ID	CLIENT ID	PARAMETER	RESULTS
9915798	SS-1 0-3	Arsenic, As	<1.0mg/kg
9915800	SS-2 0-3	Arsenic, As	<1.0mg/kg
9915802	SS-3 0-3	Arsenic, As	<1.0mg/kg
9915804	SS-4 0-3	Arsenic, As	<1.0mg/kg

Client: Nelson, Pope & Voorhis, LLC	Client ID: Hren Property (See Below)
Date received: 10/27/99	Laboratory ID: See Below
Date extracted: 10/29/99	Matrix: Soil
Date analyzed: 11/01/99	Contractor: 11418

TOTAL Pb ANALYSIS

Lab ID	Client ID	Results mg/kg
9915798	SS-1 0-3	22.8
9915800	SS-2 0-3	33.5
9915802	SS-3 0-3	24.1
9915804	SS-4 0-3	35.1

Performed by SW-846 Method 6010



Laboratory Director

Client: Nelson, Pope & Voorhis, LLC	Client ID: Hren Property (SS-1 0-3)
Date received: 10/27/99	Laboratory ID:9915798
Date extracted:10/27/99	Matrix: Soil
Date analyzed:10/28/99,11/02/99	Contractor: 11418

PESTICIDES EPA METHOD 8081

COMPOUND	CAS No.	RESULTS ug/kg
Aldrin	309-00-2	<5
α - BHC	319-84-6	<5
β - BHC	319-85-7	<5
δ - BHC	319-86-8	<5
γ - BHC (Lindane)	58-89-9	<5
Chlordane	12789-03-6	1900
4,4'- DDD	72-54-8	150
4,4'-DDE	72-55-9	400
4,4'-DDT	50-29-3	650
Dieldrin	60-57-1	47.0
Endosulfan I	959-98-8	24
Endosulfan II	33212-65-9	<5
Endosulfan sulfate	1031-07-8	<5
Endrin	72-20-8	<5
Endrin aldehyde	7421-93-4	<5
Heptachlor	76-44-8	<5
Heptachlor epoxide	1024-57-3	58
4,4'-Methoxychlor	72-43-5	<5
Toxaphene	8001-35-2	<10
Endrin ketone	53494-70-5	<5

Client: Nelson, Pope & Voorhis, LLC	Client ID: Hren Property (SS-2 0-3)
Date received: 10/27/99	Laboratory ID:9915800
Date extracted:10/27/99	Matrix: Soil
Date analyzed:10/29/99,11/02/99	Contractor: 11418

PESTICIDES EPA METHOD 8081

COMPOUND	CAS No.	RESULTS ug/kg
Aldrin	309-00-2	<5
α - BHC	319-84-6	<5
β - BHC	319-85-7	<5
δ - BHC	319-86-8	<5
γ - BHC (Lindane)	58-89-9	<5
Chlordane	12789-03-6	69
4,4'- DDD	72-54-8	70
4,4'-DDE	72-55-9	170
4,4'-DDT	50-29-3	210
Dieldrin	60-57-1	<5
Endosulfan I	959-98-8	<5
Endosulfan II	33212-65-9	<5
Endosulfan sulfate	1031-07-8	<5
Endrin	72-20-8	<5
Endrin aldehyde	7421-93-4	<5
Heptachlor	76-44-8	<5
Heptachlor epoxide	1024-57-3	<5
4,4'-Methoxychlor	72-43-5	<5
Toxaphene	8001-35-2	<10
Endrin ketone	53494-70-5	<5

Lo. Bay

Laboratory Director

Client: Nelson, Pope & Voorhis, LLC	Client ID: Hren Property (SS-3 0-3)
Date received: 10/27/99	Laboratory ID:9915802
Date extracted:10/27/99	Matrix: Soil
Date analyzed:10/29/99,11/02/99	Contractor: 11418

PESTICIDES EPA METHOD 8081

COMPOUND	CAS No.	RESULTS ug/kg
Aldrin	309-00-2	<5
α - BHC	319-84-6	<5
β - BHC	319-85-7	<5
δ - BHC	319-86-8	<5
γ - BHC (Lindane)	58-89-9	<5
Chlordane	12789-03-6	<5
4,4'- DDD	72-54-8	140
4,4'-DDE	72-55-9	300
4,4'-DDT	50-29-3	670
Dieldrin	60-57-1	<5
Endosulfan I	959-98-8	<5
Endosulfan II	33212-65-9	<5
Endosulfan sulfate	1031-07-8	<5
Endrin	72-20-8	<5
Endrin aldehyde	7421-93-4	<5
Heptachlor	76-44-8	<5
Heptachlor epoxide	1024-57-3	<5
4,4'-Methoxychlor	72-43-5	<5
Toxaphene	8001-35-2	<10
Endrin ketone	53494-70-5	<5

Client: Nelson, Pope & Voorhis, LLC	Client ID: Hren Property (SS-4 0-3)
Date received: 10/27/99	Laboratory ID: 9915804
Date extracted: 10/27/99	Matrix: Soil
Date analyzed: 10/29/99, 11/02/99	Contractor: 11418

PESTICIDES EPA METHOD 8081

COMPOUND	CAS No.	RESULTS ug/kg
Aldrin	309-00-2	<5
α - BHC	319-84-6	<5
β - BHC	319-85-7	<5
δ - BHC	319-86-8	<5
γ - BHC (Lindane)	58-89-9	<5
Chlordane	12789-03-6	<5
4,4'- DDD	72-54-8	90
4,4'-DDE	72-55-9	340
4,4'-DDT	50-29-3	370
Dieldrin	60-57-1	<5
Endosulfan I	959-98-8	<5
Endosulfan II	33212-65-9	<5
Endosulfan sulfate	1031-07-8	<5
Endrin	72-20-8	<5
Endrin aldehyde	7421-93-4	<5
Heptachlor	76-44-8	<5
Heptachlor epoxide	1024-57-3	<5
4,4'-Methoxychlor	72-43-5	<5
Toxaphene	8001-35-2	<10
Endrin ketone	53494-70-5	<5

APPENDIX C

SONIR COMPUTER MODEL RESULTS

C-1 SONIR Model User Guide

C-2 Alternative 1/Existing Conditions

C-3 Proposed Conditions

C-4 Alternatives 2, 3 & 4



Appendix C-1
SONIR Model User Guide



APPENDIX C-1

SONIR MODEL USER GUIDE

for

HREN PROPERTY

Hamlet of Huntington, Town of Huntington, New York

Simulation of Nitrogen in Recharge (SONIR)
Charles Voorhis Microcomputer Model

INTRODUCTION

SONIR is a microcomputer model developed by Charles Voorhis for use by Nelson, Pope & Voorhis, LLC 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.

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):

$$R = P - (E + Q)$$

when

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 landcover 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) which is capable of recharging precipitation is entered in this data cell. For sites which include tidal wetlands, the area which 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 which 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). A tabulation of monthly and annual precipitation averages excerpted from this reference is included in the table cited for Evapotranspiration values. Data entry is in inches.

For the subject parcel, the Mineola station is nearest the site, therefore a rate of 43.65 inches per year is used.

3. *Acreage of Lawn* - The total area of lawn (in acres) is entered in this Data Cell. This area includes all lawn area whether it is irrigated, fertilized or unmaintained. If there is no lawn area, a value of zero (0) is entered.
4. *Fraction of Land in Lawn* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land in Lawn by dividing the lawn area by total area.
5. *Evapotranspiration from Lawn* - Evapotranspiration is the natural water loss attributed to evaporation and plant utilization. Rainwater which 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:

<u>Location</u>	<u>Soil Type</u>	<u>Vegetation</u>	<u>ET(in)</u>	<u>ET(%)</u>
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

For the project site, evapotranspiration was varied as follows: 25.50 for wooded areas, and 23.80 for lawn areas.

6. *Runoff from Lawn* - Runoff is the quantity of water which 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 percent); Suffolk County (0.7 percent), and Long Island in general (1.0 percent). If an average precipitation rate of 45 inches per year is assumed, runoff will vary from 0.31 to 0.94 inches. Lawn 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 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.
8. *Fraction of Land Impervious* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land in Lawn by dividing the lawn area by total area.
9. *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 percent 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 percent of precipitation. This assumption coincides with most drainage computations required by Code Subdivision Regulations for determined leaching pool capacity.
10. *Runoff from Impervious* - The approximation of evaporation from impervious would indicate that recharge/runoff would comprise the remaining 90 percent 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).
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 higher end of the range (0.7 to 2.1 percent of precipitation) is expected due to lack of groundcover vegetation.
15. *Acreage of Water* - 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 unvegetated 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 which 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 unvegetated 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 unvegetated 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 unvegetated areas on a site specific basis. Generally lower values in the range of 0.7 percent of precipitation are expected due to groundcover and canopy vegetation.
23. *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 which has different hydrologic properties, such as a moist hardwood forest or vegetated freshwater wetland, where evapotranspiration would be high and runoff would be extremely low.
24. *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 unvegetated area by total area.
25. *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.
26. *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.
27. *Acreage of Land Irrigated* - Imported 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).
28. *Fraction of Land Irrigated* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land Irrigated by dividing the unvegetated area by total area.
29. *Irrigation Rate* - The rate of irrigation must be entered in this Data Cell (in inches). Hughes and Porter (1983; p. 10) have indicated that lawn irrigation is estimated to be about 5.5 inches per year. This value is entered in Data Cell 28 as the most accurate approximation.
30. *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 which 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.

31. *Water Use per Dwelling* - The water use should correspond to the total site non-irrigation water use, divided by the number of units.
32. *Wastewater Design Flow* - 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.
33. *Commercial/STP Design Flow* - SONIR permits the consideration of recharge from commercial projects, denitrification systems and sewage treatment plants. The Commercial/STP Design Flow is entered in this Data Cell as per County DPW or engineering design standards.

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 which are performed by the model:

- A. *Lawn Area Recharge* - Lawn 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. *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.
- 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 Unvegetated Area to determine the component of Unvegetated Area Recharge in overall site recharge.
- 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 Natural Area to determine the component of Natural Area Recharge in overall site recharge.
- F. *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 Other Area to determine the component of Other Area Recharge in overall site recharge.
- G. *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 which is irrigated in order to determine the Irrigation Recharge in overall site recharge.

H. *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.

Once the eight (8) 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 which 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. Based on multipliers listed in "The New Practitioner's Guide to Fiscal Impact Analysis", (**Rutgers, 1985**), the average number of residents is calculated at 3.50/unit (Existing Conditions), and will be 0/unit (Proposed Conditions), as the proposed project is served by the public sanitary sewer system.
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* - For normal residential systems, Porter and Hughes report that 50 percent of the nitrogen entering the system is converted to gaseous nitrogen and the remainder leaches into the soil (**Porter and Hughes, 1983; p. 14**).
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 does not necessarily have to be 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 Nonpoint Source Management Handbook (**Koppelman, 1984; Chapter 5, p.6**):

Residential	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

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 percent organic nitrogen. This is applied in a dry form approximately 3 times per year, and 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 2.1 pounds per 1000 square feet. This is a conservative value based on three applications of relatively high nitrogen fertilizer, which will be used for nitrogen in recharge simulation.

In addition, it is noted that the Nonpoint Source Management Handbook indicates that application rates as low as 1.0 lb/1000 sq ft can be achieved with proper fertilizer management control.

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 PPlan. Based on those studies, a conservative nitrogen leaching rate of 14 percent has been applied in the model.
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 which 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 which 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 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 whereby, 50 percent of the nitrogen applied to the ground is removed as a gas.
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 27 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**) indicate that "plant uptake and gaseous losses are assumed to remove 85% of the nitrogen entering in precipitation". Irrigation nitrogen would be expected to be subject to the same losses, therefore, a leaching rate of 15% is 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**).
16. *Precipitation Nitrogen Leaching Rate* - As indicated above, a nitrogen leaching rate of 15% is applied to precipitation nitrogen.
17. *Nitrogen in Water Supply* - The concentration of Nitrogen in Water Supply determines the quantity of nitrogen which 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 Commercial/STP Flow* - 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 15 mg/l in weak effluent; 40 mg/l in medium strength effluent, and 60 mg/l in strong effluent (**Canter and Knox, 1985; p. 47**). It is recommended that a value of 40 mg/l be used for total nitrogen concentration in

commercial 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. 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 be 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 percent 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.

Site Nitrogen Budget - Sheet 2

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 which 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 utilizes a denitrification system, the number of dwellings should not be entered in the Data Entry Field, in which case the total nitrogen from this source will 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 percent 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 (Commercial/STP)* - SONIR utilizes the Commercial/STP Flow which 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.
- F. *Fertilizer Nitrogen 2* - If fertilization rates vary, the Area of Land Fertilized 2, 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 be 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 AND SUMMARY

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 field summarizes the Conversions Used in SONIR. Conversions are standard conversion multipliers as found in standard engineering references.

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 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 C-2

Alternative 1/Existing Conditions



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

HREN PROPERTY

DATA INPUT FIELD

Alternative 1/Existing Conditions

SHEET 1

A	Site Recharge Parameters	Value	Units
1	Area of Site	31.10	acres
2	Precipitation Rate	43.65	inches
3	Acreage of Lawn	0.00	acres
4	Fraction of Land in Lawn	0.000	fraction
5	Evapotranspiration from Lawn	0.00	inches
6	Runoff from Lawn	0.00	inches
7	Acreage of Impervious	0.62	acres
8	Fraction of Land Impervious	0.020	fraction
9	Evaporation from Impervious	4.37	inches
10	Runoff from Impervious	0.00	inches
11	Acreage of Unvegetated	0.00	acres
12	Fraction of Land Unvegetated	0.000	fraction
13	Evapotrans. from Unvegetated	0.00	inches
14	Runoff from Unvegetated	0	inches
15	Acreage of Water	0.00	acres
16	Fraction of Site in Water	0.000	fraction
17	Evaporation from Water	0.00	inches
18	Makeup Water (if applicable)	0.00	inches
19	Acreage of Natural Area	30.48	acres
20	Fraction of Land Natural	0.980	fraction
21	Evapotrans. from Natural Area	25.20	inches
22	Runoff from Natural Area	0.31	inches
23	Acreage of Other Area	0.00	acres
24	Fraction of Land Other Area	0.000	fraction
25	Evapotrans. from Other Area	0.00	inches
26	Runoff from Other Area	0.00	inches
27	Acreage of Land Irrigated	0.00	acres
28	Fraction of Land Irrigated	0.000	fraction
29	Irrigation Rate	0.00	inches
30	Number of Dwellings	0	units
31	Water Use per Dwelling	0	gal/day
32	Wastewater Design Flow	0	gal/day
33	Commercial /STP Design Flow	0	gal/day

B	Nitrogen Budget Parameters	Value	Units
1	Persons per Dwelling	0.00	persons
2	Nitrogen per Person per Year	0.0	lbs
3	Sanitary Nitrogen Leaching Rate	0	percent
4	Area of Land Fertilized 1	0.00	acres
5	Fertilizer Application Rate 1	0.00	lbs/1000 sq ft
6	Fertilizer Nitrogen Leaching Rate 1	0	percent
7	Area of Land Fertilized 2	0.00	acres
8	Fertilizer Application Rate 2	0.00	lbs/1000 sq ft
9	Fertilizer Nitrogen Leaching Rate 2	0	percent
10	Pet Waste Application Rate	0.00	lbs/pet
11	Pet Waste Nitrogen Leaching Rate	0	percent
12	Area of Land Irrigated	0.00	acres
13	Irrigation Rate	0.00	inches
14	Irrigation Nitrogen Leaching Rate	0	percent
15	Nitrogen in Precipitation	1.50	mg/l
16	Precipitation Nitrogen Leaching Rate	15	percent
17	Nitrogen in Water Supply	5.63	mg/l
18	Nitrogen in Commercial/STP Flow	0.00	mg/l

C	Comments
1)	Please refer to user manual for data input instructions.



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE RECHARGE COMPUTATIONS

Alternative 1/Existing Conditions

SHEET 2

A	<i>Lawn Area Recharge</i>	Value	Units
1	A = Fraction of Land in Lawn	0.000	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	$R(l) = P - (E + Q)$	43.65	inches
6	$R(L) = R(l) \times A$	0.00	inches

B	<i>Impervious Area Recharge</i>	Value	Units
1	A = Fraction of Land in Impervious	0.020	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	4.37	inches
4	Q = Runoff Rate	0.00	inches
5	$R(i) = P - (E + Q)$	39.29	inches
6	$R(I) = R(i) \times A$	0.78	inches

C	<i>Unvegetated Area Recharge</i>	Value	Units
1	A = Fraction of Land Unveg.	0.000	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	$R(u) = P - (E + Q)$	43.65	inches
6	$R(U) = R(u) \times A$	0.00	inches

D	<i>Water Area Loss</i>	Value	Units
1	A = Fraction of Site in Water	0.000	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evaporation Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	M = Makeup Water	0.00	inches
6	$R(w) = \{P - (E+Q)\} - M$	43.65	inches
7	$R(W) = R(w) \times A$	0.00	inches

E	<i>Natural Area Recharge</i>	Value	Units
1	A = Fraction of Land in Natural	0.980	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	25.20	inches
4	Q = Runoff Rate	0.31	inches
5	$R(n) = P - (E + Q)$	18.14	inches
6	$R(N) = R(n) \times A$	17.78	inches

F	<i>Other Area Recharge</i>	Value	Units
1	A = Fraction of Land in Other	0.000	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	$R(o) = P - (E + Q)$	43.65	inches
6	$R(O) = R(o) \times A$	0.00	inches

G	<i>Irrigation Recharge</i>	Value	Units
1	A = Fraction of Land Irrigated	0.000	fraction
2	I = Irrigation Rate	0.00	inches
3	E = Evapotranspiration Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	$R(irr) = I - (E + Q)$	0.00	inches
6	$R(IRR) = R(irr) \times A$	0.00	inches

H	<i>Wastewater Recharge</i>	Value	Units
1	WDF = Wastewater Design Flow	0	gal/day
2	WDF = Wastewater Design Flow	0	cu ft/yr
3	A = Area of Site	1,354,716	sq ft
4	$R(ww) = WDF/A$	0.00	feet
5	$R(WW) = Wastewater Recharge$	0.00	inches

Total Site Recharge		
R(T) =	$R(L) + R(I) + R(U) + R(W) + R(N) + R(O) + R(IRR) + R(WW)$	
R(T) =	18.56	inches



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE NITROGEN BUDGET

Alternative 1/Existing Conditions

SHEET 3

A	Sanitary Nitrogen-Residential	Value	Units
1	Number of Dwellings	0	units
2	Persons per Dwelling	0.00	capita
3	P = Population	0.00	capita
4	N = Nitrogen per person	0	lbs
5	LR = Leaching Rate	0	percent
6	$N(S) = P \times N \times LR$	0.00	lbs
7	N(S) = Sanitary Nitrogen	0.00	lbs

B	Pet Waste Nitrogen	Value	Units
1	AR = Application Rate	0.00	lbs/pet
2	Human Population	0	capita
3	Pets = 17 percent of capita	0	pets
4	$N(p) = AR \times \text{pets}$	0.00	lbs
5	LR = Leaching Rate	0	percent
6	$N(P) = N(p) \times LR$	0.00	lbs
7	N(P) = Pet Waste Nitrogen	0.00	lbs

C	Sanitary Nitrogen (Commercial/STP)	Value	Units
1	CF = Commercial/STP Flow	0	gal/day
2	CF = Commercial/STP Flow	0	liters/yr
3	N = Nitrogen in Commercial	0.00	mg/l
4	$N(S) = CF \times N$	0	milligrams
5	N(S) = Sanitary Nitrogen	0.00	lbs

D	Water Supply Nitrogen	Value	Units
1	WDF = Wastewater Design Flow	0	gal/day
2	WDF = Wastewater Design Flow	0	liters/yr
3	N = Nitrogen in Water Supply	5.63	mg/l
4	$N(WW) = WDF \times N$	0	milligrams
5	N(WW) = Wastewater Nitrogen	0.00	lbs

E	Fertilizer Nitrogen 1 (Residential)	Value	Units
1	A = Area of Land Fertilized 1	0	sq ft
2	AR = Application Rate	0.00	lbs/1000 sf
3	LR = Leaching Rate	0	percent
4	$N(F1) = A \times AR \times LR$	0.00	lbs
5	N(F1) = Fertilizer Nitrogen	0.00	lbs

F	Fertilizer Nitrogen 2 (Commercial)	Value	Units
1	A = Area of Land Fertilized 2	0	sq ft
2	AR = Application Rate	0.00	lbs/1000 sf
3	LR = Leaching Rate	0	percent
4	$N(F2) = A \times AR \times LR$	0.00	lbs
5	N(F2) = Fertilizer Nitrogen	0.00	lbs

G	Precipitation Nitrogen	Value	Units
1	R(n) = Natural Recharge (feet)	1.55	feet
2	A = Area of Site (sq ft)	1,354,716	sq ft
3	$R(N) = R(n) \times A$	2,095,468	cu ft
4	R(N) = Natural Recharge (liters)	59,343,653	liters
5	N = Nitrogen in Precipitation	1.50	mg/l
6	LR = Leaching Rate	15	percent
7	$N(\text{ppt}) = P(S) \times N \times LR$	1,335,232	milligrams
8	N(ppt) = Precipitation Nitrogen	2.94	lbs

H	Irrigation Nitrogen	Value	Units
1	R = Irrigation Recharge (inches)	0.00	inches
2	R = Irrigation Rate (feet)	0.00	feet
3	A = Area of Land Irrigated	0	sq ft
4	$R(I) = R(\text{irr}) \times A$	0	cu ft
5	R(I) = Site Precipitation (liters)	0	liters
6	N = Nitrogen in Water Supply	5.63	mg/l
7	LR = Leaching Rate	0	percent
8	$N(\text{irr}) = R(I) \times N \times LR$	0	milligrams
9	N(irr) = Irrigation Nitrogen	0.00	lbs

Total Site Nitrogen		
N=	$N(S) + N(P) + N(WW) + N(F1) + N(F2) + N(\text{ppt}) + N(\text{irr})$	
N=	2.94	lbs



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

HREN PROPERTY

Alternative 1/Existing Conditions

SHEET 4

FINAL COMPUTATIONS

<i>A</i>	<i>Nitrogen in Recharge</i>	<i>Value</i>	<i>Units</i>
1	N = Total Nitrogen (lbs)	2.94	lbs
2	N = Total Nitrogen (milligrams)	1,336,661	milligrams
3	R(T) = Total Recharge (inches)	18.56	inches
4	R(T) = Total Recharge (feet)	1.55	feet
5	A = Area of Site	1,354,716	sq ft
6	R = R(T) x A	2,095,468	cu ft
7	R = Site Recharge Volume	59,343,653	liters
9	NR = N/R	0.02	mg/l

FINAL CONCENTRATION OF
NITROGEN IN RECHARGE

0.02

<i>B</i>	<i>Site Recharge Summary</i>	<i>Value</i>	<i>Units</i>
1	R(T) = Total Site Recharge	18.56	inches/yr
2	R = Site Recharge Volume	2,095,468	cu ft/yr
3	R = Site Recharge Volume	15,675,190	gal/yr
4	R = Site Recharge Volume	15.68	MG/yr

<i>Conversions used in SONIR</i>
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 C-3
Proposed Conditions



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

DATA INPUT FIELD

HREN PROPERTY

Proposed Conditions

SHEET 1

<i>A</i>	<i>Site Recharge Parameters</i>	<i>Value</i>	<i>Units</i>
1	Area of Site	31.10	acres
2	Precipitation Rate	43.65	inches
3	Acreage of Lawn	5.77	acres
4	Fraction of Land in Lawn	0.186	fraction
5	Evapotranspiration from Lawn	22.40	inches
6	Runoff from Lawn	0.31	inches
7	Acreage of Impervious	8.38	acres
8	Fraction of Land Impervious	0.269	fraction
9	Evaporation from Impervious	4.37	inches
10	Runoff from Impervious	0.00	inches
11	Acreage of Unvegetated	0.00	acres
12	Fraction of Land Unvegetated	0.000	fraction
13	Evapotrans. from Unvegetated	0.00	inches
14	Runoff from Unvegetated	0	inches
15	Acreage of Water	0.00	acres
16	Fraction of Site in Water	0.000	fraction
17	Evaporation from Water	0.00	inches
18	Makeup Water (if applicable)	0.00	inches
19	Acreage of Natural Area	16.95	acres
20	Fraction of Land Natural	0.545	fraction
21	Evapotrans. from Natural Area	25.20	inches
22	Runoff from Natural Area	0.31	inches
23	Acreage of Other Area	0.00	acres
24	Fraction of Land Other Area	0.000	fraction
25	Evapotrans. from Other Area	0.00	inches
26	Runoff from Other Area	0.00	inches
27	Acreage of Land Irrigated	5.77	acres
28	Fraction of Land Irrigated	0.186	fraction
29	Irrigation Rate	5.50	inches
30	Number of Dwellings	9	units
31	Water Use per Dwelling	300	gal/day
32	Wastewater Design Flow	2,700	gal/day
33	Commercial /STP Design Flow	3,450	gal/day

<i>B</i>	<i>Nitrogen Budget Parameters</i>	<i>Value</i>	<i>Units</i>
1	Persons per Dwelling	3.00	persons
2	Nitrogen per Person per Year	10.0	lbs
3	Sanitary Nitrogen Leaching Rate	50	percent
4	Area of Land Fertilized 1	4.13	acres
5	Fertilizer Application Rate 1	2.30	lbs/1000 sq ft
6	Fertilizer Nitrogen Leaching Rate 1	14	percent
7	Area of Land Fertilized 2	0.00	acres
8	Fertilizer Application Rate 2	3.50	lbs/1000 sq ft
9	Fertilizer Nitrogen Leaching Rate 2	14	percent
10	Pet Waste Application Rate	0.00	lbs/pet
11	Pet Waste Nitrogen Leaching Rate	0	percent
12	Area of Land Irrigated	5.77	acres
13	Irrigation Rate	5.50	inches
14	Irrigation Nitrogen Leaching Rate	15	percent
15	Nitrogen in Precipitation	1.50	mg/l
16	Precipitation Nitrogen Leaching Rate	15	percent
17	Nitrogen in Water Supply	5.63	mg/l
18	Nitrogen in Commercial/STP Flow	40.00	mg/l

<i>C</i>	<i>Comments</i>
1)	Please refer to user manual for data input instructions.



