The Greens at Half Hollow

Town of Huntington, New York

DRAFT GENERIC ENVIRONMENTAL IMPACT STATEMENT

Saccardi & Schiff, Inc.

January 2000

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I. EXECUTIVE SUMMARY

A. Introduction

This Draft Generic Environmental Impact Statement (DGEIS) assesses the potential environmental impacts of The Greens at Half Hollow, a proposed master planned golf course/retirement community combining 1,375 residential units and recreational uses on 382-acres of the former 465-acre Long Island Developmental Center (LIDC) site in the Town of Huntington, in Suffolk County, New York.

The Town of Huntington Town Board is the "Lead Agency" for purposes of the environmental review required by the State Environmental Quality Review Act (SEQRA). This DGEIS is submitted pursuant to SEQRA in order to permit the Lead Agency and other involved and interested agencies and individuals to identify, consider and make informed judgments concerning the environmental impacts of the proposed project and to weigh those impacts against economic, social and other considerations relevant to the project.

This Executive Summary describes the principal features of the project, summarizes its significant environmental impacts and the mitigation measures proposed to reduce (or eliminate) those impacts, compares the impacts of the project with alternative uses of the site, and discusses the consistency of the project with the policies contained in the 1993 Comprehensive Plan and the Melville-Route 110 GEIS. These issues and others are discussed in more detail in the subsequent sections of the DGEIS.

B. Site Location and Description

The 382-acre Greens at Half Hollow site is bounded by the Northern State Parkway to the north, Carman Road, single-family homes, and Small Residential Units (group residences for the developmentally disabled known as SRUs) to the east; Half Hollow Road the the Sagamore Children's Psychiatric Center to the south; and single-family homes, SRUs, Echo Lane, and Old East Neck Road to the west. Old South Path traverses the southwestern portion of the property. Vehicular entrances to the site are located off of Carman Road, Old South Path and Old East Neck Road. The Long Island Expressway is located approximately one-half mile to the south.

The site is predominantly characterized by abandoned, low-scale institutional buildings which formed the LIDC campus. In total, approximately 90 buildings encompass more than 1,300,000 square feet of floor area and accommodated group living quarters, treatment facilities, and support services for patients, a hospital, a school, a day-care center, administrative offices, a pool, a fire station, maintenance facilities and utilities including a sewage treatment plant, a power plant, an electric substation, two production wells, and three stormwater recharge basins.

The existing institutional buildings are set within expansive lawns and are linked by a series of internal roads and sidewalks and are served by large surface parking lots. A variety of trees are set within the lawns and along the roads. More densely vegetated areas are located at the perimeter of the property limiting views both to and from off-site areas.

All existing institutional buildings and roads on the site will be removed as part of the development of The Greens at Half Hollow.

C. Project Description

An 18-hole executive golf course and golf course clubhouse/community center complex, for use primarily by residents of The Greens at Half Hollow, will be the central focus of the proposed development. The golf course will be surrounded by a variety of homes (golf course villas, townhouses and condominium units) designed for senior citizens, empty-nesters and active adults who are 55 years of age and older. A 150-bed assisted living facility and 75 single-family detached homes are proposed as well. The various housing types are arranged to create distinct neighborhoods, yet are linked to each other and to the golf course and community center by a series of common open space areas and small parks, pedestrian walkways, streetscape amenities and a landscape plan designed to create a fully integrated community. (See Exhibit 1, Proposed Master Plan).

Approximately 247 acres, or more than 64 percent of the site, will be preserved as open space (including the golf course, parks, lawns and landscaped buffers). Approximately 31 acres of the property (the western portion of the existing sewage treatment facility site) will be offered for dedication to the Town for parkland as soccer fields. The existing sewage treatment facility will be upgraded by the Applicant and the approximately 15.5-acre site will be dedicated to the Suffolk County Department of Public Works to operate and maintain the facility.

The proposed development will require rezoning by the Town Board of the Town of Huntington from its current R-80 zoning designation, which allows single-family homes on 2-acre lots, to a new Planned Unit Development District (PUD) specifically designed for, and limited to the subject site. The PUD and its accompanying The Greens at Half Hollow Master Plan establish overall design and density parameters for The Greens at Half Hollow. Individual site plans and subdivision plans will then follow the PUD and Master Plan guidelines, both of

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which would be adopted by the Town Board at the culmination of the SEQRA process.

A more detailed description of the Proposed Action is provided in Section II of the DGEIS.

The Melville-Route 110 GEIS included The Greens at Half Hollow site as part of its study area and noted that future development plans for the site should include detailed analysis and "be evaluated separately" (p. 3-8). As a result, this DGEIS has bee structured as an analysis of the proposed PUD zoning and the maximum development envisioned in the Master Plan, as it relates to the site and the surrounding area. The land use chapter of the DGEIS discusses consistency with various recommendations contained in the Melville-Route 110 GEIS . The traffic chapter of this DGEIS evaluates several intersections also analyzed in the Melville - Route 110 GEIS.

Because (i) the subject site is located in the extreme easternmost edge of the Melville-Route 110 study area, (ii) the GEIS is nearly 15 years old, and (iii) the GEIS recommends that development plans for the LIDC site be "evaluated separately", the Applicant decided that a separate DGEIS for The Greens at Half Hollow would be more appropriate than a supplement to the previous study.

D. Existing Conditions, Potential Impacts and Proposed Mitigation Measures

Existing conditions, anticipated impacts of the Proposed Action and proposed mitigation measures are summarized below. The issues are discussed in detail in Section III of the DGEIS.

1. Land Use

Existing Conditions

As indicated above, the site is characterized by the abandonded institutional buildings and service facilities which formed the former LIDC campus including one-story group living quarters and treatment facilities, one- and two-story administrative buildings, a five-story hospital, a fire station, a power plant, an electrical substation, a sewage treatment plant, three stormwater recharge basins and a one-story school. Soccer fields, used by local soccer leagues, surround the school.

The predominant land use in the vicinity of the site is single-family residential. Route 110, a major commercial corridor is located less than one mile to the west.

Anticipated Impacts and Proposed Mitigation

Existing buildings on the site will be demolished for construction of The Greens at Half Hollow. The proposed development will primarily consist of residential uses including single-family detached homes, age-restricted housing (golf course villas, townhouses, and condominiums) and assisted living facilities, and open space (i.e., an 18-hole executive golf course, an interconnected system of common green parks, and lawns, and 31 acres of parkland to be offered for dedication to the Town. Community facilities (community center and clubhouse) and utility facilities (sewage treatment plant, stormwater recharge area) to serve residents of the proposed development are proposed as well.

The proposed residential uses are consistent with the existing residential uses surrounding the property. Although the overall density of the proposed development will be higher than that of adjacent single-family residential communities, the total on-site population (approximately 2,885 persons) will not exceed that of the former LIDC development during its peak period of operation.

The Greens at Half Hollow Master Plan is based on the Master Plan for the Long Island Developmental Center which was prepared in 1995 with the assistance of a Task Force comprised of State, County and Town official and local area residents. The 1995 plan includes two development options: Plan B-1 was based on a community center concept; Plan C-1 was based on a golf course. Both plans proposed 1500+ units of predominantly senior housing, within a Planned Unit Development approach for rezoning the site.

The Greens at Half Hollow is consistent with the C-1 plan. It is also consistent with a number of other plans that cover this portion of Huntington, with the major exception that the plans recommend single-family residential use and The Greens at Half Hollow proposes various forms of single-family and multifamily housing as a golf course/retirement community.

The plan addresses a number of the recommendations of the Special Groundwater Protection Area Plan including the provision for tertiary sewage treatment (not required under existing zoning) and the maintenance of approximately the same intensity of development that existed when the LIDC was fully operational. The DGEIS also reviews the plan's consistency with the Town's Comprehensive Plan, the Melville - Route 110 GEIS, and recently adopted "Smart Growth Policies". The Greens at Half Hollow is consistent with the majority of the recommendations in each of these plans; the major exception being those recommendations specifying low density residential use on the site. However, the medium density (i.e., 3.6 units per acre) proposed for the subject retirement community, is consistent with other recommendations in the Comprehensive Plan supporting smaller residential units for seniors and conservation of open space.

2. Zoning

Existing Conditions

The entire property is zoned R-80 Residence, a single-family zoning district that permits residences on minimum two-acre (80,000 square feet) lots. Properties in the immediate vicinity of the site are predominantly located in R-40 Residence (minimum 40,000 square-foot lots) and R-20 Residence (minimum 20,000 square-foot lots) districts. The status of the project as an R-80 district in an area of less restrictive zoning is a consequence of the historical fact that the property was previously owned by the State of New York and the Town's propensity to designate such State-owned property with a "holding" zoning classification until concrete development options are proposed.

Anticipated Impacts and Proposed Mitigation

The proposed zoning for the site is a Planned Unit Development (PUD) district with use, lot and bulk controls specifically designed to implement The Greens at Half Hollow Master Plan. The proposed PUD zoning text outlines procedural requirements and sets certain overall standards for The Greens at Half Hollow including the maximum number of dwelling units (1,375), the maximum number of single-family homes (75), the maximum building coverage over the entire site (25%) and the minimum acreage for major open space areas.

3. Visual Resources

Existing Conditions

Although once an attractive, albeit institutional, campus, the character of the site has deteriorated since the former LIDC was decommissioned and buildings were vacated. The characteristics of existing vegetation and topography screen most views of the site from off-site locations.

Anticipated Impacts and Proposed Mitigation

Unattractive, undistinguished and deteriorating institutional buildings will be removed from the site. The proposed development will be a master planned community with a fully integrated open space system, attractively designed residential units and community facilities, and a comprehensive landscape plan. A landscaped buffer will be maintained at the perimeter of the property to screen off-site views of the development.

4. Geology, Soils, Topography and Slopes

Existing Conditions

The project site slopes up from the western, southwestern and southern property boundaries, where elevations vary from approximately 135 feet to 150 feet, to a high point of 191 feet in the northeastern corner of the site. The majority of the site is relatively flat with approximately 367 acres or 96 percent of the site having slopes of less than 10 percent.

The dominant soil types on the project site are the Riverhead and Haven series. Previous constructions activities have disturbed most are of the site Depth to bedrock beneath the site is greater than 1,000 feet.

Anticipated Impacts and Proposed Mitigation

The proposed Master Plan will disturb approximately 271acres of the 382-acre site (area within the limit of disturbance). The proposed project will not impact subsurface geologic features. Impacts to surface soils, topography and slopes will occur as a result of clearing and grading activities to construct the proposed project. However, these impacts will be minimal since most of the site is currently developed with former LIDC facilities. In addition, a detailed Erosion and Sediment Control Plan will be prepared for the site in accordance with best management practices.

5. Vegetation

Existing Conditions

The vegetative communities on the site are divided into four broad categories: (1) maintained lawns and landscaped areas (the dominant community); (2) stands of coniferous trees; (3) woodlands; and (4) successional and disturbed areas. Maintained lawns and landscaped areas are associated with existing on-site development. Stands of Norway spruce and white pines are located throughout the site. Woodlands exist primarily along the periphery of the property. Successional/disturbed areas exist throughout the site but are most notable in the central-western section and along the northeastern edge, adjacent to Carman Road.

No rare, endangered, or threatened plant species were observed on the site.

Anticipated Impacts and Proposed Mitigation

Existing vegetation will be removed from the site as a result of construction activities. Significant trees and trees at the perimeter of the property will be preserved to the greatest extent possible. The proposed landscape plan for the site includes a considerable number of shade, flowering and evergreen trees and shrubs and ground covers. Landscaped buffers will be planted at the perimeter of the property to screen off-site views.

The proposed plantings plus the overall open space design will mitigate all adverse impacts to existing vegetation.

6. Wildlife

Existing Conditions

Most of the species inhabiting the site are comprised of those species adapted to maintained lawns and landscaped areas such as common birds and small mammals (e.g., robbins, sparrows and chipmunks). Wooded areas on site support a wider variety of species (e.g., common flickers, downy and hairy woodpeckers, crows, blue jays, nuthatches, brown creepers, cardinals, opossums, rabbits, skunks, and mice).

No wildlife species identified as threatened, endangered, or rare were identified on the site.

Anticipated Impacts and Proposed Mitigation

Temporary impacts to existing on-site wildlife are expected to occur during construction where increases in human activity and noise levels will drive species to undisturbed areas on- and off-site. It is anticipated that most wildlife species will return to the site after construction activities are complete and the proposed landscaped plan is implemented and established.

7. Wetlands

Existing Conditions

There are no existing wetlands or waterbodies on the site.

Anticipated Impacts and Proposed Mitigation

The proposed plan will include five ponds and three stormwater recharge basins.

8. Population and Housing

Existing Conditions

No residents currently live on-site. During its peak period of operation approximately 3,000 persons (residents and staff) populated the former LIDC facility.

Anticipated Impacts and Proposed Mitigation

The DGEIS notes that the senior population is rapidly increasing, with significant growth projected for the 55-64 age cohort as the "baby boom" generation reaches retirement age.

It is anticipated that the total on-site population at The Greens at Half Hollow will be 2,885 persons, less than the peak population at the former LIDC campus. The proposed single-family homes will have population characteristics similar to the Dix Hills neighborhood immediately east. All other housing in The Greens at Half Hollow will be age-restricted to those over 55, resulting in smaller household sizes.

The project has been designed to offer a wide spectrum of housing choices with prices estimated to range from $175,000 for the condominium units, $275,000 for the townhouse units and $375,000 for the golf course villas (1999 dollars). The prices for the proposed single-family homes will be based on market values in the surrounding area.

Approximately 30% of the units will be condominiums. These 400 units will be affordable to seniors who sell their homes in the area and purchase the new condominium unit with the proceeds from the sale, without incurring significant mortgage costs.

9. Community Facilities and Services

a. Open Space and Recreation

<u>Existing Conditions</u>

Currently, the only recreation facilities located on the site are a number of soccer fields which surround the existing school building. These fields are used by local soccer leagues. Additional open space areas on the site include lawn areas between building and wooded buffer areas on the perimeter of the property.

<u>Anticipated Impacts and Proposed Mitigation</u>

The Greens at Half Hollow will provide a variety of recreational opportunities for residents of the development including the 18-hole executive golf course, swimming pools, tennis courts, pedestrian/bike trails, games tables and a fitness center. Other social and recreational activities will be available at the proposed community center. These on-site recreational amenities will minimize potential impacts to surrounding park and recreation facilities.

The existing on-site soccer fields will be eliminated as a result of the proposed development. However, the Applicant proposes to offer for dedication to the Town approximately 31 acres in the southwest portion of the site for parkland to replace these soccer fields.

Approximately 64 percent of the site will be left as open space after development of The Greens at Half Hollow. In addition to the golf course and soccer fields, there will be a community park that winds its way through the age oriented housing development. Other green areas will include perimeter buffers, lawn areas and landscaped median dividers. A landscape plan has been devised to include a variety of shade, flowering and evergreen trees, shrubs and groundcovers to provide shade, seasonal interest and screening, to frame and enhance views of the proposed golf course, and to create a park-like setting for the entire development.

b. Police and Fire Services

Existing Conditions

The Suffolk County Police Department Second Precinct, headquartered on Park Avenue, north of Jericho Turnpike in Huntington, provides protection for the Town of Huntington, including the project site.

The site is located within the Melville Fire District, an area of 14 square miles which includes the Route 110 business corridor and a residential population of approximately 30,000. The district contains four stations, including the North Road Station on the project site (which is currently used for storage only) and is served by approximately 108 volunteer fire fighters including 35 emergency medical technicians, advanced medical technicians and paramedics. According to the Melville Fire District Manager, it is estimated that in 1999 the department will respond to approximately 1900 calls.

Anticipated Impacts and Proposed Mitigation

The Greens at Half Hollow will have security personnel on site on a 24-hour basis to patrol the development and to respond to minor calls for assistance. In addition, the proposed assisted living facility will have its own 24-hour security. Impacts to the department will be further reduced since the golf course and on-site community facilities will be privately owned and operated, and generally available to residents of The Greens at Half Hollow only. It is likely, however, that an additional sector car will be assigned to patrol the project area. This cost will be offset by tax revenue generated by the proposed project.

The Melville Fire District Manager estimates that the proposed project will increase calls to the department by approximately 35 percent (increasing total calls from 1,900 to approximately 2,565). The primary concern of the fire department, however, is the potential for increased traffic as a result of the development and the need to maintain a fire station in the vicinity of the site. Traffic impacts and mitigation measures are addressed in Section III.K, Traffic of the DGEIS.

c. School District

Existing Conditions

The project site is located within the Half Hollow Hills Central School District. During the 1998-99 school year K-12 enrollments totaled 7,857.

Anticipated Impacts and Proposed Mitigation

It is anticipated that the proposed single-family subdivision will generate approximately 63 to 85 new public school-age children with annual costs to educate these children, paid by local taxes, ranging from $651,420 to $878,900. These costs, however will be substantially off-set by the approximately $4,663,720 in annual tax revenues generated to the school district as a result of the proposed project. The additional enrollment from the proposed subdivision has been accounted for by the School District in their space needs planning.

d. Libraries

Existing Conditions

The site is located within the four-square-mile service area of the Half Hollow Hills Community Library which has one main library and one branch library which serve a population of approximately 43,500.

Anticipated Impacts and Proposed Mitigation

The proposed development will increase usage of the Half Hollow Hills Community Library. However, according to its Director, the library has anticipated the proposed development, along with other recently constructed and proposed developments in the area, and has planned for it. Taxes revenues to the library generated from the proposed development will more than off-set potential impacts to the library. A small library and computer center proposed in The Greens at Half Hollow community center for use by residents of the development will further reduce impacts to the Community Library.

e. Health Services and Hospitals

Existing Conditions

The project site is served by several community hospitals including Brunswick Center, Central General Hospital, and Huntington Hospital. The Nassau County Medical Center is located approximately 14 miles from the project site.

Anticipated Impacts and Proposed Mitigation

The Greens at Half Hollow will include an on-site health and wellness clinic in the community building, which will provide services to all residents of the development. In addition, the proposed assisted living facility will include health care and hygiene services, probably including short-term respite care, physical therapy, and a pharmacy for residents of the facility. These on-site health services will mitigate potential impacts to local health-care providers.

10. Fiscal Conditions

Existing Conditions

Although the property had been state-owned, PILOT payments had been provided to the school district and library, with a total of $906,101 paid in 1998-1999. The property is currently owned by the Applicant and will be assessed as vacant land with taxes based on existing improvements and current zoning.

Anticipated Impacts and Proposed Mitigation

Based on estimates made in conjunction with the Huntington Tax Assessor, it is anticipated that the proposed project will generate approximately $7.6 million in annual taxes, $6.7 million more than the total 1998-99 PILOT payment. The Half Hollow Hills School District would receive the largest share ($4,663,720) of these taxes.

It is anticipated that the costs to service the proposed development would be significantly less than projected revenues.

11. Traffic and Transportation

Existing Conditions

Vehicular access to the project site is currently from Old East Neck Road, Carman Road, and Old South Path. The key intersections that are part of the surrounding area's roadway network and that have been evaluated for this DGEIS include:

- Old South Path – Half Hollow Road
- Old South Path – Old East Neck Road
- Half Hollow Road – LIE N. Service Road
- Half Hollow Road – LIE S. Service Road
- Bagatelle Road – LIE N. Service Road
- Bagatelle Road – LIE S. Service Road
- Bagatelle Road – Half Hollow Road
- Half Hollow Road – Carman Road
- Carman Road – Wolf Hill Road
- Wolf Hill Road – Caledonia Road
- Wolf Hill Road – Melrose Road
- Wolf Hill Road – Northern State Parkway Eastbound Ramps
- Wolf Hill Road – Northern State Parkway Westbound Ramps
- Wolf Hill Road – Old Country Road
- Old Country Road – New York Avenue
- Old South Path – Old East Neck Road

A comprehensive survey of existing conditions indicated that for the AM and PM peak periods, the network of roads and intersections studied operate at levels-of-service A, B, or C. Carman Road at Half Hollow Road, southbound, however, operates at a Level of Service D.

Anticipated Impacts and Proposed Mitigation

It is estimated that The Greens at Half Hollow development will generate a total of 305 vehicle trips in the AM Peak Hour (139 entering, 166 exiting) and a total of 449 vehicle trips in the PM Peak Hour (249 entering and 200 exiting).

Vehicular traffic originating from and destined to the project site was assigned to the street network based on existing travel patterns, access to the major highways, major arterials and population densities in the area.

An analysis of future conditions with the proposed project (including traffic generated from the proposed project, traffic attributed to normal growth, and traffic generated from other potential developments in the area) indicates that the signalized intersections will operate at acceptable overall level-of-service during both the AM and PM peak hours.

The analysis for the unsignalized intersections, however, indicates significant existing delays during the AM and PM peak hours for traffic exiting the eastbound and westbound Northern State Parkway ramps at Wolf Hill Road. These intersections operate at a level-of-service F for the existing condition and it is anticipated they will continue to operate at a level-of-service F in both the no-build and build conditions. In order to mitigate this condition, it is proposed that traffic signals be installed at these intersections.

Although it is not anticipated that The Greens at Half Hollow development will result in significant adverse impacts to existing traffic patterns, the Applicant proposes additional mitigation measures (beyond the installation of traffic signals at the Wolf Hill Road ramps from the Northern State Parkway) which will result in desirable general improvements to traffic and safety conditions on the roadways in the vicinity of the project area. The comprehensive traffic mitigation program is described below.

Traffic Signal Timing

It is recommended that adjustments to the traffic signal timings be made to result in improved levels-of-service for various roadway approaches at the following locations:

- Carman Road – Half Hollow Road
- Wolf Hill Road – Caledonia Road
- Wolf Hill Road – Melrose Road
- Bagatelle Road – Half Hollow Road
- New York Avenue – Old Country Road

Deceleration Lanes at Site Entrance Points

It is recommended that a short deceleration lane be provided at the proposed site entrance points on Carman Road, Old South Path and Old East Neck Road, in order to accommodate vehicles slowing down prior to making a right turn to enter the property.

Intersection Widening

It is recommended that minor widening be undertaken at the Old Country Road/Old East Neck Road intersection, including provisions for a westbound left turn lane and an eastbound right turn lane. These will serve traffic leading to the site. In addition, it is recommended that the northbound approach to the intersection be widened to provide two lanes – one for left turns and one for right turns onto Old Country Road. Appropriate signs, pavement markings and drainage structures should also be installed.

Old East Neck Road Entrance

It is recommended that Old East Neck Road be widened at the site entrance to provide a left turn lane for vehicles entering the property. Appropriate signs, pavement markings and drainage structures should also be installed.

Pavement Markings

It is recommended that raised centerline reflectors be installed along Old East Neck Road, Old South Path and Carman Road, in order to provide improved guidance during night time and wet pavement conditions.

Roadside Shoulders

It is recommended that roadside shoulders be improved along Old East Neck Road, Old South Path and Carman Road to provide a minimum paved shoulder width of three feet. In addition, it is recommended that overgrown roadside vegetation be removed within the limits of the Town right-of-way in order to improve visibility and sight distance for motorists.

In addition, site entrance roads have been designed to provide for two exiting lanes -- one for right turns and one for left turns. A proposed jitney bus service will provide residents of the development access to the proposed clubhouse and nearby shopping centers and will further minimize traffic impacts in the area.

Traffic Monitoring

It is recommended that future traffic conditions be monitored at the intersection of Old Country Road/Old East Neck Road to determine if a traffic signal becomes warranted at this location.

12. Air Quality

Existing Conditions

Background air quality levels for the project area are below the National Ambient Air Quality Standards (NAAQS) for all pollutants, including ozone. However, Suffolk County is part of a region that has been designated by the USEPA as a severe nonattainment area for ozone. Compliance in New York State with the NAAQS for ozone must be achieved by the year 2007. Suffolk County is in compliance with carbon monoxide, nitrogen dioxide, lead, hydrocarbons, particulates, and sulfur dioxide air quality standards.

The Clean Air Act requires each state to submit a State Implementation Plan (SIP) to the U.S. Environmental Protection Agency (USEPA) for attainment of NAAQS.

Anticipated Impacts and Proposed Mitigation

The analysis of air quality under future conditions with the proposed project indicates that there will be no significant adverse impacts to ambient air quality as a result of vehicle volumes associated with The Greeens at Half Hollow development. The proposed plan, therefore, is consistent with the State Implementation Plan.

13. Infrastructure and Utilities

An extensive underground utility system runs beneath the project site and includes water mains, sanitary sewers, storm sewers, high pressure hot water lines and electric, gas, and telephone lines.

a. Sanitary Sewers

Existing Conditions

An on-site sewage treatment plant, located on the 46.5 -acre portion of the site south of Old South Path, serves the project site (although no flows are currently generated from the site), as well as the SRUs and the Sagamore Children's Psychiatric Center. Existing flows to the STP are approximately 80,794 gallons per day.