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE RECHARGE COMPUTATIONS

Proposed Conditions

SHEET 2

A	Lawn Area Recharge	Value	Units
1	A = Fraction of Land in Lawn	0.186	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	22.40	inches
4	Q = Runoff Rate	0.31	inches
5	$R(l) = P - (E + Q)$	20.94	inches
6	$R(L) = R(l) \times A$	3.89	inches

B	Impervious Area Recharge	Value	Units
1	A = Fraction of Land in Impervious	0.269	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	4.37	inches
4	Q = Runoff Rate	0.00	inches
5	$R(i) = P - (E + Q)$	39.29	inches
6	$R(I) = R(i) \times A$	10.59	inches

C	Unvegetated Area Recharge	Value	Units
1	A = Fraction of Land Unveg.	0.000	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	$R(u) = P - (E + Q)$	43.65	inches
6	$R(U) = R(u) \times A$	0.00	inches

D	Water Area Loss	Value	Units
1	A = Fraction of Site in Water	0.000	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evaporation Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	M = Makeup Water	0.00	inches
6	$R(w) = \{P - (E+Q)\} - M$	43.65	inches
7	$R(W) = R(w) \times A$	0.00	inches

E	Natural Area Recharge	Value	Units
1	A = Fraction of Land in Natural	0.545	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	25.20	inches
4	Q = Runoff Rate	0.31	inches
5	$R(n) = P - (E + Q)$	18.14	inches
6	$R(N) = R(n) \times A$	9.89	inches

F	Other Area Recharge	Value	Units
1	A = Fraction of Land in Other	0.000	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	$R(o) = P - (E + Q)$	43.65	inches
6	$R(O) = R(o) \times A$	0.00	inches

G	Irrigation Recharge	Value	Units
1	A = Fraction of Land Irrigated	0.186	fraction
2	I = Irrigation Rate	5.50	inches
3	E = Evaptranspiration Rate	2.82	inches
4	Q = Runoff Rate	0.31	inches
5	$R(irr) = I - (E + Q)$	2.37	inches
6	$R(IRR) = R(irr) \times A$	0.44	inches

H	Wastewater Recharge	Value	Units
1	WDF = Wastewater Design Flow	6,150	gal/day
2	WDF = Wastewater Design Flow	300,100	cu ft/yr
3	A = Area of Site	1,354,716	sq ft
4	$R(ww) = WDF/A$	0.22	feet
5	$R(WW) = Wastewater Recharge$	2.66	inches

Total Site Recharge		
R(T) =	$R(L) + R(I) + R(U) + R(W) + R(N) + R(O) + R(IRR) + R(WW)$	
R(T) =	27.45	inches



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE NITROGEN BUDGET

Proposed Conditions

SHEET 3

A	Sanitary Nitrogen-Residential	Value	Units
1	Number of Dwellings	9	units
2	Persons per Dwelling	3.00	capita
3	P = Population	27.00	capita
4	N = Nitrogen per person	10	lbs
5	LR = Leaching Rate	50	percent
6	$N(S) = P \times N \times LR$	135.00	lbs
7	N(S) = Sanitary Nitrogen	135.00	lbs

B	Pet Waste Nitrogen	Value	Units
1	AR = Application Rate	0.00	lbs/pet
2	Human Population	27	capita
3	Pets = 17 percent of capita	5	pets
4	$N(p) = AR \times \text{pets}$	0.00	lbs
5	LR = Leaching Rate	0	percent
6	$N(P) = N(p) \times LR$	0.00	lbs
7	N(P) = Pet Waste Nitrogen	0.00	lbs

C	Sanitary Nitrogen (Commercial/STP)	Value	Units
1	CF = Commercial/STP Flow	3,450	gal/day
2	CF = Commercial/STP Flow	4,766,261	liters/yr
3	N = Nitrogen in Commercial	40.00	mg/l
4	$N(S) = CF \times N$	190,650,450	milligrams
5	N(S) = Sanitary Nitrogen	420.38	lbs

D	Water Supply Nitrogen	Value	Units
1	WDF = Wastewater Design Flow	6,150	gal/day
2	WDF = Wastewater Design Flow	8,496,379	liters/yr
3	N = Nitrogen in Water Supply	5.63	mg/l
4	$N(WW) = WDF \times N$	47,834,612	milligrams
5	N(WW) = Wastewater Nitrogen	105.48	lbs

E	Fertilizer Nitrogen 1 (Residential)	Value	Units
1	A = Area of Land Fertilized 1	179,903	sq ft
2	AR = Application Rate	2.30	lbs/1000 sf
3	LR = Leaching Rate	14	percent
4	$N(F1) = A \times AR \times LR$	57.93	lbs
5	N(F1) = Fertilizer Nitrogen	57.93	lbs

F	Fertilizer Nitrogen 2 (Commercial)	Value	Units
1	A = Area of Land Fertilized 2	0	sq ft
2	AR = Application Rate	3.50	lbs/1000 sf
3	LR = Leaching Rate	14	percent
4	$N(F2) = A \times AR \times LR$	0.00	lbs
5	N(F2) = Fertilizer Nitrogen	0.00	lbs

G	Precipitation Nitrogen	Value	Units
1	R(n) = Natural Recharge (feet)	2.03	feet
2	A = Area of Site (sq ft)	1,354,716	sq ft
3	$R(N) = R(n) \times A$	2,749,744	cu ft
4	R(N) = Natural Recharge (liters)	77,872,736	liters
5	N = Nitrogen in Precipitation	1.50	mg/l
6	LR = Leaching Rate	15	percent
7	$N(\text{ppt}) = P(S) \times N \times LR$	1,752,137	milligrams
8	N(ppt) = Precipitation Nitrogen	3.86	lbs

H	Irrigation Nitrogen	Value	Units
1	R = Irrigation Recharge (inches)	2.37	inches
2	R = Irrigation Rate (feet)	0.20	feet
3	A = Area of Land Irrigated	251,341	sq ft
4	$R(I) = R(\text{irr}) \times A$	49,589	cu ft
5	R(I) = Site Precipitation (liters)	1,404,348	liters
6	N = Nitrogen in Water Supply	5.63	mg/l
7	LR = Leaching Rate	15	percent
8	$N(\text{irr}) = R(I) \times N \times LR$	1,185,972	milligrams
9	N(irr) = Irrigation Nitrogen	2.62	lbs

Total Site Nitrogen		
N=	$N(S) + N(P) + N(WW) + N(F1) + N(F2) + N(\text{ppt}) + N(\text{irr})$	
N=	725.27	lbs



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

HREN PROPERTY

Proposed Conditions

SHEET 4

FINAL COMPUTATIONS

<i>A</i>	<i>Nitrogen in Recharge</i>	<i>Value</i>	<i>Units</i>
1	N = Total Nitrogen (lbs)	725.27	lbs
2	N = Total Nitrogen (milligrams)	329,271,124	milligrams
3	R(T) = Total Recharge (inches)	27.45	inches
4	R(T) = Total Recharge (feet)	2.29	feet
5	A = Area of Site	1,354,716	sq ft
6	R = R(T) x A	3,099,432	cu ft
7	R = Site Recharge Volume	87,775,923	liters
9	NR = N/R	3.75	mg/l

FINAL CONCENTRATION OF
NITROGEN IN RECHARGE

3.75

<i>B</i>	<i>Site Recharge Summary</i>	<i>Value</i>	<i>Units</i>
1	R(T) = Total Site Recharge	27.45	inches/yr
2	R = Site Recharge Volume	3,099,432	cu ft/yr
3	R = Site Recharge Volume	23,185,365	gal/yr
4	R = Site Recharge Volume	23.19	MG/yr

<i>Conversions used in SONIR</i>
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 C-4
Alternatives 2, 3 & 4



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

HREN PROPERTY

DATA INPUT FIELD

Alternative 2

SHEET 1

<i>A</i>	<i>Site Recharge Parameters</i>	<i>Value</i>	<i>Units</i>
1	Area of Site	31.10	acres
2	Precipitation Rate	43.65	inches
3	Acreage of Lawn	4.57	acres
4	Fraction of Land in Lawn	0.147	fraction
5	Evapotranspiration from Lawn	22.40	inches
6	Runoff from Lawn	0.31	inches
7	Acreage of Impervious	4.23	acres
8	Fraction of Land Impervious	0.136	fraction
9	Evaporation from Impervious	4.37	inches
10	Runoff from Impervious	0.00	inches
11	Acreage of Unvegetated	0.00	acres
12	Fraction of Land Unvegetated	0.000	fraction
13	Evapotrans. from Unvegetated	0.00	inches
14	Runoff from Unvegetated	0	inches
15	Acreage of Water	0.00	acres
16	Fraction of Site in Water	0.000	fraction
17	Evaporation from Water	0.00	inches
18	Makeup Water (if applicable)	0.00	inches
19	Acreage of Natural Area	22.30	acres
20	Fraction of Land Natural	0.717	fraction
21	Evapotrans. from Natural Area	25.20	inches
22	Runoff from Natural Area	0.31	inches
23	Acreage of Other Area	0.00	acres
24	Fraction of Land Other Area	0.000	fraction
25	Evapotrans. from Other Area	0.00	inches
26	Runoff from Other Area	0.00	inches
27	Acreage of Land Irrigated	4.57	acres
28	Fraction of Land Irrigated	0.147	fraction
29	Irrigation Rate	5.50	inches
30	Number of Dwellings	9	units
31	Water Use per Dwelling	300	gal/day
32	Wastewater Design Flow	2,700	gal/day
33	Commercial /STP Design Flow	717	gal/day

<i>B</i>	<i>Nitrogen Budget Parameters</i>	<i>Value</i>	<i>Units</i>
1	Persons per Dwelling	3.00	persons
2	Nitrogen per Person per Year	10.0	lbs
3	Sanitary Nitrogen Leaching Rate	50	percent
4	Area of Land Fertilized 1	4.13	acres
5	Fertilizer Application Rate 1	2.30	lbs/1000 sq ft
6	Fertilizer Nitrogen Leaching Rate 1	14	percent
7	Area of Land Fertilized 2	0.00	acres
8	Fertilizer Application Rate 2	3.50	lbs/1000 sq ft
9	Fertilizer Nitrogen Leaching Rate 2	14	percent
10	Pet Waste Application Rate	0.00	lbs/pet
11	Pet Waste Nitrogen Leaching Rate	0	percent
12	Area of Land Irrigated	4.57	acres
13	Irrigation Rate	5.50	inches
14	Irrigation Nitrogen Leaching Rate	15	percent
15	Nitrogen in Precipitation	1.50	mg/l
16	Precipitation Nitrogen Leaching Rate	15	percent
17	Nitrogen in Water Supply	5.63	mg/l
18	Nitrogen in Commercial/STP Flow	40.00	mg/l

<i>C</i>	<i>Comments</i>
1)	Please refer to user manual for data input instructions.



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE RECHARGE COMPUTATIONS

Alternative 2

SHEET 2

A	<i>Lawn Area Recharge</i>	Value	Units
1	A = Fraction of Land in Lawn	0.147	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	22.40	inches
4	Q = Runoff Rate	0.31	inches
5	$R(l) = P - (E + Q)$	20.94	inches
6	$R(L) = R(l) \times A$	3.08	inches

B	<i>Impervious Area Recharge</i>	Value	Units
1	A = Fraction of Land in Impervious	0.136	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	4.37	inches
4	Q = Runoff Rate	0.00	inches
5	$R(i) = P - (E + Q)$	39.29	inches
6	$R(I) = R(i) \times A$	5.34	inches

C	<i>Unvegetated Area Recharge</i>	Value	Units
1	A = Fraction of Land Unveg.	0.000	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	$R(u) = P - (E + Q)$	43.65	inches
6	$R(U) = R(u) \times A$	0.00	inches

D	<i>Water Area Loss</i>	Value	Units
1	A = Fraction of Site in Water	0.000	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evaporation Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	M = Makeup Water	0.00	inches
6	$R(w) = \{P - (E+Q)\} - M$	43.65	inches
7	$R(W) = R(w) \times A$	0.00	inches

E	<i>Natural Area Recharge</i>	Value	Units
1	A = Fraction of Land in Natural	0.717	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	25.20	inches
4	Q = Runoff Rate	0.31	inches
5	$R(n) = P - (E + Q)$	18.14	inches
6	$R(N) = R(n) \times A$	13.01	inches

F	<i>Other Area Recharge</i>	Value	Units
1	A = Fraction of Land in Other	0.000	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	$R(o) = P - (E + Q)$	43.65	inches
6	$R(O) = R(o) \times A$	0.00	inches

G	<i>Irrigation Recharge</i>	Value	Units
1	A = Fraction of Land Irrigated	0.147	fraction
2	I = Irrigation Rate	5.50	inches
3	E = Evapotranspiration Rate	2.82	inches
4	Q = Runoff Rate	0.31	inches
5	$R(irr) = I - (E + Q)$	2.37	inches
6	$R(IRR) = R(irr) \times A$	0.35	inches

H	<i>Wastewater Recharge</i>	Value	Units
1	WDF = Wastewater Design Flow	3,417	gal/day
2	WDF = Wastewater Design Flow	166,739	cu ft/yr
3	A = Area of Site	1,354,716	sq ft
4	$R(ww) = WDF/A$	0.12	feet
5	$R(WW) = Wastewater Recharge$	1.48	inches

Total Site Recharge		
R(T) =	$R(L) + R(I) + R(U) + R(W) + R(N) + R(O) + R(IRR) + R(WW)$	
R(T) =	23.25	inches



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE NITROGEN BUDGET

Alternative 2

SHEET 3

A	Sanitary Nitrogen-Residential	Value	Units
1	Number of Dwellings	9	units
2	Persons per Dwelling	3.00	capita
3	P = Population	27.00	capita
4	N = Nitrogen per person	10	lbs
5	LR = Leaching Rate	50	percent
6	$N(S) = P \times N \times LR$	135.00	lbs
7	$N(S) = \text{Sanitary Nitrogen}$	135.00	lbs

B	Pet Waste Nitrogen	Value	Units
1	AR = Application Rate	0.00	lbs/pet
2	Human Population	27	capita
3	Pets = 17 percent of capita	5	pets
4	$N(p) = AR \times \text{pets}$	0.00	lbs
5	LR = Leaching Rate	0	percent
6	$N(P) = N(p) \times LR$	0.00	lbs
7	$N(P) = \text{Pet Waste Nitrogen}$	0.00	lbs

C	Sanitary Nitrogen (Commercial/STP)	Value	Units
1	CF = Commercial/STP Flow	717	gal/day
2	CF = Commercial/STP Flow	990,553	liters/yr
3	N = Nitrogen in Commercial	40.00	mg/l
4	$N(S) = CF \times N$	39,622,137	milligrams
5	$N(S) = \text{Sanitary Nitrogen}$	87.37	lbs

D	Water Supply Nitrogen	Value	Units
1	WDF = Wastewater Design Flow	3,417	gal/day
2	WDF = Wastewater Design Flow	4,720,671	liters/yr
3	N = Nitrogen in Water Supply	5.63	mg/l
4	$N(WW) = WDF \times N$	26,577,377	milligrams
5	$N(WW) = \text{Wastewater Nitrogen}$	58.60	lbs

E	Fertilizer Nitrogen 1 (Residential)	Value	Units
1	A = Area of Land Fertilized 1	179,903	sq ft
2	AR = Application Rate	2.30	lbs/1000 sf
3	LR = Leaching Rate	14	percent
4	$N(F1) = A \times AR \times LR$	57.93	lbs
5	$N(F1) = \text{Fertilizer Nitrogen}$	57.93	lbs

F	Fertilizer Nitrogen 2 (Commercial)	Value	Units
1	A = Area of Land Fertilized 2	0	sq ft
2	AR = Application Rate	3.50	lbs/1000 sf
3	LR = Leaching Rate	14	percent
4	$N(F2) = A \times AR \times LR$	0.00	lbs
5	$N(F2) = \text{Fertilizer Nitrogen}$	0.00	lbs

G	Precipitation Nitrogen	Value	Units
1	R(n) = Natural Recharge (feet)	1.79	feet
2	A = Area of Site (sq ft)	1,354,716	sq ft
3	$R(N) = R(n) \times A$	2,419,008	cu ft
4	$R(N) = \text{Natural Recharge (liters)}$	68,506,303	liters
5	N = Nitrogen in Precipitation	1.50	mg/l
6	LR = Leaching Rate	15	percent
7	$N(\text{ppt}) = R(N) \times LR$	1,541,392	milligrams
8	$N(\text{ppt}) = \text{Precipitation Nitrogen}$	3.40	lbs

H	Irrigation Nitrogen	Value	Units
1	R = Irrigation Recharge (inches)	2.37	inches
2	R = Irrigation Rate (feet)	0.20	feet
3	A = Area of Land Irrigated	199,069	sq ft
4	$R(I) = R(\text{irr}) \times A$	39,276	cu ft
5	$R(I) = \text{Site Precipitation (liters)}$	1,112,282	liters
6	N = Nitrogen in Water Supply	5.63	mg/l
7	LR = Leaching Rate	15	percent
8	$N(\text{irr}) = R(I) \times LR$	939,322	milligrams
9	$N(\text{irr}) = \text{Irrigation Nitrogen}$	2.07	lbs

Total Site Nitrogen		
N=	$N(S) + N(P) + N(WW) + N(F1) + N(F2) + N(\text{ppt}) + N(\text{irr})$	
N=	344.37	lbs



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

HREN PROPERTY

Alternative 2

SHEET 4

FINAL COMPUTATIONS

<i>A</i>	<i>Nitrogen in Recharge</i>	<i>Value</i>	<i>Units</i>
1	N = Total Nitrogen (lbs)	344.37	lbs
2	N = Total Nitrogen (milligrams)	156,343,347	milligrams
3	R(T) = Total Recharge (inches)	23.25	inches
4	R(T) = Total Recharge (feet)	1.94	feet
5	A = Area of Site	1,354,716	sq ft
6	R = R(T) x A	2,625,022	cu ft
7	R = Site Recharge Volume	74,340,623	liters
9	NR = N/R	2.10	mg/l

FINAL CONCENTRATION OF
NITROGEN IN RECHARGE

2.10

<i>B</i>	<i>Site Recharge Summary</i>	<i>Value</i>	<i>Units</i>
1	R(T) = Total Site Recharge	23.25	inches/yr
2	R = Site Recharge Volume	2,625,022	cu ft/yr
3	R = Site Recharge Volume	19,636,530	gal/yr
4	R = Site Recharge Volume	19.64	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



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

HREN PROPERTY

DATA INPUT FIELD

Alternative 3

SHEET 1

<i>A</i>	<i>Site Recharge Parameters</i>	<i>Value</i>	<i>Units</i>
1	Area of Site	31.10	acres
2	Precipitation Rate	43.65	inches
3	Acreage of Lawn	4.57	acres
4	Fraction of Land in Lawn	0.147	fraction
5	Evapotranspiration from Lawn	22.40	inches
6	Runoff from Lawn	0.31	inches
7	Acreage of Impervious	2.97	acres
8	Fraction of Land Impervious	0.095	fraction
9	Evaporation from Impervious	4.37	inches
10	Runoff from Impervious	0.00	inches
11	Acreage of Unvegetated	0.00	acres
12	Fraction of Land Unvegetated	0.000	fraction
13	Evapotrans. from Unvegetated	0.00	inches
14	Runoff from Unvegetated	0	inches
15	Acreage of Water	0.00	acres
16	Fraction of Site in Water	0.000	fraction
17	Evaporation from Water	0.00	inches
18	Makeup Water (if applicable)	0.00	inches
19	Acreage of Natural Area	23.56	acres
20	Fraction of Land Natural	0.758	fraction
21	Evapotrans. from Natural Area	25.20	inches
22	Runoff from Natural Area	0.31	inches
23	Acreage of Other Area	0.00	acres
24	Fraction of Land Other Area	0.000	fraction
25	Evapotrans. from Other Area	0.00	inches
26	Runoff from Other Area	0.00	inches
27	Acreage of Land Irrigated	4.57	acres
28	Fraction of Land Irrigated	0.147	fraction
29	Irrigation Rate	5.50	inches
30	Number of Dwellings	9	units
31	Water Use per Dwelling	300	gal/day
32	Wastewater Design Flow	2,700	gal/day
33	Commercial /STP Design Flow	956	gal/day

<i>B</i>	<i>Nitrogen Budget Parameters</i>	<i>Value</i>	<i>Units</i>
1	Persons per Dwelling	3.00	persons
2	Nitrogen per Person per Year	10.0	lbs
3	Sanitary Nitrogen Leaching Rate	50	percent
4	Area of Land Fertilized 1	4.13	acres
5	Fertilizer Application Rate 1	2.30	lbs/1000 sq ft
6	Fertilizer Nitrogen Leaching Rate 1	14	percent
7	Area of Land Fertilized 2	0.00	acres
8	Fertilizer Application Rate 2	3.50	lbs/1000 sq ft
9	Fertilizer Nitrogen Leaching Rate 2	14	percent
10	Pet Waste Application Rate	0.00	lbs/pet
11	Pet Waste Nitrogen Leaching Rate	0	percent
12	Area of Land Irrigated	4.57	acres
13	Irrigation Rate	5.50	inches
14	Irrigation Nitrogen Leaching Rate	15	percent
15	Nitrogen in Precipitation	1.50	mg/l
16	Precipitation Nitrogen Leaching Rate	15	percent
17	Nitrogen in Water Supply	5.63	mg/l
18	Nitrogen in Commercial/STP Flow	40.00	mg/l

<i>C</i>	<i>Comments</i>
1)	Please refer to user manual for data input instructions.



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE RECHARGE COMPUTATIONS

Alternative 3

SHEET 2

A	Lawn Area Recharge	Value	Units
1	A = Fraction of Land in Lawn	0.147	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	22.40	inches
4	Q = Runoff Rate	0.31	inches
5	$R(I) = P - (E + Q)$	20.94	inches
6	$R(L) = R(I) \times A$	3.08	inches

B	Impervious Area Recharge	Value	Units
1	A = Fraction of Land in Impervious	0.095	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	4.37	inches
4	Q = Runoff Rate	0.00	inches
5	$R(i) = P - (E + Q)$	39.29	inches
6	$R(I) = R(i) \times A$	3.75	inches

C	Unvegetated Area Recharge	Value	Units
1	A = Fraction of Land Unveg.	0.000	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	$R(u) = P - (E + Q)$	43.65	inches
6	$R(U) = R(u) \times A$	0.00	inches

D	Water Area Loss	Value	Units
1	A = Fraction of Site in Water	0.000	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evaporation Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	M = Makeup Water	0.00	inches
6	$R(w) = \{P - (E+Q)\} - M$	43.65	inches
7	$R(W) = R(w) \times A$	0.00	inches

E	Natural Area Recharge	Value	Units
1	A = Fraction of Land in Natural	0.758	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	25.20	inches
4	Q = Runoff Rate	0.31	inches
5	$R(n) = P - (E + Q)$	18.14	inches
6	$R(N) = R(n) \times A$	13.74	inches

F	Other Area Recharge	Value	Units
1	A = Fraction of Land in Other	0.000	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	$R(o) = P - (E + Q)$	43.65	inches
6	$R(O) = R(o) \times A$	0.00	inches

G	Irrigation Recharge	Value	Units
1	A = Fraction of Land Irrigated	0.147	fraction
2	I = Irrigation Rate	5.50	inches
3	E = Evapotranspiration Rate	2.82	inches
4	Q = Runoff Rate	0.31	inches
5	$R(irr) = I - (E + Q)$	2.37	inches
6	$R(IRR) = R(irr) \times A$	0.35	inches

H	Wastewater Recharge	Value	Units
1	WDF = Wastewater Design Flow	3,656	gal/day
2	WDF = Wastewater Design Flow	178,401	cu ft/yr
3	A = Area of Site	1,354,716	sq ft
4	$R(ww) = WDF/A$	0.13	feet
5	$R(WW) = Wastewater Recharge$	1.58	inches

Total Site Recharge		
$R(T) =$	$R(L) + R(I) + R(U) + R(W) + R(N) + R(O) + R(IRR) + R(WW)$	
$R(T) =$	22.50	inches



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE NITROGEN BUDGET

Alternative 3

SHEET 3

A	Sanitary Nitrogen-Residential	Value	Units
1	Number of Dwellings	9	units
2	Persons per Dwelling	3.00	capita
3	P = Population	27.00	capita
4	N = Nitrogen per person	10	lbs
5	LR = Leaching Rate	50	percent
6	N(S) = P x N x LR	135.00	lbs
7	N(S) = Sanitary Nitrogen	135.00	lbs

B	Pet Waste Nitrogen	Value	Units
1	AR = Application Rate	0.00	lbs/pet
2	Human Population	27	capita
3	Pets = 17 percent of capita	5	pets
4	N(p) = AR x pets	0.00	lbs
5	LR = Leaching Rate	0	percent
6	N(P) = N(p) x LR	0.00	lbs
7	N(P) = Pet Waste Nitrogen	0.00	lbs

C	Sanitary Nitrogen (Commercial/STP)	Value	Units
1	CF = Commercial/STP Flow	956	gal/day
2	CF = Commercial/STP Flow	1,320,738	liters/yr
3	N = Nitrogen in Commercial	40.00	mg/l
4	N(S) = CF x N	52,829,516	milligrams
5	N(S) = Sanitary Nitrogen	116.49	lbs

D	Water Supply Nitrogen	Value	Units
1	WDF = Wastewater Design Flow	3,656	gal/day
2	WDF = Wastewater Design Flow	5,050,855	liters/yr
3	N = Nitrogen in Water Supply	5.63	mg/l
4	N(WW) = WDF x N	28,436,316	milligrams
5	N(WW) = Wastewater Nitrogen	62.70	lbs

E	Fertilizer Nitrogen 1 (Residential)	Value	Units
1	A = Area of Land Fertilized 1	179,903	sq ft
2	AR = Application Rate	2.30	lbs/1000 sf
3	LR = Leaching Rate	14	percent
4	N(F1) = A x AR x LR	57.93	lbs
5	N(F1) = Fertilizer Nitrogen	57.93	lbs

F	Fertilizer Nitrogen 2 (Commercial)	Value	Units
1	A = Area of Land Fertilized 2	0	sq ft
2	AR = Application Rate	3.50	lbs/1000 sf
3	LR = Leaching Rate	14	percent
4	N(F2) = A x AR x LR	0.00	lbs
5	N(F2) = Fertilizer Nitrogen	0.00	lbs

G	Precipitation Nitrogen	Value	Units
1	R(n) = Natural Recharge (feet)	1.71	feet
2	A = Area of Site (sq ft)	1,354,716	sq ft
3	R(N) = R(n) x A	2,322,295	cu ft
4	R(N) = Natural Recharge (liters)	65,767,390	liters
5	N = Nitrogen in Precipitation	1.50	mg/l
6	LR = Leaching Rate	15	percent
7	N(ppt) = P(S) x N x LR	1,479,766	milligrams
8	N(ppt) = Precipitation Nitrogen	3.26	lbs

H	Irrigation Nitrogen	Value	Units
1	R = Irrigation Recharge (inches)	2.37	inches
2	R = Irrigation Rate (feet)	0.20	feet
3	A = Area of Land Irrigated	199,069	sq ft
4	R(I) = R(irr) x A	39,276	cu ft
5	R(I) = Site Precipitation (liters)	1,112,282	liters
6	N = Nitrogen in Water Supply	5.63	mg/l
7	LR = Leaching Rate	.15	percent
8	N(irr) = R(I) x N x LR	939,322	milligrams
9	N(irr) = Irrigation Nitrogen	2.07	lbs

Total Site Nitrogen

N=	N(S) + N(P) + N(WW) + N(F1) + N(F2) + N(ppt) + N(irr)	
N=	377.45	lbs



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

HREN PROPERTY

Alternative 3

SHEET 4

FINAL COMPUTATIONS

<i>A</i>	<i>Nitrogen in Recharge</i>	<i>Value</i>	<i>Units</i>
1	N = Total Nitrogen (lbs)	377.45	lbs
2	N = Total Nitrogen (milligrams)	171,364,094	milligrams
3	R(T) = Total Recharge (inches)	22.50	inches
4	R(T) = Total Recharge (feet)	1.87	feet
5	A = Area of Site	1,354,716	sq ft
6	R = R(T) x A	2,539,971	cu ft
7	R = Site Recharge Volume	71,931,991	liters
9	NR = N/R	2.38	mg/l

FINAL CONCENTRATION OF
NITROGEN IN RECHARGE

2.38

<i>B</i>	<i>Site Recharge Summary</i>	<i>Value</i>	<i>Units</i>
1	R(T) = Total Site Recharge	22.50	inches/yr
2	R = Site Recharge Volume	2,539,971	cu ft/yr
3	R = Site Recharge Volume	19,000,307	gal/yr
4	R = Site Recharge Volume	19.00	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



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

HREN PROPERTY

DATA INPUT FIELD

Alternative 4

SHEET 1

<i>A</i>	<i>Site Recharge Parameters</i>	<i>Value</i>	<i>Units</i>
1	Area of Site	31.10	acres
2	Precipitation Rate	43.65	inches
3	Acreage of Lawn	5.07	acres
4	Fraction of Land in Lawn	0.163	fraction
5	Evapotranspiration from Lawn	22.40	inches
6	Runoff from Lawn	0.31	inches
7	Acreage of Impervious	3.06	acres
8	Fraction of Land Impervious	0.098	fraction
9	Evaporation from Impervious	4.37	inches
10	Runoff from Impervious	0.00	inches
11	Acreage of Unvegetated	0.00	acres
12	Fraction of Land Unvegetated	0.000	fraction
13	Evapotrans. from Unvegetated	0.00	inches
14	Runoff from Unvegetated	0	inches
15	Acreage of Water	0.00	acres
16	Fraction of Site in Water	0.000	fraction
17	Evaporation from Water	0.00	inches
18	Makeup Water (if applicable)	0.00	inches
19	Acreage of Natural Area	22.97	acres
20	Fraction of Land Natural	0.739	fraction
21	Evapotrans. from Natural Area	25.20	inches
22	Runoff from Natural Area	0.31	inches
23	Acreage of Other Area	0.00	acres
24	Fraction of Land Other Area	0.000	fraction
25	Evapotrans. from Other Area	0.00	inches
26	Runoff from Other Area	0.00	inches
27	Acreage of Land Irrigated	5.07	acres
28	Fraction of Land Irrigated	0.163	fraction
29	Irrigation Rate	5.50	inches
30	Number of Dwellings	9	units
31	Water Use per Dwelling	300	gal/day
32	Wastewater Design Flow	2,700	gal/day
33	Commercial /STP Design Flow	363	gal/day

<i>B</i>	<i>Nitrogen Budget Parameters</i>	<i>Value</i>	<i>Units</i>
1	Persons per Dwelling	3.00	persons
2	Nitrogen per Person per Year	10.0	lbs
3	Sanitary Nitrogen Leaching Rate	50	percent
4	Area of Land Fertilized 1	4.13	acres
5	Fertilizer Application Rate 1	2.30	lbs/1000 sq ft
6	Fertilizer Nitrogen Leaching Rate 1	14	percent
7	Area of Land Fertilized 2	0.00	acres
8	Fertilizer Application Rate 2	3.50	lbs/1000 sq ft
9	Fertilizer Nitrogen Leaching Rate 2	14	percent
10	Pet Waste Application Rate	0.00	lbs/pet
11	Pet Waste Nitrogen Leaching Rate	0	percent
12	Area of Land Irrigated	5.07	acres
13	Irrigation Rate	5.50	inches
14	Irrigation Nitrogen Leaching Rate	15	percent
15	Nitrogen in Precipitation	1.50	mg/l
16	Precipitation Nitrogen Leaching Rate	15	percent
17	Nitrogen in Water Supply	5.63	mg/l
18	Nitrogen in Commercial/STP Flow	40.00	mg/l

<i>C</i>	<i>Comments</i>
1)	Please refer to user manual for data input instructions.



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE RECHARGE COMPUTATIONS

Alternative 4

SHEET 2

A	Lawn Area Recharge	Value	Units
1	A = Fraction of Land in Lawn	0.163	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	22.40	inches
4	Q = Runoff Rate	0.31	inches
5	$R(I) = P - (E + Q)$	20.94	inches
6	$R(L) = R(I) \times A$	3.41	inches

B	Impervious Area Recharge	Value	Units
1	A = Fraction of Land in Impervious	0.098	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	4.37	inches
4	Q = Runoff Rate	0.00	inches
5	$R(i) = P - (E + Q)$	39.29	inches
6	$R(I) = R(i) \times A$	3.87	inches

C	Unvegetated Area Recharge	Value	Units
1	A = Fraction of Land Unveg.	0.000	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	$R(u) = P - (E + Q)$	43.65	inches
6	$R(U) = R(u) \times A$	0.00	inches

D	Water Area Loss	Value	Units
1	A = Fraction of Site in Water	0.000	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evaporation Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	M = Makeup Water	0.00	inches
6	$R(w) = \{P - (E+Q)\} - M$	43.65	inches
7	$R(W) = R(w) \times A$	0.00	inches

E	Natural Area Recharge	Value	Units
1	A = Fraction of Land in Natural	0.739	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	25.20	inches
4	Q = Runoff Rate	0.31	inches
5	$R(n) = P - (E + Q)$	18.14	inches
6	$R(N) = R(n) \times A$	13.40	inches

F	Other Area Recharge	Value	Units
1	A = Fraction of Land in Other	0.000	fraction
2	P = Precipitation Rate	43.65	inches
3	E = Evapotranspiration Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	$R(o) = P - (E + Q)$	43.65	inches
6	$R(O) = R(o) \times A$	0.00	inches

G	Irrigation Recharge	Value	Units
1	A = Fraction of Land Irrigated	0.163	fraction
2	I = Irrigation Rate	5.50	inches
3	E = Evapotranspiration Rate	2.82	inches
4	Q = Runoff Rate	0.31	inches
5	$R(irr) = I - (E + Q)$	2.37	inches
6	$R(IRR) = R(irr) \times A$	0.39	inches

H	Wastewater Recharge	Value	Units
1	WDF = Wastewater Design Flow	3,063	gal/day
2	WDF = Wastewater Design Flow	149,465	cu ft/yr
3	A = Area of Site	1,354,716	sq ft
4	$R(ww) = WDF/A$	0.11	feet
5	$R(WW) = Wastewater Recharge$	1.32	inches

Total Site Recharge		
$R(T) =$	$R(L) + R(I) + R(U) + R(W) + R(N) + R(O) + R(IRR) + R(WW)$	
$R(T) =$	22.39	inches



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE NITROGEN BUDGET

Alternative 4

SHEET 3

<i>A Sanitary Nitrogen-Residential</i>			<i>B Pet Waste Nitrogen</i>				
	<i>Value</i>	<i>Units</i>	<i>Value</i>	<i>Units</i>			
1	Number of Dwellings	9	units	1	AR = Application Rate	0.00	lbs/pet
2	Persons per Dwelling	3.00	capita	2	Human Population	27	capita
3	P = Population	27.00	capita	3	Pets = 17 percent of capita	5	pets
4	N = Nitrogen per person	10	lbs	4	N(p) = AR x pets	0.00	lbs
5	LR = Leaching Rate	50	percent	5	LR = Leaching Rate	0	percent
6	N(S) = P x N x LR	135.00	lbs	6	N(P) = N(p) x LR	0.00	lbs
7	N(S) = Sanitary Nitrogen	135.00	lbs	7	N(P) = Pet Waste Nitrogen	0.00	lbs

<i>C Sanitary Nitrogen (Commercial/STP)</i>			<i>D Water Supply Nitrogen</i>				
	<i>Value</i>	<i>Units</i>		<i>Value</i>	<i>Units</i>		
1	CF = Commercial/STP Flow	363	gal/day	1	WDF = Wastewater Design Flow	3,063	gal/day
2	CF = Commercial/STP Flow	501,494	liters/yr	2	WDF = Wastewater Design Flow	4,231,611	liters/yr
3	N = Nitrogen in Commercial	40.00	mg/l	3	N = Nitrogen in Water Supply	5.63	mg/l
4	N(S) = CF x N	20,059,743	milligrams	4	N(WW) = WDF x N	23,823,970	milligrams
5	N(S) = Sanitary Nitrogen	44.23	lbs	5	N(WW) = Wastewater Nitrogen	52.53	lbs

<i>E Fertilizer Nitrogen 1 (Residential)</i>			<i>F Fertilizer Nitrogen 2 (Commercial)</i>				
	<i>Value</i>	<i>Units</i>		<i>Value</i>	<i>Units</i>		
1	A = Area of Land Fertilized 1	179,903	sq ft	1	A = Area of Land Fertilized 2	0	sq ft
2	AR = Application Rate	2.30	lbs/1000 sf	2	AR = Application Rate	3.50	lbs/1000 sf
3	LR = Leaching Rate	14	percent	3	LR = Leaching Rate	14	percent
4	N(F1) = A x AR x LR	57.93	lbs	4	N(F2) = A x AR x LR	0.00	lbs
5	N(F1) = Fertilizer Nitrogen	57.93	lbs	5	N(F2) = Fertilizer Nitrogen	0.00	lbs

<i>G Precipitation Nitrogen</i>			<i>H Irrigation Nitrogen</i>				
	<i>Value</i>	<i>Units</i>		<i>Value</i>	<i>Units</i>		
1	R(n) = Natural Recharge (feet)	1.72	feet	1	R = Irrigation Recharge (inches)	2.37	inches
2	A = Area of Site (sq ft)	1,354,716	sq ft	2	R = Irrigation Rate (feet)	0.20	feet
3	R(N) = R(n) x A	2,334,285	cu ft	3	A = Area of Land Irrigated	220,849	sq ft
4	R(N) = Natural Recharge (liters)	66,106,949	liters	4	R(I) = R(irr) x A	43,573	cu ft
5	N = Nitrogen in Precipitation	1.50	mg/l	5	R(I) = Site Precipitation (liters)	1,233,976	liters
6	LR = Leaching Rate	15	percent	6	N = Nitrogen in Water Supply	5.63	mg/l
7	N(ppt) = P(S) x N x LR	1,487,406	milligrams	7	LR = Leaching Rate	15	percent
8	N(ppt) = Precipitation Nitrogen	3.28	lbs	8	N(irr) = R(I) x N x LR	1,042,093	milligrams
				9	N(irr) = Irrigation Nitrogen	2.30	lbs

Total Site Nitrogen	
N=	N(S) + N(P) + N(WW) + N(F1) + N(F2) + N(ppt) + N(irr)
N=	295.27 lbs



SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

HREN PROPERTY

Alternative 4

SHEET 4

FINAL COMPUTATIONS

<i>A</i>	<i>Nitrogen in Recharge</i>	<i>Value</i>	<i>Units</i>
1	N = Total Nitrogen (lbs)	295.27	lbs
2	N = Total Nitrogen (milligrams)	134,052,505	milligrams
3	R(T) = Total Recharge (inches)	22.39	inches
4	R(T) = Total Recharge (feet)	1.87	feet
5	A = Area of Site	1,354,716	sq ft
6	R = R(T) x A	2,527,322	cu ft
7	R = Site Recharge Volume	71,573,762	liters
9	NR = N/R	1.87	mg/l

FINAL CONCENTRATION OF
NITROGEN IN RECHARGE

1.87

<i>B</i>	<i>Site Recharge Summary</i>	<i>Value</i>	<i>Units</i>
1	R(T) = Total Site Recharge	22.39	inches/yr
2	R = Site Recharge Volume	2,527,322	cu ft/yr
3	R = Site Recharge Volume	18,905,684	gal/yr
4	R = Site Recharge Volume	18.91	MG/yr

<i>Conversions used in SONIR</i>
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 D

WILDLIFE-RELATED DOCUMENTS

- D-1 Correspondence with Natural
Heritage Program**
- D-2 Species List**
- D-3 Breeding Bird Census Data**
- D-4 Species Adaptability**



Appendix D-1

Correspondence with Natural Heritage Program





NELSON, POPE & VOORHIS, LLC

ENVIRONMENTAL • PLANNING • CONSULTING

CHARLES J. VOORHIS, CER, AICP • ARTHUR J. KOERBER, PE • VINCENT G. DONNELLY, PE.
• VICTOR BERT, PE. • JOSEPH R. EPIFANIA, PE. • ROBERT G. NELSON, JR., PE.
• CHRISTOPHER W. ROBINSON, PE.

December 17, 1998

Jean Petrusiak, Director
Informational Services
NYSDEC Significant Habitat Unit
New York State Department of Environmental Conservation
Wildlife Resources Center
700 Troy-Schenectady Road
Latham, New York 12110-2400

Re: Request for Significant Habitat Program/Natural Heritage Program File Review and Breeding Bird Survey Census Block Data for a 32.3 acre site located at the southeast corner of the Jericho Turnpike/Dix Hills Road intersection in Huntington, Town of Huntington, Suffolk County, N.Y.

Dear Ms. Petrusiak:

My firm has been retained by the owner of the above-referenced parcel to investigate the environmental resources associated with this site. The proposed project is a 69,000 SF commercial facility and 9 single family residences.

It would be beneficial to consult the Significant Habitat Program and Natural Heritage Program files for any information you may have regarding unique habitats, and/or species of vegetation and wildlife. We would also like to obtain data from the 1988 Breeding Bird Survey for the census block containing the project site. Enclosed is a portion of the Greenlawn 7.5 minute quadrangle with the location of the project site superimposed. Please provide any information you may have on this specific site or other unique ecological features within the vicinity, as well as a list of breeding birds which were identified within the census block for the 1988 survey. Your attention to this request would be greatly appreciated. Please do not hesitate to call if you have any questions regarding this correspondence.

Sincerely,

Phillip A. Malicki, AICP
Senior Environmental Scientist

enc.

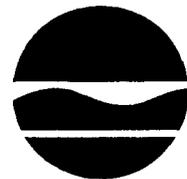
New York State Department of Environmental Conservation

Division of Fish, Wildlife & Marine Resources

Wildlife Resources Center - New York Natural Heritage Program

700 Troy-Schenectady Road, Latham, New York 12110-2400

Phone: (518) 783-3932 FAX: (518) 783-3916



John P. Cahill
Commissioner

December 29, 1998

RECEIVED

DEC 30 1998

PM

NELSON & POPE, LLP

Phillip A. Malicki
Nelson, Pope & Voorhis
572 Walt Whitman Road
Melville, NY 11747

Dear Mr. Malicki:

We have reviewed the New York Natural Heritage Program files with respect to your recent request for biological information concerning the proposed 32 acre commercial facility and family residences, site as indicated on your enclosed map, located in the Town of Huntington, Suffolk County.

We did not identify any potential impacts to endangered, threatened, or special concern wildlife species, to rare plant, animal, or natural community occurrences, or to other significant habitats.

The Breeding Bird Atlas data you requested is enclosed.

The absence of data does not necessarily mean that rare or endangered elements, natural communities or other significant habitats do not exist on or adjacent to the proposed site, but rather that our files currently do not contain any information which indicates the presence of these. Our files are continually growing as new habitats and occurrences of rare species and communities are discovered. In most cases, site-specific or comprehensive surveys for plant and animal occurrences have not been conducted. For these reasons, we cannot provide a definitive statement on the presence or absence of species, habitats or communities. This information should not be substituted for on-site surveys that may be required for environmental assessment.

This response applies only to known occurrences of rare animals, plants and natural communities and/or significant wildlife habitats. Please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, at the address enclosed for information regarding any regulated areas or permits that may be required (e.g., regulated wetlands) under State Law.

Sincerely,

Teresa Mackey, Information Services
NY Natural Heritage Program

Enc.

cc: Reg. 1, Wildlife Mgr

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL PERMITS REGIONAL OFFICES**

<u>REGION</u>	<u>COUNTIES</u>	<u>NAME</u>	<u>ADDRESS AND PHONE NO.</u>
Region 1	Nassau Suffolk	Robert Greene Permit Administrator	Loop Road, Bldg. 40 SUNY Stony Brook, NY 11790-2356 (516) 444-0365
Region 2	New York City	George Danskin Permit Administrator	Hunters Point Plaza 4740 21st Street Long Island City, NY 11101-5407 (718) 482-4997
Region 3	Dutchess Orange Putnam Rockland, Sullivan Ulster, Westchester	Margaret Duke Permit Administrator	21 South Putt Corners Road New Paltz, NY 12561-1696 (914) 256-3059
Region 4	Albany Columbia Delaware Greene, Montgomery, Otsego Rensselaer, Schenectady, Schoharie	William J. Clarke Permit Administrator	1150 N. Westcott Road Schenectady, NY 12306-2014 (518) 357-2234
Region 5	Clinton Essex Franklin Fulton, Hamilton Saratoga, Warren, Washington	Richard Wild Permit Administrator	Route 86 Ray Brook, NY 12977 (518) 897-1234
Region 6	Herkimer Jefferson Lewis Oneida, St. Lawrence	Randy Vaas Permit Administrator	State Office Building 317 Washington Street Watertown, NY 13601 (315) 785-2246
Region 7	Broome Cayuga Chenango Cortland, Madison, Onondaga Oswego, Tioga, Tompkins	Ralph Manna, Jr. Permit Administrator	615 Erie Blvd. West Syracuse, NY 13204-2400 (315) 426-7439
Region 8	Chemung Genesee Livingston Monroe, Ontario, Orleans Schuyler, Seneca, Steuben Wayne, Yates	Albert Butkas Permit Administrator	6274 East Avon-Lima Road Avon, NY 14414 (716) 226-2466
Region 9	Allegany Cattaraugus Chautauqua Erie, Niagara, Wyoming	Steven Doleski Permit Administrator	270 Michigan Avenue Buffalo, NY 14203-2999 (716) 851-7165

Appendix D-2

Species List



PROJECTION OF WILDLIFE ECOLOGICAL RESPONSE (POWER)

NELSON, POPE & VOORHIS, LLC, MICROCOMPUTER MODEL

SPECIES LIST

Appendix D-2

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 the Lotus 1-2-3 spreadsheet to identify wildlife species commonly found in various Long Island habitats, based upon thorough research of available literature. The habitats investigated consisted of Successional Shrubland and Successional Woodland. 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 Shrubland Species-Inventory and Characteristics

Common Name	Scientific Name	Status	Found During			Frequency/ Habitat Use	References
			Winter	Spring	Summer		
red-winged blackbird	<i>Agelaius phoeniceus</i>	none		X	X	C/N,F	4 6
common bobwhite	<i>Colinus virginianus</i>	none	X	X	X	C/N,F	4 8
indigo bunting	<i>Passerina cyanea</i>	none	Late	X	X	C/N,F	4 20
Northern cardinal	<i>Cardinalis cardinalis</i>	none	X	X	X	C/N,F	4 20
gray catbird	<i>Dumetella carolinensis</i>	none	Late	X	X	A/N,F	4 9
black capped chickadee	<i>Parus atricapillus</i>	none	X	X	X	A/N,F	4 11
brown-headed cowbird	<i>Molothrus ater</i>	none	X	X	X	A/N,F	4 6
American crow	<i>Corvus brachyrhynchos</i>	none	X	X	X	A/ H	4 11
black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	none	Late	X	X	C/N,F	4 11
yellow-billed cuckoo	<i>Coccyzus americanus</i>	none	Late	X	X	C/N,F	4 12
mourning dove	<i>Zenaida macroura</i>	none	X	X	X	A/N,H	4 8
American goldfinch	<i>Carduelis tristis</i>	none	X	X	X	C/N,F	4 20
common flicker	<i>Colaptes auratus</i>	none	X	X	X	R/ H	4 14
least flycatcher	<i>Empidonax minimus</i>	none	Late	X	X	R/N,F	4 15
willow flycatcher	<i>Empidonax traillii</i>	none	Late	X	X	C/N,F	4 15
common grackle	<i>Quiscalus quiscula</i>	none	X	X	X	A/N,F	4 6
ruffed grouse	<i>Bonasa umbellus</i>	none	X	X	X	C/N,F	4 8
rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>	none	Late	X	X	C/N,F	4 20
Northern harrier	<i>Circus cyaneus</i>	threatened	X	X	X	R/ H	4 16
Cooper's hawk	<i>Accipiter cooperii</i>	special concern	X	X	X	N/N,H	4 17
red-tailed hawk	<i>Buteo jamaicensis</i>	none	X	X	X	C/ H	4 16
sharp-shinned hawk	<i>Accipiter striatus</i>	none	X	X	X	N/N,F	4 16
blue jay	<i>Cyanocitta cristata</i>	none	X	X	X	A/N,F	4 10
Northern (dark-eyed) junco	<i>Junco hyemalis</i>	none	X	X	X	R/N,F	4 21
American kestrel	<i>Falco sparverius</i>	none	X	X	X	C/ H	4 17
Eastern kingbird	<i>Tyrannus tyrannus</i>	none	X	X	X	A/N,F	4 15
golden-crowned kinglet	<i>Regulus satrapa</i>	none	X	X	X	R/N,H	4 7
ruby-crowned kinglet	<i>Regulus calendula</i>	none	X	X	X	R/N,H	4 7
Eastern meadowlark	<i>Sturnella magna</i>	none	Late	X	X	C/N,F	4 6
Northern mockingbird	<i>Mimus polyglottos</i>	none	X	X	X	A/N,F	4 9
barn owl	<i>Tyto alba</i>	special concern	X	X	X	R/ H	4 17
great-horned owl	<i>Bubo virginianus</i>	none	X	X	X	C/N,H	4 17

Common Name	Scientific Name	Status	Found During				Frequency/ Habitat Use	References
			winter	spring	summer	fall		
ring-necked pheasant	<i>Phasianus colchicus</i>	none	X	X	X	X	C/N,F	4 8
American redstart	<i>Setophaga ruticilla</i>	none		Late	X	X	C/N,F	4 19
American robin	<i>Turdus migratorius</i>	none		X	X	Early	A/N,F	4 7
pine siskin	<i>Carduelis pinus</i>	none	X	X	X	X	N/N,F	4 20
fox sparrow	<i>Passerella iliaca</i>	none	X	X	X	X	C/ F	20 21
field sparrow	<i>Spizella pusilla</i>	none		X	X	X	C/N,F	4 21
grasshopper sparrow	<i>Ammodramus savannarum</i>	special concern		X	X	Early	C/N,F	4 20
song sparrow	<i>Melospiza melodia</i>	none	X	X	X	X	A/N,F	4 22
swamp sparrow	<i>Melospiza georgiana</i>	none	X	X	X	X	C/N,F	4 22
white-crowned sparrow	<i>Zonotrichia leucophrys</i>	none	X	X	X	X	C/N,F	4 22
white-throated sparrow	<i>Zonotrichia albicollis</i>	none	X	X	X	X	C/ F	22 32
European starling	<i>Sturnus vulgaris</i>	none	X	X	X	X	C/N,F	4 22
barn swallow	<i>Hirundo rustica</i>	none		Late	X	X	A/N,F	4 23
brown thrasher	<i>Toxostoma rufum</i>	none		X	X	Early	C/N,F	4 15
hermit thrush	<i>Catharus guttatus</i>	none	X	X	X	X	C/N,F	4 9
wood thrush	<i>Hylocichla mustelina</i>	none		X	X	Early	R/N,F	4 7
rufous-sided towhee	<i>Pipilo erythrophthalmus</i>	none		Late	X	Early	C/N,F	4 7
white eyed vireo	<i>Vireo griseus</i>	none		Late	X	Early	A/N,F	4 20
black-and-white warbler	<i>Mniotilta varia</i>	none		Late	X	X	C/N,F	4 23
blue-winged warbler	<i>Vermivora pinus</i>	none		X	X	X	R/N,F	4 18
chestnut-sided warbler	<i>Dendroica pensylvanica</i>	none		Late	X	X	C/N,F	4 14
prairie warbler	<i>Dendroica discolor</i>	none		Late	X	X	C/N,F	4 19
cedar waxwing	<i>Bombycilla cedrorum</i>	none		Late	X	X	C/N,F	4 19
whip-poor-will	<i>Caprimulgus vociferous</i>	none		X	X	Early	C/N,F	4 23 32
American woodcock	<i>Philhela minor</i>	none		Late	X	Early	C/ F	4 12
Carolina wren	<i>Thryothorus ludovicianus</i>	none		X	X	X	C/N,F	4 30
house wren	<i>Troglodytes aedon</i>	none	X	X	X	X	C/N,F	4 9
common yellowthroat	<i>Geothlypis trichas</i>	none		Late	X	Early	C/N,F	4 9
MAMMALS								
Eastern chipmunk	<i>Tamias striatus</i>	none	X	X	X	X	C/N,F	1 29
Eastern cottontail	<i>Sylvilagus floridanus</i>	none	X	X	X	X	A/N,F	1 29
white-tailed deer	<i>Odocoileus virginianus</i>	none	X	X	X	X	C/ F	1 25 29
red fox	<i>Vulpes vulpes</i>	none	X	X	X	X	C/N,H	1 29
Eastern mole	<i>Scalopus aquaticus</i>	none	X	X	X	X	C/N,F	1 29