Anticipated Impacts and Proposed Mitigation

The Applicant proposes to upgrade and modernize the existing sewage treatment plant (STP) and to locate all sewage treatment facilities on 15.5 acres in the eastern portion of the 46.5 acre parcel. The remaining 31 acres will be offered to dedication to the Town of Huntington for parkland. The STP will treat all wastewater generated from The Greens at Half Hollow development as well as from the SRUs and Sagamore Children's Psychiatric Center and will have a capacity of 330,000 gallons per day (gpd)

Using Suffolk County Department of Health Services typical generation rates, it is estimated that 249,000 gpd of wastewater will be generated from the proposed development in addition to existing flows (80,794 gpd). It is estimated, therefore, that the STP will have a reserve capacity of 25,856 gallons.

b. Water Supply

Existing Conditions

Currently, the project site is served by an on-site water distribution system consisting of two supply wells and a network of transmission mains. However, in 1995/1996, the existing supply wells were removed from service due to an inability to meet certain Suffolk County DHS standards and the site has been served by and emergency interconnection with the Dix Hills Water District. However, the site is not located within the service area of any established water district.

Anticipated Impacts and Proposed Mitigation

The Applicant is making arrangements to extend the boundaries of the Dix Hills Water District to include the project site and The Greens at Half Hollow development will utilize the public water supply to obtain potable water required for the proposed residential units and community facilities. Water to irrigate the proposed golf course will be obtained from new on-site wells drawing from the shallow aquifer.

Certain improvements which will be necessary to effectively serve the property have been identified by a consultant for the Dix Hills Water District. The Applicant is working with the District to ensure that the demands of the proposed project can be met and has agreed to fund a fair share of required improvements.

Potable water demands for the proposed project are estimated to total 368,700 gallons per day.

c. Stormwater Management

Existing Conditions

The project site currently includes facilities for the collection and recharge of stormwater which includes piping and three recharge basins.

Anticipated Impacts and Proposed Mitigation

A comprehensive Stormwater Management Plan has been developed for the proposed project which provides for the collection and disposal of runoff throughout the development. All stormwater collection and recharge facilities will be designed in accordance with the Town of Huntington *Subdivision Regulations and Site Improvement Specifications.*

d. Solid Waste

Existing Conditions

Existing buildings on the project site have been vacated and the site does not currently generate solid waste.

Anticipated Impacts and Proposed Mitigation

It is estimated that the proposed development will generate approximately 200 tons of solid waste per month (based upon a State DEC standard of 5 pounds per person per day). This is approximately the same amount of solid waste that would have been generated when the LIDC was fully operational in the early 1980's. Solid Waste will be collected by private carter, licensed by the Town of Huntington. Solid waste in Huntington is transported to the Town of Huntington Resource Recovery Facility on Town Line Road in East Northport. Mandatory recycling, as required throughout the Town, will mitigate the disposal of solid waste.

e. Other Utilities and Services

Existing Conditions

Existing electric and telephone lines serving the former LIDC buildings are underground. An electric substation and dormant power plant, that provided hot water (steam) heat via a series of underground lines to most of the existing on-site buildings, are located in the northwestern portion of the site along North Road.

Anticipated Impacts and Proposed Mitigation Measures

With the exception of the electric substation, existing on-site utility services will be eliminated and replaced with new electric, gas, telephone and cable television lines to service the proposed development. Proposed utility lines will be underground.

14. Groundwater

Existing Conditions

Groundwater

The groundwater system underlaying The Greens at Half Hollow site is divided into several aquifers including (1) the Lloyd Aquifer; (2) the Magothy Aquifer; and (3) the Upper Glacial Aquifer. The Lloyd Aquifer is a deep artesian aquifer that extends under most of Long Island. The overlying clay member of the Raritan Formation is typically of low permeability and forms a confining bed above this aquifer. Currently, there is no withdrawal from the Lloyd Aquifer in the vicinity of the site, however, it supplies water to wells in other parts of Long Island. The Magothy Aquifer provides large supplies of water to wells throughout Long Island. A well search conducted for the 1995 **Preliminary Master Plan for the Long Island Developmental Center** revealed six private supply wells and two LIDC supply wells on and near the project site. The upper surface of the Magothy Aquifer is in contact with the overlying Upper Glacial Aquifer. The Upper Glacial Aquifer is the most permeable aquifer, resulting in high capacity wells, typically yielding as much as 1,700 gallons per minute.

The aquifers are recharged from precipitation that falls on Long Island. The Upper Glacial Aquifer is recharged directly by infiltrating precipitation and the deeper Magothy and Lloyd Aquifers are replenished by water moving downward through the groundwater system.

The Special Groundwater Protection Area (SGPA)

The Greens at Half Hollow site is located within the 6,708-acre West Hills-Melville Special Groundwater Protections Area (SGPA). This recharge watershed area is designated as such because of its importance in recharging the sole source aquifers beneath Long Island.

Anticipated Impacts and Proposed Mitigation

In order to evaluate potential impacts to groundwater from development of the property, a computer model was used to calculate projected nitrogen impacts to groundwater as a result of The Greens at Half Hollow development. The calculations indicate that The Greens at Half Hollow development will result in approximately 4.8mg/L of nitrogen in water recharging the shallow aquifer. This is below the 6.4mg/L baseline established in 1980-81 and below the 6.0mg/L target established in the 1995 **Preliminary Master Plan for the Long Island Developmental Center.** The State health standard is 10.0 mg/L, a significantly greater amount than projected for The Greens at Half Hollow.

Golf Course Irrigation

It is estimated that approximately 150 gallons of water per minute will be required to irrigate the golf course during the golf season. Groundwater will be withdrawn from the shallow aquifer in order to supply this need.

Discharge from the sanitary sewage collections system will be piped to the proposed on-site sewage treatment plant (STP). Discharge from the STP will be recharged on-site to the shallow aquifer system.

On-site recharge basins for stormwater runoff and treated effluent will facilitate the replenishing of groundwater withdrawn from shallow aquifers to irrigate the golf course and selected landscaped areas. Therefore, no significant adverse impacts to groundwater hydrology are anticipated as a result of golf course irrigation.

Golf Course Operations

An Integrated Turfgrass and Pest-Management Program (ITPMP) will be prepared for the proposed golf course. The ITPMP will strictly control the application of pesticides and fertilizers and identifies other maintenance practices for the golf course. The ITPMP will serve as the maintenance blueprint for the proposed golf course; it will describe materials to be used, rates of application and, where possible, an expected time of application. The ITPMP will rely heavily on environmental friendly practices including the use of natural organic fertilizers that suppress diseases, pest resistant grasses, biological control material as the first line of defense against pests and careful use of fertilizers and water for irrigation. The golf course superintendent will be responsible for implementing this program.

The basic philosophy of the ITPMP is to produce a healthy pest-resistant golf-playing surface that will have little or no impact on the surrounding environment. Selection and use of fertilizers and pesticides for The Greens at Half Hollow will be based on producing a healthy plant while not contaminating either surface water (via runoff) or groundwater (via leaching). The ITPMP will conform to the principles of sustainable resource management developed by Audubon International for golf courses.

A computer-controlled irrigation system will regulate the amount of water used to irrigate the golf course. The proper amount of irrigation will be applied to minimize any environmental impact, reduce the potential for pest problems, reduce the waste of water from excess irrigation and produce a healthy pest-resistant grass. Fertigation will only take place when wind speeds are below the maximum specified for this irrigation system (irrigation heads and operating pressure).

15. Cultural Resources

<u>Existing Conditions</u>

Stage 1A and Stage 1B Archaeological Surveys were conducted for the project site. No prehistoric occupation horizons, no prehistoric cultural materials or historic cultural materials were found on the site.

Anticipated Impacts and Proposed Mitigation

Based on the results of the archaeological surveys, no mitigation is required.

E. Significant Adverse Impacts that Cannot Be Avoided if the Proposed Action is Implemented

Adverse impacts that cannot be avoided if the Proposed Action is implemented include:

- Increased traffic generation
- Removal of vegetation
- Increased demand on certain local services

These impacts are not considered to be significant given the mitigation program proposed in this DGEIS.

In addition, short-term construction activities will likely result in several minor, temporary adverse impacts to the project site and surrounding area. These impacts will be associated with demolition, site clearing and grading activities; excavation of foundation areas; installation of utilities; and construction of roadways, residential buildings and recreational facilities. Proposed measures to mitigate and minimize these impacts are discussed in the appropriate chapters in Section III of the DGEIS. The short-term construction impacts are summarized below.

- Soils will be disturbed on the project site by grading, excavation and mounding activities during construction.

- Temporary increases in soils erosion will result from construction operations, and minor amounts of soil will be carried off site in surface runoff waters.

- Wildlife utilizing the project site and immediate adjacent areas will be temporarily displaced by construction activities onto adjacent wooded and open areas; and construction operations will discourage wildlife from feeding at or migrating through the project site during the construction phase of the Proposed Action.

- Operation of construction equipment and trucks, and worker vehicles, may temporarily impede traffic in the area of the project site during the construction period.

- Minor release of air contaminants will occur from construction equipment; and emissions of fugitive dust will occur during some construction operations.

- The visual quality of the area may be temporarily degraded by the presence and operation of construction equipment on the project site; and

- Slight increases in noise levels at the site boundary may result from construction activities.

The demolition of existing buildings, roads and utilities, and the use of qualifying demolition debris as on-site fill will be undertaken in strict conformance with all local, state and federal laws and requirements to ensure the safety of construction workers and compliance with all applicable environmental regulations.

F. Summary of Alternatives

Five alternative development scenarios for the project site are discussed and compared to the proposed project in Section V, Alternatives of the DGEIS. Three of the alternatives (a conventional single-family subdivision, a cluster subdivision with a village center and a cluster subdivision with a nine-hole golf course) were evaluated in the **Preliminary Master Plan for the Long Island Developmental Center** prepared by the LIDC Task Force in 1995. A No-build alternative and the proposed plan with a nine-hole golf course instead of the proposed 18 hole executive golf course are evaluated in the DGEIS as well. The three residential alternatives are described below.

The Development Alternatives

Alternative 1: Conventional Single-Family Subdivision

Alternative 1 presents an R-80 plan that contains a subdivision composed of approximately 120 single-family houses on 2-acre lots. This plan does not include any age-restricted housing.

Major existing infrastructure components are retained in this plan including the existing road patterns with several loop roads and cul-de-sacs added. Several of the houses would front directly onto Old South Path and Carman Road. The area between the Sagamore Children's Psychiatric Center and the eastern group of SRUs is preserved as open space along with green areas as buffers separating the homes from the Northern State Parkway, the SRUs, and the utility and sanitary disposal areas

Alternative 2: Cluster Subdivision with Village Center

Alternative 2 is equivalent to Plan B-1 in the **Preliminary Master Plan for the Long Island Developmental Center.** This alternative proposes a mix of senior and non-senior housing and utilizes clustering techniques to concentrate development on selected portions of the site. Clustering preserves significant environmental features, provides greater density and diversity in proposed housing types, and permits the creation of a village center as a community focal point.

This plan includes 200 single-family housing units, 100 townhouses and 1,100-1,200 senior housing units. Housing density would be higher toward the center of the site with less dense housing closer to the perimeter. The plan includes a variety of single-family lot sizes including the use of zero lot line configurations for traditional housing on smaller lots. Most of the single-family units would be divided between one-half-acre lots in the southwestern portion of the site and one-acre lots in the northeastern portion. The senior housing would consist of a continuum of care with 50 percent independent living units and 50 percent in a mix of assisted living, congregate housing, and nursing home beds developed separately or considered as a life care community.

The main feature of this plan is the village center. A village green would be designed as a gathering place for community residents and a common area for community activities. Immediately south of the green, the existing school building would be adapted as a multi-purpose community center possibly containing a child or senior day-care center. Townhouses would be grouped around the green on the east and west. A 20,000-square-foot neighborhood retail and service center would be built to the north, across South Road from the green. South Road would be widened into a boulevard that would function as the unifying structural element of the community. Several of the single-family homes have access from Old South Path and Carmen Road.

Alternative 3: Cluster Subdivision with Nine-Hole Golf Course

Alternative 3 is equivalent to Plan C-1 in the **Preliminary Master Plan for the Long Island Developmental Center.** This plan includes a nine-hole golf course in the center of the site surrounded by distinctive clusters of townhouses and other housing types. This plan recognizes the increasing popularity of golf and the added value that a golf course brings to surrounding homes. This plan is similar to the

Proposed Action, which calls for an 18-hole executive golf course and a slightly different layout of housing units.

Alternative 3 includes a total of 75 single-family lots located along Carman Road and Old South Path, 200 non-age restricted townhouse units surrounding the golf course and 1,200-1,250 senior housing units in the northern portion of the site. The senior citizen housing would include the same continuum of care housing concept as in Alternative 2, with 50 percent independent living units and 50 percent a mix of assisted living, congregate living, and nursing home beds.

Comparative Impacts

Land Use, Zoning and Visual Resources

The three alternatives and the Proposed Action share a number of general land-use characteristics. The eastern portion of the site, along Carman Road north of the SRUs, would be developed with single-family detached homes in each of the alternatives and in the Proposed Action. The alternatives retain the existing site entrance at the intersection of South Road and Carman Road with access to the single-family subdivision from North Road. The Proposed Action relocates the entrance to the north with a gated boulevard that passes through the center of the single-family subdivision. The Proposed Action adds a new site access from Old South Path, north of Half Hollow Road. Alternative 1 provides access to the subdivision in the same general area; the other two alternatives do not, however. Alternative 3 shows access for the golf course clubhouse directly from Half Hollow Road.

In all three alternatives the area fronting the north side of Old South Path would be composed of single-family houses. In the Proposed Action this area would contain clusters of townhouses. Alternative 1 proposes a lower density of single-family development than the other plans and continues this land use over the entire property.

With the exception of Alternative 1 that conforms to existing zoning, the Proposed Action and alternative plans would require adoption of new zoning, (presumably a Planned Unit Development district which was proposed in the 1995 plan) and an amendment to the zoning map.

Physical and Natural Features

The location and use of open space varies in the alternatives. The three alternatives and the Proposed Action preserve the space between the Sagamore Children's

Psychiatric Hospital and the SRUs along Carman Road as open space though the Proposed Action uses it actively as part of the golf course. Likewise the three alternatives and the Proposed Action suggest that playing fields could be located in the vicinity of the wastewater treatment plant south of Old South Path though the Proposed Action is more specific and reserves 31-acres for dedication to the town as parkland.

Alternative 1 creates the least open space. With its low density and small population, it creates less impervious surface as the Proposed Action. Alternatives 2 and 3 create similar quantities of impervious cover to the Proposed Action, with Alternative 2 slightly higher and Alternative 3 slightly lower. With the golf course, Alternative 3 contains significant open space, however, less than the Proposed Action with its 18-hole course and additional open space features.

Community Facilities

The **Preliminary Master Plan for the Long Island Developmental Center** included consideration of the various alternatives with respect to the operations and services of the surrounding Half Hollow Hills Central School District and estimated a student population. With the exception of the single-family scenario (Alternative 1), taxes would likely cover the increase in school expenditures given the emphasis of senior housing in Alternatives 2 and 3 and the Proposed Action. The Proposed Action, however, would generate the largest surplus in school district revenues.

None of the alternatives will be expected to result in any significant adverse impact on the resources and capabilities of the local fire department serving the greater Melville, Dix Hills, and Route 110 corridor region. During the preparation of the **Preliminary Master Plan for the Long Island Developmental Center** in 1995, the Fire Department expressed concern regarding senior residences and congregate adult care concepts based on a belief that they would result in a high demand for ambulance services. While senior residence and continuum of care facilities would be anticipated to generate an additional number of ambulance calls for emergency and acute medical response, the presence of qualified medical personnel within those facilities would mitigate the need for ambulance response to less serious medical matters.

The DGEIS also examines the potential impacts of each alternative on library, police, recreation and health care services.

Fiscal Considerations

The Greens at Half Hollow development would result in the most significant tax revenue surplus of all the alternatives evaluated in the DGEIS, particularly for the Half Hollow Hills School district where a surplus of $2,900,000 per year would result from the proposed development.

Traffic and Air Quality

While the basic circulation system is similar throughout, the Proposed Action makes more changes to existing on-site roads than the alternatives. Alternative 1, 2 and 3 retain the three existing access points, one each from Carman Road, Old South Path, and Old East Neck Road. The Proposed Action adds an additional access point on Old South Path near Half Hollow Road and relocates the access from Carman Road to a point further north. Unlike the Proposed Action, all three alternatives contain single-family lots that front onto Old South Path and Carman Road.

Traffic mitigation would be necessary with each of the alternatives as well as the Proposed Action. The Greens at Half Hollow includes a comprehensive traffic mitigation plan including new traffic signalization, upgrading of timing at existing signals, provision of additional turning lanes plus other improvements to the existing road network.

Infrastructure and Utilities

As the anticipated population in the alternatives and the Proposed Action will be equivalent to or less than that of the peak activity at LIDC, the demands on utility services will not be significantly greater than what has been historically provided for the site. The existing wastewater treatment plant will be utilized in Alternatives 2 and 3 and the Proposed Action. Use and/or upgrading of the existing treatment plant would not necessarily be provided with Alternative 1. As in traffic and community facilities comparisons, Alternative 1 will have significantly less impact due to its smaller population. Alternatives 2 and 3 would require utility services similar to that of the Proposed Action in which case the plant would need upgrading in order to meet the expected need. Similarly, water system upgrading would be required for these two alternatives; however, Alternative 2 with no golf course, would not require additional water for irrigation purposes.

II. DESCRIPTION OF THE PROPOSED ACTION

A. Site Location and Description

The Greens at Half Hollow development is proposed on a 382-acre portion of the former 465-acre Long Island Developmental Center (LIDC) site in the southwestern portion of the Town of Huntington, in western Suffolk County, New York. (See Exhibit 2, Regional Location). The Northern State Parkway defines the site's northern boundary. The Long Island Expressway is located approximately one-half mile to the south. Unincorporated areas that surround the site include South Huntington to the north, Melville to the west, Dix Hills to the east and Half Hollow Hills to the south. (See Exhibit 3, Site Location).

In addition to the Northern State Parkway, the site is bounded by Carman Road, single-family homes, and Small Residential Units (group residences for the developmentally disabled known as SRUs) to the east; Half Hollow Road and the Sagamore Children's Psychiatric Center to the south; and single-family homes, SRUs, Echo Lane, and Old East Neck Road to the west. Old South Path traverses the southwestern portion of the property. Five single-family residential out-parcels are located along this road. Main entrances to the site are located off of Carman Road, Old South Path and Old East Neck Road.

The site is relatively flat and is characterized by mostly vacant and abandoned buildings which formed the LIDC campus, a decommissioned New York State facility for the developmentally disabled. Buildings accommodated group living quarters, treatment facilities, and support services for patients, a hospital, a school, a day-care center, administrative offices, a pool, a fire station and utility and maintenance facilities. Typically, buildings on the campus are one-story in height. The tallest building, the former hospital, is five stories. In total, approximately 90 buildings encompass more than 1,300,000 square feet of floor area. Existing on-site utility facilities include a sewage treatment plant, a power plant, an electric substation, two production wells and three recharge basins. (See Exhibit 4, Existing Conditions).

Two primary internal roads, South Road and North Road, cross the site in an east/west direction. South Road cuts through the central portion of the property connecting Carman Road and Old South Path. Service Road extends off of South Road in the southwestern portion of the site to provide service access to the Sagamore Children's Psychiatric Center. North Road begins in the northwest corner of the property at Old East Neck Road and runs parallel to the Northern State Parkway before curving to the south and connecting to South Road. East, Central and West Roads run north/south connecting North and South Roads. Two semi-circular roads extend off of East and West Roads. A series of sidewalks and surface