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Common Name	Scientific Name	Status	Found During			Frequency/ Habitat Use	References
			winter	spring	summer			fall
house mouse	<i>Mus musculus</i>	none	X		X	R/N,F	1 29
meadow-jumping mouse	<i>Zapus hudsonicus</i>	none	X		X	R/N,F	1 29
white-footed mouse	<i>Peromyscus leucopus</i>	none	X		X	C/N,F	1 29
Virginia opossum	<i>Didelphis virginiana</i>	none	X		X	C/N,F	1 29
raccoon	<i>Procyon lotor</i>	none	X		X	C/ F	1 29
black rat	<i>Rattus rattus</i>	none	X		X	R/N,F	1 29
short-tailed shrew	<i>Blarina brevicauda</i>	none	X		X	A/N,F	1 29
striped skunk	<i>Mephitis mephitis</i>	none	X		X	N/N,F	1 29
meadow vole	<i>Microtus pennsylvanicus</i>	none	X		X	C/N,F	29 45
pine vole	<i>Microtus pinetorum</i>	none	X		X	C/N,F	1 29
long-tailed weasel	<i>Mustela frenata</i>	none	X		X	R/N,H	1 29
woodchuck	<i>Marmota monax</i>	none	X		X	R/N,F	1 29
HERPILES							
Eastern garter snake	<i>Thamnophis sirtalis</i>	none	X		X	C/N,F	38 40
eastern hognose snake	<i>Heterodon platyrhinos</i>	special concern	X		X	R/N,H	38
eastern milk snake	<i>Lampropeltis d. triangulum</i>	none	X		X	C/N,F	38 39
Fowler's toad	<i>Bufo woodhousei fowleri</i>	none	X		X	C/ F	33 37



Successional Woodland Species - Inventory and Characteristics

Common Name	Scientific Name	Status	Found During			Frequency / Habitat Use	References
			winter	spring	summer			fall
Birds	Birds						
gray catbird	<i>Dumetella carolinensis</i>	none		Late	X	C/N,F	4 9
black capped chickadee	<i>Parus atricapillus</i>	none	X	X	X	A/N,F	4 11
brown-headed cowbird	<i>Molothrus ater</i>	none	X	X	X	A/N,F	4 6
brown creeper	<i>Certhia familiaris</i>	none	X	X	X	C/N,F	4 9
American crow	<i>Corvus brachyrhynchos</i>	none	X	X	X	A/N,H	4 11
yellow-billed cuckoo	<i>Coccyzus americanus</i>	none	Late	X	X	C/N,F	4 12
mourning dove	<i>Zenaidura macroura</i>	none	X	X	X	C/N,H	4 8
rock dove	<i>Columba livia</i>	none	X	X	X	C/N,F	4 8
house finch	<i>Carpodacus mexicanus</i>	none	X	X	X	A/N,F	4 20
common flicker	<i>Colaptes auratus</i>	none	X	X	X	A/N,F	4 14
common grackle	<i>Quiscalus quiscula</i>	none	X	X	X	A/N,F	4 6
ruffed grouse	<i>Bonasa umbellus</i>	none	X	X	X	R/N,F	4 8
rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>	none	Late	X	X	R/N,F	4 20
Cooper's hawk	<i>Accipiter cooperii</i>	special concern		X		N/N,H	4 17
red-tailed hawk	<i>Buteo jamaicensis</i>	none	X	X	X	C/H	4 16
sharp-shinned hawk	<i>Accipiter striatus</i>	none	X	X	X	N/N,F	4 16
blue jay	<i>Cyanocitta cristata</i>	none	X	X	X	A/N,F	4 10
Northern (dark-eyed) junco	<i>Junco hyemalis</i>	none	X	X	X	R/N,F	4 21
American kestrel	<i>Falco sparverius</i>	none	X	X	X	C/N,H	4 17
Eastern kingbird	<i>Tyrannus tyrannus</i>	none	X	X	X	C/N,F	4 15
golden-crowned kinglet	<i>Regulus satrapa</i>	none	X	X	X	R/N,H	4 7
ruby-crowned kinglet	<i>Regulus calendula</i>	none	X	X	X	R/N,H	4 7
Northern mockingbird	<i>Mimus polyglottos</i>	none	X	X	X	C/N,F	4 9
great-horned owl	<i>Bubo virginianus</i>	none	X	X	X	C/N,H	4 17
long-eared owl	<i>Asio otus</i>	none	X	X	X	C/N,H	4 17
American redstart	<i>Setophaga ruticilla</i>	none	Late	X	X	C/N,F	4 19
American robin	<i>Turdus migratorius</i>	none	X	X	X	A/N,F	4 7
yellow-bellied sapsucker	<i>Sphyrapicus varius</i>	none	Late	X	X	C/N,F	14
fox sparrow	<i>Passerella iliaca</i>	none	X	X	X	R/F	20 21
house sparrow	<i>Passer domesticus</i>	none	X	X	X	C/N,F	4 20
song sparrow	<i>Melospiza melodia</i>	none	X	X	X	A/N,F	4 22

Common Name	Scientific Name	Status	Found During			Frequency / Habitat Use	References
			winter	spring	summer			fall
white-throated sparrow	<i>Zonotrichia albicollis</i>	none	X	X	X	C/N,F	4 22
European starling	<i>Sturnus vulgaris</i>	none	X	X	X	A/N,F	4 23
barn swallow	<i>Hirundo rustica</i>	none	Late	X	X	C/N,F	4 15
brown thrasher	<i>Toxostoma rufum</i>	none	X	X	X	C/N,F	4 9
hermit thrush	<i>Catharus guttatus</i>	none	X	X	X	R/N,F	4 7
wood thrush	<i>Hylocichla mustelina</i>	none	X	X	X	C/N,F	4 7
rufous-sided towhee	<i>Pipilo erythrophthalmus</i>	none	Late	X	X	A/N,F	4 20
red-eyed vireo	<i>Vireo olivaceus</i>	none	Late	X	X	C/N,F	4 23
black-and-white warbler	<i>Mniotilta varia</i>	none	X	X	X	C/N,F	4 18
blue-winged warbler	<i>Vermivora pinus</i>	none	Late	X	X	C/N,F	4 14
chestnut-sided warbler	<i>Dendroica pensylvanica</i>	none	Late	X	X	C/N,F	4 19
cedar waxwing	<i>Bombycilla cedrorum</i>	none	Late	X	X	C/N,F	4 23 32
whip-poor-will	<i>Caprimulgus vociferous</i>	none	Late	X	X	C/N	4 12
Eastern wood-peewee	<i>Contopus virens</i>	none	X	X	X	C/N,F	4 15
American woodcock	<i>Philhela minor</i>	none	X	X	X	R/N,F	4 30
downy woodpecker	<i>Picoides pubescens</i>	none	X	X	X	A/N,F	4 14
hairy woodpecker	<i>Picoides villosus</i>	none	X	X	X	R/N,F	4 14
red-bellied woodpecker	<i>Melanerpes carolinus</i>	none	X	X	X	R/N,F	4 14
Carolina wren	<i>Thryothorus ludovicianus</i>	none	X	X	X	C/N,F	4 9
house wren	<i>Troglodytes aedon</i>	none	Late	X	X	C/N,F	4 9
big-brown bat	<i>Eptesicus fuscus</i>	none	X	X	X	C/N,F	1 29
hoary bat	<i>Lasiurus borealis</i>	none	X	Late	Late	C/N,F	45
Keen's bat	<i>Myotis keenii</i>	none	X	X	X	R/N	1 29
Mammals							
little-brown bat	<i>Myotis lucifugus</i>	none	X	X	X	C/N,F	1 29
red bat	<i>Lasiurus borealis</i>	none	Late	X	X	C/N,F	1 29
silver-haired bat	<i>Lasionycteris noctivagans</i>	none	X	X	X	R/N,F	1 29
Eastern chipmunk	<i>Tamias striatus</i>	none	X	X	X	C/N,F	1 29
Eastern cottontail	<i>Sylvilagus floridanus</i>	none	X	X	X	A/N,F	1 29
white-tailed deer	<i>Odocoileus virginianus</i>	none	X	X	X	C/ F	1 25 29
red fox	<i>Vulpes vulpes</i>	none	X	X	X	C/N,H	1 29
Eastern mole	<i>Scalopus aquaticus</i>	none	X	X	X	C/N,F	1 29
meadow-jumping mouse	<i>Zapus hudsonicus</i>	none	X	X	X	R/N,F	1 29
white-footed mouse	<i>Peromyscus leucopus</i>	none	X	X	X	C/N,F	1 29

Common Name	Scientific Name	Status	Found During			Frequency / Habitat Use	References
			winter	spring	summer			fall
Virginia opossum	<i>Didelphis virginiana</i>	none	X	X	X	C / N,F	1 29
raccoon	<i>Procyon lotor</i>	none	X	X	X	C / N,F	1 29
masked shrew	<i>Sorex cinereus</i>	none	X	X	X	C / N,F	1 29
short-tailed shrew	<i>Blarina brevicauda</i>	none	X	X	X	A / N,F	1 29
striped skunk	<i>Mephitis mephitis</i>	none	X	X	X	N / N,F	1 29
Eastern gray squirrel	<i>Sciurus carolinensis</i>	none	X	X	X	C / N,F	1 29
meadow vole	<i>Microtus pennsylvanicus</i>	none	X	X	X	R / N,F	29 45
pine vole	<i>Microtus pinetorum</i>	none	X	X	X	C / N,F	1 29
long-tailed weasel	<i>Mustela frenata</i>	none	X	X	X	R / N,H	1 29
woodchuck	<i>Marmota monax</i>	none	X	X	X	R / N,F	1 29
Herptiles							
Eastern garter snake	<i>Thamnophis sirtalis</i>	none	X	X	X	C / N,F	38 40
eastern hognose snake	<i>Heterodon platyrhinos</i>	special concern	X	X	X	R / N,H	38
eastern milk snake	<i>Lampropeltis d. triangulum</i>	none	X	X	X	C / N,F	38 39

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Appendix D-3

Breeding Bird Census Data



New York State
Breeding Bird Atlas

The enclosed data from the New York State Breeding Bird Atlas represents a cumulative effort from 1980-1985. These data are the result of on-site surveys within each block conducted by numerous volunteers. The intensity level and effort in data collecting varies throughout the State. Some blocks have been more thoroughly searched than others. For these reasons, we cannot provide a definitive statement concerning the absence of a breeding record for a species not listed in a block. We can only provide a listing of species known to be breeding or suspected of breeding in each block.

The highest level of confirmation of breeding recorded during the Atlas was retained in this listing. For example, a record of probable nesting "T2" (Bird Holding Territory) in 1983 would be retained over a possible nesting "X1" (Species Observed in Possible Nesting Habitat) in 1984 and over a probable nesting "P2" (Pair Observed in Suitable Nesting Habitat) in 1985 since "T2" is the highest level of breeding evidence in this example.

Atlas block boundaries can be identified by the New York Transverse Mercator (NYTM) grid, a modification of the Universal Transverse Mercator (UTM) grid. Coordinates for the block are included in the heading on page 1 of each printout. These coordinates correspond to tick marks found on United States Geological Survey (USGS) and New York State Department of Transportation (NYSDOT) 7.5' quadrangles. In New York west of 78 degrees longitude and in extreme eastern Long Island, east of 72 degrees longitude (Montauk Point and Mystic quadrangles) the NYTM grid differs from the UTM grid. In these areas tick marks are accurate only on the NYSDOT quadrangles. Do not use USGS quadrangles to identify Atlas block boundaries in these areas.

Political jurisdiction(s) within each Atlas block are also included in the heading on page 1. County(ies) and Town(s) or City(ies), American Indian lands, neighboring states and/or Canada are listed if more than five percent (5%) of the area within the block occurs in the jurisdiction. In addition, an estimated percentage of the block area within each jurisdiction is included.

Definitions of the New York State legal status and the Natural Heritage Program (NHP) State ranking are provided on the enclosed sheet entitled "New York State Breeding Bird Atlas Species Status." The NHP rank reflects "believed" rarity within the State. It does not confer any legal protection to the species and is meant only as a "working" list, subject to frequent changes based upon the most recent data available.

Explanation of the breeding code category can be found on the enclosed sheet entitled "New York State Breeding Bird Atlas Key to Breeding Evidence."

Questions concerning these data may be addressed to:

Information Services
New York Natural Heritage Program
N.Y.S.D.E.C.
Wildlife Resources Center
700 Troy-Schenectady Road
Latham, New York 12110-2400

Copies of the published book "The Atlas of Breeding Birds in New York State", Andrie, Robert F. and Janet R. Carroll, Editors, may be purchased directly from Cornell University Press. Call toll free 1-800-666-2211 to order and have billed to your charge card.

New York State Breeding Bird Atlas
Species Status

New York State Legal Status

Endangered - any species which meet one of the following criteria:

- 1) Any native species in imminent danger of extirpation or extinction in New York.
- 2) Any species listed as endangered by the United States Department of the Interior, as enumerated in the Code of Federal Regulations 50 CFR 17.11.

Threatened - any species which meet one of the following criteria:

- 1) Any native species likely to become an endangered species within the foreseeable future in New York.
- 2) Any species listed as threatened by the United States Department of the Interior, as enumerated in the Code of Federal Regulations 50 CFR 17.11, and not listed as endangered in New York.

Protected-Special Concern - those species which are not yet recognized as endangered or threatened, but for which documented concern exists for their continued welfare in New York and are Federally protected wild birds.

Protected-Game Species - species classified as small game in New York by Environmental Conservation Law, may have an open season for part of the year and are protected at other times.

Protected - those species listed as wild game, protected wild birds, and endangered species as defined in the Environmental Conservation Law.

Unprotected - species which may be taken at any time without limit; however, a license to take may be required.

Natural Heritage Program State Ranks

S1 - Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream, or some other factor of its biology making it especially vulnerable in New York State.

S2 - Typically 6 to 20 occurrences, few remaining individuals, acres, or miles of stream, or factors demonstrably making it very vulnerable in New York State.

S3 - Typically 21 to 100 occurrences, limited acreage, or miles of stream in New York State.

S4 - Apparently secure in New York State.

S5 - Demonstrably secure in New York State.

SH - Historically known from New York State, but not seen in the past 15 years.

SX - Apparently extirpated from New York State.

SE - Exotic, not native to New York State.

SR - State report only, no verified specimens known from New York State.

SU - Status in New York State is unknown.

NR - Not ranked, usually a hybrid species.

NEW YORK STATE BREEDING BIRD ATLAS
KEY TO BREEDING EVIDENCE

CODE DEFINITION OF CRITERIA

Possible Breeding

X1 Species observed in possible nesting habitat but no other indication of breeding noted, or singing male(s) present (or breeding calls heard), in breeding season (based upon one visit).

Probable Breeding

P2 Pair observed in suitable habitat in breeding season.

S2 Singing male present (or breeding calls heard) on more than one date in the same place.

T2 Bird (or pair) apparently holding territory.

D2 Courtship and display, agitated behavior or anxiety calls from adults suggesting probable presence nearby of a nest or young; well-developed brood-patch or cloacal protuberance on trapped adult. Includes copulation.

N2 Visiting probable nest site. Nest building by wrens and woodpeckers.

B2 Nest building or excavation of a nest hole.

Confirmed Breeding

DD Distraction display or injury-feigning.

UN Used nest found.

FE Female with egg in the oviduct.

FL Recently fledged young (including downy young of precocial species - waterfowl, shorebirds).

ON Adult(s) entering or leaving nest site in circumstances indicating occupied nest.

FS Adult carrying fecal sac.

FY Adult(s) with food for young.

NE Identifiable nest and eggs, bird setting on nest or eggs, identifiable eggshells found beneath nest, or identifiable dead nestling(s).

NY Nest with young.

NEW YORK STATE BREEDING BIRD ATLAS

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COMPLETE BLOCK LISTING

----- NYTM COORDINATES IN METERS -----

NORTH : 4525000 SOUTH : 4520000 EAST : 640000 WEST : 635000

----- JURISDICTION (COUNTY-TOWN/CITY,PERCENT) -----

1) Suffolk Co. - Huntington 100%

COMMON NAME	SCIENTIFIC NAME	BREED- ING CODE	YEAR	NEW YORK LEGAL STATUS	NATURAL
					HERITAGE PROGRAM STATE RANK
Canada Goose	<i>Branta canadensis</i>	NY	82	Game Species	S5
Mallard	<i>Anas platyrhynchos</i>	FL	82	Game Species	S5
Wood Duck	<i>Aix sponsa</i>	NE	83	Game Species	S5
Red-tailed Hawk	<i>Buteo jamaicensis</i>	X1	82	Protected	S5
American Kestrel	<i>Falco sparverius</i>	N2	84	Protected	S5
Northern Bobwhite	<i>Colinus virginianus</i>	FL	81	Game Species	S4
Ring-necked Pheasant	<i>Phasianus colchicus</i>	FL	81	Game Species	SE
Killdeer	<i>Charadrius vociferus</i>	T2	83	Protected	S5
American Woodcock	<i>Scolopax minor</i>	D2	84	Game Species	S5
Rock Dove	<i>Columba livia</i>	NY	82	Unprotected	SE
Mourning Dove	<i>Zenaida macroura</i>	NY	83	Protected	S5
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	FY	84	Protected	S5
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	T2	84	Protected	S5
Eastern Screech-Owl	<i>Otus asio</i>	NY	84	Protected	S5
Chimney Swift	<i>Chaetura pelagica</i>	X1	82	Protected	S5
Belted Kingfisher	<i>Ceryle alcyon</i>	N2	84	Protected	S5
Northern Flicker	<i>Colaptes auratus</i>	NY	84	Protected	S5
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	X1	83	Protected	S5
Hairy Woodpecker	<i>Picoides villosus</i>	ON	84	Protected	S5
Downy Woodpecker	<i>Picoides pubescens</i>	NY	84	Protected	S5
Eastern Kingbird	<i>Tyrannus tyrannus</i>	N2	84	Protected	S5
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	T2	84	Protected	S5
Eastern Phoebe	<i>Sayornis phoebe</i>	T2	82	Protected	S5
Eastern Wood-Pewee	<i>Contopus virens</i>	T2	82	Protected	S5
Horned Lark	<i>Eremophila alpestris</i>	X1	83	Protected	S5
Tree Swallow	<i>Tachycineta bicolor</i>	N2	84	Protected	S5
Barn Swallow	<i>Hirundo rustica</i>	NY	82	Protected	S5

NEW YORK STATE BREEDING BIRD ATLAS

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COMPLETE BLOCK LISTING

Purple Martin	<i>Progne subis</i>	NY	82	Protected	S5
Blue Jay	<i>Cyanocitta cristata</i>	NY	83	Protected	S5
American Crow	<i>Corvus brachyrhynchos</i>	NY	82	Game Species	S5
Fish Crow	<i>Corvus ossifragus</i>	X1	83	Protected	S4
Black-capped Chickadee	<i>Parus atricapillus</i>	NY	83	Protected	S5
Tufted Titmouse	<i>Parus bicolor</i>	NY	83	Protected	S5
White-breasted Nuthatch	<i>Sitta carolinensis</i>	N2	84	Protected	S5
Brown Creeper	<i>Certhia americana</i>	P2	84	Protected	S5
House Wren	<i>Troglodytes aedon</i>	FY	81	Protected	S5
Carolina Wren	<i>Thryothorus ludovicianus</i>	T2	83	Protected	S5
Northern Mockingbird	<i>Mimus polyglottos</i>	NY	84	Protected	S5
Gray Catbird	<i>Dumetella carolinensis</i>	NY	83	Protected	S5
Brown Thrasher	<i>Toxostoma rufum</i>	N2	81	Protected	S5
American Robin	<i>Turdus migratorius</i>	NY	83	Protected	S5
Wood Thrush	<i>Hylocichla mustelina</i>	X1	82	Protected	S5
European Starling	<i>Sturnus vulgaris</i>	NY	82	Unprotected	SE
Red-eyed Vireo	<i>Vireo olivaceus</i>	X1	82	Protected	S5
Black-and-white Warbler	<i>Mniotilta varia</i>	X1	82	Protected	S5
Blue-winged Warbler	<i>Vermivora pinus</i>	X1	83	Protected	S5
Yellow Warbler	<i>Dendroica petechia</i>	T2	84	Protected	S5
Prairie Warbler	<i>Dendroica discolor</i>	X1	82	Protected	S5
Ovenbird	<i>Seiurus aurocapillus</i>	S2	83	Protected	S5
Common Yellowthroat	<i>Geothlypis trichas</i>	NY	84	Protected	S5
American Redstart	<i>Setophaga ruticilla</i>	X1	82	Protected	S5
House Sparrow	<i>Passer domesticus</i>	NY	83	Unprotected	SE
Eastern Meadowlark	<i>Sturnella magna</i>	X1	82	Protected	S5
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	NY	84	Protected	S5
Northern Oriole	<i>Icterus galbula</i>	NY	84	Protected	S5
Common Grackle	<i>Quiscalus quiscula</i>	FL	82	Protected	S5
Brown-headed Cowbird	<i>Molothrus ater</i>	T2	83	Protected	S5
Scarlet Tanager	<i>Piranga olivacea</i>	X1	82	Protected	S5
Northern Cardinal	<i>Cardinalis cardinalis</i>	NY	84	Protected	S5
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	P2	84	Protected	S5
House Finch	<i>Carpodacus mexicanus</i>	NY	84	Protected	SE
American Goldfinch	<i>Carduelis tristis</i>	T2	81	Protected	S5
Rufous-sided Towhee	<i>Pipilo erythrophthalmus</i>	DD	84	Protected	S5
Savannah Sparrow	<i>Passerculus sandwichensis</i>	X1	83	Protected	S5
Field Sparrow	<i>Spizella pusilla</i>	T2	84	Protected	S5

NEW YORK STATE BREEDING BIRD ATLAS
COMPLETE BLOCK LISTING

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Song Sparrow	Melospiza melodia	T2	82	Protected	S5
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Appendix D-4
Species Adaptability



PROJECTION OF WILDLIFE ECOLOGICAL RESPONSE (POWER)

NELSON, POPE & VOORHIS, LLC, MICROCOMPUTER MODEL

SPECIES ADAPTABILITY

Appendix D-4

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 used for the preparation of **Appendix D-2**, however, 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 those used in previous appendix.

Successional Shrubland Species - Adaptability and Comments

Common Name	Scientific Name	Adapt.	Comments	References
red-winged blackbird	<i>Agelaius phoeniceus</i>	=	needs water	4 6
common bobwhite	<i>Colinus virginianus</i>	-	somewhat tolerant of humans during spring and summer months	4 8
indigo bunting	<i>Passerina cyanea</i>	-	inhabits open woodlands with dense thickets for cover	4 20
Northern cardinal	<i>Cardinalis cardinalis</i>	=	found around gardens, yards, parks	4 20
gray catbird	<i>Dumetella carolinensis</i>	=	abundant around parks, urban and suburban areas	4 9
black capped chickadee	<i>Parus atricapillus</i>	=	abundant around parks, urban and suburban areas	4 11
brown-headed cowbird	<i>Molothrus ater</i>	=	lays eggs in other bird's nests; some stay during winter	4 6
American crow	<i>Corvus brachyrhynchos</i>	=	extremely adaptable; omnivorous	4 11
black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	-	avoids human activities	4 11
yellow-billed cuckoo	<i>Coccyzus americanus</i>	-	avoids heavy urban areas; prefers wooded open or edges for nests	4 12
mourning dove	<i>Zenaidura macroura</i>	=	abundant around parks, urban and suburban areas	4 8
American goldfinch	<i>Carduelis tristis</i>	=	prefers diet of thistles and dandelions	4 20
common flicker	<i>Colaptes auratus</i>	=	abundant around parks, suburban and urban areas	4 14
least flycatcher	<i>Empidonax minimus</i>	=	prefers open areas and woodland borders; uncommon on Long Island	4 15
willow flycatcher	<i>Empidonax traillii</i>	-	found mostly on south shore and western north shore areas	4 15
common grackle	<i>Quiscalus quiscula</i>	=	adapts well to urban and suburban habitats	4 6
ruffed grouse	<i>Bonasa umbellus</i>	-	prefers dense cover, thick woods; avoids humans	4 8
rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>	=	mainly found on north shore	4 20
Northern harrier	<i>Circus cyaneus</i>	-	avoids humans; extremely protective of nests	4 16
Cooper's hawk	<i>Accipiter cooperii</i>	-	no atlas sightings (non-breeder) on LI; needs extensive woodland	4 17
red-tailed hawk	<i>Buteo jamaicensis</i>	-	needs 100 foot radius undisturbed area for nest	4 16
sharp-shinned hawk	<i>Accipiter striatus</i>	-	avoids humans; nests in heavily forested areas	4 16
blue jay	<i>Cyanocitta cristata</i>	=	extremely adaptable to human activity and other stresses	4 10
Northern (dark-eyed) junco	<i>Junco hyemalis</i>	-	prefers forested area with elevation >300 meters; no LI atlas record	4 21
American kestrel	<i>Falco sparverius</i>	-	adaptable; prefers open areas and parks; will nest near humans	4 17
Eastern kingbird	<i>Tyrannus tyrannus</i>	=	very adaptable to human activities; prefers open areas	4 15
golden-crowned kinglet	<i>Regulus satrapa</i>	-	prefers spruce vegetation; no atlas sightings on Long Island	4 7
ruby-crowned kinglet	<i>Regulus calendula</i>	-	occurs as non-breeding species; present during migration	4 7
Eastern meadowlark	<i>Sturnella magna</i>	-	found in marshes during winter months	4 6
Northern mockingbird	<i>Mimus polyglottos</i>	+	prefers to nest near humans	4 9
barn owl	<i>Tyto alba</i>	=	hunts in open areas, nests in man made structures and hollow trees	4 17
great-horned owl	<i>Bubo virginianus</i>	-	nocturnal; rare in wooded areas of less than 20 acres	4 17

Common Name	Scientific Name	Adapt.	Comments	References
ring-necked pheasant	<i>Phasianus colchicus</i>	-	needs fields with cover along edge	4 8
American redstart	<i>Setophaga ruticilla</i>	-	urbanization and agriculture have negative effects	4 19
American robin	<i>Turdus migratorius</i>	=	very adaptable; abundant in parks; nests in man-made structures	4 7
pine siskin	<i>Carduelis pinus</i>	=	one atlas confirmed breeding record on Long Island	4 20
fox sparrow	<i>Passerella iliaca</i>	-	boreal species, winters here in edge, thickets, brushy areas	20 21
field sparrow	<i>Spizella pusilla</i>	-	associated with grasslands, fields and brushy wooded edges	4 21
grasshopper sparrow	<i>Ammodramus savannarum</i>	-	requires grasslands	4 20
song sparrow	<i>Melospiza melodia</i>	=	common to most habitats except deep forest, open field and marsh	4 22
swamp sparrow	<i>Melospiza georgiana</i>	-	prefers fresh water marshes; may be found in weedy fields, parks	4 22
white-crowned sparrow	<i>Zonotrichia leucophrys</i>	=	often found in suburban areas and city parks	22 32
white-throated sparrow	<i>Zonotrichia albicollis</i>	-	prefers brushy areas and thick undergrowth	4 22
European starling	<i>Sturnus vulgaris</i>	+	extremely adaptable to human activity; considered a pest	4 23
barn swallow	<i>Hirundo rustica</i>	+	nests almost entirely on buildings	4 15
brown thrasher	<i>Toxostoma rufum</i>	=	common in parks and suburban areas, wooded edges and dry open area	4 9
hermit thrush	<i>Catharus guttatus</i>	=	not common on Long Island; when present, prefers pine barrens	4 7
wood thrush	<i>Hylocichla mustelina</i>	=	prefers vacant wood (trees >40 feet); may adapt of wooded suburban	4 7
rufous-sided towhee	<i>Pipilo erythrophthalmus</i>	-	may be present year round on Long Island	4 20
white eyed vireo	<i>Vireo griseus</i>	-	avoids human activity; prefers dense swampy thickets	4 23
black-and-white warbler	<i>Mniotilta varia</i>	-	builds nests under shrubs and/or trees	4 18
blue-winged warbler	<i>Vermivora pinus</i>	-	primarily abandoned and overgrown field, and thickets	4 14
chestnut-sided warbler	<i>Dendroica pensylvanica</i>	-	prefers first growth woods, with some open brush area	4 19
prairie warbler	<i>Dendroica discolor</i>	-	prefers scrub fields and open pine barrens habitat	4 19
cedar waxwing	<i>Bombycilla cedrorum</i>	+	prefers open woodlands, orchards and residential areas	4 23 32
whip-poor-will	<i>Caprimulgus vociferous</i>	-	nocturnal; prefers open woods with adjacent fields	4 12
American woodcock	<i>Philhela minor</i>	-	prefers moist woodland and thicket near open fields	4 30
Carolina wren	<i>Thryothorus ludovicianus</i>	=	associated with woodland thickets and brushy areas, often near water	4 9
house wren	<i>Troglodytes aedon</i>	=	found in suburban areas and gardens; nests in crevices of buildings	4 9
common yellowthroat	<i>Geothlypis trichas</i>	=	found in all open brushy wet areas	4 19
MAMMALS				
Eastern chipmunk	<i>Tamias striatus</i>	=	prefers open woods, thickets, and rocky areas	1 29
Eastern cottontail	<i>Sylvilagus floridanus</i>	=	will adapt to suburban areas, if there is sufficient cover	1 29
white-tailed deer	<i>Odocoileus virginianus</i>	-	requires range of one-half square mile	1 25 29
red fox	<i>Vulpes vulpes</i>	-	builds den in wooded areas with loose-sandy soil and good drainage	1 29
Eastern mole	<i>Scalopus aquaticus</i>	=	tunnels underground	1 29
house mouse	<i>Mus musculus</i>	+	lives in association with man, not expected away from buildings	1 29
meadow-jumping mouse	<i>Zapus hudsonicus</i>	=	found around water in pine barrens; prefers open areas with grasses	1 29

Common Name	Scientific Name	Adapt.	Comments	References
white-footed mouse	<i>Peromyscus leucopus</i>	=	common to most all habitats; does not adapt well to human activity	1 29
Virginia opossum	<i>Didelphis virginiana</i>	=	common in suburban areas, as well as woods, marsh and coastal areas	1 29
raccoon	<i>Procyon lotor</i>	+	nocturnal; very adaptive; found in urban and forest areas	1 29
black rat	<i>Rattus rattus</i>	=	lives in association with man, mainly city water front buildings	1 29
short-tailed shrew	<i>Blarina brevicauda</i>	=	tunnels underground; abundant in a variety of habitats	1 29
striped skunk	<i>Mephitis mephitis</i>	=	prefers mixed wood & brush within 2 miles of water; not expected on LI	1 29
meadow vole	<i>Microtus pennsylvanicus</i>	=	tunnels underground; prefers open woodland	29 45
pine vole	<i>Microtus pinetorum</i>	=	tunnels underground; prefers sandy soil in woods and field; can swim	1 29
long-tailed weasel	<i>Mustela frenata</i>	-	prefers dense wood, but may appear in all land habitats near water	1 29
woodchuck	<i>Marmota monax</i>	-	appears primarily in scrub woods and brushy areas; not common on LI	1 29
HERPTILES				
Eastern garter snake	<i>Thamnophis sirtalis</i>	=	occupies a variety of habitats	38 40
eastern hognose snake	<i>Heterodon platyrhinos</i>	=	sandy soil and sunny roadside; feeds on herptiles and insects	38
eastern milk snake	<i>Lampropeltis d. triangulum</i>	=	occupies a variety of habitats	38 39
Fowler's toad	<i>Bufo woodhousei fowleri</i>	-	found in suburban areas, gardens; breeds in shallow permanent ponds	33 37

Successional Woodland Species - Adaptability and Comments

Common Name	Scientific Name	Adapt.	Comments	References
Birds				
gray catbird	<i>Dumetella carolinensis</i>	=	abundant around parks, urban and suburban areas	4 9
black capped chickadee	<i>Parus atricapillus</i>	=	abundant around parks, urban and suburban areas	4 11
brown-headed cowbird	<i>Molothrus ater</i>	=	lays eggs in other bird's nests; some stay during winter	4 6
brown creeper	<i>Certhia familiaris</i>	-	prefers predominantly deciduous wooded areas	4 9
American crow	<i>Corvus brachyrhynchos</i>	=	extremely adaptable; omnivorous	4 11
yellow-billed cuckoo	<i>Coccyzus americanus</i>	-	avoids heavy urban areas; prefers wooded open or edges for nests	4 12
mourning dove	<i>Zenaidura macroura</i>	=	abundant around parks, urban and suburban areas	4 8
rock dove	<i>Columba livia</i>	+	nests almost entirely on buildings; considered a pest species	4 8
house finch	<i>Carpodacus mexicanus</i>	+	nests almost entirely on buildings; considered a pest species	4 20
common flicker	<i>Colaptes auratus</i>	=	abundant around parks, suburban and urban areas	4 14
common grackle	<i>Quiscalus quiscula</i>	=	adapts well to urban and suburban habitats	4 6
ruffed grouse	<i>Bonasa umbellus</i>	-	prefers dense cover, thick woods; avoids humans	4 8
rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>	=	mainly found on north shore	4 20
Cooper's hawk	<i>Accipiter cooperii</i>	-	no atlas sightings (non-breeder) on LI; needs extensive woodland	4 17
red-tailed hawk	<i>Buteo jamaicensis</i>	-	needs 100 foot radius undisturbed area for nest	4 16
sharp-shinned hawk	<i>Accipiter striatus</i>	-	avoids humans; nests in heavily forested areas	4 16
blue jay	<i>Cyanocitta cristata</i>	=	extremely adaptable to human activity and other stresses	4 10
Northern (dark-eyed) junco	<i>Junco hyemalis</i>	-	prefers forested area with elevation >300 meters; no LI atlas record	4 21
American kestrel	<i>Falco sparverius</i>	-	adaptable; prefers open areas and parks; will nest near humans	4 17
Eastern kingbird	<i>Tyrannus tyrannus</i>	=	very adaptable to human activities; prefers open areas	4 15
golden-crowned kinglet	<i>Regulus satrapa</i>	-	prefers spruce vegetation; no atlas sightings on Long Island	4 7
ruby-crowned kinglet	<i>Regulus calendula</i>	-	occurs as non-breeding species; present during migration	4 7
Northern mockingbird	<i>Mimus polyglottos</i>	+	prefers to nest near humans	4 9
great-horned owl	<i>Bubo virginianus</i>	-	nocturnal; rare in wooded areas of less than 20 acres	4 17
long-eared owl	<i>Asio otus</i>	-	nocturnal; prefers dense forested areas near water	4 17
American redstart	<i>Setophaga ruticilla</i>	-	urbanization and agriculture have negative effects	4 19
American robin	<i>Turdus migratorius</i>	=	very adaptable; abundant in parks; nests in man-made structures	4 7
yellow-bellied sapsucker	<i>Sphyrapicus varius</i>	=	nests in tree cavity; found in parks, yards and gardens	14
fox sparrow	<i>Passerella iliaca</i>	-	boreal species, winters here in edge, thickets, brushy areas	20 21
house sparrow	<i>Passer domesticus</i>	+	prefers buildings, urban, suburban, gardens; considered a pest	4 20
song sparrow	<i>Melospiza melodia</i>	=	common to most habitats except deep forest, open field and marsh	4 22

Common Name	Scientific Name	Adapt.	Comments	References
white-throated sparrow	<i>Zonotrichia albicollis</i>	-	prefers brushy areas and thick undergrowth	4 22
European starling	<i>Sturnus vulgaris</i>	+	extremely adaptable to human activity; considered a pest	4 23
barn swallow	<i>Hirundo rustica</i>	+	nests almost entirely on buildings	4 15
brown thrasher	<i>Toxostoma rufum</i>	=	common in parks, suburban areas, wooded edges, dry open areas	4 9
hermit thrush	<i>Catharus guttatus</i>	=	not common on Long Island; when present, prefers pine barrens	4 7
wood thrush	<i>Hylocichla mustelina</i>	=	prefers vacant wood (trees >40 feet); may adapt of wooded suburban	4 7
rufous-sided towhee	<i>Pipilo erythrophthalmus</i>	-	may be present year round on Long Island	4 20
red-eyed vireo	<i>Vireo olivaceus</i>	=	found in parks and suburban areas with shade trees and undergrowth	4 23
black-and-white warbler	<i>Mniotilta varia</i>	-	builds nests under shrubs and/or trees	4 18
blue-winged warbler	<i>Vermivora pinus</i>	-	primarily abandoned and overgrown field, and thickets	4 14
chestnut-sided warbler	<i>Dendroica pensylvanica</i>	-	prefers first growth woods, with some open brush area	4 19
cedar waxwing	<i>Bombycilla cedrorum</i>	+	prefers open woodlands, orchards and residential areas	4 23 32
whip-poor-will	<i>Caprimulgus vociferous</i>	-	nocturnal; prefers open woods with adjacent fields	4 12
Eastern wood-peewee	<i>Contopus virens</i>	=	prefers suburban areas, parks and villages with shade trees	4 15
American woodcock	<i>Philhela minor</i>	-	prefers moist woodland and thicket near open fields	4 30
downy woodpecker	<i>Picoides pubescens</i>	=	found in parks and suburban areas	4 14
hairy woodpecker	<i>Picoides villosus</i>	=	found mainly in deciduous forests	4 14
red-bellied woodpecker	<i>Melanerpes carolinus</i>	=	prefers forest openings; mostly found on Long Island north shore	4 14
Carolina wren	<i>Thryothorus ludovicianus</i>	=	associated with woodland thickets and brushy areas, often near water	4 9
house wren	<i>Troglodytes aedon</i>	=	found in suburban areas and gardens; nests in crevices of buildings	4 9
Mammals				
big-brown bat	<i>Eptesicus fuscus</i>	+	roosts in structures; found throughout LI; hunts over water	1 29
hoary bat	<i>Lasiurus borealis</i>	=	roosts in trees, sometimes found in parks	45
Keen's bat	<i>Myotis keenii</i>	+	roosts in buildings, crevices and bark; more common on eastern LI	1 29
little-brown bat	<i>Myotis lucifugus</i>	+	roosts in buildings and man made structures; hunts over water	1 29
red bat	<i>Lasiurus borealis</i>	-	feeds in marsh area; nests within 1000 yards of marsh in trees	1 29
silver-haired bat	<i>Lasionycteris noctivagans</i>	-	prefers wooded areas near water, primarily during summer months	1 29
Eastern chipmunk	<i>Tamias striatus</i>	=	prefers open woods, thickets, and rocky areas	1 29
Eastern cottontail	<i>Sylvilagus floridanus</i>	=	will adapt to suburban areas, if there is sufficient cover	1 29
white-tailed deer	<i>Odocoileus virginianus</i>	-	requires range of one-half square mile	1 25 29
red fox	<i>Vulpes vulpes</i>	-	builds den in wooded areas with loose-sandy soil and good drainage	1 29
Eastern mole	<i>Scalopus aquaticus</i>	=	tunnels underground	1 29
meadow-jumping mouse	<i>Zapus hudsonicus</i>	=	found around water in pine barrens; prefers open areas with grasses	1 29
white-footed mouse	<i>Peromyscus leucopus</i>	=	common to most all habitats; does not adapt well to human activity	1 29
Virginia opossum	<i>Didelphis virginiana</i>	=	common in suburban areas, woods, marsh and coastal areas	1 29
raccoon	<i>Procyon lotor</i>	+	nocturnal; very adaptive; found in urban and forest areas	1 29

Common Name	Scientific Name	Adapt.	Comments	References
masked shrew	<i>Sorex cinereus</i>	=	tunnels underground; common in wood and wet habitats	1 29
short-tailed shrew	<i>Blarina brevicauda</i>	=	tunnels underground; abundant in a variety of habitats	1 29
striped skunk	<i>Mephitis mephitis</i>	=	prefers mixed wood & brush within 2 miles of water; not expected on LI	1 29
Eastern gray squirrel	<i>Sciurus carolinensis</i>	=	found in parks, urban and suburban areas; very adaptable	1 29
meadow vole	<i>Microtus pennsylvanicus</i>	=	tunnels underground; prefers open woodland	29 45
pine vole	<i>Microtus pinetorum</i>	=	tunnels underground; prefers sandy soil in woods and field; can swim	1 29
long-tailed weasel	<i>Mustela frenata</i>	-	prefers dense wood, but may appear in all land habitats near water	1 29
woodchuck	<i>Marmota monax</i>	-	appears primarily in scrub woods and brushy areas; not common on LI	1 29
Herpiles				
Eastern garter snake	<i>Thamnophis sirtalis</i>	=	occupies a variety of habitats	38 40
eastern hognose snake	<i>Heterodon platyrhinos</i>	=	sandy soil and sunny roadside; feeds on herpiles and insects	38
eastern milk snake	<i>Lampropeltis d. triangulum</i>	=	occupies a variety of habitats	38 39

APPENDIX E

PHASE IA CULTURAL RESOURCES ASSESSMENT
Literature Search

Hren Property at Huntington

Archaeological Services, Inc.

August 8, 1999



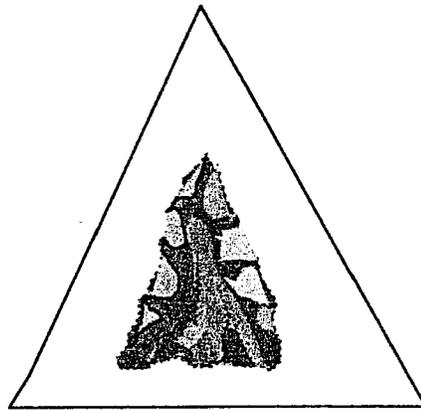
CULTURAL RESOURCE ASSESSMENT

PHASE IA STUDY

LITERATURE SEARCH AND SENSITIVITY ASSESSMENT

HREN PROPERTY

HUNTINGTON, NEW YORK



ASI

ARCHAEOLOGICAL SERVICES INC.

P. O. BOX 1522, ROCKY POINT, NEW YORK

and

11 WOODTHRUSH COURT

EXECUTIVE CIRCLE

MILLER PLACE, NEW YORK 11764

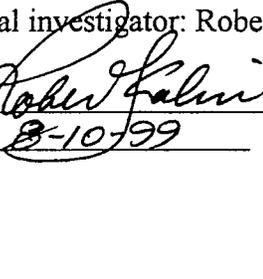
HREN PROPERTY
Huntington, New York

Literature Search and Sensitivity Assessment, Phase IA

Date of initiation of this file: August 6, 1999

Date of completion:
8-8-99

Author and principal investigator: Robert J. Kalin

Endorsement: 

Date: 8-10-99

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Professional Geologist,
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EXECUTIVE SUMMARY

The site is the location of a farm field and later in the 20th century was planted as a tree and shrub nursery. There are no evidences of prehistoric or historic sensitivity. No further study is recommended.

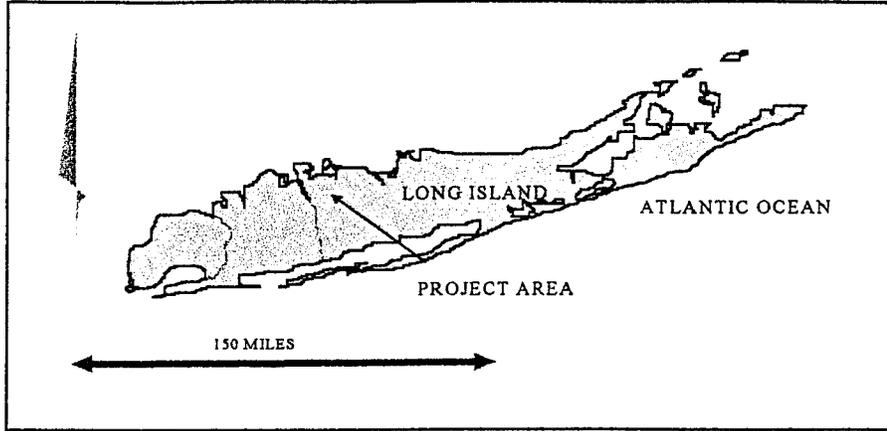


Figure 1. Map showing general location of the study area.

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INTRODUCTION

The following report is the result of a Phase IA, cultural resources assessment study of the former Hren Nursery, located south of Jericho Turnpike, east of Dix Hills Road and west of Deer Park Road (vic. State Place) in Huntington Township, Suffolk county, New York. See below.

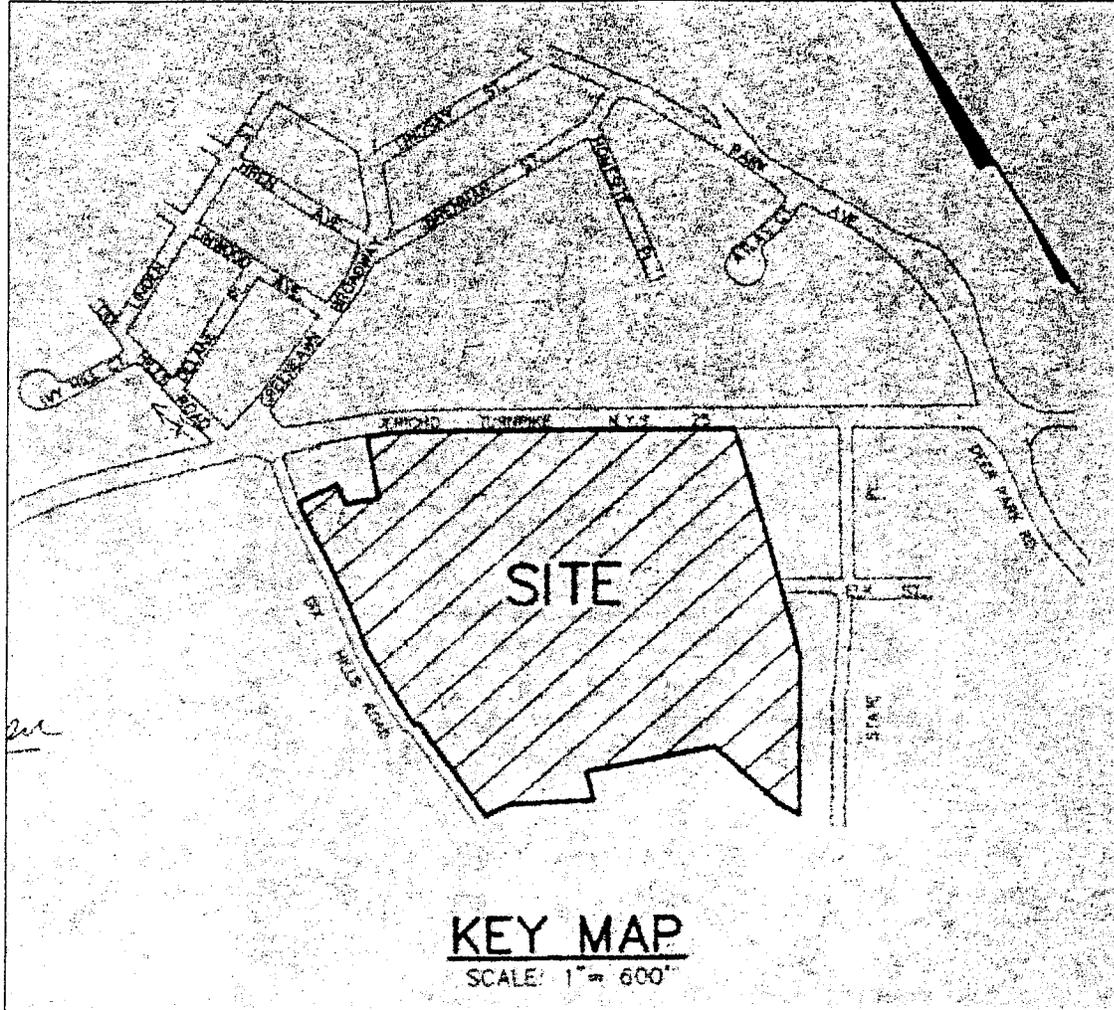


Figure 2. Section of Survey of Hren Property situated in Huntington, New York. After Nelson and Pope Survey

OBJECTIVES

The primary objective of this study is to identify any cultural resources within the study zone, which may be affected by the project. Archaeological and prehistoric sites, man-made features, sacred areas, locations of former structures and structure sites, as well as standing structures that are more than fifty years old are to be identified by means of documentary research, and a visual inspection of the site.

DESCRIPTION OF STUDY AREA

The former agricultural land, now grown over with post agricultural forest encompasses approximately 32.3 acres on the south side of Jericho Turnpike between Dix Hills Road and Deer Park Avenue in Huntington. The parcel is now forested. The northwestern corner of the study area is occupied by a small retail strip of stores. This area is not part of the present proposal. On the east side of Dix Hills Road brush and small trees (such as Red Maple, Black Cherry and Juniper) grow up to the road edge. The interior has similar growth and is interspersed with patches of weeds, forbs and grasses. The area is grided with an early interior farm-nursery road system. Elevations range from approximately 170 to 190 feet above mean sea level.

DESCRIPTION OF THE PROPOSAL

The proposal calls for the construction of a retail store and parking lot in the northern area. It is proposed to be confluent with Jericho Turnpike. It would encompass approximately 13.28 acres. A residential site of approximately 11.52 acres is planned in the southern end; and a buffer zone between these two areas of open space would occupy 7.52 acres.

ENVIRONMENTAL INFORMATION

TOPOGRAPHY

The property slopes gently from north to south with ranges in elevation from slightly less than 190 feet above mean sea level near Jericho Turnpike to nearly 173 feet in the southwest corner of the parcel.

SOILS

The soils are mostly medium to fine well-sorted sands and sandy loams, which overlie glacially derived deposits of coarse sand and gravel. The soils are varied and arranged in patterns that alter from east to west. They are formally classed as Haven A in the eastern end followed by a zone of Riverhead A, Plymouth B; a zone of Plymouth A is found in the extreme western end of the parcel. See section of Soil Map #63 Suffolk County Soil Survey on page 25 in this report.

DRAINAGE

The parcel is well drained.

PROXIMITY TO SURFACE WATER

The parcel has no permanent, near-by surface water source.

VEGETATION

The site has patches of post agricultural forest, brushy areas, remnant and over-grown former nursery plantings and small areas of mature forest in the southwest corner of the site.

FOREST ZONE

The original forest zone was probably Northeastern Oak-Pine Forest (See Kuchler 1970).

ALTERATIONS

The parcel has been altered from its former forested state by clearing of original forest cover, conversion to a farmland used for crop and pastoral purposes, and most recently planted to shrub and tree nursery stock.