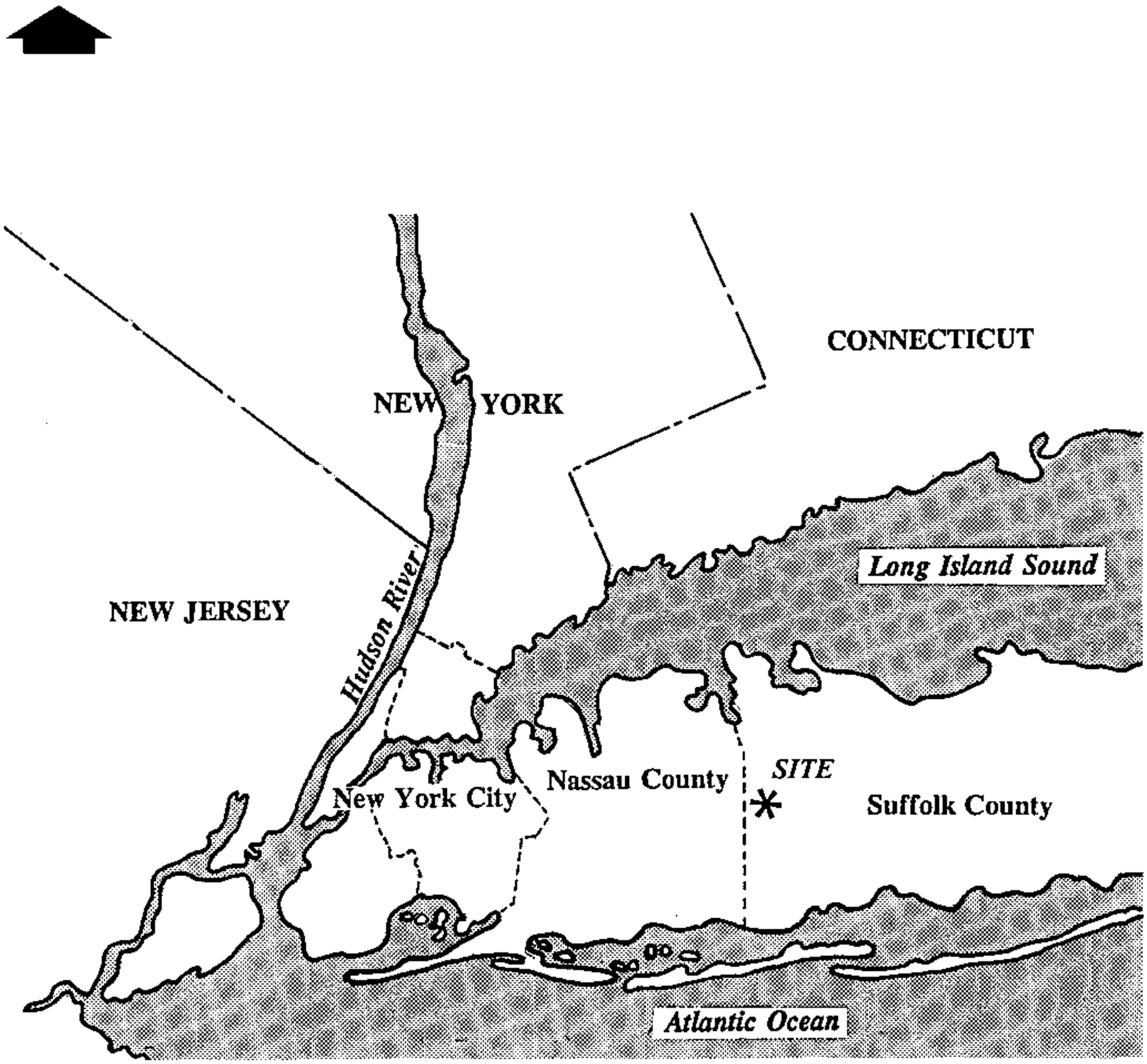


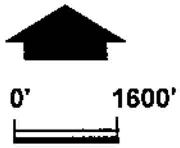
Exhibit 2

REGIONAL LOCATION

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants



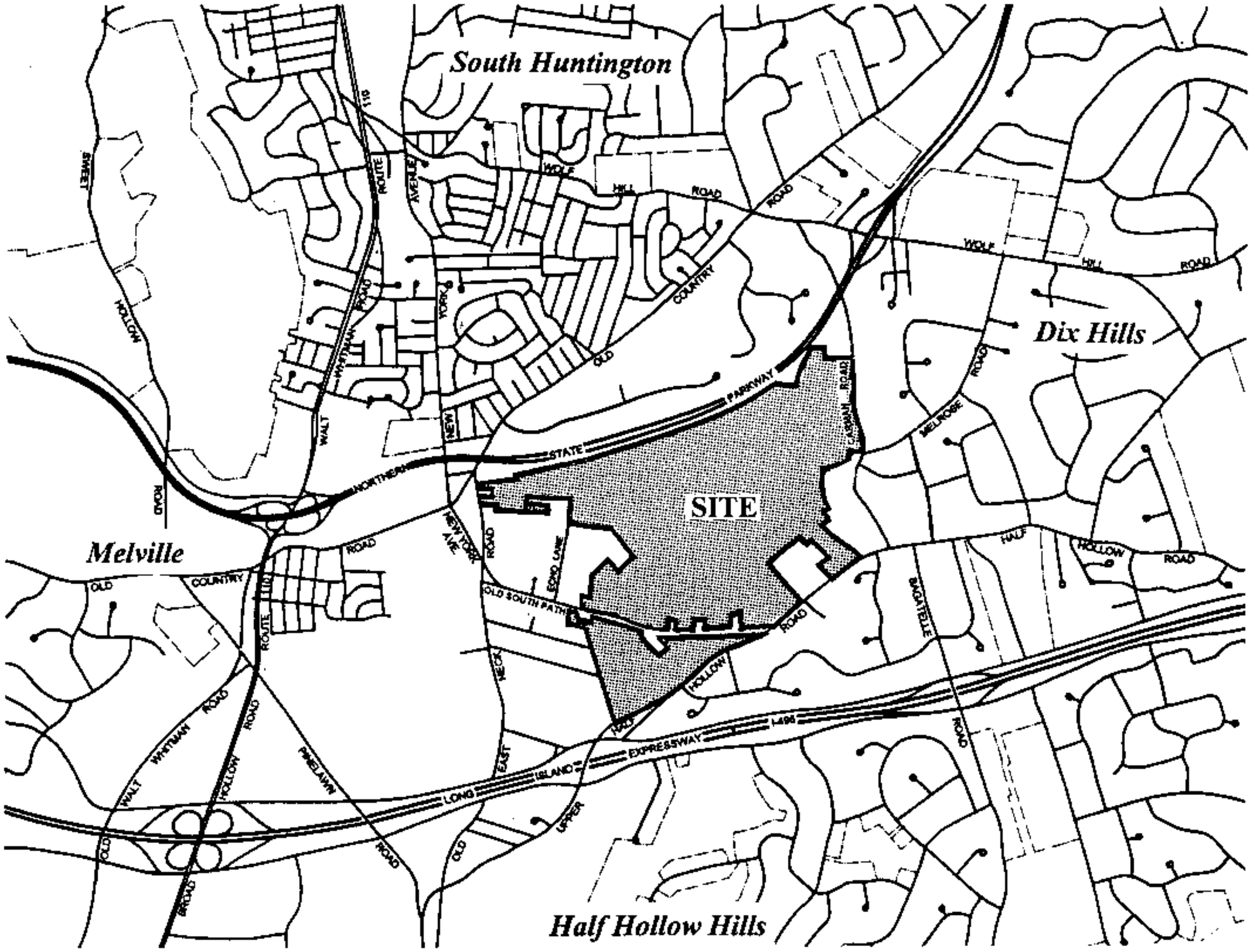
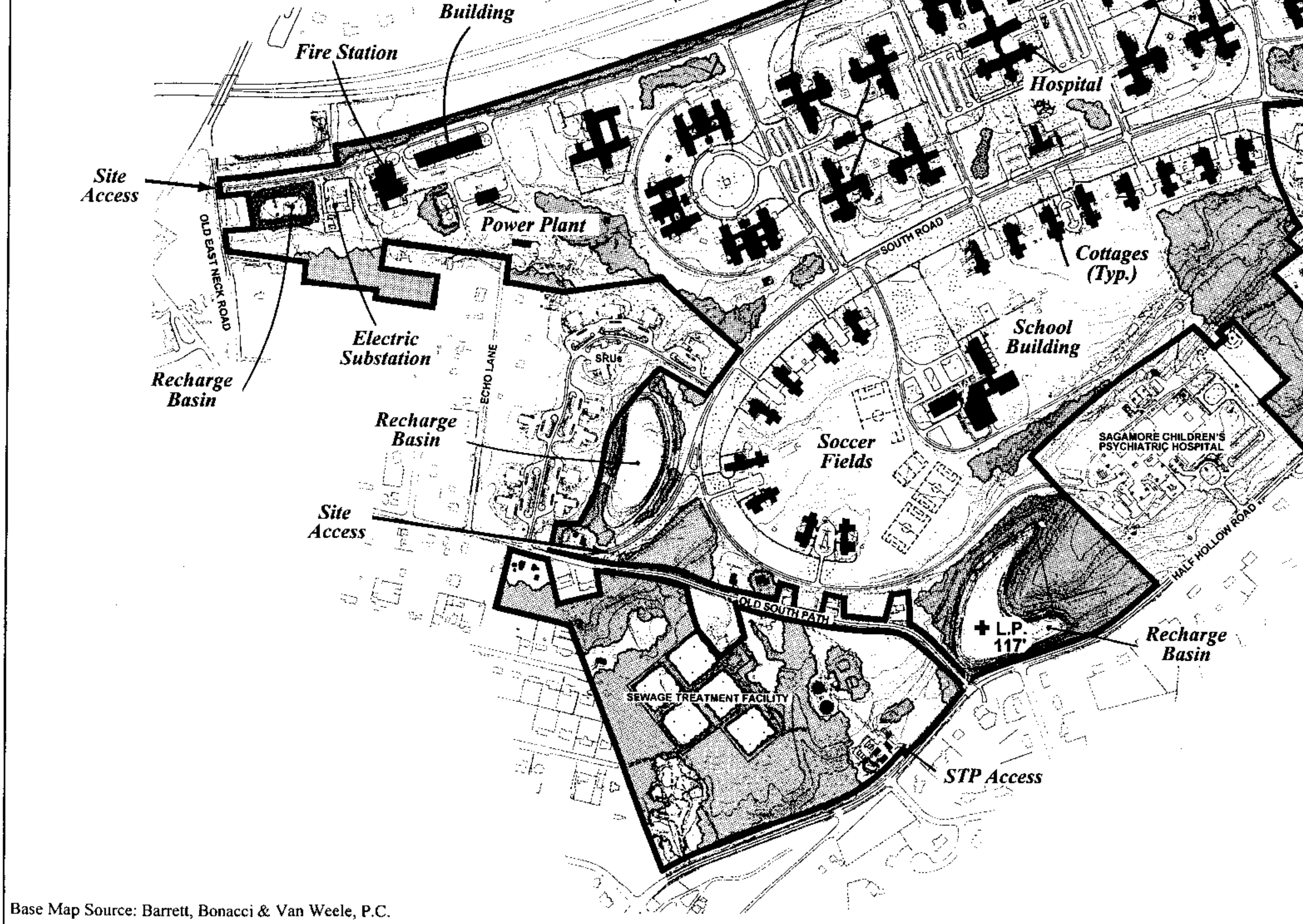


Exhibit 3
SITE LOCATION

The Greens at Half Hollow
Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants



Base Map Source: Barrett, Bonacci & Van Weele, P.C.

parking lots link and serve each of the buildings on the campus.

Open space and landscaping is primarily characterized by lawn areas and foundation plantings which surround the buildings. Shade trees, flowering trees and conifers are planted throughout the site. Generally, densely vegetated areas at the perimeter of the property, provide visual buffers between on- and off-site uses. A large wooded area surrounds sewage treatment facilities located in the southwestern portion of the site, south of Old South Path. As buildings on the site have been abandoned, lawn and landscaped areas have become overgrown. Soccer fields are adjacent to the school building located in the center of the site. These fields are maintained and are used by local soccer leagues.

All of the existing buildings and roads on the site will be removed as part of the development of The Greens at Half Hollow.

B. Project Description

1. The Greens at Half Hollow Master Plan

The Greens at Half Hollow is a proposed master planned golf course community combining 1,375 residential units and recreational uses on the 382-acre site. An 18-hole executive golf course and golf course clubhouse/community center complex will be the central focus of the development and will be surrounded by a variety of homes (golf course villas, townhouses and condominium units) designed for senior citizens, empty-nesters and active adults who are 55 years of age and older. A 150-bed assisted living facility and 75 non-age-restricted single-family detached homes are proposed as well. Both the assisted living units and single-family homes are included in the 1,375 residential units referenced above.

The various housing types are arranged to create distinct neighborhoods yet are linked to each other and to the golf course and community center by a series of common open space areas and small parks, pedestrian walkways, streetscape amenities (benches, kiosks, game tables, etc.) and a comprehensive lighting and landscape plan designed to create a fully integrated community. In several areas, the various age-restricted housing units abut other housing types, blending neighborhoods into one another.

Approximately 31 acres of the property (the western portion of the existing sewage treatment facility site) will be offered for dedication to the Town for parkland. The existing sewage treatment facility will be upgraded by the

Applicant and the approximately 15.5-acre site will be dedicated to the Suffolk County Department of Public Works to operate and maintain the facility.

Each of the components of the proposed plan are described in greater detail below and are illustrated on Exhibit 5, Proposed Land Use Plan.

a. Golf Course, Golf Course Clubhouse, and Community Center

The 18-hole executive golf course, located in the central and southern portions of the site has been designed to be fully integrated with proposed housing units to maximize views for residents. The golf course will be landscaped with a mix of evergreen, shade and flowering trees to define and separate fairways and to enhance and frame views. Ponds will be created to enhance the aesthetic character of the course, provide wildlife habitat areas and to provide for the storage of stormwater runoff.

The proposed golf course will encompass approximately 86 acres or 22 percent of the site and will be a par 60 facility with a total length of 4,010 yards. The golf course will be a private facility for residents of The Greens at Half Hollow community. Subject to availability, a limited number of memberships may also be available for residents in the surrounding area.

A golf course clubhouse and community center will be located near the center of the development at the intersection of two proposed boulevards. An outdoor swimming pool, two tennis courts, tees for golf holes 1 and 10 as well as a putting green will be located adjacent to clubhouse and community center. Parking will be provided in surface parking lots. A conceptual plan and elevations of the proposed clubhouse and community center are shown in Exhibits 6 to 8.

The golf course clubhouse will contain a golf cart area, locker rooms and light refreshment area for golfers. The approximately 20,000 square foot community center will provide a variety of social and recreational opportunities and services for residents of The Greens at Half Hollow including an indoor swimming pool, health club, library and computer center, creative arts room, theatre, bank/automated teller machine, etc. The community center will not be available to non-residents of The Greens at Half Hollow for catered events. A complete building program for the community center is provided in Table 1. Floor plans for each level of the community center are shown in Exhibits 9 to 11.

Source: Site Planning and Design: Ehasz, Giacalone Architects, P.C.
Site Engineering and Base Map: Barrett, Bonacci & Van Weele, P.C.

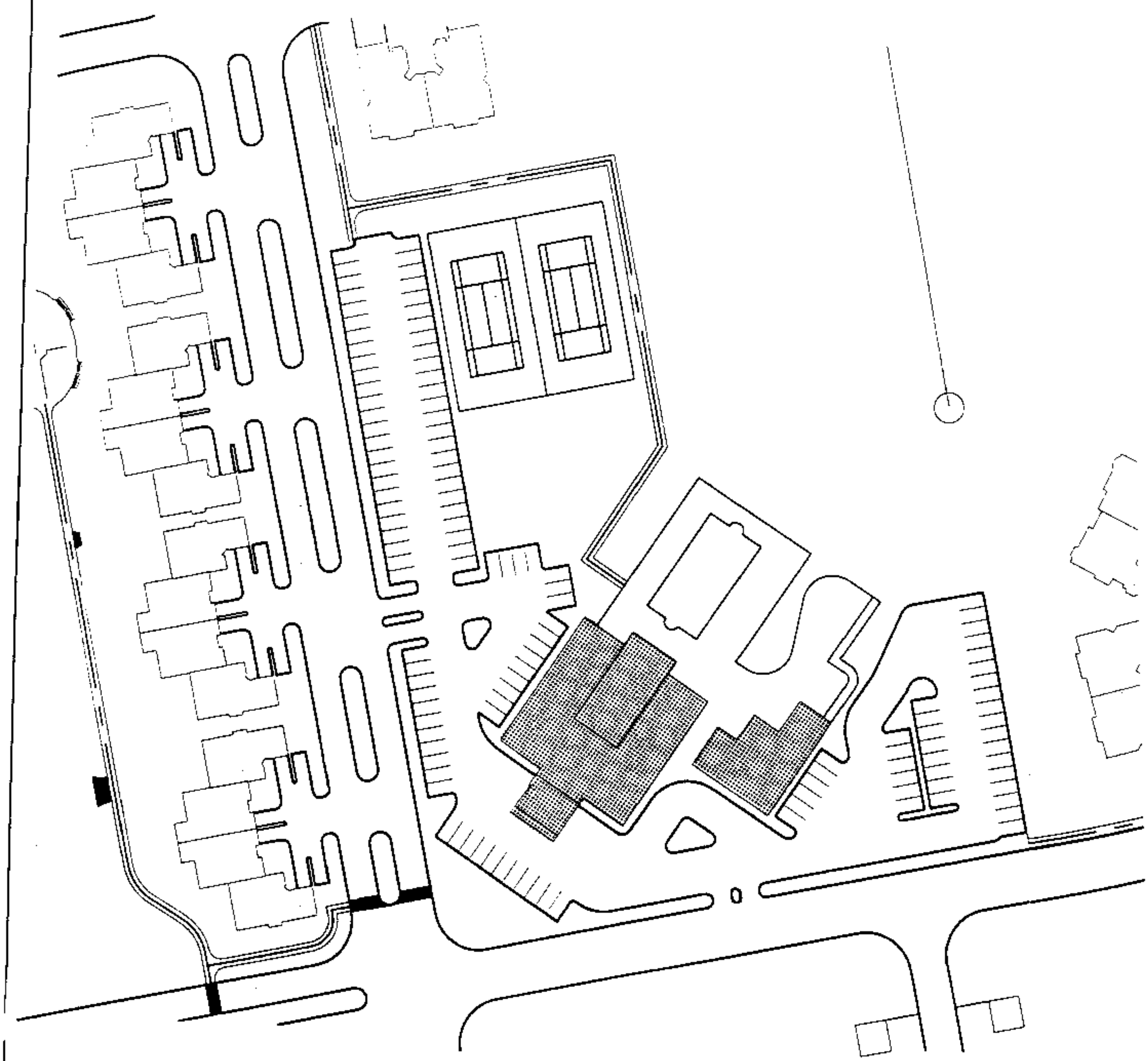


Exhibit 6

GOLF COURSE CLUBHOUSE AND COMMUNITY BUILDING DETAIL PLAN

The Greens at Half Hollow

Town of Huntington, New York

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: November 19, 1999

Saccardi & Schiff, Inc. - Planning & Development Consultants

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999

Table 1
Community Center Building Program

USE	SQUARE FEET
MAIN LEVEL	
Vestibule, lobby and information center	800
Living room and lounge area with fireplace	1800
Library and computer center	800
Lounge	400
Beauty parlor	300
Card playing room	480
Creative arts room	460
Bank/ATM	300
Toilets	280
Health and Wellness Clinic	
- Waiting area/reception	150
- Nutritionist office	170
- Consultation office	180
- Exam room	150
Coffee bar	800
Total net square feet (first floor)	**7,660**
UPPER LEVEL	
Multi-purpose room (approximately 150 folding chairs)	1,900
Warming Pantry	240
Storage	240
Lounge	350
Upper lobby	375
"Home Theatre room	625
Total net square feet (upper level)	**3,730**

Table 1
(Continued)

USE	SQUARE FEET
LOWER LEVEL	
Women's lockers, dressing, showers	800
Men's lockers, dressing, showers	800
Heated indoor swimming pool	2,600
Health club and exercise	1,900
Lower lobby	400
Elevator and stairs	460
Mechanical room (basement)	600
Sprinkler room	150
Electrical switchgear room (basement)	200
Maintenance office (basement)	120
Telephone/communications/security (basement)	120
Total net square feet lower level	**8,150**
TOTAL NET SQUARE FEET ALL LEVELS	**19,540**

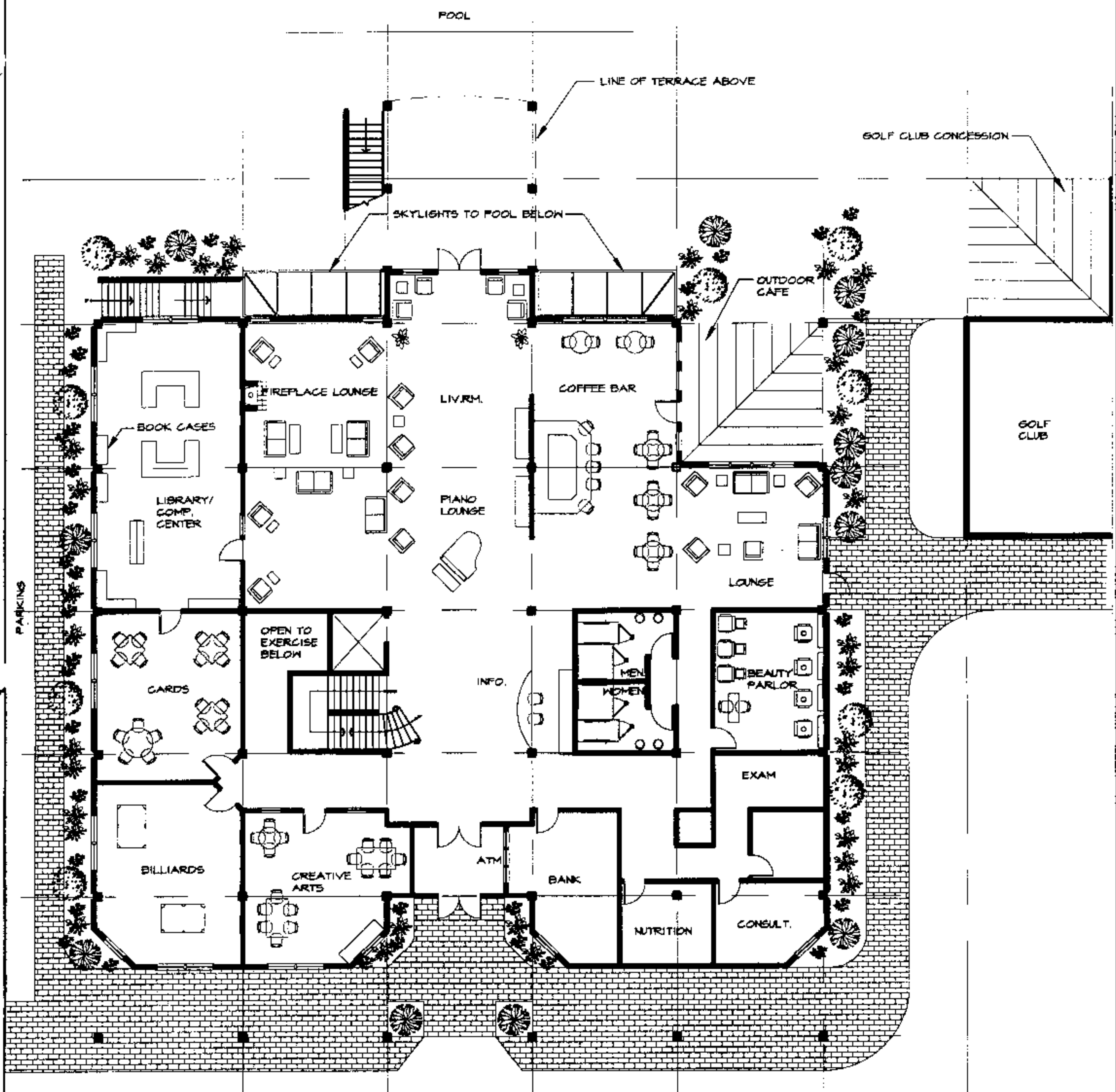


Exhibit 9

COMMUNITY BUILDING MAIN LEVEL FLOOR PLAN

Scale: 1" = 20'

The Greens at Half Hollow

Town of Huntington, New York

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999

Saccardi & Schiff, Inc. - Planning & Development Consultants

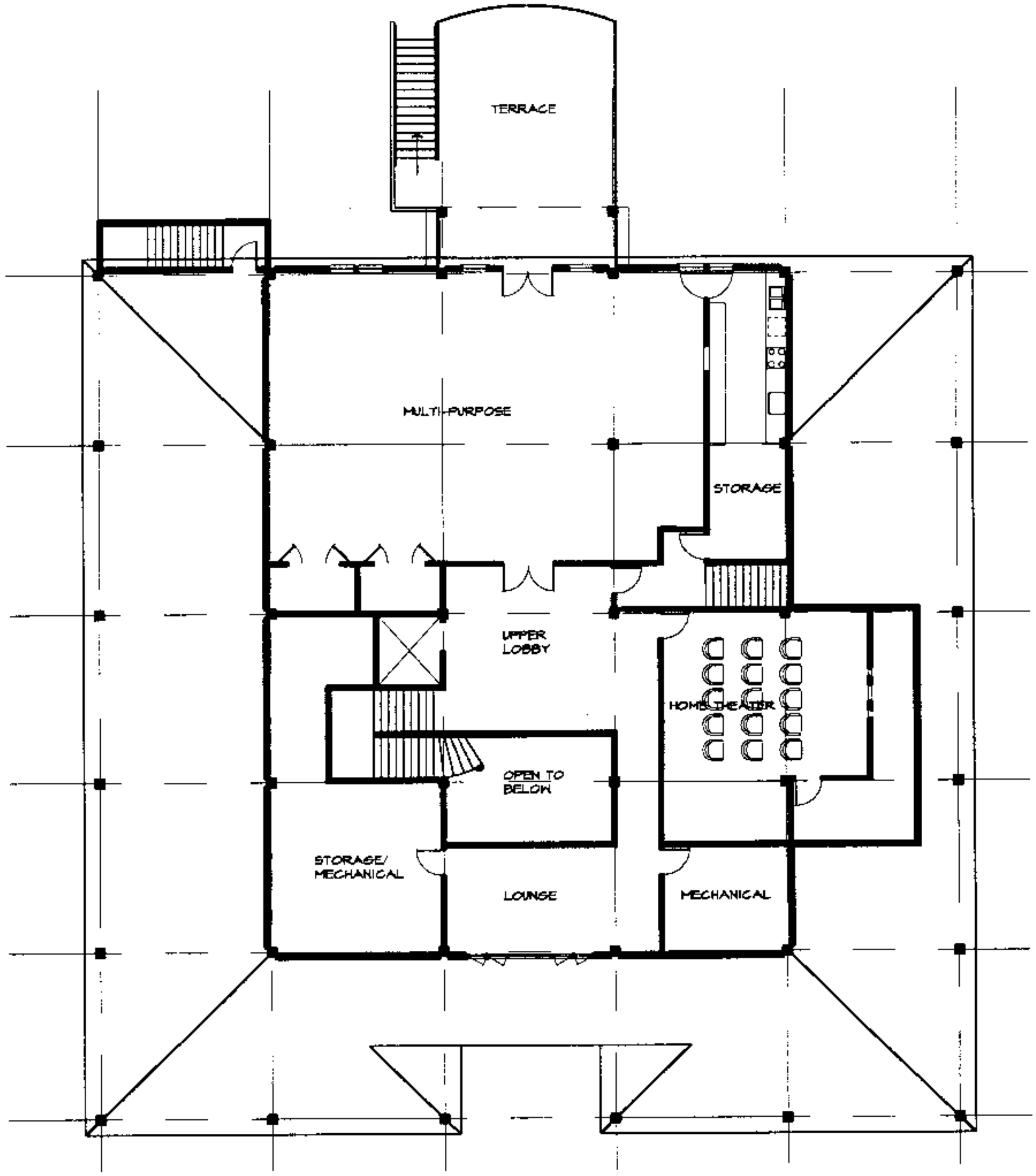


Exhibit 10

COMMUNITY BUILDING UPPER LEVEL FLOOR PLAN

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

Scale: 1" = 20'

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999

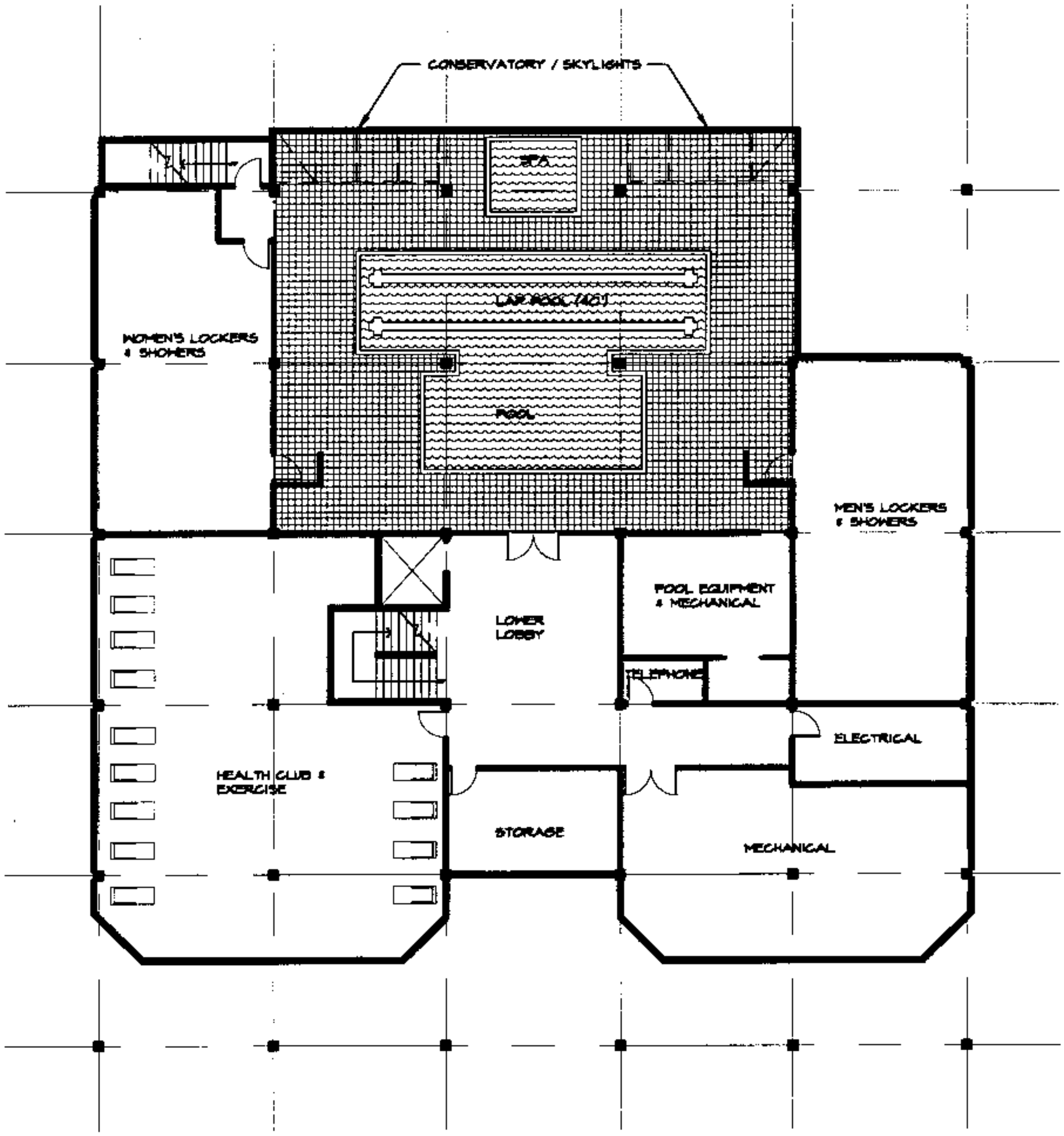


Exhibit 11

COMMUNITY BUILDING
LOWER LEVEL FLOOR

Scale: 1" = 20'

The Greens at Half Hollow

Town of Huntington, New York

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999

Saccardi & Schiff, Inc. - Planning & Development Consultants

b. Residential Units

The Master Plan incorporates a total of 1,375 units in five different housing types as shown in Table 2.