MAN-MADE FEATURES OBSERVED DURING THE FIELD INSPECTION

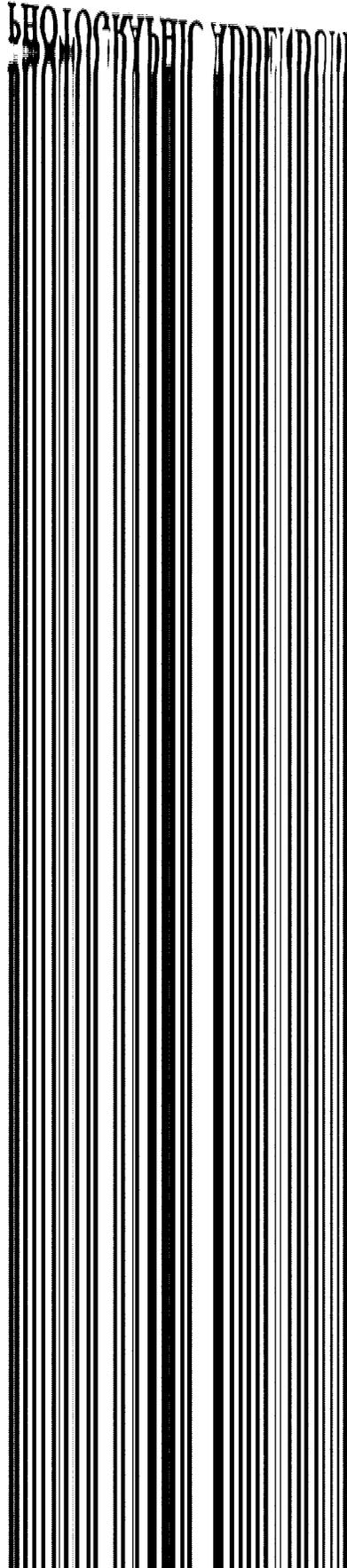
The site has a grid pattern of interior non-surfaced farm roadways. There are areas where introduced soil has been piled and stored and borrow pits where soil has been dug and removed from the site. There are no evidences of structures.

PREVIOUS DOCUMENTARY STUDIES

There are no known previous cultural assessment studies of this property.

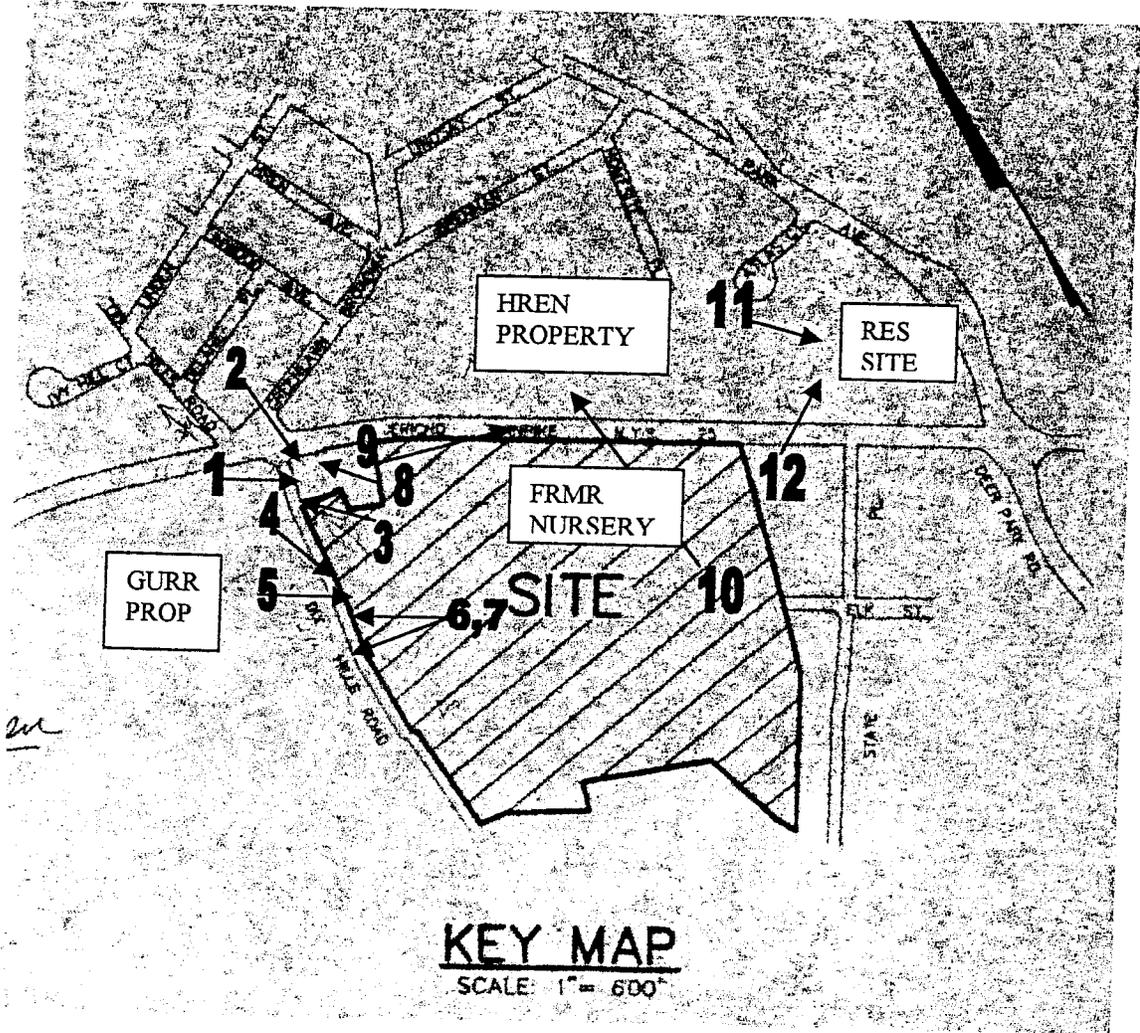
PHOTOGRAPHIC ADDENDUM

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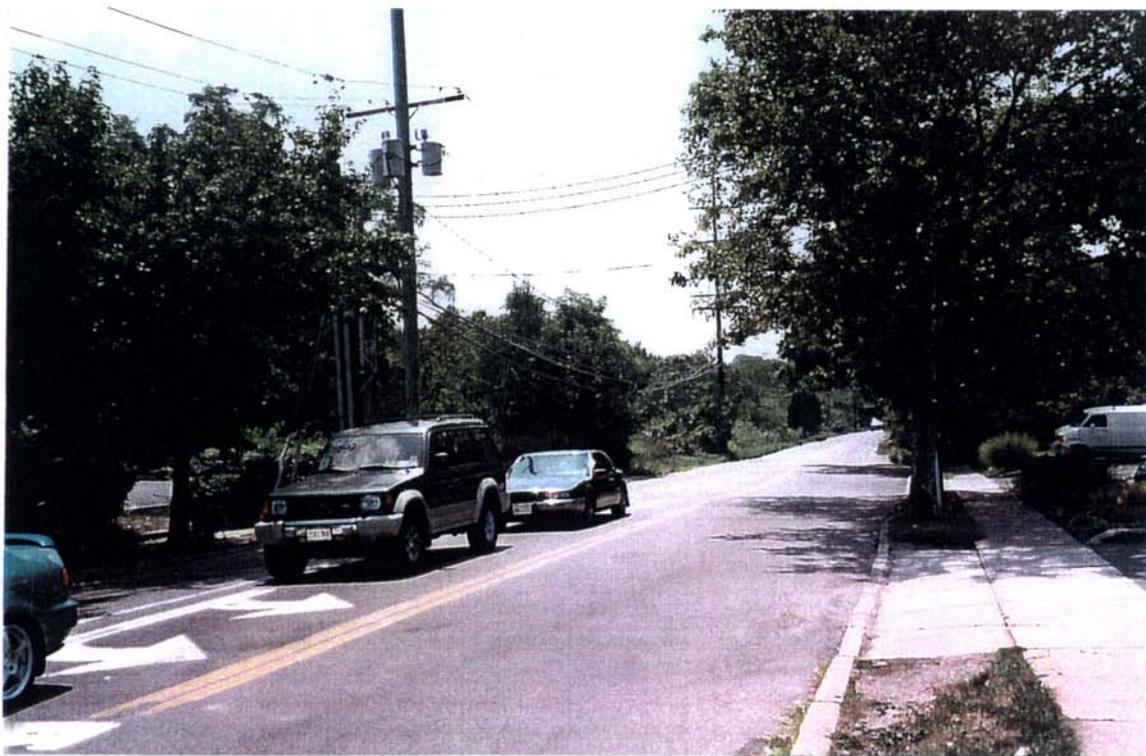


PHOTOGRAPHIC ADDENDUM

Photograph Key Map

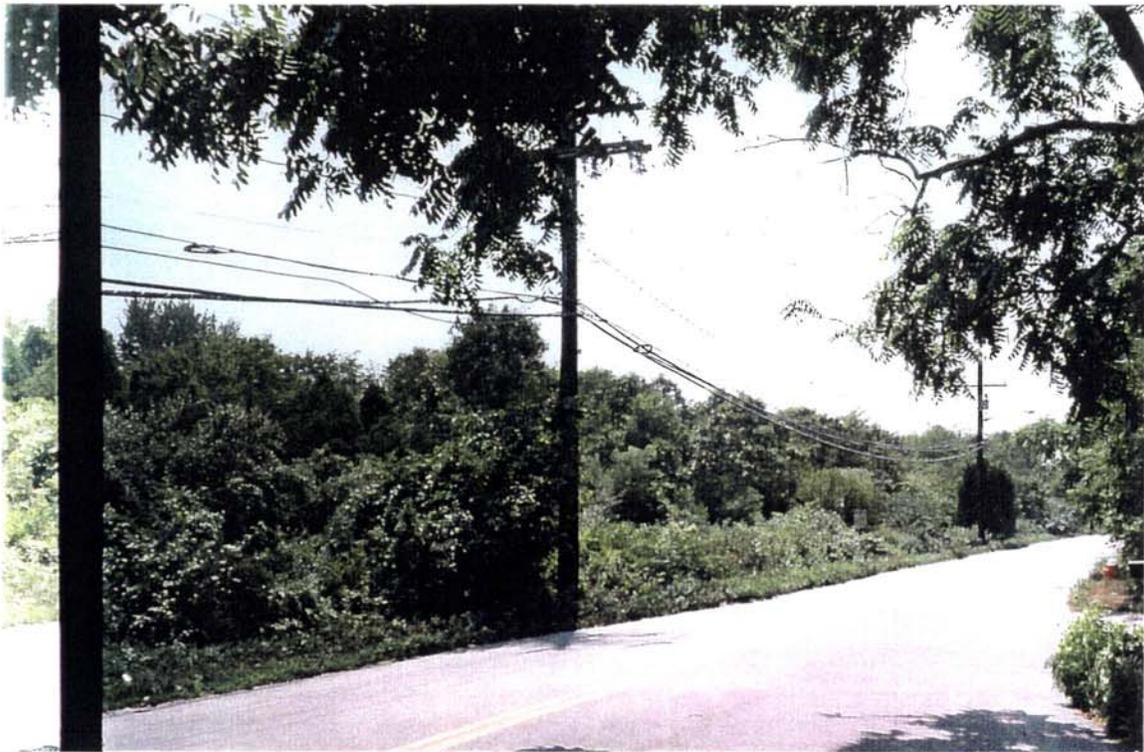


1. View to east from Dix Hills Road and Jericho Turnpike. Small commercial strip located at northwest corner of property is in foreground.



2. View south along Dix Hills Road. Wooded and brushy property on left side of road is the Hren Property.

3. View to northwest from west side of Dix Hills Road. View is of southwest corner of intersection. Diner and parking lot is on left.



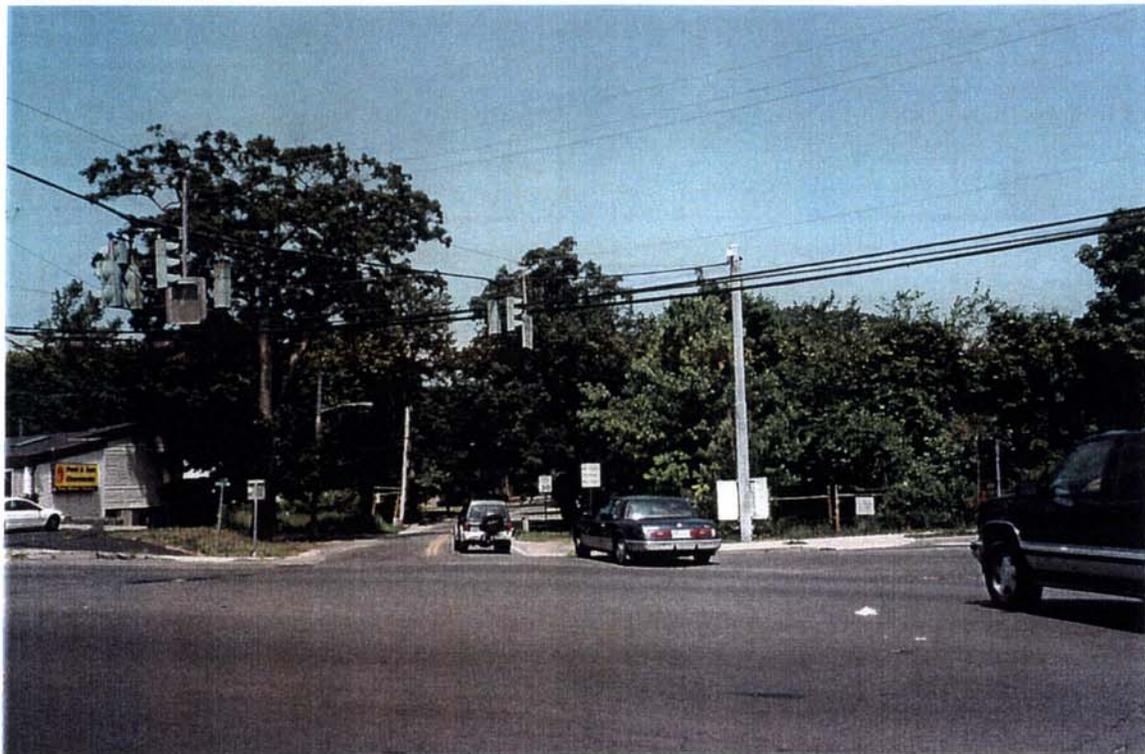
4. View of west side of Dix Hills Road south of Jericho Turnpike commercial strip. This portion of site is planned as a buffer zone to remain in its present state.

5. Close up of brushy eastern boundary of Hren Property along Dix Hills Road.



6. Residence of Mr. Robert Gurr, 131 Dix Hills Road. The property across from the subject parcel. This parcel would face the proposed buffer zone. Note the large White Pine tree and rising terrain of the Jane Hills.

7. Open field south of Gurr residence. Note large Black Walnut Tree.



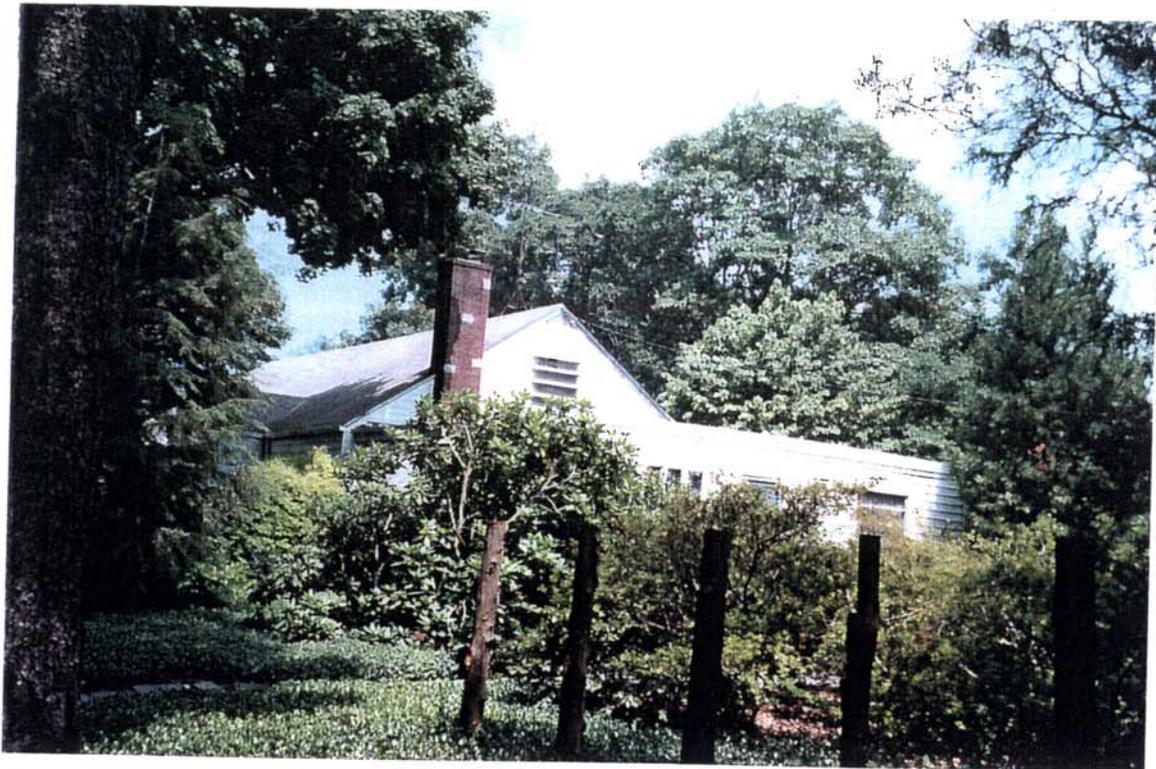
8. View north from intersection of Dix Hills and Jericho Turnpike north to the northern extension of Dix Hills Road.

9. View east along Jericho Turnpike. Automobile sales corporation on north side of Jericho Turnpike opposite subject property.



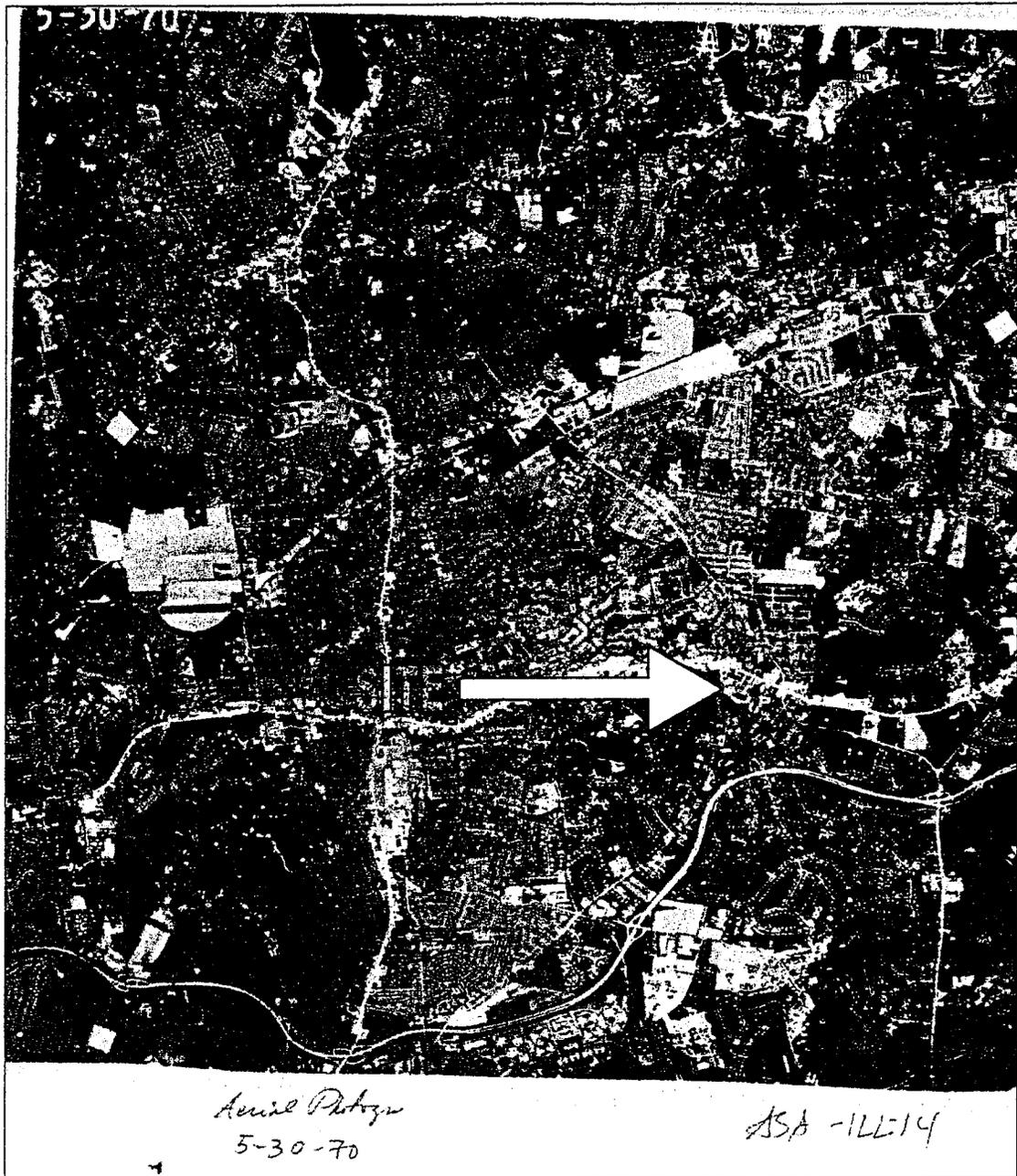
10. Franks Nursery, successor to the Anton Hren Nursery located on the north side of Jericho Turnpike. View to the north from the south side of the highway.

11. View of the south side of the Hren residence on the north side of Jericho Turnpike located across from the subject parcel. This residence is not part of the subject proposal.



12. View to the south side of the Hren residence. Property not part of present proposal.

AERIAL PHOTOGRAPH 1970



LOCAL ORAL HISTORY-INTERVIEWS

The following is the transcript of an interview made with Mr. Robert Gurr, a male of about 35 years of age who resides opposite the subject parcel at 131 Dix Hills Road, Huntington, New York. The date of the interview was late July 1999.

RJK: Can you tell me what you know about the property across the street ?

Mr. Gurr: I have lived here only a few years. I know that that parcel (subject property) has been planned for development for some time. We have had a few local community meetings about it. I am of course concerned that whatever they do there that it will not impact the appearance or value of my property. As far as I know there are no buildings or structures in there. Since I have been here there has been no changes... it has been as you see it today---wooded. (At this point Mr. Gurr directs me to a Melville Civic Association Member who resides in the general vicinity.)

RJK: In regard to your property. Do you know who owned your parcel prior to you? Yes I think their names were Carr or Carll.

The following is the transcript of an interview made with a member of the Mellville Boulevard Civic Association. The interviewee is a mature female aged about 65 years that has resided along Dix Hills Road for more than 35 years. Mrs. X asked to remain anonymous. The information she provided was to be attributed to "a member of the Melville Civic Association, which she represented. The date of the interview was late July 1999.

RJK: I am preparing a CRA for the property (described). Are you aware that it is planned for development?

Mellville Boulevard Civic Association Member. Oh yes I am. Our local association (the Mellville Boulevard Civic Association) is the oldest in the area—over fifty years old this year. We have been in opposition to this proposal for the last ten or more years. I am familiar with the plans for a shopping center there.

RJK: As I understand, the most recent plan calls for a small business area, a buffer zone and some residential development.

Mellville Boulevard Civic Association Member. I will have to review what new plans they have made before commenting.

RJK: In regard to the history of that property, can you add to the history of this parcel as you know it. ASI has begun the formal research, however, it is always useful to have on record information concerning the place based on the recollection of local residents.

Mellville Boulevard Civic Association Member: I arrived here in 1965 from western LI. At that time the property (subject property) was a thriving shrub and tree nursery. Anton Hren was the owner. He lived in a residence across Jericho from the nursery site. I am not sure whether Mrs. Hren is still residing in the old house. She may be.

RJK: Do you know the name of those who lived there prior to the Hrens?

Mellville Boulevard Civic Association Member: As far as I know it was previously farm land. But I do not know the earlier owners.

RJK: Do you know of any structures on the property?

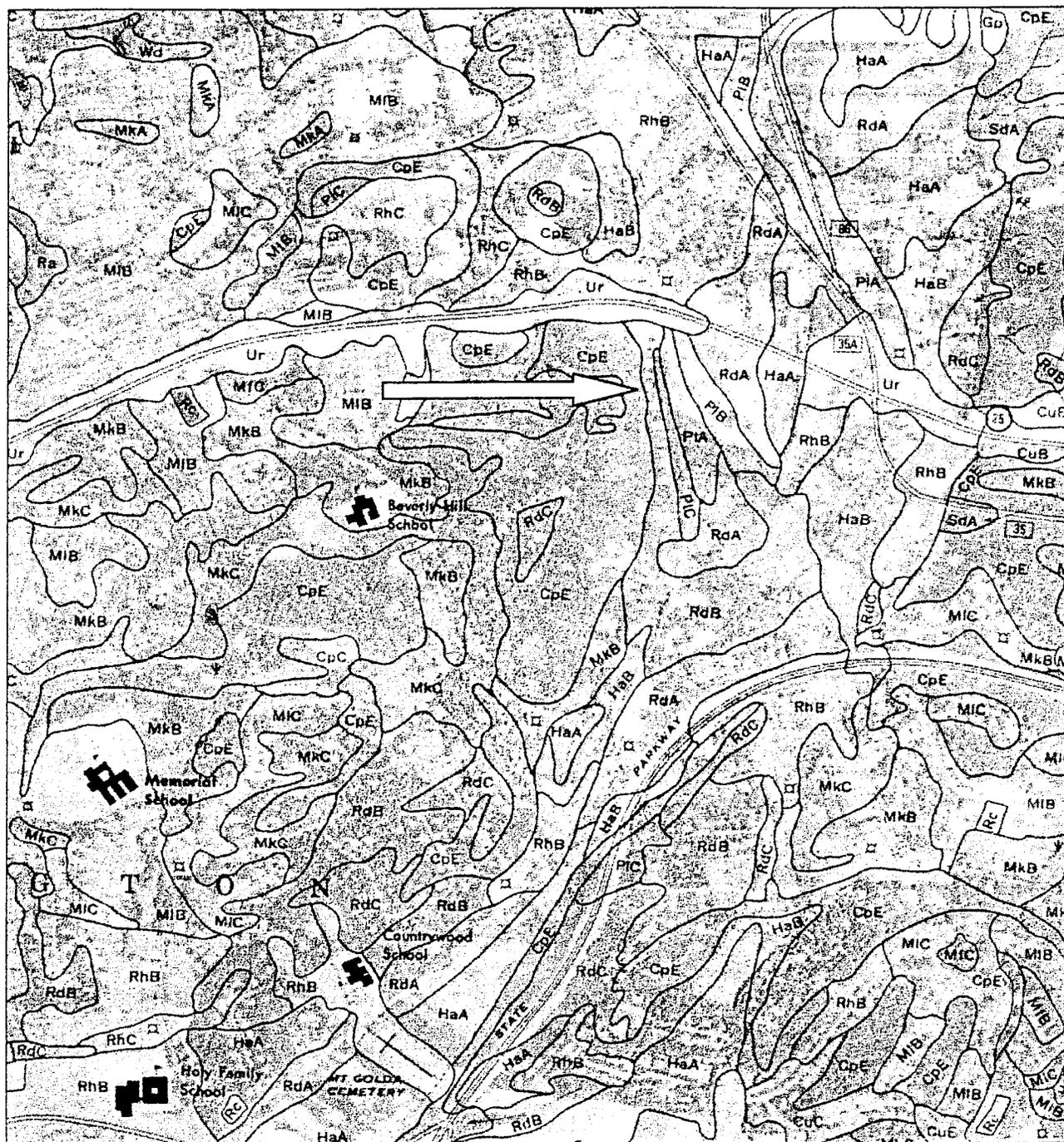
Mellville Boulevard Civic Association Member: As far as I know there are no houses or other structures on it. I know of no evidences to suggest that it was ever occupied.