Table 2
Proposed Housing Types

Housing Type	Number of Residences
Golf Course Villas	400
Townhouses	350
Condominiums	400
Assisted Living Facility Beds	150
Single-Family Detached Homes	75
Total Units	1,375

The golf course villas, townhouses, condominiums, assisted living facility, and single-family homes will provide a range of options for prospective residents and will enable them to make choices based on individual needs. Each of the proposed housing types is described in detail below.

Golf Course Villas - Approximately 400 one- and two-story villas will surround the proposed golf course. The villas have been designed with an expansive floor plan which blends indoor and outdoor living spaces and takes advantage of golf course views to the greatest extent possible. Approximately 90 percent of the villas will be semi-attached (two units within one building). The remaining units will be detached zero lot line homes. Each villa will have three bedrooms and a total floor area of approximately 2,500 square feet. Each unit will have a two-car garage. The golf course villas will be age-restricted to persons 55 years of age and older.

Plans and elevations for the proposed Golf Course Villas are illustrated on Exhibits 12 to 18.

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999

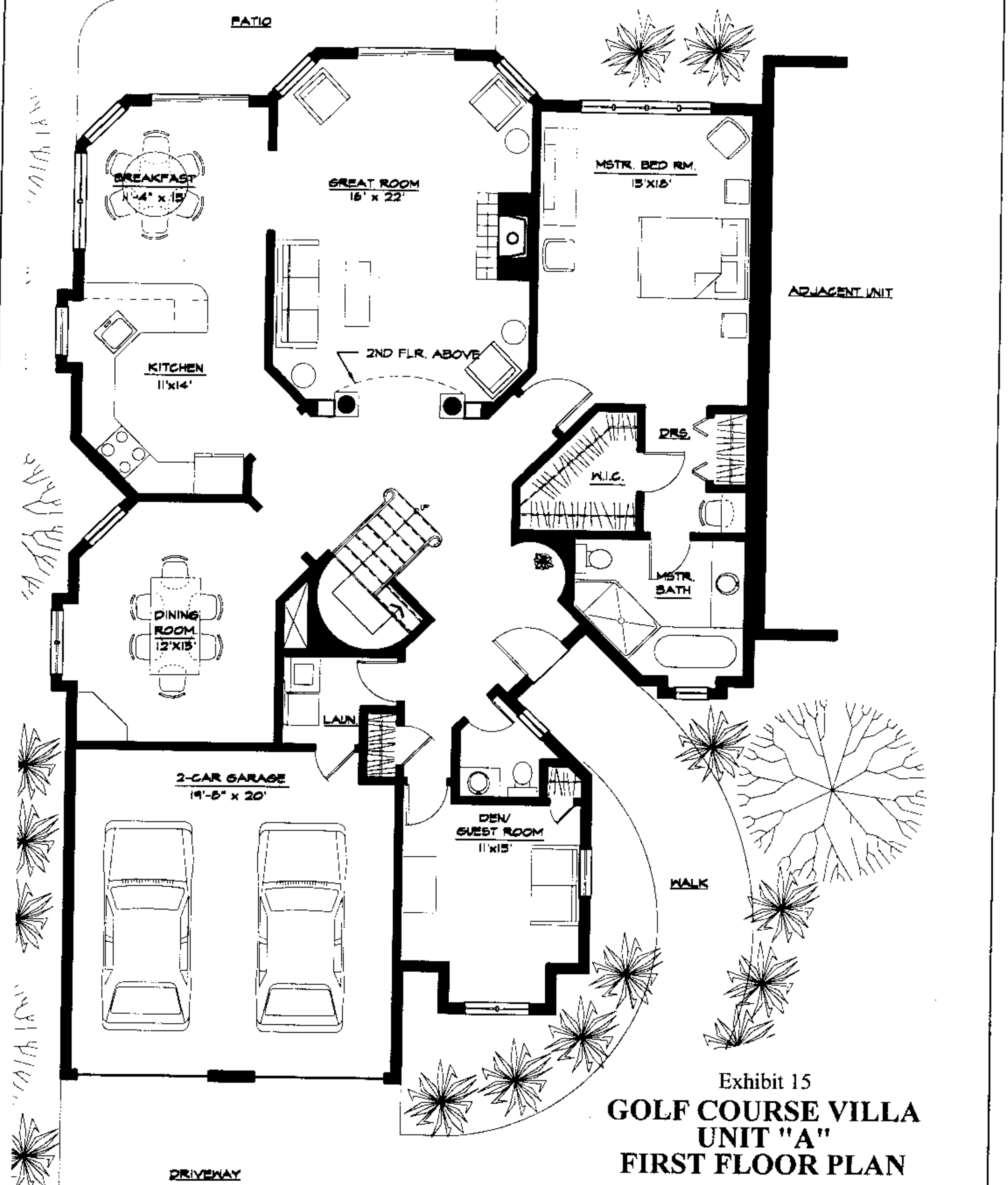


Exhibit 15

GOLF COURSE VILLA
UNIT "A"
FIRST FLOOR PLAN

Scale: 1/8" = 1'-0"

The Greens at Half Hollow

Town of Huntington, New York

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999

Saccardi & Schiff, Inc. - Planning & Development Consultants

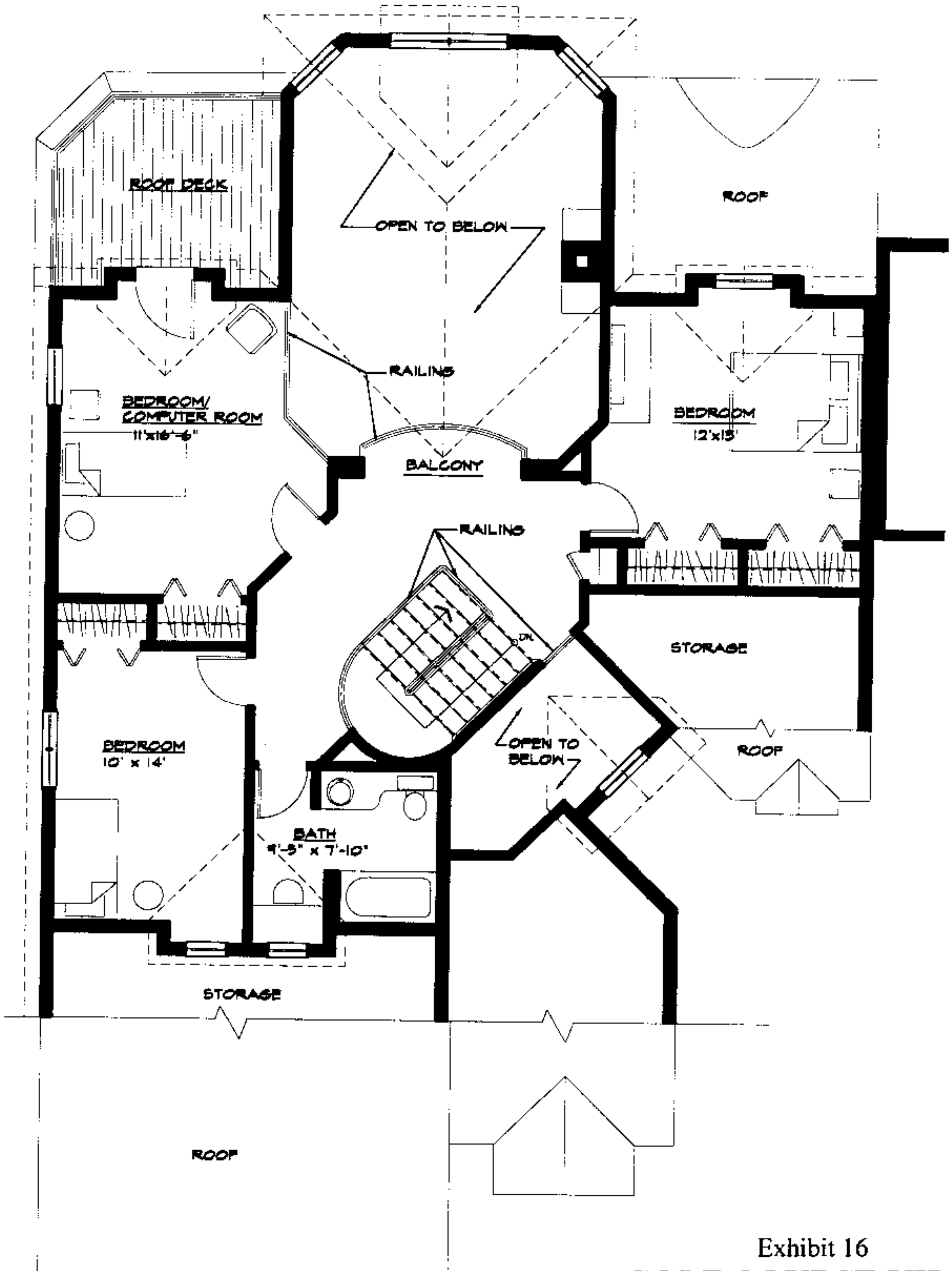


Exhibit 16

GOLF COURSE VILLA
UNIT "A"
SECOND FLOOR PLAN

Scale: 1/8" = 1'-0"

The Greens at Half Hollow

Town of Huntington, New York

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999

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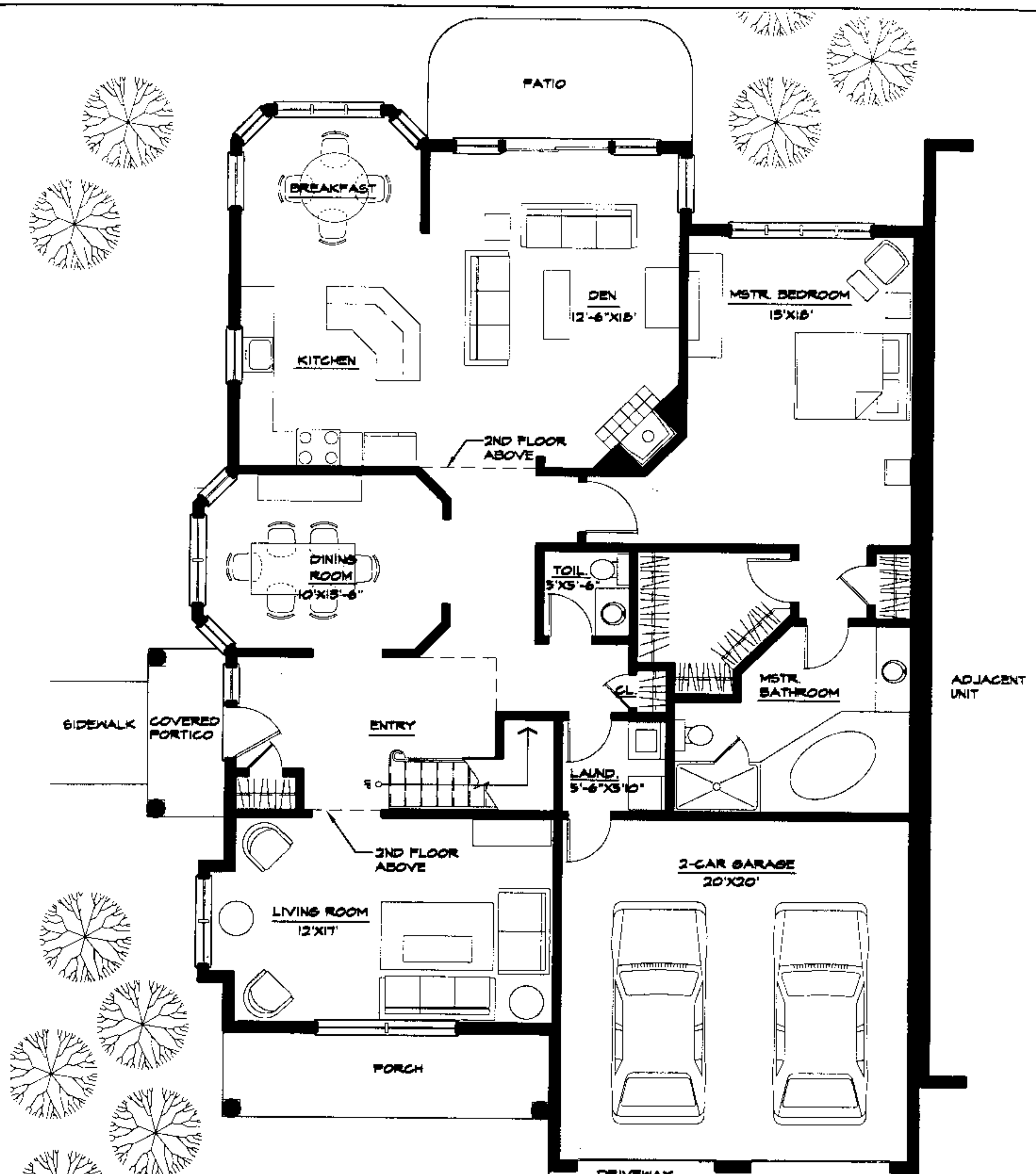


Exhibit 17

GOLF COURSE VILLA
UNIT "B"
FIRST FLOOR PLAN

Scale: 1/8" = 1'-0"

The Greens at Half Hollow

Town of Huntington, New York

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999

Saccardi & Schiff, Inc. - Planning & Development Consultants

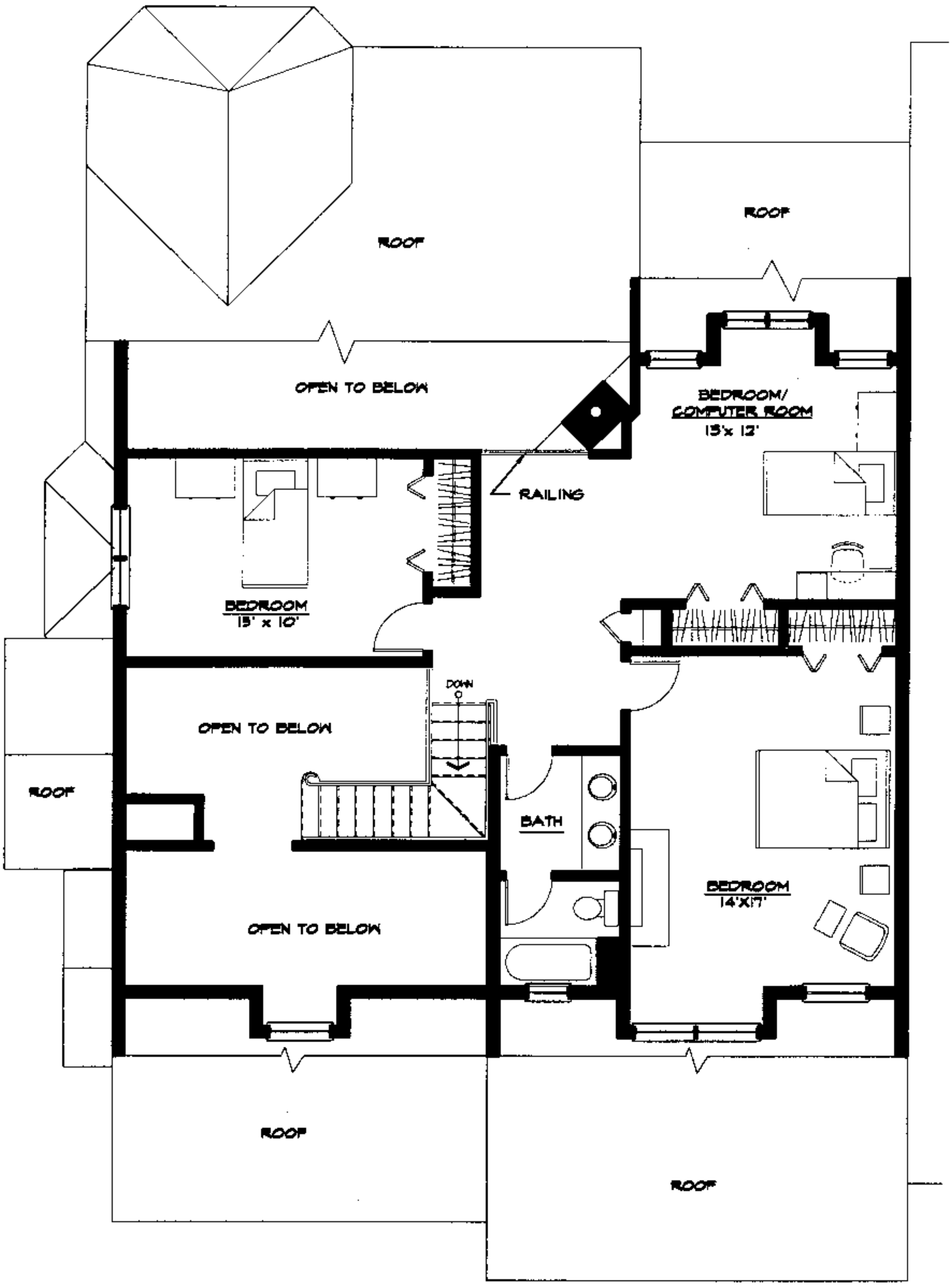


Exhibit 18

GOLF COURSE VILLA UNIT "B" SECOND FLOOR PLAN

Scale: 1/8" = 1'-0"

The Greens at Half Hollow

Town of Huntington, New York

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999

Saccardi & Schiff, Inc. - Planning & Development Consultants

Townhouses - Approximately 350 townhouses are proposed in the western portion of the property. The townhouses front along the boulevard which runs north south through the property and are clustered around landscaped parking courts. A number of the townhouse units have been designed to provide views to the golf course. The townhouses are designed for upstairs and downstairs living and will have a total floor area of approximately 2,000 square feet. Each unit will have two or three bedrooms, a den/computer room and a one-car garage. The townhouses will be age restricted to persons age 55 and older.

Plans and elevations for the proposed Townhouses are illustrated on Exhibits 19 to 22.

Condominiums - Approximately 400 owner-occupied condominium units are proposed in two-story buildings in the northwestern portion of the property. Each unit will contain two bedrooms on a single floor and will total approximately 1,100 square feet. Parking will be provided in surface parking lots in front of each building. In most cases, the condominiums back onto common landscaped green spaces. The condominiums will be age restricted to persons age 55 and older.

Floor plans and elevations for the proposed Condominiums are illustrated on Exhibits 23 to 25.

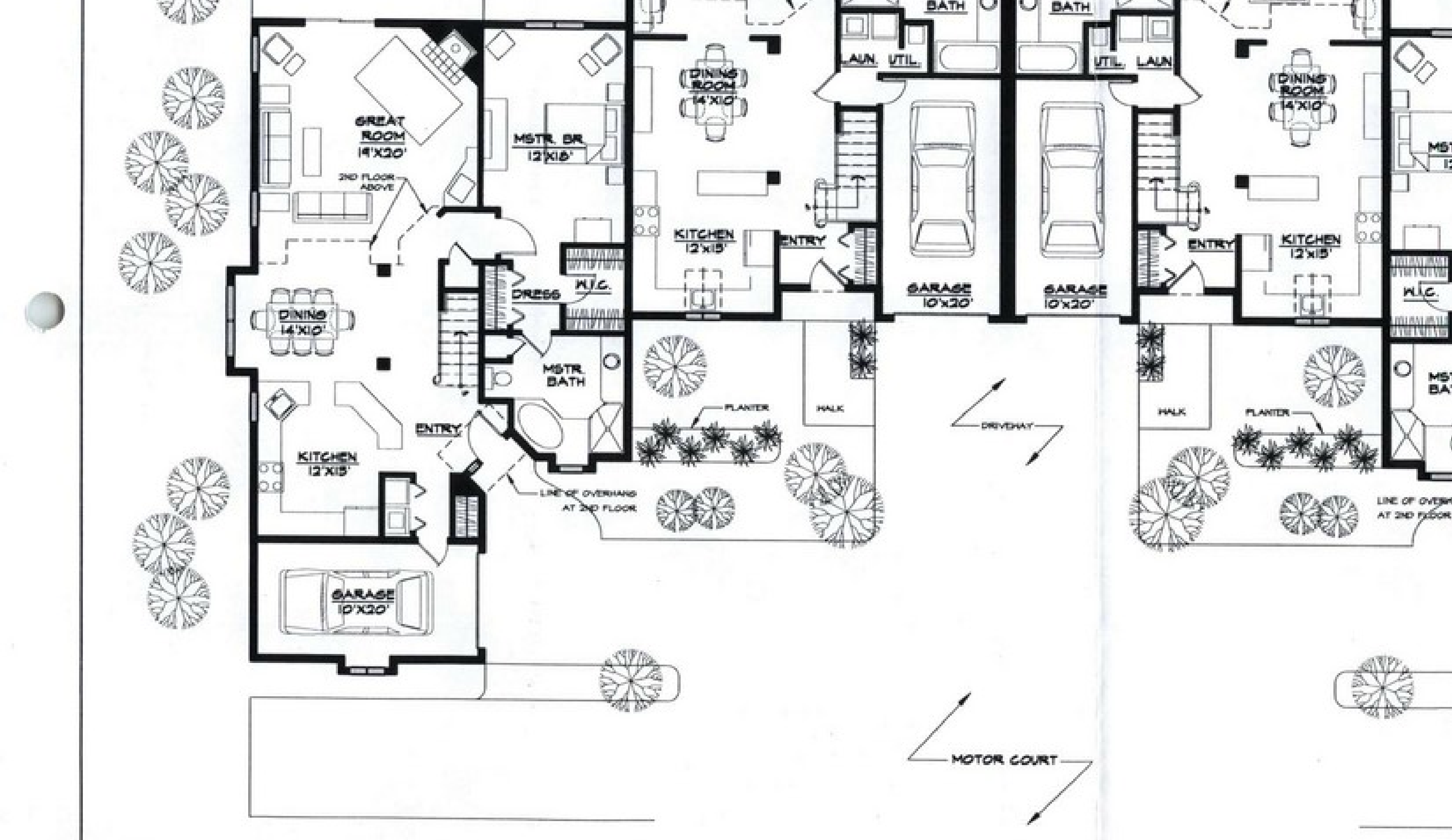
Assisted Living Facility - A 150-bed assisted living facility is proposed in the northwestern portion of the property just west of the condominiums. Units will be located in a two-story building with parking for residents, employees and visitors provided in surface parking lots adjacent to the building.

The assisted living facility will provide a special combination of housing, support services, personal assistance and health care to those who need help with daily living activities (dressing, bathing, taking medications, etc.) – typically the frail elderly with an average age of approximately 80 – but do not need the skilled medical care provided in a nursing home. On-site support services will be available 24 hours per day in an environment which promotes maximum independence and dignity for each resident.