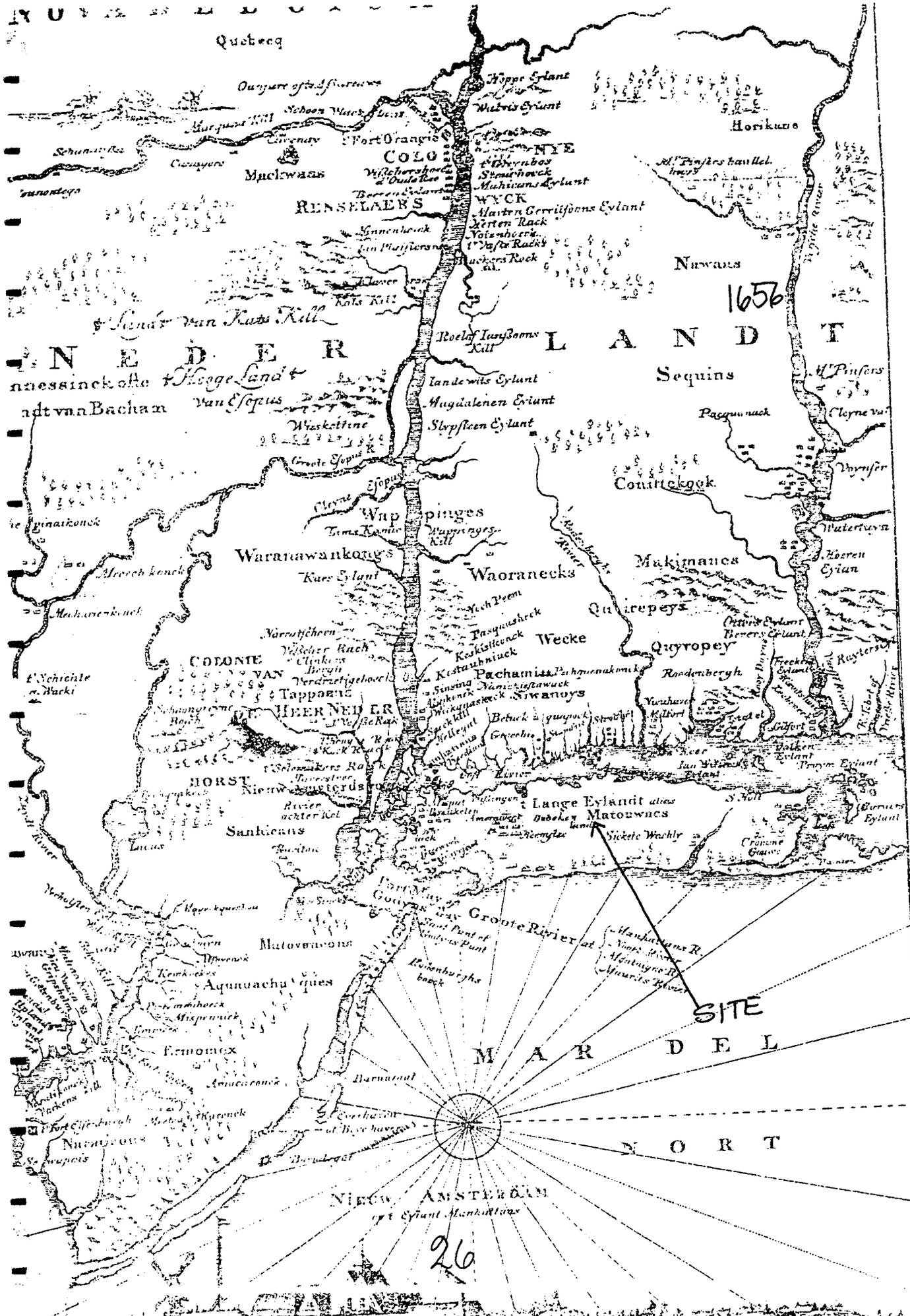
RJK: Any suggestions of prehistoric evidences (arrowheads, pottery) known to occur there?

Mellville Boulevard Civic Association Member: I have no knowledge of any.

RJK: Are there any reasons of a cultural nature that might restrict development there?

Mellville Boulevard Civic Association Member: Our objections are based on the use of the parcel for commerce and retail. We have so many stores and shopping centers now that are struggling to survive. Why create more? On the other had this parcel would make a great park or recreational area. We have no parks in this general region.





A DESCRIPTION OF

Map of New Netherlands

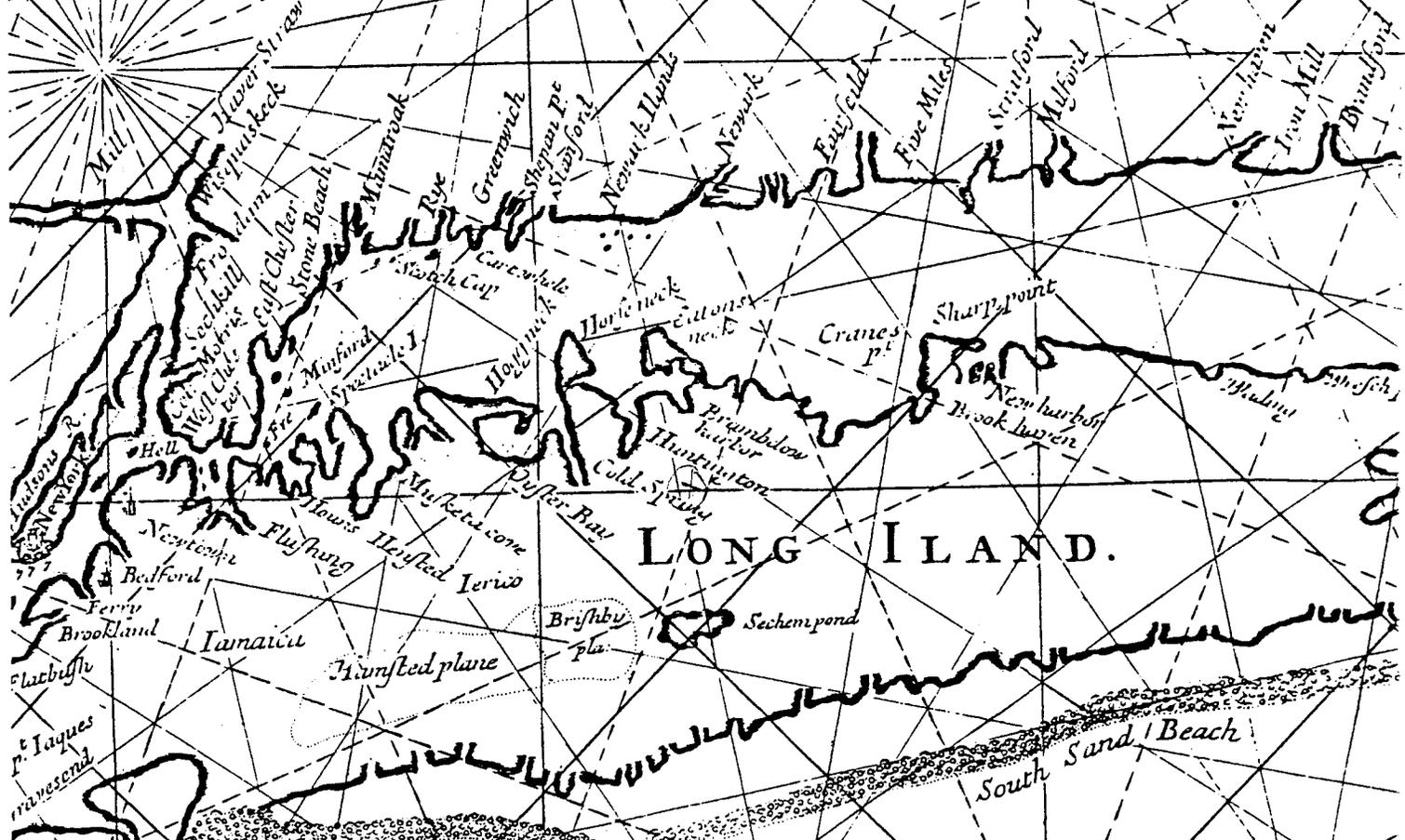
Van der Donck 1656

26

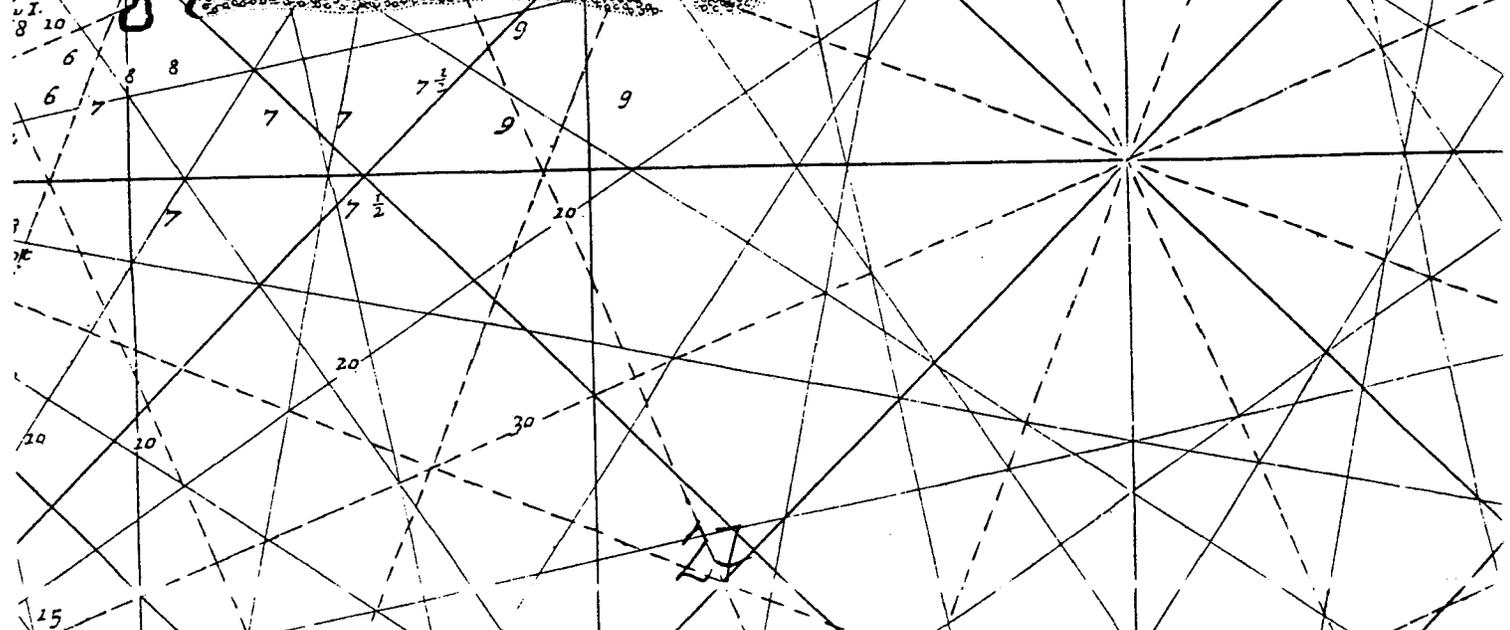
N E W E N G L A N D

NEW YORK

1689



LONG ISLAND.



From the English Pilot - John Thornton 1689



28

Detail from a map in the collection of the Nassau County Museum Reference Library, reproduced by the Long Is. Studies Institute at H

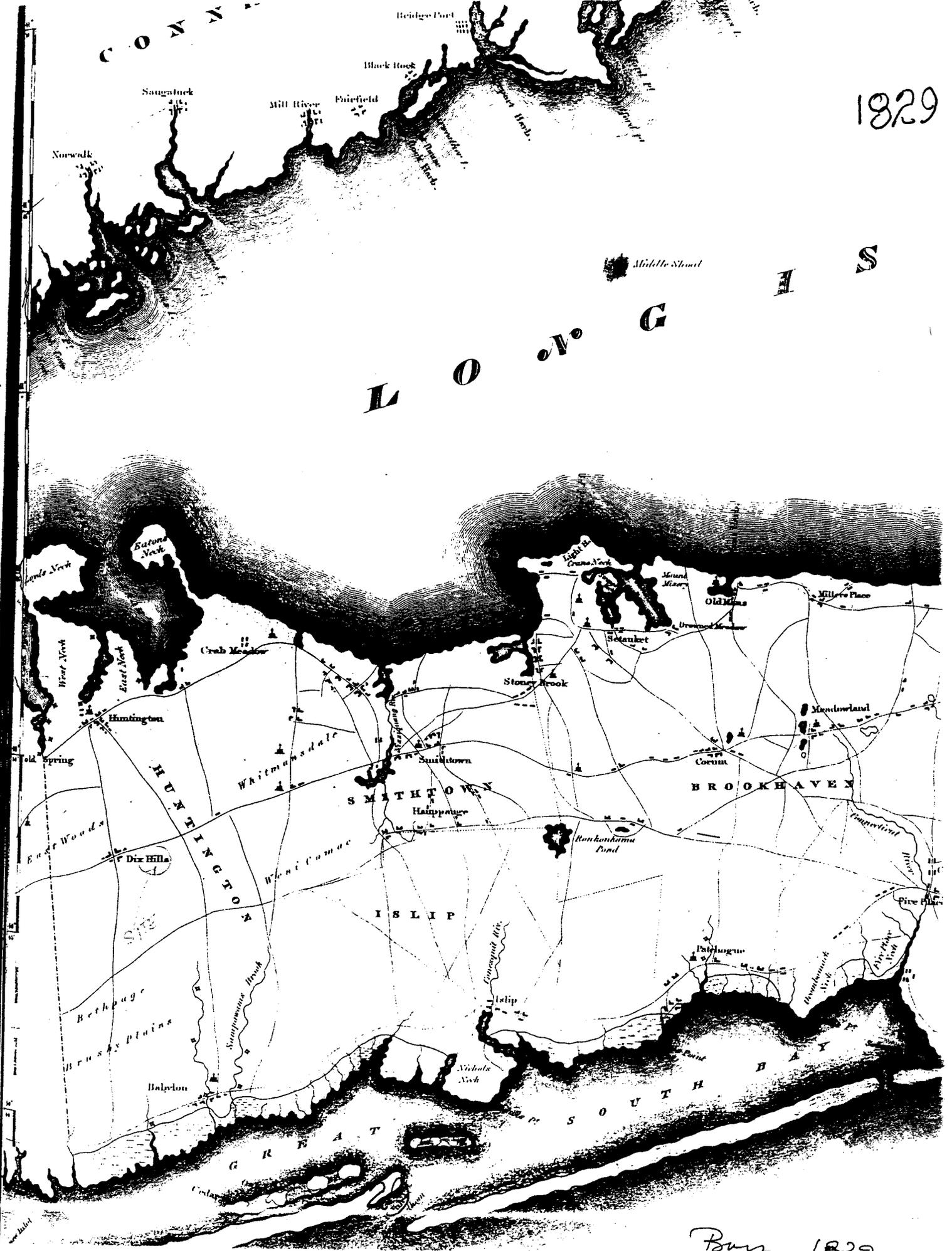
Map of the Most Inhabited Part of New England etc.

TUBIAS CONRAD LOTTER, PUBLISHER
1776 Augsburg

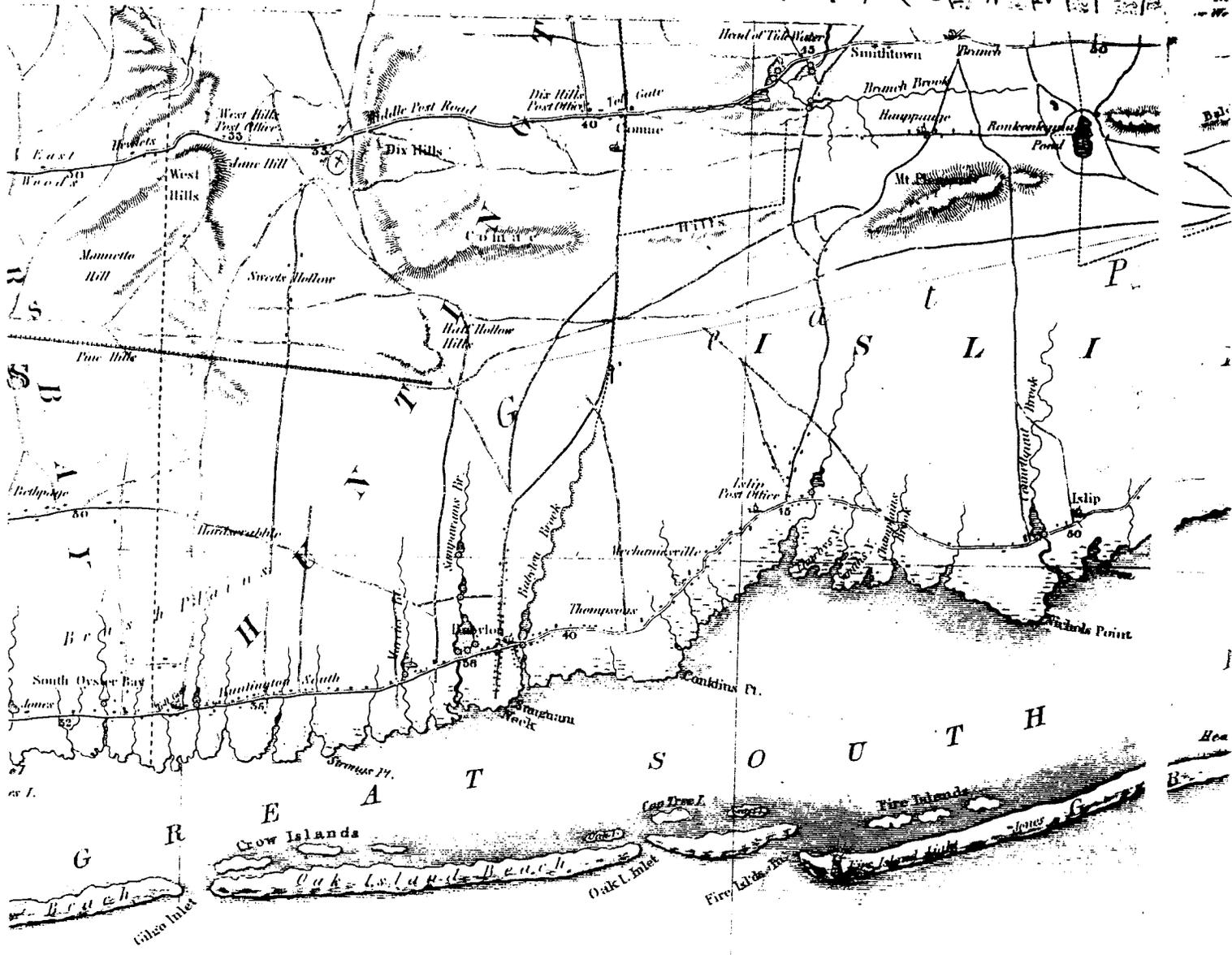
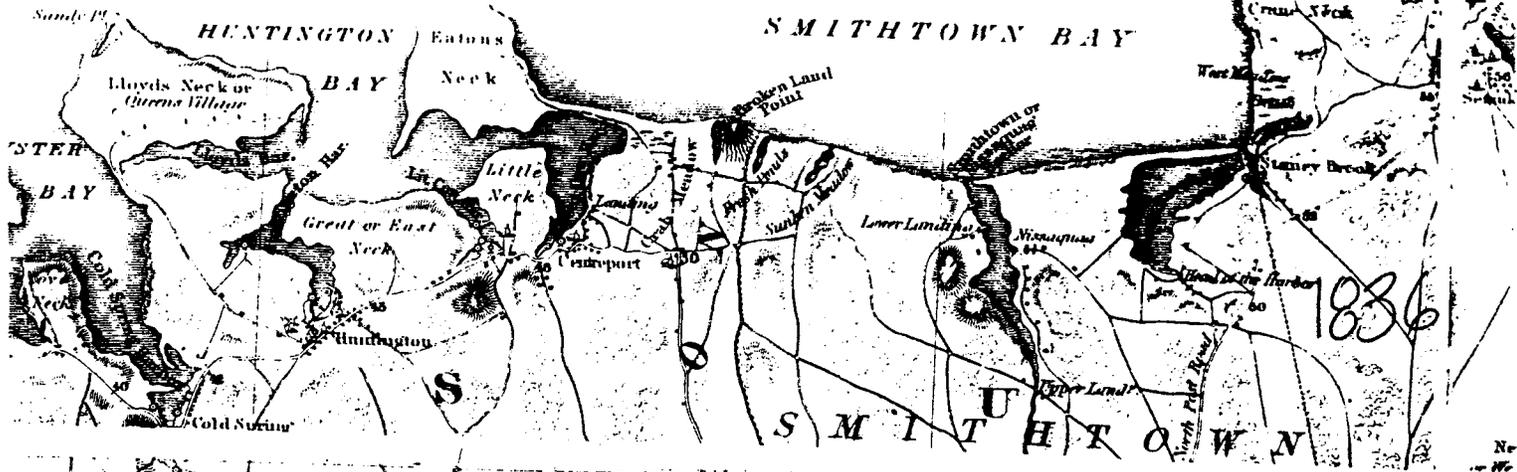
1829

CON...