Single-Family Homes - A maximum of 75 luxury single-family homes, on lots ranging from approximately 20,000-50,000 square feet, are proposed in the eastern portion of the property. Each residence will have a total floor area

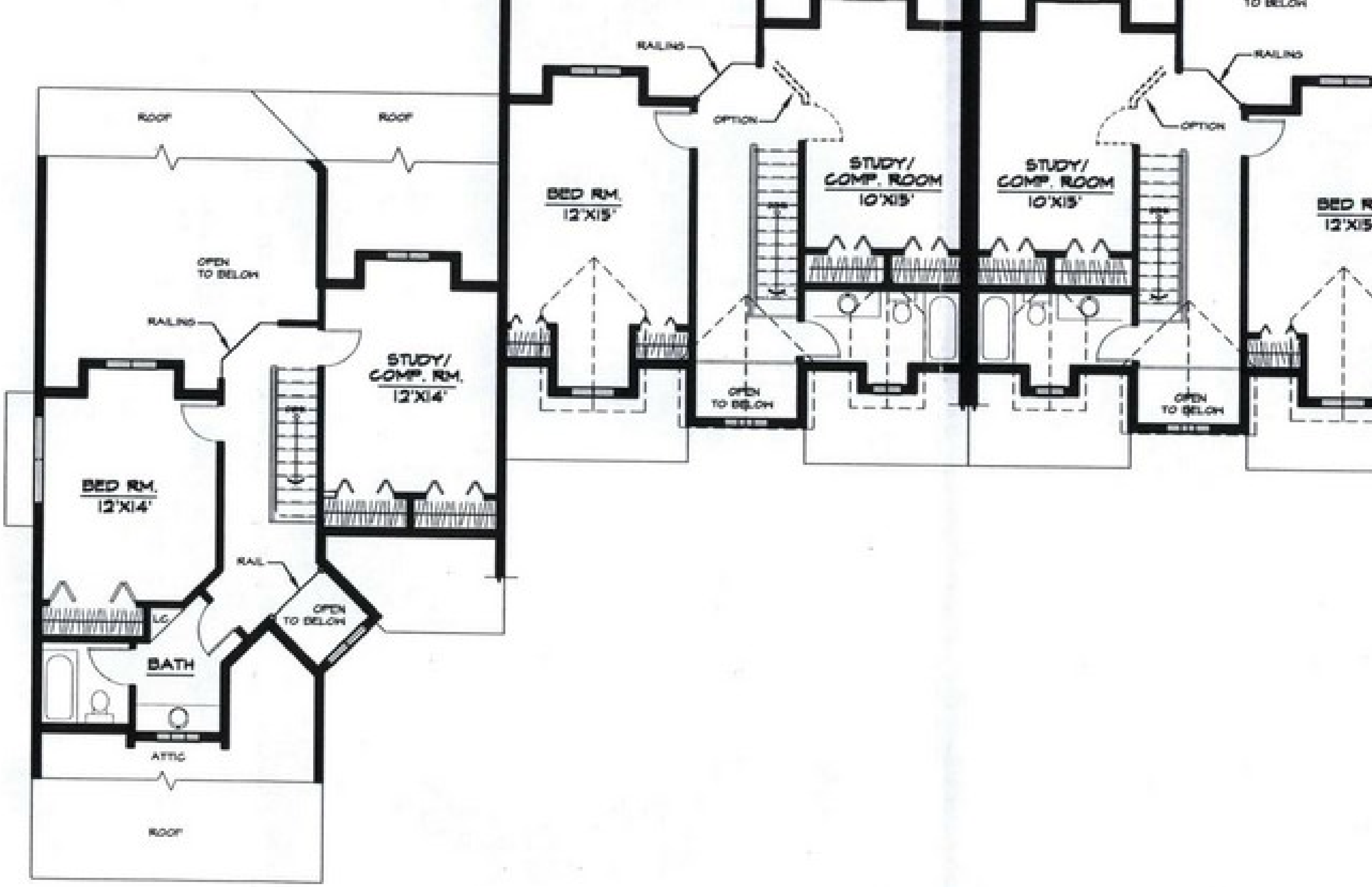
SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999



Scale: 3/32" = 1'-0"

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999

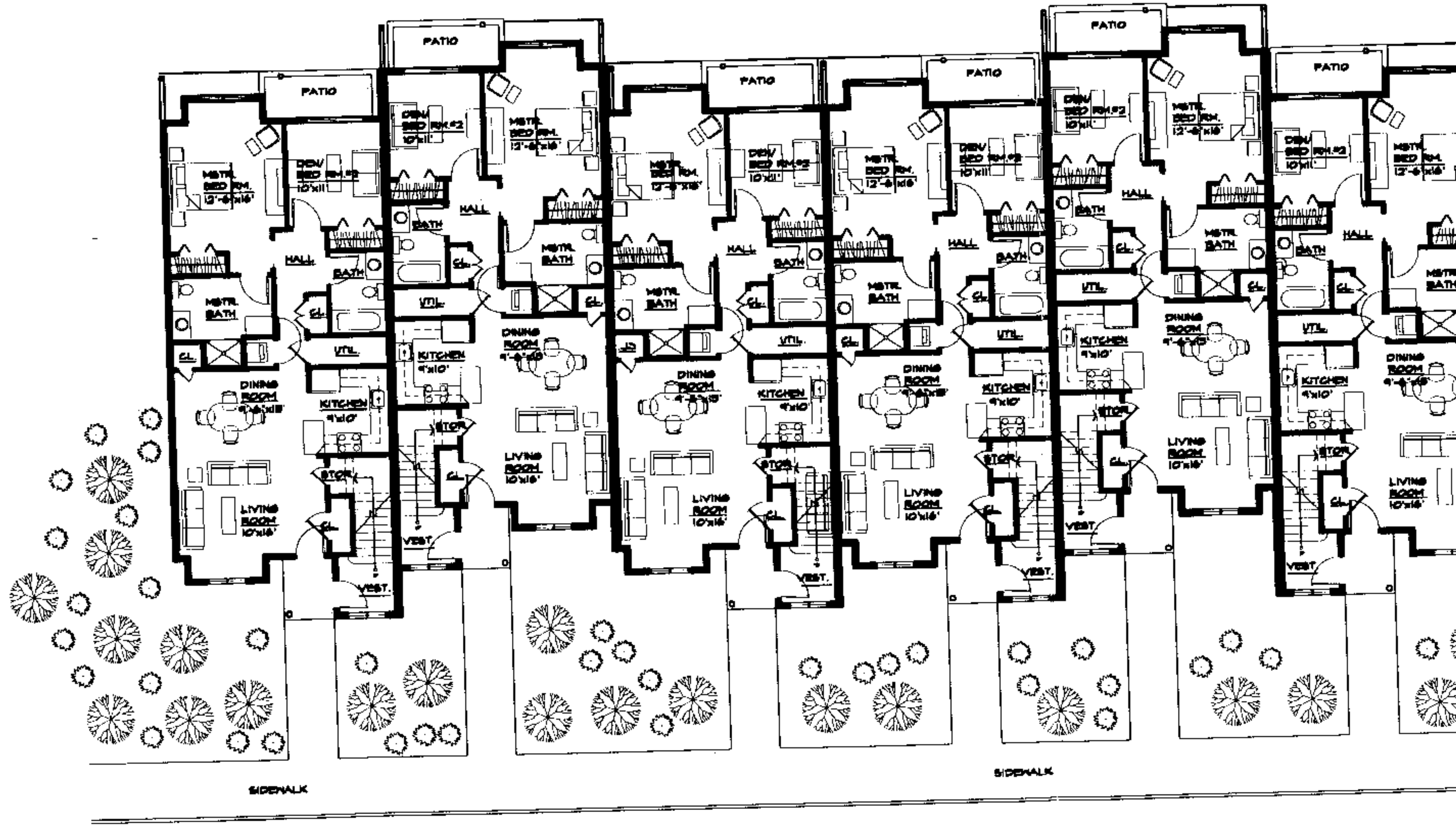


Scale: 3/32" = 1'-0"

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999

SOURCE: Eliasz Giacalone Architects, P.C.
DATE: December 1, 1999



Scale: 1/16" = 1'-0"

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999

of 3,500-4,000 square feet and will include four bedrooms and a two-car garage. A small clubhouse and pool will exclusively serve residents of the subdivision. However, subdivision residents will also be able to use the golf course and larger community center/clubhouse facilities located in the center of The Greens at Half Hollow development.

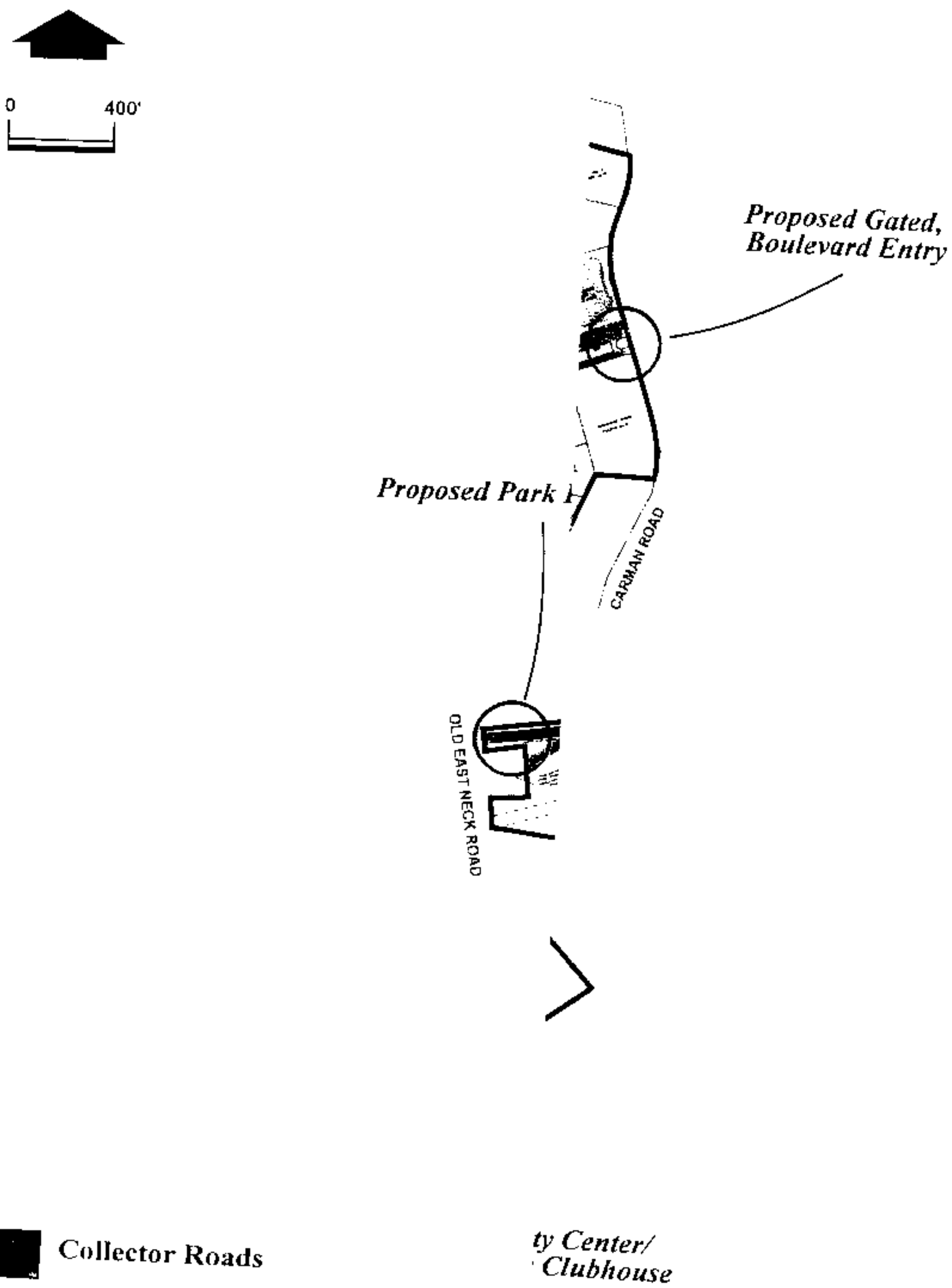
Access to the subdivision will be from a gated boulevard at Carman Road. Internal roads and cul-de-sacs will serve the individual lots. No lots will front on (or have driveways off of) Carman Road. The proposed subdivision is designed to complement the abutting single-family community to the east of Carman Road and the act as a transition to the higher density senior housing proposed to the west around the golf course.

The proposed single-family homes will not be age restricted. However, because the subdivision will be part of a predominantly age-restricted community with amenities geared toward seniors, it is anticipated that many of the homes will be purchased by empty-nesters. However, for purposes of the analyses in this DGEIS, it is assumed that the single-family housing would attract families similar to those in the existing single-family community to the east.

c. Site Access and Circulation

Site access has been designed to distribute traffic to various roads surrounding the property. The greatest opportunities for access exist on Old South Path where the site has frontage on both sides of the roadway. Two access points are proposed here, one of which is close to Half Hollow Road. Along Old East Neck Road and Carman Road, where frontage is limited, one access point is proposed to serve the development. Other access points to the former LIDC site included access to the SRU's from Old South Path and Carman Road and to the Sagamore Children's Psychiatric Center from Half Hollow Road. (See Exhibit 26, Proposed Circulation System).

Several collector roads will serve as the primary circulation routes throughout the development. Local roads, cul-de-sacs, and parking court drives will serve small groups of homes. A comprehensive system of walkways will encourage and facilitate pedestrian circulation to the golf course and community center and throughout the site. Walkways will be designed to accommodate walkers, joggers, bicycles and golf carts. Pedestrian crossings at roadways will be clearly marked and vehicles will be required to yield to pedestrians.



Collector Roads

Local Roads

Access Driveways

Pedestrian Trails

Site Access Points

Community Centers

Source: Site Planning and Design: Ehasz, Giacalone Archite
Site Engineering and Base Map: Barrett, Bonacci & Van We

Exhibit 26

PROPOSED CIRCULATION SYSTEM

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

The proposed road system will be privately owned and maintained by a homeowners association established for The Greens at Half Hollow development.

SRU communities, owned by New York State and not part of the project, will maintain a separate entrance on Carman Road located to the south of the proposed entrance to the project site.

d. Parks and Open Space

Following traditional open space cluster planning, the vast majority of units at The Greens at Half Hollow will have direct access to an interconnected series of open spaces including the golf course, landscaped parking courts and/or common greens. The open space, park-like setting of the development will be enhanced by tree-lined boulevards, vegetated buffers, attractively landscaped site entrances as well as the pedestrian walkways and site amenities (kiosks, benches, game tables, etc.) noted above.

A park-like entrance to the development is proposed at Old East Neck Road and the Applicant will offer approximately 31 acres in the southwestern portion of the site to the Town for dedication as parkland. All in all, more than 64 percent of the site, or approximately 247 acres, will be preserved as open space of various types as shown in Table 3 and Exhibit 27, Proposed Open Space System.

Table 3
Proposed Open Space

Type of Open Space	Acres	Percent of Total Site Area
Golf Course	86	22.5
Interconnected Open Space Areas/Community Parks	36.5	9.6
Lawns, Landscaped Buffers and Medians	93.5	24.5
Open Space to be Dedicated to the Town for Parkland	31	8.1
Total	**247**	**64.7**

Source: Site Planning and Design: Ehasz, Giacalone Architects, P.C.
Site Engineering and Base Map: Barrett, Bonacci & Van Weele, P.C.

e. Sewage Treatment Facility

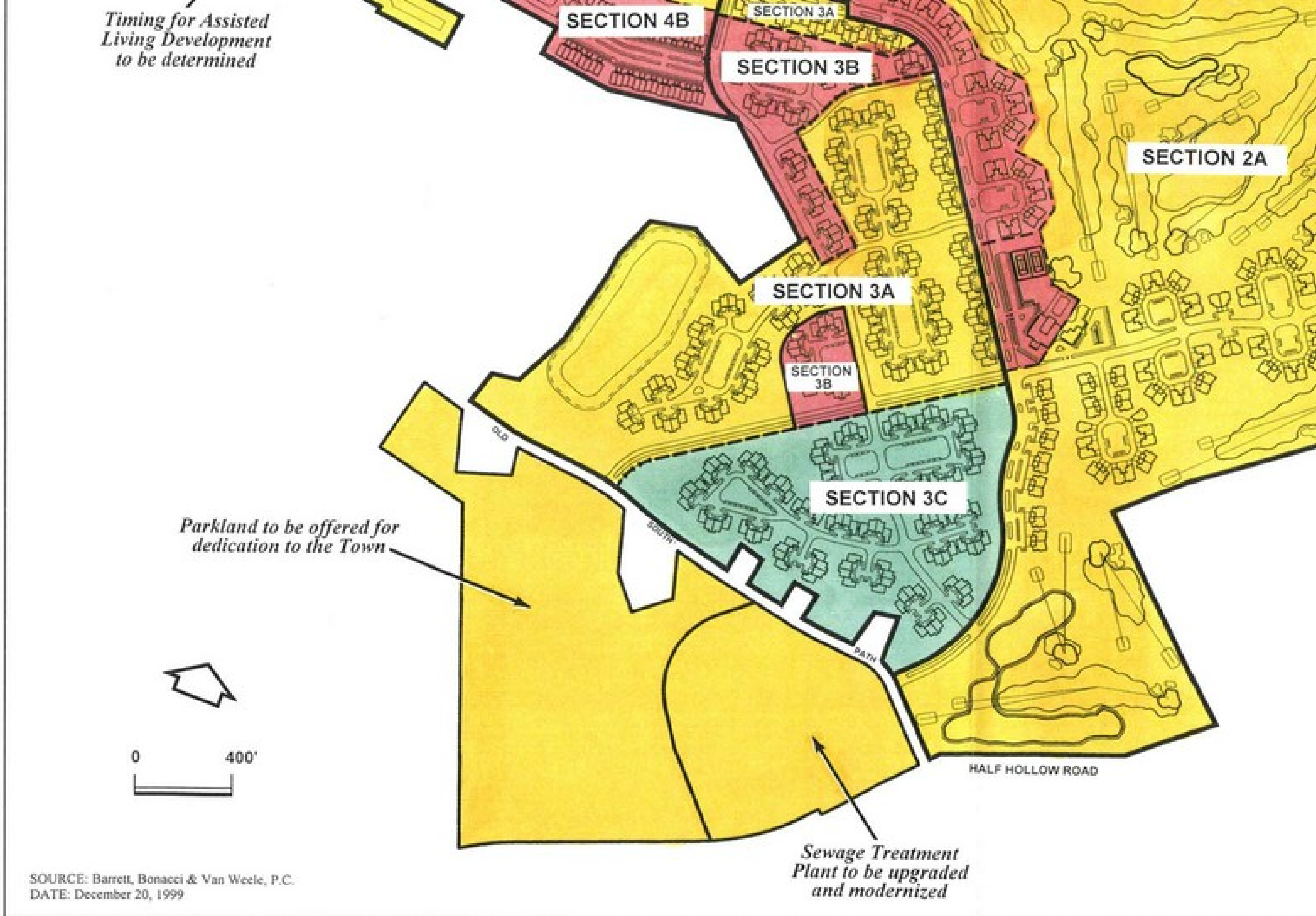
The existing sewage treatment facility in the southwestern portic
south of Old South Path will be upgraded, modernized and rec
a 15.5 acre parcel, just east of the 31-acre park to be dedicated
Upon completion of the work, the Applicant will dedicate
treatment facility to the Suffolk County Department of Public W
to ensure proper operation and maintenance of the facility.
treatment facility will be used to treat all wastewater generat
proposed development as well as from the SRU's and Sagamor
Psychiatric Center. Extensive landscaped buffers will screen
from proposed housing units, existing residences on Old South
proposed park. (See Section III.M and Appendix D of the I
detailed description of proposed improvements to the exist
treatment facility).

2. Construction Phasing

The Greens at Half Hollow will be constructed in three phases a
on Exhibit 28.

The first phase of construction (Phase 1) will consist of two stag
stage will include the construction of the single-family subd
townhouses and 228 condominium units. The second stage wil
construction of 172 golf course villas and the 18-hole executive
All collector roads and the necessary local roads, access drives,
to serve Phase 1 facilities will be constructed during both stage
phase. In addition, site entrances, collector roads, the golf co
Phase 1 residential areas will be landscaped. During the fi
construction, the existing sewage treatment plant will be up
modernized and the 31-acre parcel south of Old South Path wi
to the Town for dedication as parkland. More detailed Phase
shown in Exhibits 29 to 32.

The second phase of construction (Phase 2) will include
townhouse units, the remainder of the golf course villas and co
units and the community center. The local roads, access drive
connections to serve these facilities will be constructed as well.
will be landscaped and site amenities will be installed.



SOURCE: Barrett, Bonacci & Van Weele, P.C.
DATE: December 20, 1999

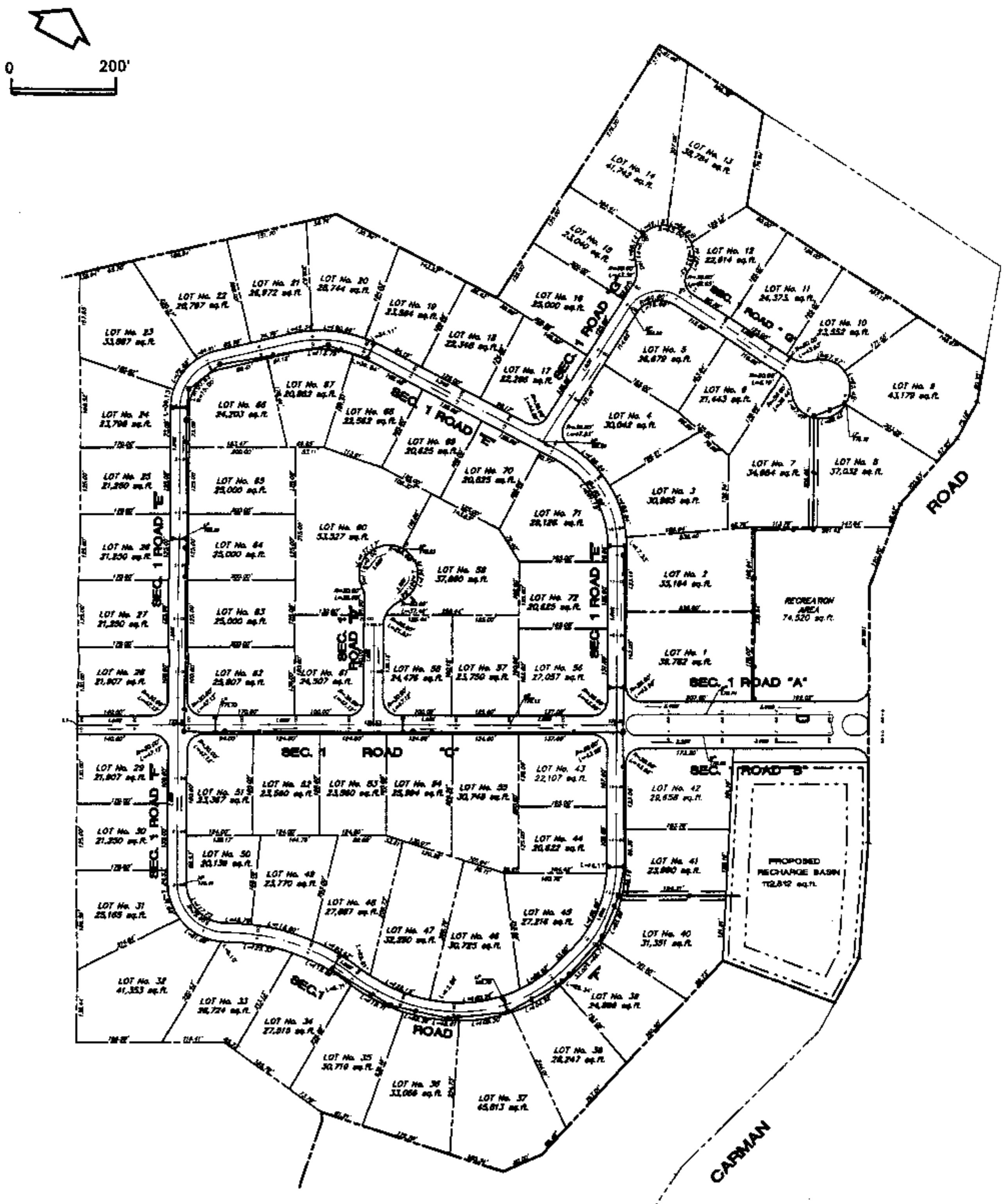


Exhibit 29

PHASE 1
SINGLE-FAMILY SUBDIVISION

The Greens at Half Hollow

Town of Huntington, New York

SOURCE: Barrett, Bonacci & Van Weele, P.C.
DATE: December 20, 1999

Saccardi & Schiff, Inc. - Planning & Development Consultants

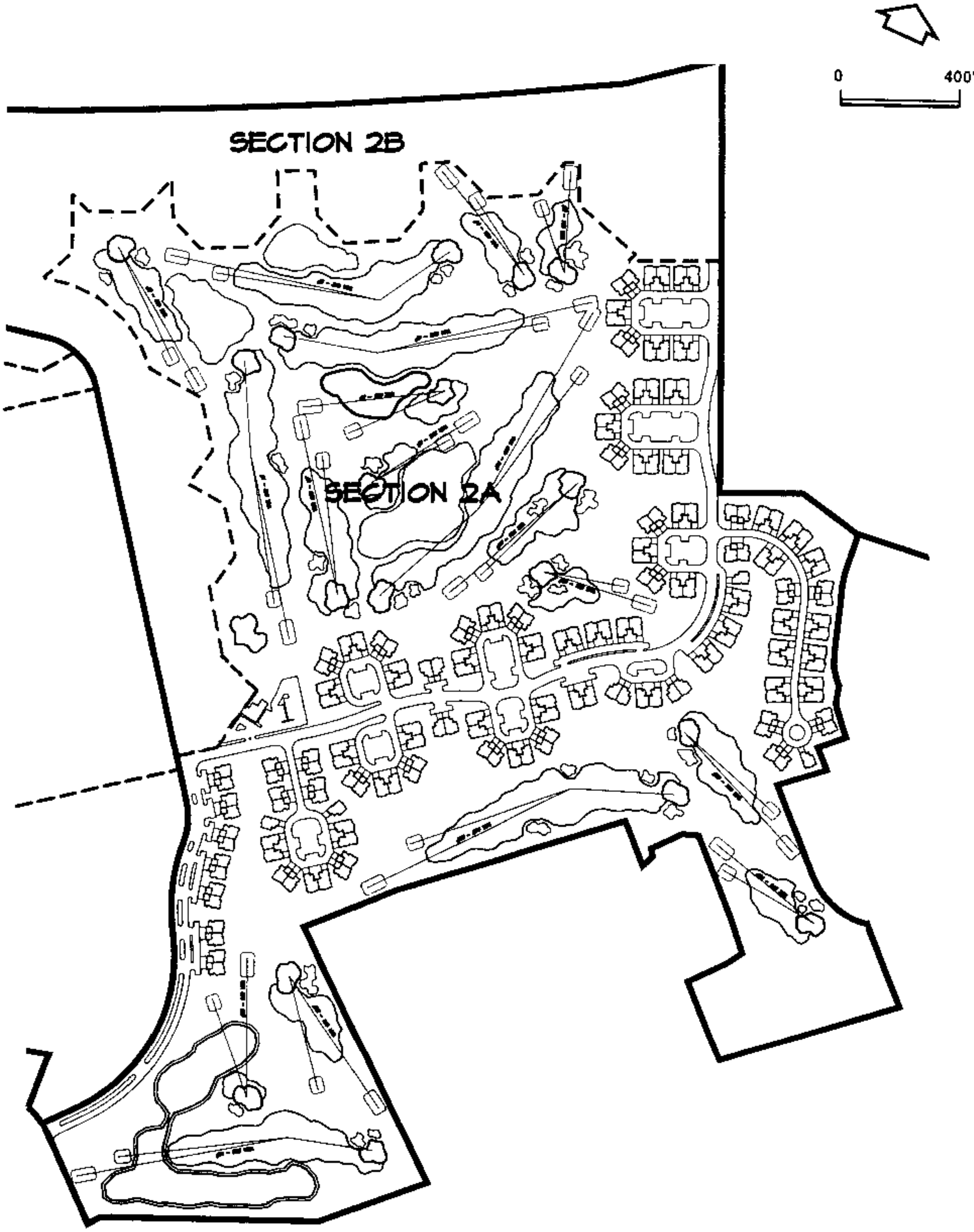


Exhibit 30

PHASE 1
GOLF COURSE VILLAS

The Greens at Half Hollow

Town of Huntington, New York

SOURCE: Barrett, Bonacci & Van Weele, P.C.
DATE: December 20, 1999

Saccardi & Schiff, Inc. - Planning & Development Consultants

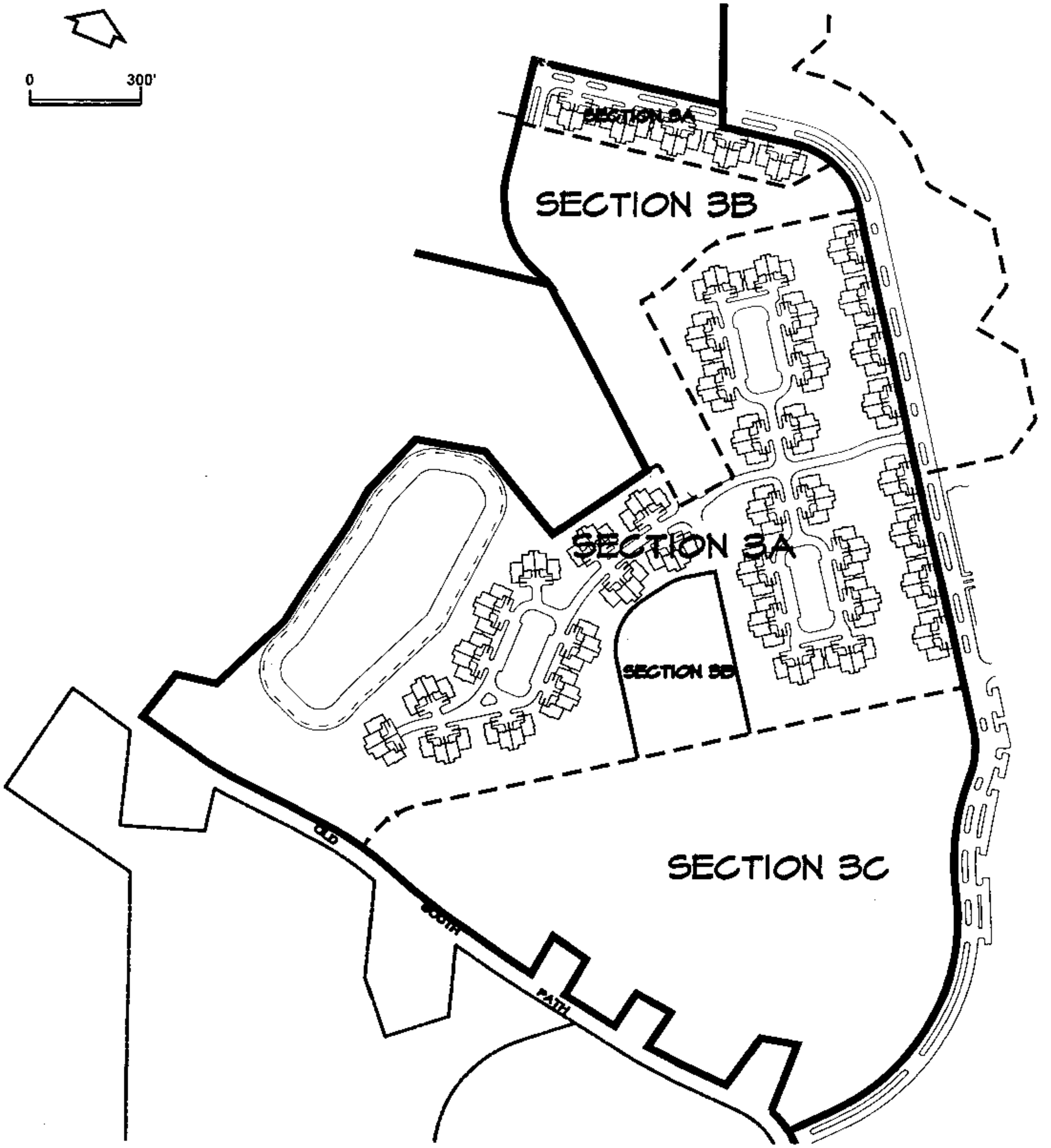


Exhibit 31

PHASE 1
TOWNHOUSES

The Greens at Half Hollow

Town of Huntington, New York

SOURCE: Barrett, Bonacci & Van Weele, P.C
DATE: December 20, 1999

Saccardi & Schiff, Inc. - Planning & Development Consultants

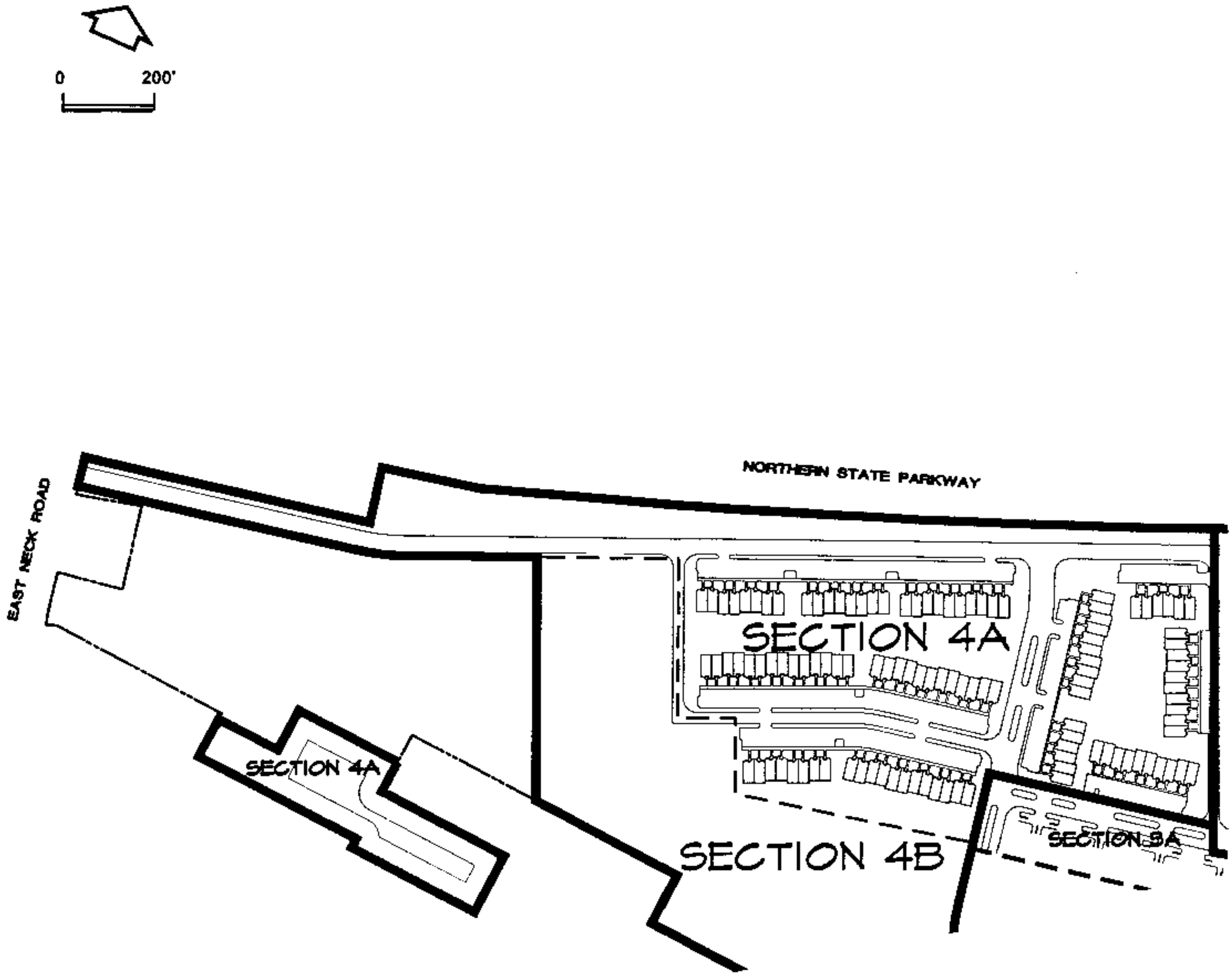


Exhibit 32

PHASE 1
CONDOMINIUM UNITS

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

SOURCE: Barrett, Bonacci & Van Weele, P.C.
DATE: December 20, 1999

During the third phase of construction (Phase 3) the remainder of the townhouses will be constructed along with the local roads, access drives, utility connections, landscaping and site amenities to serve these units.

The proposed assisted living facility may be constructed during any of the three construction phases or at a later date.

3. Proposed PUD Zoning

Approval of The Greens at Half Hollow Master Plan by the Town Board of the Town of Huntington would occur concurrently with the re-zoning of the site from R-80 Residence to a Planned Unit Development (PUD). (See Section III.B., Zoning, of the DGEIS for a detailed description of the proposed zoning.) The PUD and the proposed Master Plan provide the overall framework for The Greens at Half Hollow community. The PUD statute defines permitted uses, lot and bulk controls, parking and design requirements for the entire development and for three sub-areas encompassing: (1) the single-family residential subdivision; (2) the age-restricted housing (villas, townhouses, condominiums) and; (3) the assisted living development. A fourth area includes the proposed 31-acre park and the 15.5-acre sewage treatment facility south of Old South Path.

Detailed building designs, site plans and subdivision plans would follow the requirements of PUD regulations and the principles set forth in the Master Plan. The detailed site plans and subdivision plans would be reviewed and approved by the Planning Board of the Town of Huntington in accordance with procedures established for all developments.

Although the maximum total dwelling units (1,375), which includes a maximum number of single-family detached homes (75) and assisted living units (150), are fixed in the proposed PUD zoning, the mix of permitted housing types for age-restricted homes may vary as the project is developed, responding to market conditions that emerge during build-out. For example, the 350 condominium units in the western sector could be decreased to 300 or increased to 400 units; however, a corresponding increase or decrease in other senior units would be required to make certain that the overall maximum of 1,375 units is not exceeded. Any such change would require site plan approval from the Town Planning Board.

C. Definition of Study Area

Discussion in the DGEIS regarding existing conditions, potential impacts of the proposed action, and proposed mitigation measures relating to land use, zoning, community facilities, and traffic and transportation incorporate an area encompassed within an approximately one-half mile radius of the site.

D. New, Proposed and Potential Developments in the Study Area

Currently, there are six other new, proposed or potential development/redevelopment projects in the study area which have been identified by the Town of Huntington Planning Department and are considered in the DGEIS, where appropriate, with regard to the potential cumulative impacts of these projects and the proposed action. All six of the projects relate to office or residential uses. In addition, the Town is reviewing an application for site plan approval for several dormitory buildings at Five Towns College located on Burrs Road, south of Half Hollow Road. Given the nature of this use, it would not have any significant cumulative impact on The Greens at Half Hollow development. As shown in Table 4, a 210,000 square foot expansion of existing corporate office space is proposed while a total of 225,000 square feet of existing office space has been vacated. In addition, a 310 bed nursing home has been constructed but is not yet fully occupied, a 201 bed congregate care facility is proposed, and 248 single-family homes and 269 condominiums are currently under construction.

Table 4
Other New, Proposed and Potential Developments in the Study Area

Project Name	Location	Size
Maxess Corporate Center (expansion)	Maxess Road south of Corporate Center Drive	210,000 sf office
Melville Law Center (proposed)	Old Country Road west of New York Avenue	16,000 sf office
Pinelawn Nursing Home (not fully occupied)	L.I.E. South Service Road east of Pinelawn Road	320 beds
Congregate Care Facility (proposed)	Pinelawn Road south of L.I.E. South Service Road	201 beds
Long Island Savings (vacancy)	Old Country Road east of Route 110	209,000 sf office
The Villages at Huntington (under construction)	Old Country Road west of New York Avenue	248 single-family homes 269 condominiums

Source: Town of Huntington Planning Department

E. Owner/Applicant Information

The Applicant, SBJ Associates, L.L.C., is a New York limited liability company located at 337 Oak Street, Suite 401, Garden City, New York 11530.

F. Project Purpose, Needs and Benefits

The overall purpose of The Greens at Half Hollow development is to implement the recommendations of the LIDC Task Force, as expressed in the 1995 **Preliminary Master Plan for the Long Island Developmental Center**. The proposed plan calls for a retirement community that will meet the needs of senior citizens in the Town and in the market area that was defined in the LIDC master plan.

Growth in the Senior Population

Not only are Americans living longer, but the baby-boom generation is becoming older and is now entering the senior citizen market. Within the next 20 years, nearly one in every five Americans will be 65 or older. Those 54 million residents will increase to 70 million in the year 2030, more than double the 31 million reported for 1990. See Table 5 below.

Table 5
Growth of the Population Age 65 and Older: 1990 to 2030

Year	65 to 74 Years		75 to 79 Years		80 to 84 Years		85 Years and Over	
	Number[1]	Percent	Number[1]	Percent	Number[1]	Percent	Number[1]	Percent
1990	18,045	7.3%	6,103	2.5%	3,909	1.6%	3,021	1/2%
2000	18,243	6.8	7,282	2.7	4,735	1.8	4,622	1.7
2010	21,039	7.4	6,913	2.4	5,295	1.9	6,115	2.2
2020	30,973	10.5	8,981	3.1	5,462	1.9	6,651	2.3
2030	35,988	12.0	13,023	4.3	8,464	2.8	8,129	2.7

[1]Numbers in millions.
Source: Projections of the Population of the United States by Age, Sex, and Race: 1988 to 2080, Current Population Reports, U.S. Government Printing Office, 1989.

Consistent with nationwide trends, New York State's older population has grown faster than the population as a whole. From 1980 to 1990, the Census indicates that the total population of the State grew by 2.5%; however, the population 60 years of age and older grew by 6.3%. Persons 65 years of age and older grew by 9.4%; persons 75 or older grew by 16.9%; persons 85 or older grew by 28.6%. A disproportionate number of seniors are females and are living alone.

On Long Island and in Suffolk County, the growth of the senior population is similar, with dramatic increases in total numbers realized from 1980 to the present. Recent studies also show significant growth in the 55-64 age cohort, clearly indicating future growth of the "young" senior population.

Local Factors

In the market study prepared for the LIDC Task Force in 1995 by Arthur Andersen, LLP, the senior citizen population in the then-defined market area of eastern Nassau and western Suffolk Counties was projected to total approximately 250,000 persons in 1999, nearly half of whom were in the 55 to 64 age cohort. The 1999 median household income for the 55 to 64 year old group in the market area was projected to be $69,011. As the baby-boomer generation reaches the 55-64 year cohort, further increases in the total senior population will occur. This demographic bulge in the senior population will then continue through the older senior cohorts through the year 2030.

Table 6
Estimated 1994 and Projected 1999 Population and Median Household Income by Age Cohort Primary Market Area for the Project Site

	Population			Median Household Income		
Age Cohort	1994 Estimate	1999 Projected	1994-1999 Change	1994 Estimate	1999 Projected	1994-1999 Change
55-64	114,422	121,847	7,425	$65,040	$69,011	$3,971
65-74	75,370	72,829	(2,541)	$40,277	$43,430	$3,153
75+	48,234	55,011	6,777	$23,950	$26,339	$2,389

Source: Arthur Andersen, LLP, 1995 LIDC Master Plan

The DEIS previously accepted by the Town Board for the Knolls at Melville development, as well as the data found in the 1990 U.S. Census and factors described in the Town of Huntington Comprehensive Plan all support the need for senior housing in Huntington. Senior citizens are a growing segment of the Town of Huntington population; their share of the population is projected to increase steadily between 1990 and 2220. In 1980, the 65 and over population numbered 15,808 persons or 7.8% of the total population. By the year 2000, there will be approximately 31,000 residents aged 65+, 15% of the Town's total population. In the following two decades, these numbers can be expected to increase dramatically, as the 40-64 year olds -- including the baby boomers -- representing more than 32% of the total town population in 1990, move into the 65 and over group.

Housing supply factors also contribute to the need for senior citizen housing which is affordable, convenient and designed for independent living. The 1990 Census confirms that 86.8%, or 56,282 units, of the Town's available housing are in single-family detached dwellings 52,908, or more than 80% of these single-family dwellings contain at least three bedrooms. The median sales price of a single- family detached dwelling in the Town of Huntington as of May, 1994 was $200,000. In 1999, the median sales price is $280,000. (Source: The New York Times, 1999)

In the immediate vicinity of the subject site, the Census reports nearly 6,000 seniors in the South Huntington/Melville area, 2,985 of whom are in the 55-64 age cohort and 2,500 seniors in Dix Hills/Half Hollow Hills, 1,496 of whom are in the 55-64 age cohort. (Source: Claritas.)

These data demonstrate the strong demand that currently exists in the market area for housing options for relatively young seniors. The Knolls at Melville development, for example, which provides cooperative style apartments, has a waiting list of 450 persons. The profile of seniors at this 228-unit development is typically female (52%), age 65-70. Most of the residents of Knolls at Melville moved from single-family homes. Units were purchased, for the most part, from the proceeds from the prior residence without bank financing.

The Huntington Comprehensive Plan and Principals of Smart Growth

The Greens at Half Hollow will address a number of local planning objectives, including several expressed in the Town's 1993 update to the Comprehensive Plan, and its recently adopted Smart Growth resolution. The Comprehensive Plan supports the development of increased housing density where a public benefit is derived, such as the provision of senior housing that is affordable to a wide variety of households and individuals. The proposed development offers a spectrum of housing types and choices in the proposed retirement community, including 400 condominium units that will be affordable for many seniors who sell their modest houses and move into these units. Prices for these units, estimated at $175,000 in 1999 dollars, will be well below the net proceeds realized from the sale of single-family homes, enabling the senior to purchase the unit without financing costs.

Smart Growth

In addition to these socio-economic factors, the reuse of the former LIDC property will remove potentially blighting vacant buildings and provide a residential use compatible with surrounding neighborhoods. The design of the proposed development complies with a number of the recommendations identified by the Town Board of the Town of Huntington in its October 5, 1999 resolution accepting the "Principals of Smart Growth and Livability," set forth by the Huntington Smart Growth Steering Committee. Among these are:

- Permanent protection of more than 50 percent of the site as open space.
- Provision of an extensive pedestrian circulation system that results in a reduction of automotive dependency and potential traffic congestion.
- Enhancement of the character of the surrounding community, replacing former institutional buildings and uses with a mix of housing types, community facilities and open spaces in a master planned community.

- Provision of significant tax revenues to all taxing jurisdictions, including the local school district.

- Provision of on-site community facilities, addressing various needs.

- Creation of a safe and secure community for senior citizens, empty nesters and active adults, with a variety of housing choices and prices provided, consistent with the objectives of the local community and the overall economics of the proposed development.

Additional information in compliance with these and other plans included in Section III.A of this DGEIS.

G. Summary of Required Permits and Approvals

The project will require review and approval by the following agencies:

1. Town of Huntington Town Board
   - Amendment of the Town Code creating the PUD District by Local Law
   - Zoning map change from R-80 to PUD
   - Amendment to Comprehensive Plan to provide consistency with 1993 Town of Huntington Comprehensive Plan Update

2. Town of Huntington Town Planning Board
   - Recommendation to Town Board on zoning text and map changes
   - Site plan approval
   - Subdivision approval

3. Town of Huntington Engineering Department
   - Highway Work Permits

4. Town of Huntington Department of Buildings
   - Building Permits

5. Suffolk County Planning Commission
   - General Municipal Law § 239M referral of zoning code amendment and site plan
   - General Municipal Law § 239N referral of subdivision

6. Suffolk County Department of Health Services
   - Permits for sewerage and water systems:
     - Article 4 - Water Supply System Design Review
     - Article 6 - Sanitary System Design Review

7. Suffolk County Sewer Agency
   - Creation of Sewer District

8. Dix Hills Water District
   - Water supply approval

9. Long Island Regional Planning Board
   - Consistency with Long Island Comprehensive Special Groundwater Protection Area Plan

10. Suffolk County Department of Public Works
    - Sewer district approvals

11. New York State Department of Transportation
    - Traffic mitigation measures affecting State Roads

12. New York State Department of Environmental Conservation
    - Stormwater Pollutant Discharge Elimination System (SPDES) Permit
    - DEC asbestos removal protocol

III. EXISTING ENVIRONMENTAL CONDITIONS, ANTICIPATED IMPACTS AND PROPOSED MITIGATION

A. Land Use

1. Existing Conditions

On-Site Land Uses

As indicated previously, the approximately 90 buildings on the project site were part of the former LIDC campus and are now vacant. Development is most dense in the northern portion of the site, between North and South roads, where 18 one-story group living quarters and treatment facilities (known as wheels and clusters), a five-story hospital building (the tallest and largest building on the site), one- and two-story administrative buildings, and maintenance and utility buildings (a fire station, power plant, maintenance building, and electrical substation) are located. (See Exhibit 4, Existing Conditions, in Section II of the DGEIS).