L O N G I S L A N D



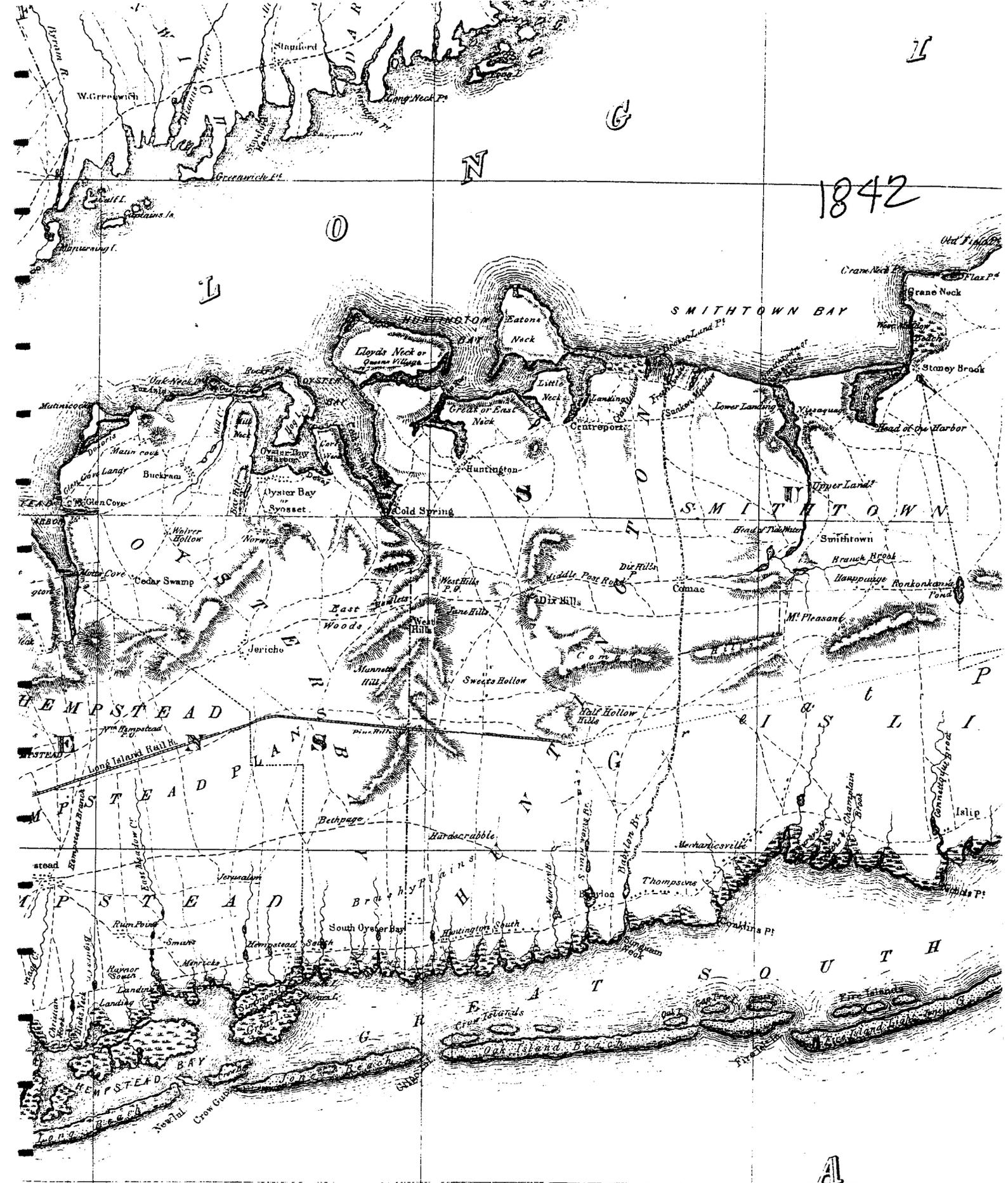
Burr 1829



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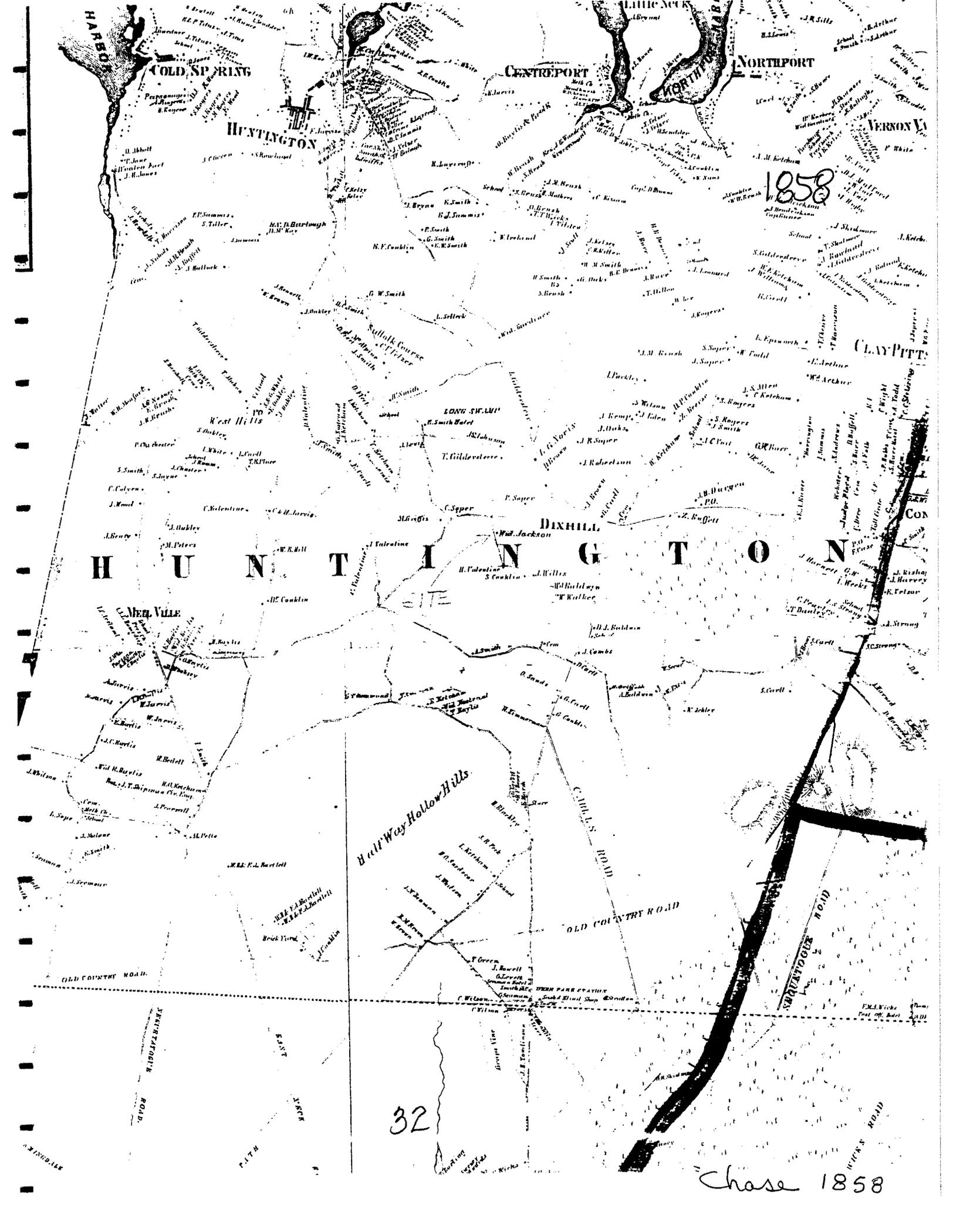
Colton 1836



31

T.

Geological Map of Long Island 1842



COLD SPRING

HUNTINGTON

CENTREPORT

NORTHPORT

VERNON VA

1858

CLAY PITTS

H U N T I N G T O N

DIX HILL

LE MERE VILLE

Half Way Hollow Hills

OLD COUNTRY ROAD

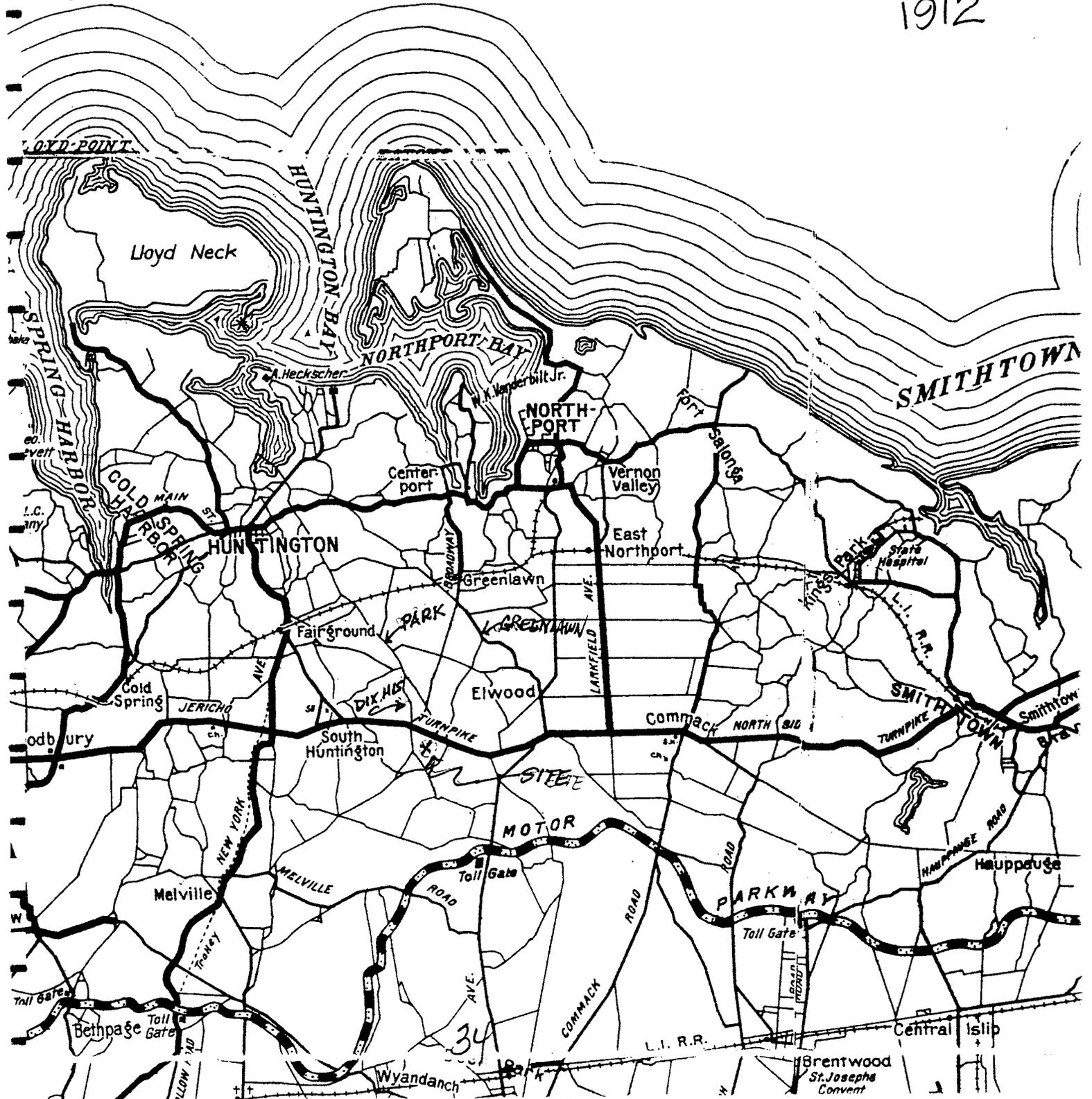
ARQUATOGUS ROAD

32

Chase 1858

ISLANDS

1912



Originally Published - Ricker-Finlay Realty Co. Road Map L.I. 1912

LLOYD HARBOR L.H.

BAY

NORTHPORT

Little Neck Pt.

Bluff Pt.

Huntington Harbor

WADING GREENLAWN

East Wading

Elwood

Huntington

LONG

Melville

LOW HILLS

1928

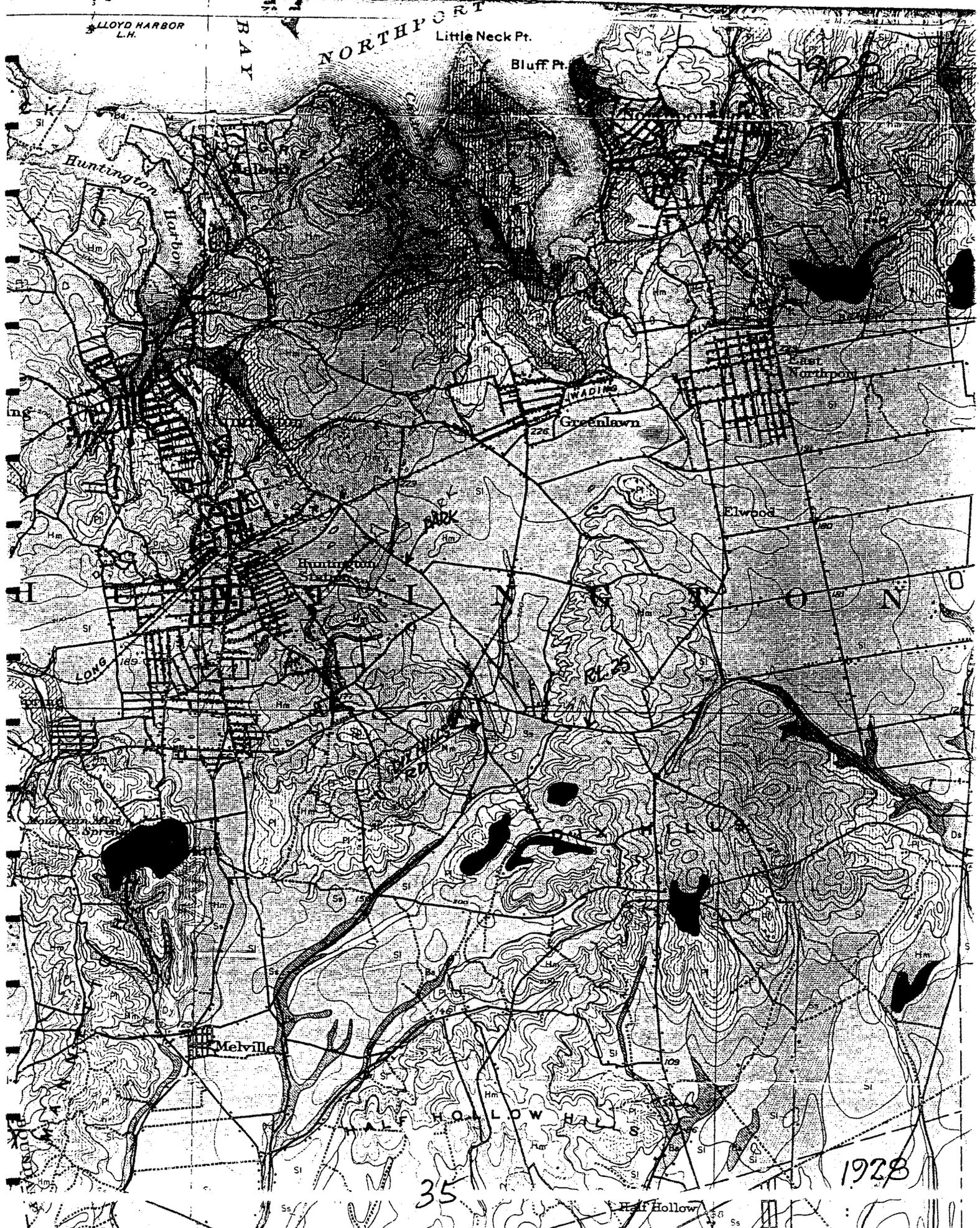
35

Half Hollow

U.S. Soil Survey 1928

Soil Map

Friend of Chemistry & Soils



1928
LEGEND

LEGEND

Babylon sand
Haven loam
Plymouth gravelly sandy loam
Beach sand

Bridgehampton loamy sand
Hempstead loam
Plymouth sandy loam
Dune sand

Bridgehampton loam
Lakewood sand
Plymouth Steep phase
Made land

Bridgehampton silt loam
Mineola gravelly sandy loam
Plymouth fine sandy loam
Meadow

Dukes sand
Northport loam
Sassafras sandy loam
Peat

Dukes loamy sand
Plymouth sand
Sassafras fine sandy loam
Tidal marsh

Dukes loamy sand
Plymouth loamy sand
Sassafras loam
Steep broken land

RELIEF
(brown or black)

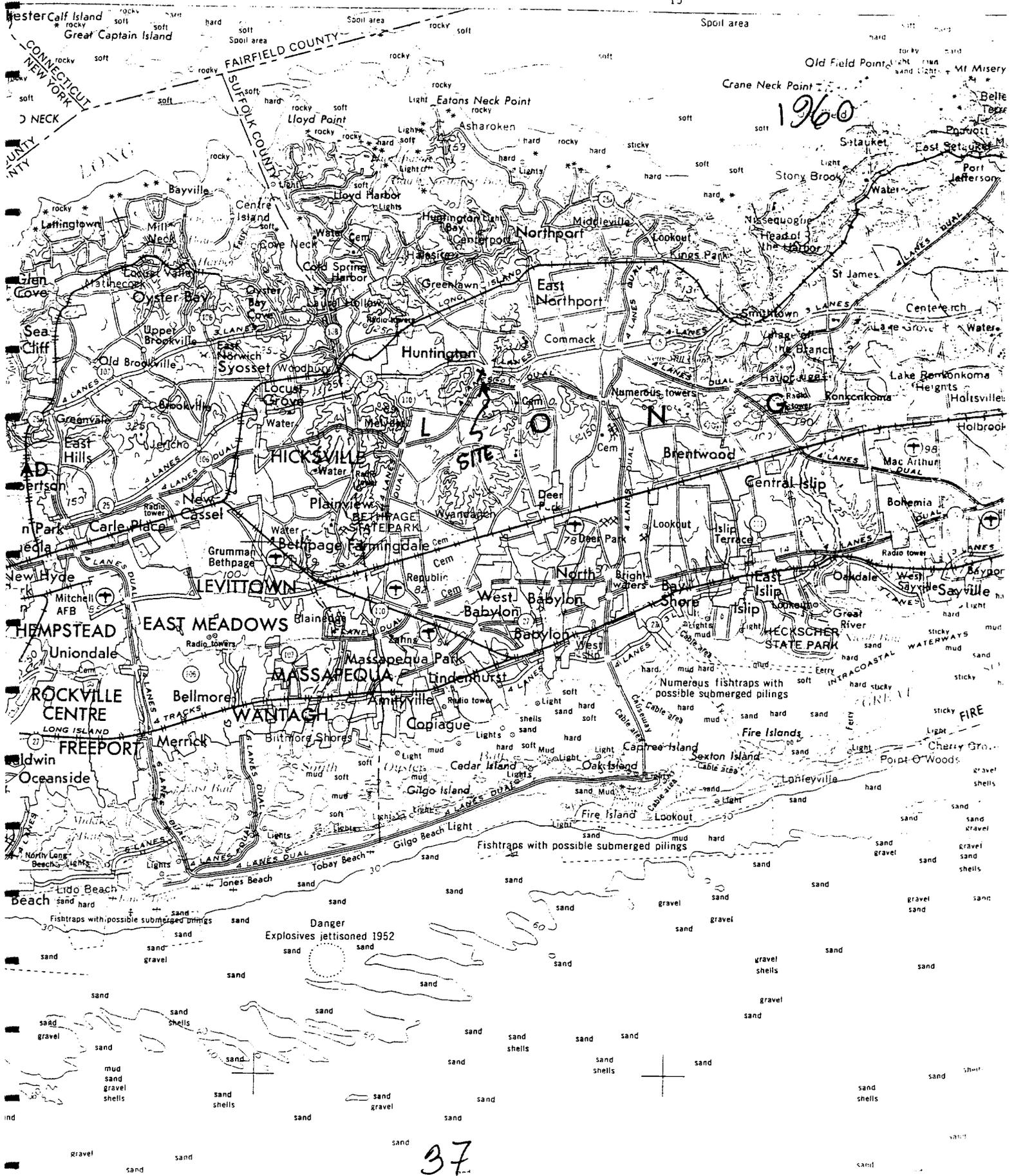
Prominent Hills
Mountain Peaks

Shore and Low-water
line, Sandbar

Five signs are in
it use on the soil
Variations from this
appear in some
earlier dates.

Dark-colored phase

1928 - Soil Map
Nassau - Suffolk
Soil Survey
1:62,500

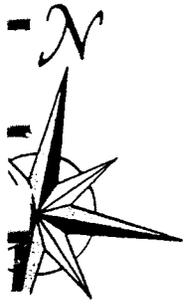


37

U.S. Geological Survey 1960

1979

2 3 4 5

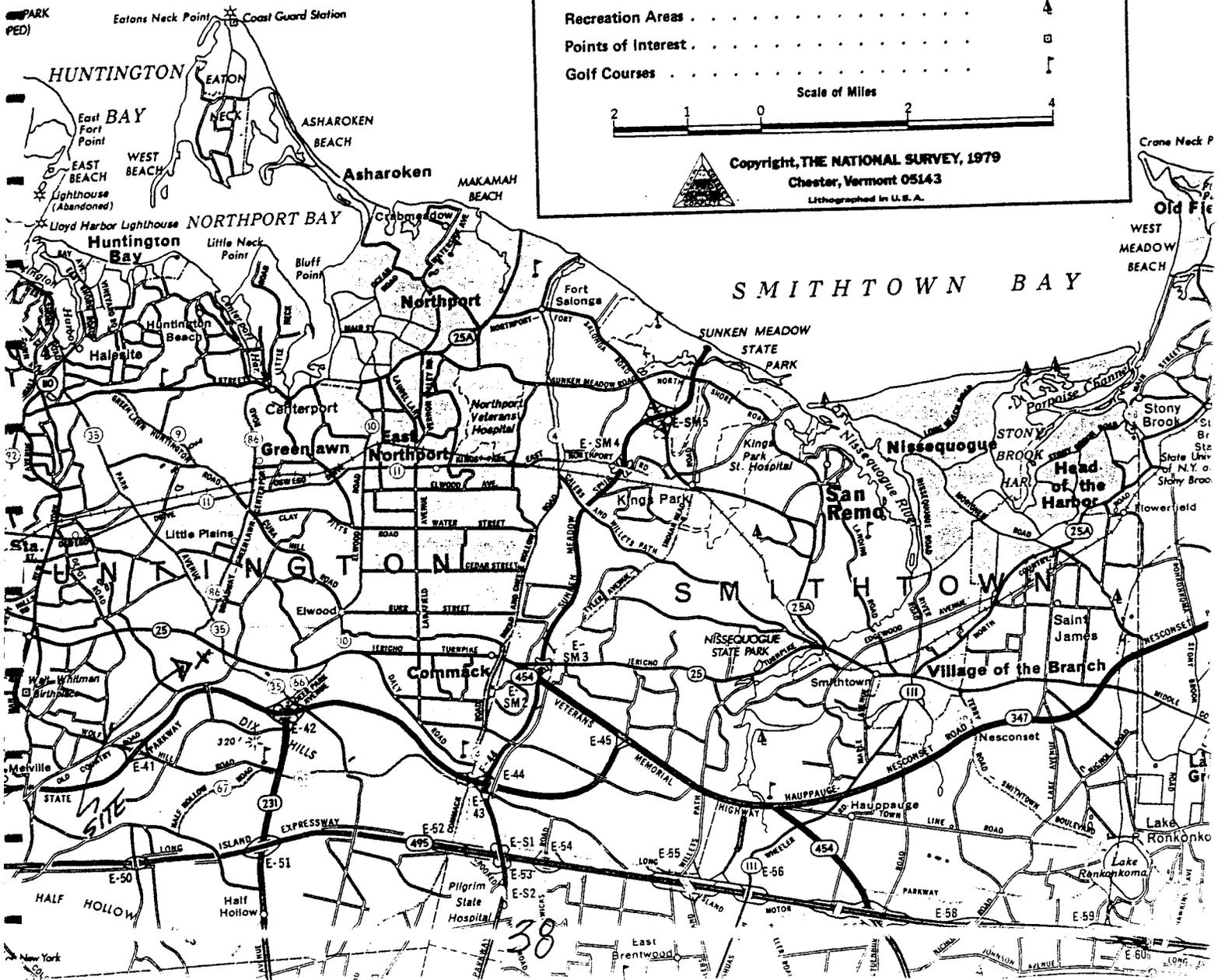


LEGEND

Parkways	.....	—————
State Highways, Divided	.....	————— (347) —————
State Highways, Undivided	.....	————— (25) —————
County Highways, Divided	.....	—————
County Highways, Undivided	.....	—————
Town Highways	.....	—————
Exit Numbers	.....	E-45
Railroads	.....	—————
State Boundary	.....	—————
County Boundary	.....	—————
Township Boundary	.....	—————
Incorporated Village Boundary	.....	—————
Parks & Reservations	.....	▲
Recreation Areas	.....	□
Points of Interest	.....	□
Golf Courses	.....	⌋

Scale of Miles
2 1 0 2 4

Copyright, THE NATIONAL SURVEY, 1979
Chester, Vermont 05143
Lithographed in U.S.A.



The National Survey Chester Vt.

Suffolk Co. Vacation Map 1979

1984S-0



Dumping Ground

NEW YORK

CAUMSETT STATE PARK

Neck

TARGET ROCK NAT. WILDLIFE REFUGE

Edwards Neck Point Light

Ashcroft

Ashcroft Beach

Crab Meadow Park

Lloyd Harbor

Huntington

Northport

Par Solonghi

SUNKEN MEADOW STATE PARK

Codd Spring Harbor

Centerport

East Northport

Kings Park

HUNTINGTON

Huntington

Elwood

SITE

Centerville

Woodburn

Huntington

Huntington

County Park

Huntington

Huntington

Ma Melville

Plainview

Plainview

ISLAND

ISLAND

Radio Towers

Radio Towers

Radio Towers

Radio Towers

Radio Towers

Radio Towers

Brentwood



Aerial Photo
5-30-70

ASA -11114

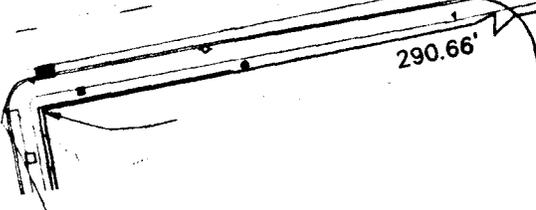
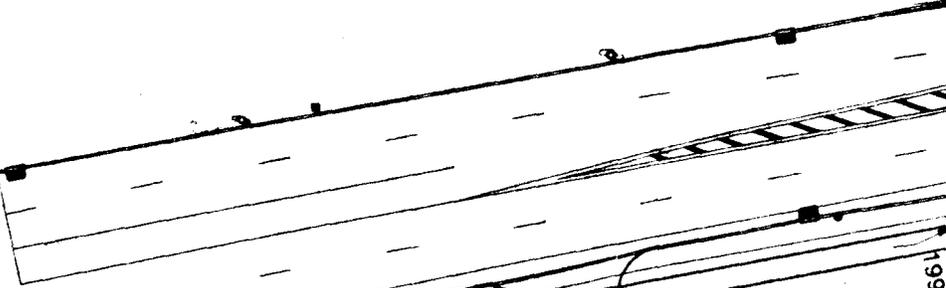
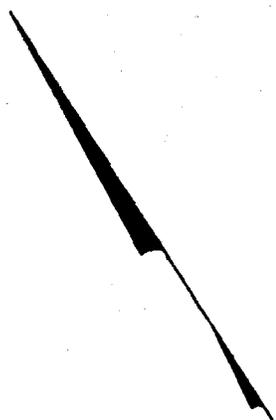
1970

RECEIVED

JUL 10 2000

TOWN OF HUNTINGTON
DEPARTMENT OF PLANNING
AND ENVIRONMENT

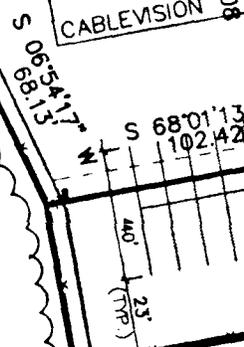
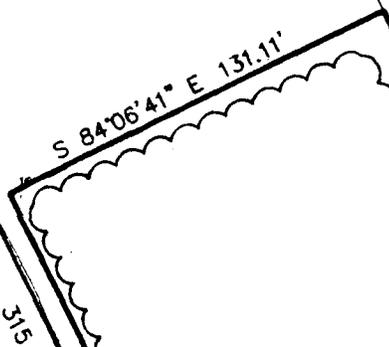
J E



S.C.T.M. DIST. 0400 SEC. 208
BLK. 01 LOT 7
N/F ELLISA CAMBRIA
ZONE: C-6 BUSINESS

OTHER LAND OF APPLICANT

S.C.T.M. DIST. 0400 SEC. 208
BLK. 01 LOT 6
N/F ROBERT P. &
DOLOR. SCHWAGERL
ZONE: C-6 BUSINESS
CABLEVISION



40'
23'
(MP)

315