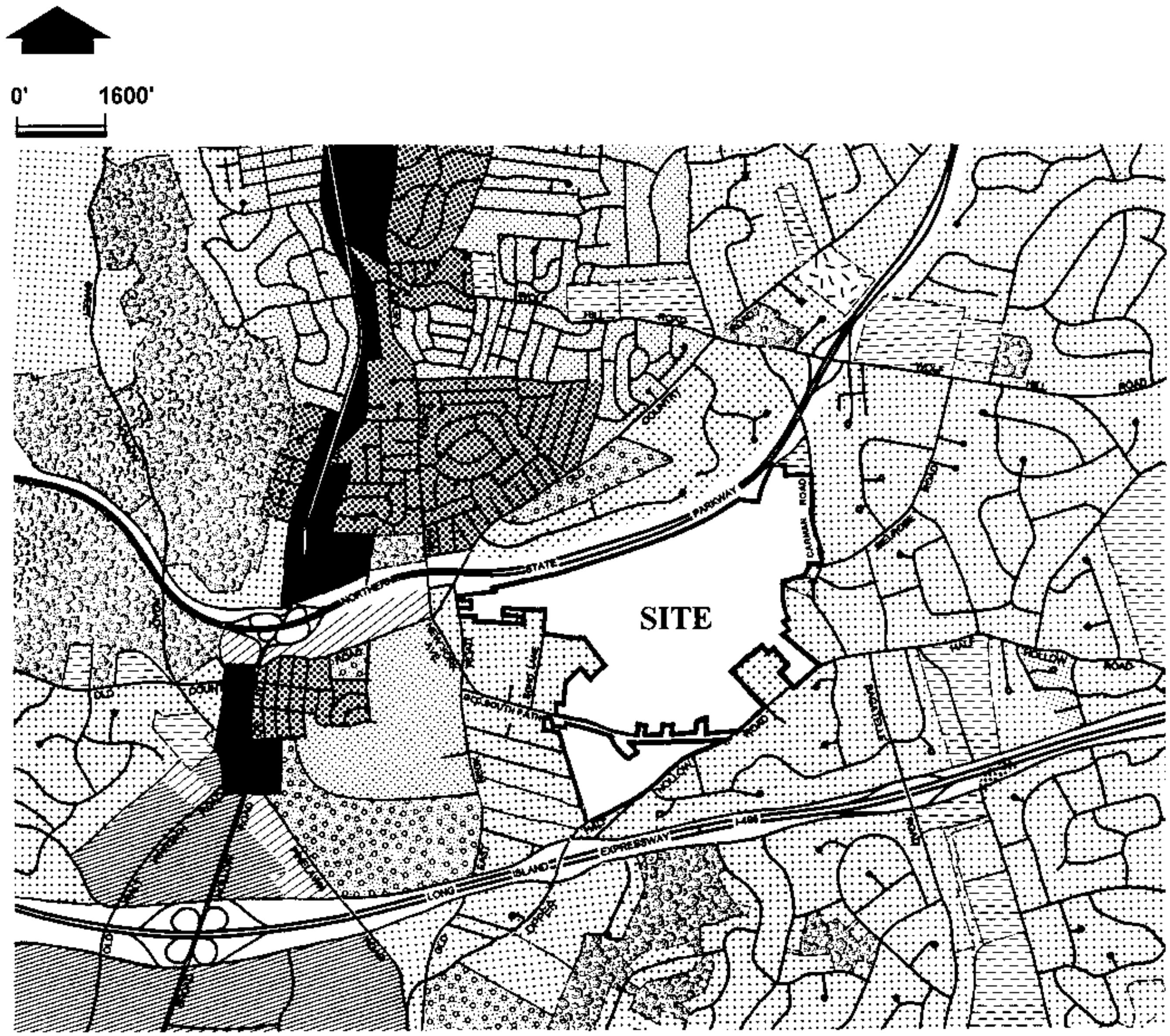
Sixteen single-story, group living quarter buildings (known as cottages) line the southern side of South Road and encircle a single-story school building. The school is surrounded by soccer fields and open lawn areas. Although the existing on-site buildings have been abandoned, the soccer fields continue to be used by local soccer leagues.

A sewage treatment plant (STP) is located on the 46.5-acre portion of the site south of Old South Path.

Surrounding Land Uses

Exhibit 33, Generalized Existing Land Use, illustrates land uses located within an approximately one-half mile radius of the project site. Land uses immediately adjacent to the site include the Northern State Parkway to the north; Carman Road, single-family homes, and SRUs to the east; Half Hollow Road and the Sagamore Children's Psychiatric Center to the south; and single-family homes, SRU's, Echo Lane, and Old East Neck Road to the west. Five single-family residential out-parcels are located along Old South Path Road.

The predominant land use in the vicinity of the site is residential. Single-family homes on approximately one-acre lots are generally located in the neighborhoods east and southeast of the site. Medium- and high-density



Low Density Residential

Medium Density Residential

High Density Residential

Parks

Agricultural

Cemetery

General Business

Office

Light Industrial

Public/Quasi-Public

Exhibit 33

GENERALIZED EXISTING LAND USE

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

residential areas are located north and northwest of the site. Generally, Old Country Road and Old East Neck Road delineate these areas.

An older residential community lies immediately to the west of the site and is generally characterized by agricultural properties and modest single-family homes constructed since the 1920's. Over the past years, however, this area has been undergoing a slow transition as farms and underutilized properties are developed as residential subdivisions. Currently, two new residential subdivisions are under construction on former agricultural land in this area: (1) The Villages at Huntington consisting of 248 single-family homes and 269 condominiums off of Old Country Road just west of Old East Neck Road and (2) The Estates at Half Hollow consisting of 20 single-family homes off of Half Hollow Road just west of the site.

Although primarily single-family residential in character, the site's surroundings reflect the area's agricultural history. Commercial nurseries, stables and farmland are located at Half Hollow Road and near the Long Island Expressway; on Bagatelle Road south of the Long Island Expressway; on Old Country Road between Pinelawn and Old East Neck Roads; and on Old Country Road east of New York Avenue.

A major commercial corridor, Route 110, is located less than one mile to the west of the site. Several regional shopping centers along Route 110 north of the Northern State Parkway serve the Town and surrounding communities. Campus office, hotel and other commercial uses, including a number of auto-related, service and food businesses, are located along Route 110 south of the Northern State Parkway. The Route 110 area functions as one of the largest employment centers on Long Island. Office uses, including the presently vacant Long Island Savings Bank corporate headquarters and a Citibank processing facility, are also located along Old Country Road just west of the site.

The closest supermarket/convenience retail center to the project site is located on Route 110, north of the Northern State Parkway, approximately one-mile from the northwest entrance to the site.

2. Anticipated Impacts

On-Site Land Uses

The majority of the existing buildings on site will be demolished for construction of the proposed Greens at Half Hollow master planned golf course community. The proposed development predominantly consists of residential uses including single-family detached homes, age-restricted housing (golf course villas, townhouses and condominiums) and assisted living facilities, and open space (an 18-hole executive golf course, an interconnected system of common greens parks, and lawns, and 31 acres of parkland to be offered for dedication to the Town). Community facilities (two community buildings, a golf course clubhouse, two swimming pools and two tennis courts) and utility facilities (sewage treatment plant and three recharge areas) are also proposed. (See Exhibit 5, Proposed Land Use, in Section II of the DGEIS).

The proposed land use types (residential, open space, community facilities, and utilities) all previously existed on site, but within the context of the LIDC's institutional setting. Currently, however, existing buildings are vacant and the only significant active on-site use is recreational with local soccer leagues using some of the soccer fields which surround the abandoned school building. Although these soccer fields will be eliminated in the proposed plan, approximately 31 acres in the southwest portion of the site south of Old South Path, will be offered for dedication to the Town for parkland to accommodate new soccer fields.

Surrounding Land Uses

The proposed residential uses are consistent with the existing residential uses surrounding the property. Although the overall density of the proposed development will be higher than that of adjacent single-family detached residential communities (3.6 units per acre compared to 1-3 units per acre, respectively), the total on-site population (approximately 2,885 residents) will not exceed that of the former LIDC development during its peak period of operation (approximately 3,054 residents and staff at the largest shift). See also Section III.H, Population and Housing.

The existing sewage treatment facility will be upgraded and modernized and will serve the proposed development as well as the Sagamore Children's Psychiatric Hospital and SRUs.

Consistency with Land Use Plans

There are a number of local plans that contain land use recommendations for the former LIDC site. These include the 1993 Town of Huntington Comprehensive Plan Update, the 1992 Long Island Comprehensive Special Groundwater Protection Area Plan and the Melville Route 110 DGEIS Preferred Plan, among others. For the most part, these plans call for single family development on the site. As part of the preparation of the 1995 **Preliminary Master Plan for the Long Island Developmental Center**, the LIDC Task Force addressed this issue and recommended two 1,500 unit, predominately senior housing development plans (C-1 and B-1) recognizing the need for senior housing and the unique opportunity available at this site to create a planned residential community, in lieu of the State's earlier efforts to develop incompatible office uses on the property. In developing the Master Plan, the Task Force called for:

- maintenance of approximately the same extent of development on the site as that which existed when the LIDC facility was at full operation in the 1980's as expressed by patient load plus daytime employees and the approximate amount of impervious surfaces on the site, including buildings, roads, parking lots, etc.

- upgrade the sewage treatment plant to provide tertiary treatment and recharge of surface runoff.

A consistency analysis between the recommendations in relevant land use plans and The Greens at Half Hollow plan follows:

Table 7
Summary of the Proposed Action's Consistency With Relevant Planning Documents

1. The Long Island Comprehensive Special Groundwater Protection Area Plan (1992)	
Relevant Proposal	**Consistency Response**
The proposed land use map for the site shows Institutional use. The SPGA Plan recommend that state refrain from selling land or increasing residential density or intensity of uses at the LIDC site. (p. 3-39, 3-40)	The State sold the bulk of the site for residential use, consistent with the LIDC Task Force recommendations. (Portions of the site (i.e., Sagamore Children's Psychiatric Hospital and Small Residential Units (SRU's) still remain as institutional uses.) The proposed intensity of development, in terms of population and coverage, is approximately the same as what existed at the LIDC site at its peak usage. This measure of the maximum level of future development was specifically proposed in the 1995 Master Plan, as approved by LIDC Task Force.
The Town should use cluster techniques to preserve the maximum amount of open space. (p. 3-39)	Clustering is utilized in the proposed Greens at Half Hollow plan; the result is that approximately 60% of the site will remain as open space.
The State should upgrade the existing STP to provide tertiary treatment. (p. 3-39)	Tertiary treatment will be provided within the upgraded and redesigned STP.
Best Management Practices (BMP) should follow an integrated turf management program as discussed in the SGPA plan's Appendix G, "Golf Course Management and Nitrates in Groundwater", written by Dr. Martin Petrovic from Cornell University. (p. 2-6, 2-14)	Dr. Petrovic is a consultant to the Applicant. He will prepare the ITMP for The Greens at Half Hollow.
Although the SGPA plan discusses 5-acre zoning, single-family densities of 0.75 to 2 d.u.'s per acre are proposed. However the plan states that where multifamily development is permitted, units should be clustered and sites selected to provide sewage collection and hookup to a treatment facility that maximizes SGPA protection. (p. 2-7)	The proposed development provides an updated STP facility designed to protect the SGPA.
Communities should preserve golf courses as part of the open-space watershed inventory and minimize groundwater impacts with a turf management program. (p. 2-6)	A golf course, with an ITMP, is proposed as a major component of the open space system at The Greens at Half Hollow.
An overall recommendation of the SGPA plan is that at least 47% of all property should to remain as open space. (p. 3-5)	The 47% factor is exceeded at The Greens at Half Hollow. The proposed development leaves approximately 60% of the site as open space, excluding lawn areas within the single-family area.

Table 7
(continued)

2. Melville - Route 110 GEIS (1988)	
Relevant Proposals	**Consistency Response**
Lands occupied by State facilities are identified as low density residential in the Preferred Plan of the Melville - Route 110 DGEIS. (p. 3-6)	The Greens at Half Hollow proposed calls for approximately 3.5 dwelling units per acre. This would correspond to a medium density category.
Development at the LIDC site should not place an extensive burden on the area's infrastructure. (p. 3-8)	Utility plans for the proposed development fully address site and area needs. No burden on the infrastructure will be realized.
Traffic volumes should not significantly affect intersection capacities. (p. 3-8)	Road improvement plans mitigate traffic volumes generated by the proposed retirement community.
Planned unit developments and cluster techniques could save large tracts of land in their natural state. (p. 5-12)	Clustering of housing is a basic component of the proposed PUD development for the subject site.
A specific development proposal for the LIDC site would have to be evaluated separately. (p. 3-8)	Analysis provided in this DGEIS.
3. Huntington Comprehensive Plan and DGEIS (1993)	
Relevant Proposals	**Consistency Response**
The proposed land use for the LIDC site is shown as lower density residential on DGEIS, figure 5-4.	Lower density is not defined, but it is assumed to include densities prescribed in the R-80, R-40, R-20 and R-15 zoning designations (i.e., 0.5 to 3 d.u/acre). The Greens at Half Hollow is proposed at approximately 3.5 d.u.'s per acre, which would be considered a medium density category.
The plan recommends increased density for senior housing where a public need is addressed, including the provision of open space, active recreation and affordable housing. 20% of the units in new housing developments should be affordable. (Plan p. 4-26). The plan recognizes the need for senior housing and related services. (Plan p. 1-8)	The proposed development leaves approximately 60% of the site as open space, including a golf course and a site to be offered for dedication for community soccer fields. 30% of the proposed units would be affordable given area housing prices and household incomes.
The Comprehensive Plan discusses the use of Planned Unit Developments (PUDs) and clustering as plan implementation tools particularly to create senior housing and affordable units. (Plan p. 4-20, 4-21, DGEIS p. 4-12, 13).	PUD and clustering are important components of the proposed development. The Comprehensive Plan may be amended by the Town to specifically cover the subject proposal, including the PUD technique.
The Comprehensive Plan recognizes the need to preserve open space on the former LIDC site as a benefit to the local community. (Plan p. 7-13)	The proposed plan leaves approximately 60% of the site as open space, including 31 acres for soccer fields for the community at large.

Table 7
(continued)

4. Existing R-80 Zoning (1991)	
Relevant Proposals	**Consistency Response**
Zoning calls for 2-acre lot development, which is based on a 1991 environmental assessment form that referred back to the SGPA plan.	The proposal calls for more development than permitted under existing zoning; however, the proposed development is a retirement community with an extensive open space system provided. The Zoning Ordinance does not include a Planned Unit Development (PUD) district. An amendment to the zoning text is specifically proposed for the subject site only.
5. The Master Plan for the Long Island Developmental Center (1995)	
Relevant Proposals	**Consistency Response**
The LIDC Master Plan approved two alternative development plans for the subject site, each with 1,500+ units of predominantly senior housing. Plan B-1 was based on a community center concept; Plan C-1 was based on a golf course. The Master Plan noted that selection of the alternative would be made by the developer that purchased the property from the State. The Master Plan was approved by the LIDC Task Force, which included a broad spectrum of representatives from State, County and Town government, and from local civic associations in the vicinity of the site.	The Applicant purchase the property from the State and is pursuing the C-1 plan, but with, 1,375 rather than 1,500 housing units proposed.

Table 7
(continued)

6. Smart Growth (1999)	
Relevant Proposals	**Consistency Response**
1. The Town of Huntington encourages comprehensive land use planning that is ongoing, community-based and consistent with the needs and objectives of the local community, adjacent communities, and the region as a whole.	The proposed plan is directly derived from the C-1 recommendation of the LIDC Task Force, which included representatives from State, County and Town government and local civic associations. The plan reflects the objectives of the local community and meets housing needs for seniors in the Town and in the market area that includes eastern Nassau and western Suffolk Counties.
2. The Town of Huntington encourages development that contains a mix of uses essential to the daily life of its residents, which includes housing, shopping, work places, schools, parks, and civic facilities ideally situated within easy walking distances of each other or otherwise within short travel distances.	As a retirement community, the proposed mixture of uses includes five different housing types and a variety of recreation facilities, including a golf course, two tennis courts, two community centers, indoor and outdoor pools, walking and jogging paths and extensive open space areas. The pedestrian path system links all areas of the retirement community together.
3. The Town of Huntington encourages land uses that link economic development decisions with environmental quality of life, and protect the property values of its residents.	Employment opportunities will be available at the golf course and community centers and at the proposed assisted living development. The golf course-oriented development has been designed to enhance property values in the surrounding community. A significant tax surplus will be derived from the proposed housing, benefitting all taxing jurisdictions and particularly the local school district. Fiscal benefits to the school district will enhance property values in the area.
4. The Town of Huntington encourages efficient development that is pedestrian-friendly, is attractive, reduces automobile dependency, provides transportation alternatives, and is focused around existing or newly designed transportation centers.	The Greens at Half Hollow has been designed as a traditional (Radburn-like) cluster development, with an extensive open space and pedestrian trail system linking the community together. The development plan includes traffic calming measures to slow vehicular traffic and utilizes a gated entry to preclude use of the road system as a through-road for east-west traffic from outside the development. In addition, a proposed jitney bus will augment the pedestrian of vehicular circulation systems.

Table 7
(continued)

Relevant Proposals	Consistency Response
5. The Town of Huntington encourages development that enhances existing communities, and which particularly targets downtown and neighborhood centers for expanded or new development. Development should be directed toward areas of existing infrastructure or where infrastructure can be upgraded or introduced to foster redevelopment, rather than toward areas of open spaces, and, when consistent with the community goals, include the recycling of existing structures.	The Greens at Half Hollow proposes an upgrading of existing water and sanitary sewage disposal systems and fosters the redevelopment of obsolete buildings.
6. The Town of Huntington encourages a sufficiency of housing to meet the needs of the residents of the Town, and which includes a natural diversity of housing types and facilities to enable citizens from a wide range of age groups, ethnic backgrounds, and economic levels to live within the neighborhood boundaries and interact.	The plan includes assisted living, condominiums, townhouses, golf course villas and single-family detached homes that will be attractive to a variety prospective residents, including seniors of various age groups. Housing prices will range from \$175,000 for condominiums to \$275,000 for townhouses and \$375,000 for golf course villas (in 1999 dollars). The prices of the single-family homes will respond to market conditions. The costs within the assisted living development, which will include services for older seniors, including meals, will likely be \$3,000 or more per month. The condominiums will be affordable for many households who sell existing single-family homes in the area, and utilize the proceeds for the purchase of the condominium unit.
7. The Town of Huntington encourages planning, decision-making, and development practices that emphasize extensive and broad-based community participation, dialogue, the use of visual models consensus-building and envisioning.	The Greens at Half Hollow has been designed in accordance with the guidelines for the C-1 plan as proposed in the 1995 Master Plan for the Long Island Development Center. That plan was devised through a community-based planning process where a Task Force that included local civic associations representatives worked closely with a professional planning team and Town, County and State officials. In addition, The Greens at Half Hollow plan has been the subject of three community meetings where additional local input was provided.

Table 7
(continued)

Relevant Proposals	Consistency Response
8. The practices of Smart Growth & Livability in Huntington should result in:	
• protection of open space and the environment	The plan results in the preservation of approximately 60% of the site as open space.
• strengthening of the local economy	The plan strengthens the local economy by providing significant tax revenues, with minimal service costs required.
• an improved sense of community	The Greens at Half Hollow, a retirement community designed in an open space setting, will replace a decommissioned State Developmental Center, whose vacant buildings and grounds have a blighting influence in the surrounding community.
• a decrease or stabilizing of traffic congestion	Proposed on-site and off-site road improvements mitigate traffic impacts.
• a reduction in auto dependency	The extensive pedestrian circulation system has been designed to reduce automobile dependance.
• preservation of historic structures	Not applicable. Extensive historic and archeological studies found no historic or prehistoric sites.
• enhancement of the community character and aesthetics	The open space system and golf course features of the proposed retirement community will enhance the surrounding community and will be a more aesthetic neighbor than the vacant institutional buildings that exist on the property today.
• efficient use of public money	The proposed development will not utilize public financing. To the contrary, the Applicant purchased the property for the State which was able to reduce State indebtedness and carrying costs.
• safe and secure communities	Safety and security are essential elements in a retirement community. The Greens at Half Hollow will have its own security force. The plan has been designed to foster safety for its residents, including traffic calming methods to reduce conflicts between pedestrian and vehicular circulation systems.
• an improvement in the overall quality of life.	The proposed development has been designed to provide a retirement community in an open space/golf course setting, providing its residents with a healthy and satisfying life style.

3. Proposed Mitigation

No mitigation is required.

B. Zoning

1. Existing Conditions

On-Site Zoning

The entire property is zoned R-80 Residence, a single-family zoning district that permits residences on two-acre (80,000 square feet) lots. In addition to single-family homes, the R-80 district permits: schools; places of religious worship; agricultural uses; libraries, museums and art galleries; and municipal uses, including parks and playgrounds, fire stations, water supply and distribution facilities and public parking lots. Permitted accessory uses in the R-80 zone include accessory apartments, home occupations, retail sale of agricultural products grown on the premises, customary household pets, the keeping or raising of horses, and other customary accessory uses such as garages and swimming pools.

In this area of Huntington, the R-80 zoning is limited to the former LIDC site including the project site, Sagamore Children's Psychiatric Hospital, and SRUs, and does not include any other areas in the immediate vicinity of the site.

Surrounding Zoning

As shown on Exhibit 34, Generalized Existing Zoning, properties in the immediate vicinity of the site are predominantly located within the R-40 Residence District which permits single-family residences on minimum one-half acre (40,000 square feet) lots. An area to the south of Old South Path Road and east of Old East Neck Road is zoned R-20, which permits single-family residences on minimum one-quarter acre (20,000 square feet) lots. Parcels which were originally part of the LIDC campus (the Sagamore Children's Psychiatric Center to the south and the SRU's to the east and west) are zoned R-80.

Higher density residential districts (R-15, R-10, R-7 and R-5) are located north of the Northern State Parkway and Old County Road, along the Route 110 corridor to the west, and east of the site south of Half Hollow Road.

All residential districts have the same permitted and accessory uses as the R-80 District. Lot and bulk controls for each of the residential districts in the vicinity of the site are listed in Table 8.

R-80 Residence/2 acres

R-40 Residence/1 acre

R-20 Residence/20,000 sq.

R-10 Residence/10,000 sq. ft.
R-7 Residence/7,500 sq. ft.
R-5 Residence/5,000 sq. ft.

C-1 Office Residence
C-2 Single Purpose Office Building
C-3 Special Business
C-4 Neighborhood Business
C-5 Planned Shopping Center
C-6 General Business
C-8 General Business "A"
C-11 Automotive Service Station

C-10 Planned Motel
I-1 Light Industry
I-2 Light Industry

Exhibit 34

GENERALIZED EXISTING ZONING

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

Table 8
Lot and Bulk Controls
Selected Residential Zoning Districts
Town of Huntington, NY

District	R-80	R-40	R-20	R-15	R-10	R-7	R-5
Maximum Building Height	2½ Stories 35 feet	2½ Stories 35 feet	2½ Stories 35 feet	2½ Stories 35 feet	2½ Stories 35 feet	2½ Stories 35 feet	2½ Stories 35 feet
Minimum Lot Size	80,000 s.f.	40,000 s.f.	20, 000 s.f.	15,000 s.f.	10,000 s.f.	7,500 s.f.	5,000 s.f. (3)
Minimum Lot Width	150 ft.	125 ft.	100 ft.	100 ft.	100 ft.	75 ft.	50 ft.
Minimum Frontage	40 ft.	40 ft.	40 ft.	40 ft.	40 ft.	40 ft.	40 ft.
Minimum Yards:							
Front	50 ft.	50 ft.	50 ft.	30 ft.	30 ft.	25 ft.	20 ft.
Rear	50 ft.	50 ft.	50 ft.	25 ft.	25 ft.	25 ft.	25 ft.
Side (One)	25 ft.	25 ft.	20 ft.	12 ft.	12 ft.	7 ft. (1)	5 ft. (2)

(1) Both sides must total 15 feet
(2) Both sides must total 13 feet
(3) 10,000 s.f. required for two-family residence
(4) Maximum two habitable floors
(5) Maximum density 14.5 dwelling units/acre
(6) 25-foot perimeter buffer also required

Commercial and light industrial districts (C-1 to C-6, C-8, C-10, C-11, I-1 and I-2) are located west of the site along the Route 110 Corridor. To the south of Pinelawn Road and to the north and south of the Long Island Expressway, office and industrial zoning patterns cover larger land areas than non-residential zones to the north, reflecting the large-scale office park developments in the area.

2. Anticipated Impacts

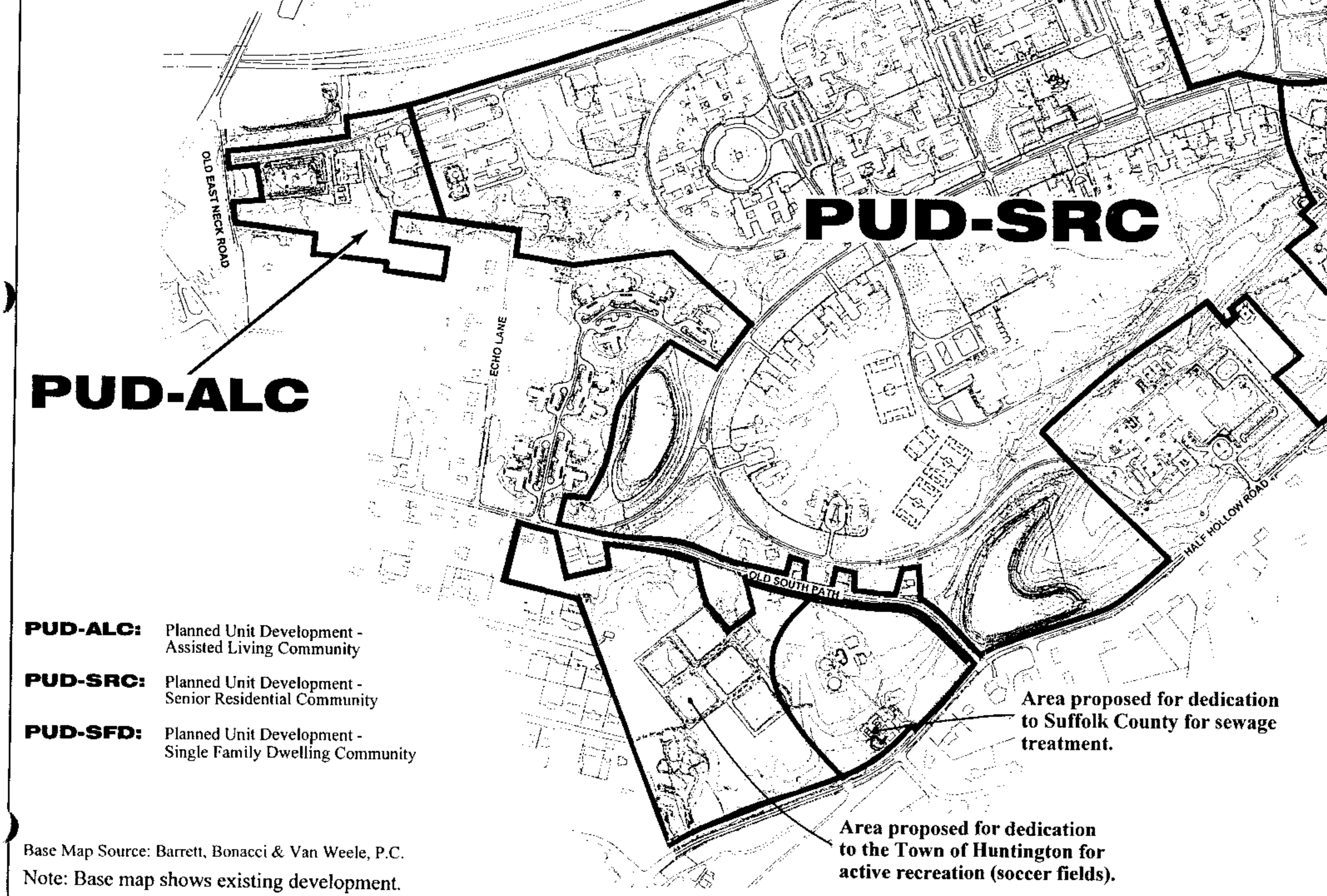
The proposed zoning for the site is a Planned Unit Development (PUD) district, with use, lot and bulk controls specifically designed to implement The Greens at Half Hollow Master Plan. Adoption of the proposed PUD zoning by the Town Board of the Town of Huntington would occur concurrently with the mapping of the zoning on the site and the adoption of the Master Plan. The proposed PUD zoning text and Master Plan are included in Appendix B of this DGEIS.

As shown on Exhibit 35, the proposed PUD zoning includes three separate subdistricts, each containing specific requirements for development in that area. In addition, the PUD text outlines procedural requirements and sets certain overall standards for The Greens at Half Hollow including the maximum number of dwelling units (1,375), the maximum number of single family homes in the subdivision to the west of Carman Road (75), the maximum building coverage over the entire site (25%) and the minimum acreage for major open space areas:

(1) golf course: 80 acres
(2) community park system: 30 acres
(3) active recreation area offered for dedication for soccer: 31 acres

The largest of these sub-districts is PUD-SRC, where 1,150 age restricted dwelling units are permitted, along with the golf course, golf course clubhouse and community center. To the east of this sub-area is the PUD-SFC which includes the 75-lot single-family residential subdivision. The west is the PUD-ALC, which includes the 150-bed assisted living facility.

The PUD approach for zoning the site has a number of advantages. By coupling the zoning with the master plan, the community knows the specific land development concept for the site and its various sub-sections, in a manner that is much more detailed than conventional zoning which does not



PUD-ALC: Planned Unit Development - Assisted Living Community

PUD-SRC: Planned Unit Development - Senior Residential Community

PUD-SFD: Planned Unit Development - Single Family Dwelling Community

Base Map Source: Barrett, Bonacci & Van Weele, P.C.

Note: Base map shows existing development.

require an overall master plan. PUD zoning also provides for flexibility in the actual development of a larger parcel. As individual site plans or subdivisions are developed for detailed review by the Town Planning Board, they are designed in accordance with the overall Master Plan. If certain changes need to be made in response to market conditions, the site plan or subdivision can be designed, subject to Town approval, to respond to these conditions. At The Greens at Half Hollow, this could involve the mix of housing types within a SRC sub-district, for example, where 400 condominiums, 350 townhouses and 400 golf course villas are currently envisioned. Adjustments of that mix to say, 350 condominiums and 400 townhouses would be permitted in the PUD, provided maximum and minimum standards set forth throughout the PUD regulations were still complied with.

3. Proposed Mitigation

The proposed PUD zoning applies to the project site only. It is designed to implement the plans for The Greens at Half Hollow, which is assessed in the DGEIS. No additional mitigation is necessary, beyond that proposed elsewhere in the DGEIS.

C. Visual Resources

1. Existing Conditions

Site Character

Although institutional in character, the Long Island Developmental Center was reasonably attractive and well maintained when it was in full operation. As the facility was decommissioned and buildings and uses were vacated, the character of the property has deteriorated significantly. Development on the project site is primarily characterized by low-scale institutional buildings clustered around common courtyards and set within wide open spaces. (See Photographs 1 and 2). Buildings are linked by a series of internal roads and sidewalks and are served by large surface parking lots. Benches, picnic tables and playground equipment (swing sets, basketball hoops, etc.) are situated within the common courtyards and lawn areas. Shade and flowering trees are set within the lawns and along the roads. More densely wooded areas and clusters of evergreen trees are located at the northern and southern perimeters of the property, generally screening views of on-site facilities from off-site locations.

Although located within a once attractive campus setting, the existing abandoned buildings, site furniture, playground equipment, and some paved surfaces on the property are in disrepair as a result of vandalism and neglect. Lawn and landscaped areas are overgrown. (See Photographs 3 and 4).

Vehicular access to the site is from three locations: (1) Old East Neck Road in the northwestern portion of the site, (2) Old South Path in the southwestern portion of the site, and (3) Carman Road in the eastern portion of the site. Entering the site from Old East Neck Road onto North Road, a large recharge basin, electric substation, power plant, fire station, and various other service buildings are visible along the southern side of the road. (See Photographs 5 and 6). As North Road progresses to the east, the single-story, brick, wheel and cluster buildings, and the five-story former hospital, the tallest and most visually prominent building on the site, become visible to the south as well. Heavy landscaping on the northern side of the road provides an effective and attractive visual buffer between North Road and the Northern State Parkway along the extent of the northern property line. In the eastern portion of the site North Road curves to the south and connects to South Road. (See Photographs 7 and 8).

1

The former LIDC campus is primarily characterized by low-scale institutional buildings set within wide open spaces.

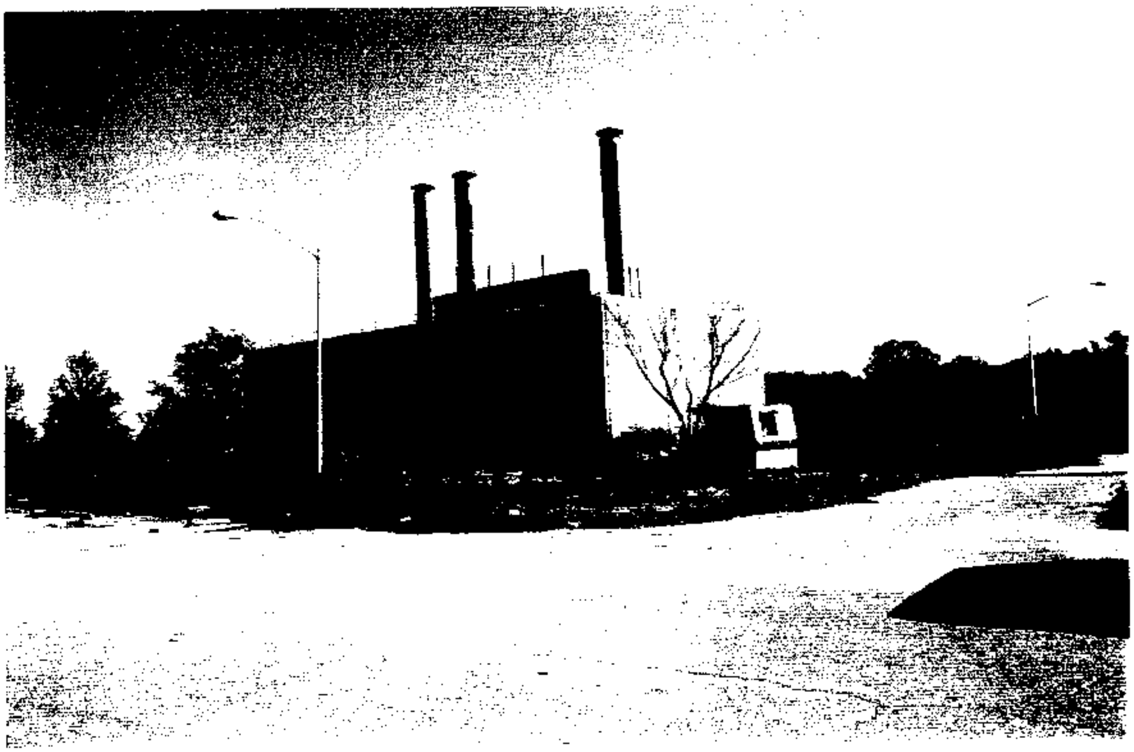
2

Exhibit 36

3

Abandoned buildings, site furniture, playground equipment and many paved areas are in disrepair. Landscaped and lawn areas are becoming overgrown.

4



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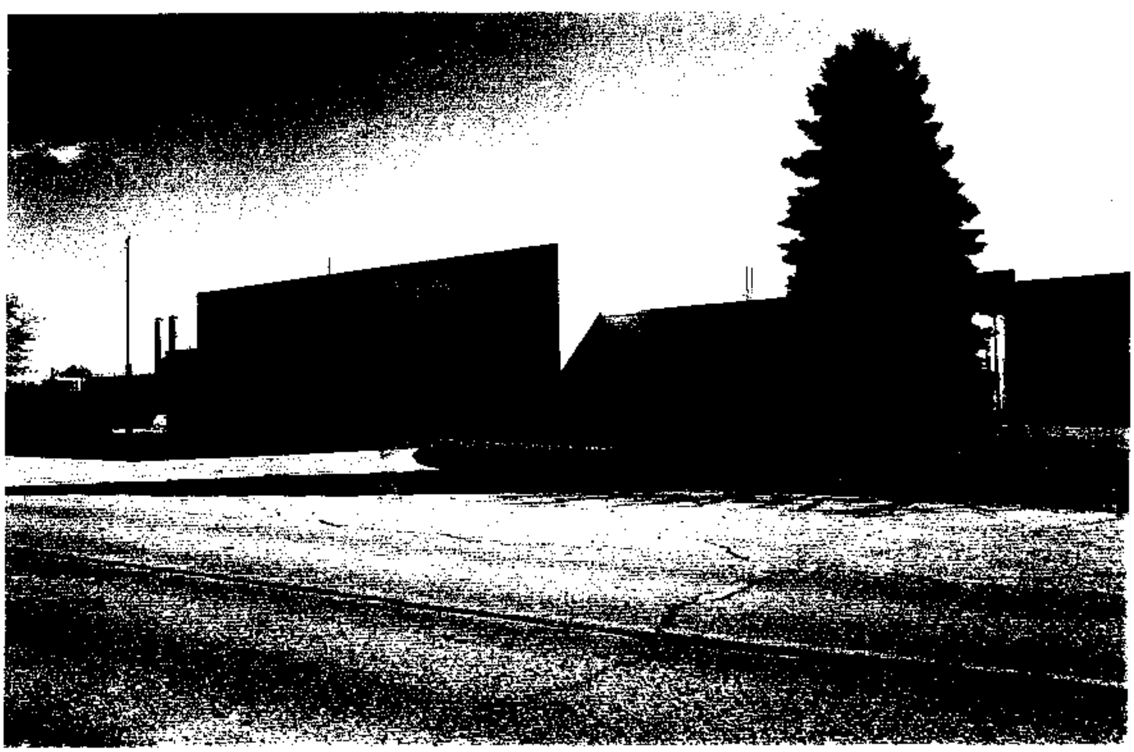
Various service and utility buildings are located along North Road near the Old East Neck Road entrance to the site.



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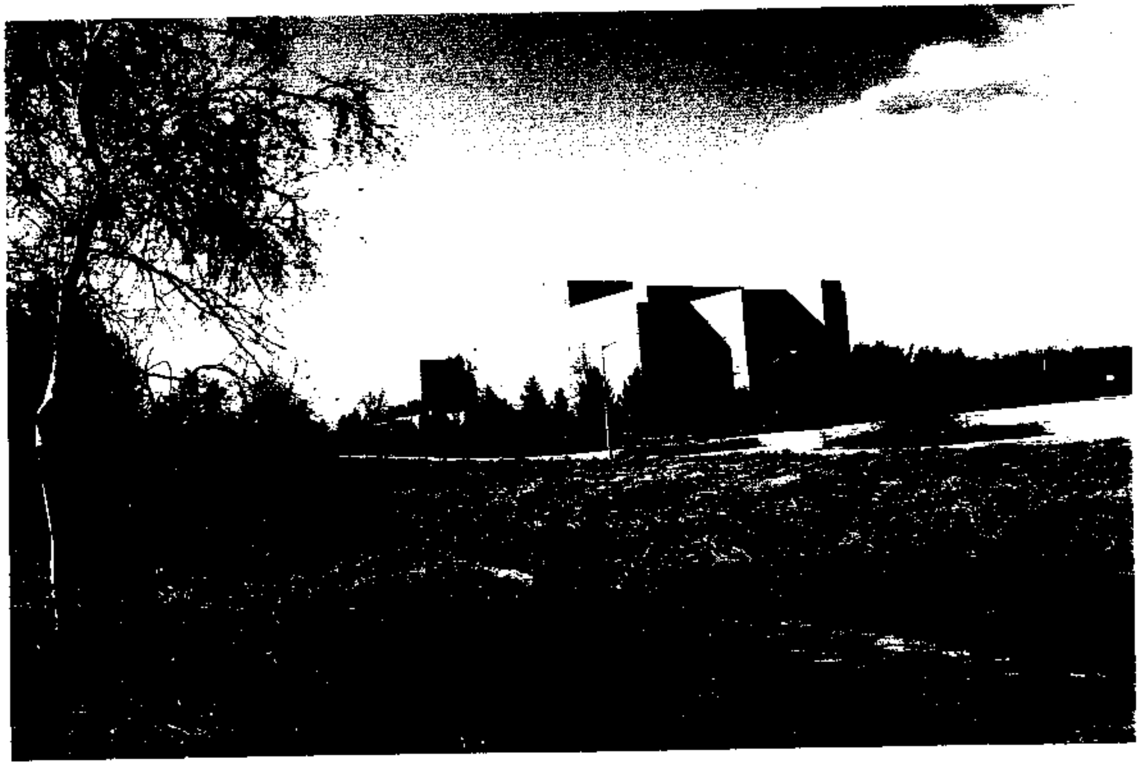

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The five-story former hospital is the tallest and most visually prominent building on the site.

8

A dense landscaped buffer on the north side of North Road provides an attractive visual barrier between the road and the Northern State Parkway.

Entering the site from Carman Road onto South Road, an attractively landscaped SRU development is visible to the south and a wooded area is visible to the north. South Road rises to meet North Road, where existing on-site buildings first become visible, and extends west through the center of the campus. The more densely developed portion of the campus (where the cluster, wheel and hospital buildings are located) is to the north of the road.

To the south, single-story residential cottages (concrete block institutional buildings) are set back approximately 150 feet from the road and perpendicular to it. The former school building and soccer fields are located further south, beyond the cottages. (See Photograph 9). In the western portion of the property, South Road curves to the south and descends to meet Old South Path. Another SRU development and woodland (screening a large recharge basin) are situated on the western side of the road, residential cottages are located on the eastern side of the road.

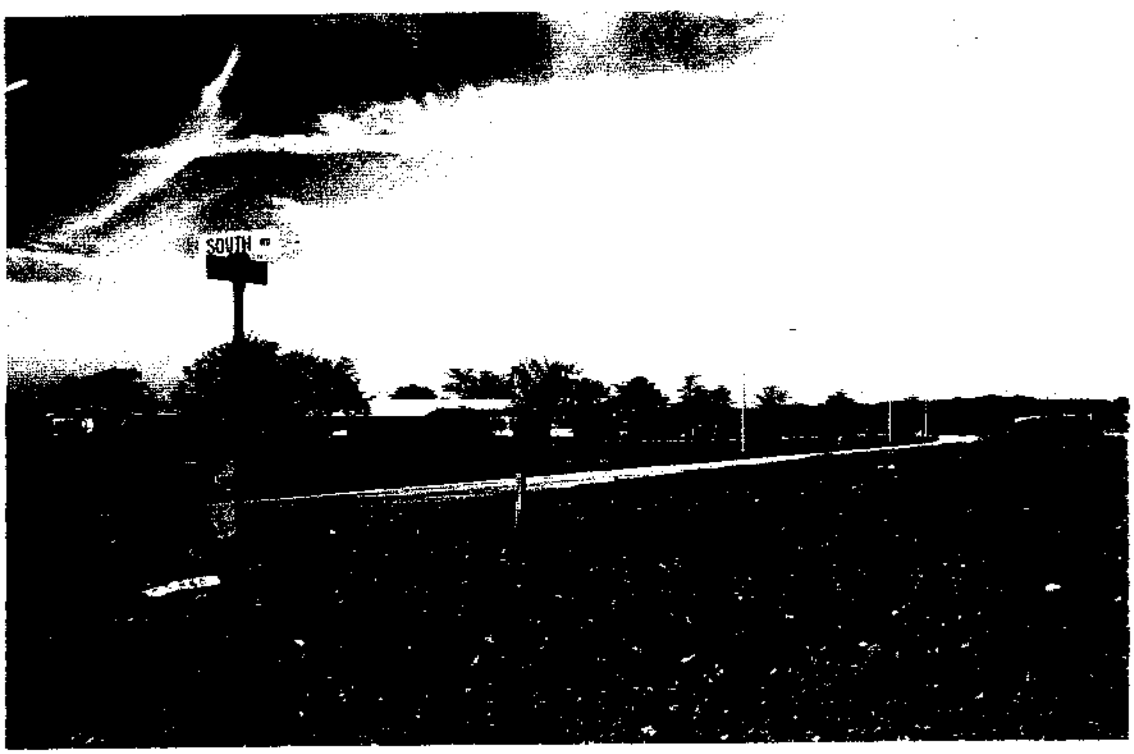
In the western portion of the site, a service road extends south and east off of South Road and leads to the service area for the Sagamore Children's Psychiatric Center, which fronts on Half Hollow Road. As the road approaches the Center, the rear yards of three single-family residential out-parcels, and a large wooded area surrounding an existing recharge basin, are visible to the south. A densely wooded ridge line running along the property line just north of the Center, screens the two-story brick facility from areas on the project site.

Throughout the project site, large building setbacks, minimal landscaping, generally level topography, and the low-scale character of the buildings allow for many uninterrupted internal views of the site. The lack of overhead utility lines, which are present on adjacent roadways, accentuates the sense of openness. Dense vegetation at the perimeter of the property, generally limits views both to and from off-site areas creating a sense of seclusion. (See Photograph 10).

The existing sewage treatment plant (STP) is located on the 46.5-acre portion of the site south of Old South Path. Vehicular access to the STP is from Half Hollow Road . Most of the STP facilities and structures are located in the eastern portion of the parcel. Sand beds are located in the central and western portion of the parcel. Although the small single-story main building is visible from Half Hollow Road, the remaining facilities are screened by vegetation. The central and western portion of this site are predominantly wooded.

9

View of the former school (to the right), soccer fields, and residential cottages (left).



10

The characteristics of the vegetation and topography allow for expansive internal views of the site but limit off-site views.

Views to the Site

Existing views to the site from off-site locations are summarized on Exhibit 41 and are described below.

Views from the Northern State Parkway - A dense, landscaped buffer between North Road and the Northern State Parkway screens views of the site when trees are in full foliage. During the winter, portions of utility and service facilities and the five-story former hospital located in the northern portion of the site are visible through the trees.

Views from Carman Road - A landscaped buffer is located along the property line on Carman Road screening views to the interior of the site from the road and adjacent residences.

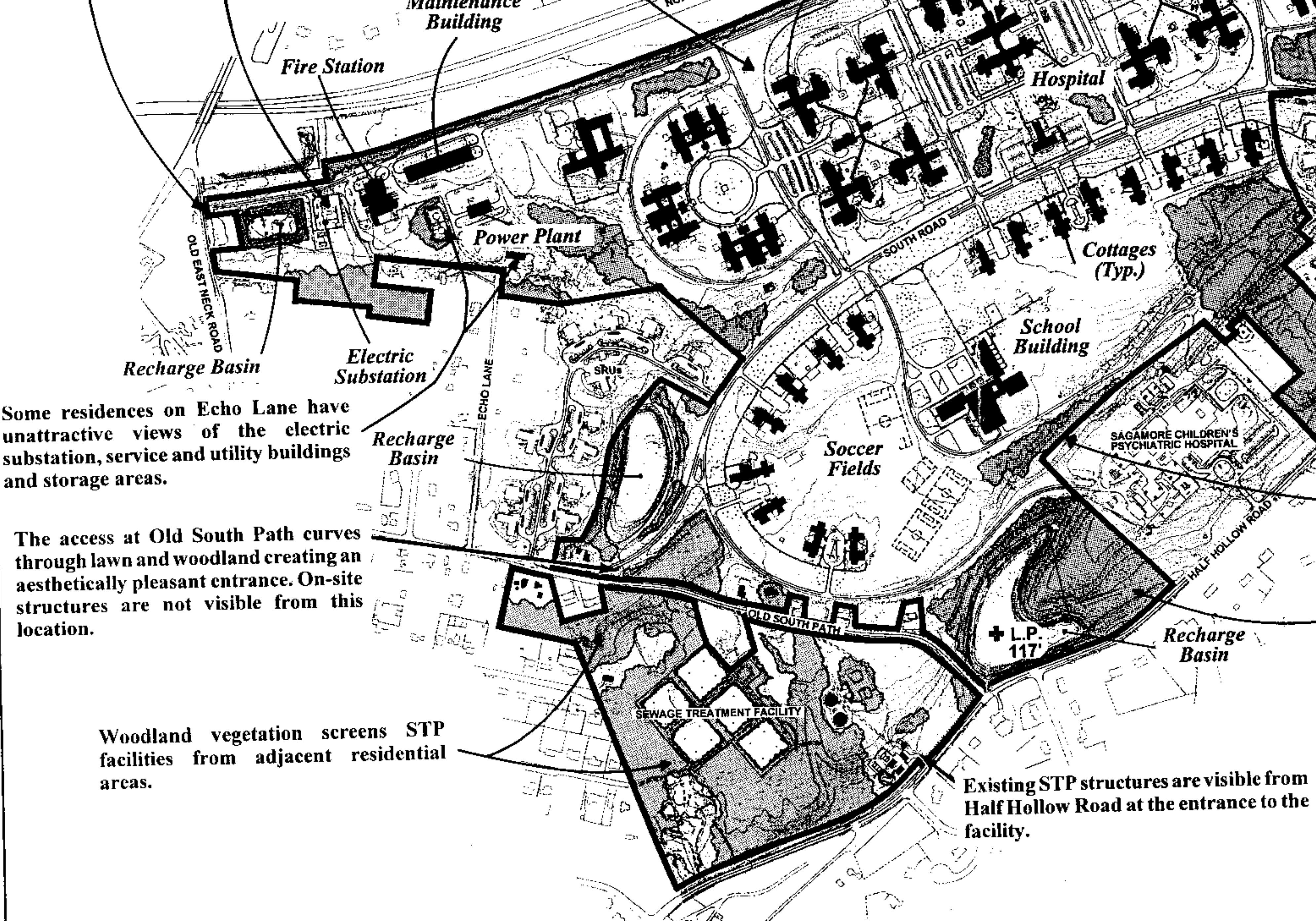
Views from Half Hollow Road - A landscape buffer is located along most of the site frontage on Half Hollow Road, screening views to the interior of the site from the road and adjacent residences. Some of the existing sewage treatment facilities, however, are visible from the road just south of its intersection with Old South Path.

Views from Old South Path - The characteristics of the topography, which slopes up from the road toward the project site, and vegetation along the site frontage, screens views to the internal portions of the property.

Views from Old East Neck Road - The site has approximately 200 feet of frontage on Old East Neck Road and provides access to the North Road entrance to the site. Views of the site from Old East Neck Road include North Road, a landscape buffer to its north and an open field to its south. A wooded area is visible beyond the field as are portions of the electrical substation and fire house.

Views from Echo Lane - Some homes located on the northern portion of Echo Lane have unattractive views of the former LIDC power plant, as well as the electrical substation, service buildings, and on-site storage areas.

Views from Altamore and Grossman Streets - Altamore and Grossman Streets dead end at the western property line of the portion of the site located south of Old South Path. The western portion of this parcel is wooded, screening views of the sewage treatment facilities located in the eastern



Base Map Source: Barrett, Bonacci & Van Weele, P.C.

portion of the parcel. A driveway extends off of Altamore Street to serve a residence located on the site which is visible from the street.

2. Anticipated Impacts

Site Character

Existing on-site structures, roads, walks and parking areas will be removed during construction of The Greens at Half Hollow.

The proposed development will change the existing visual character of the 382-acre property from a site primarily characterized by institutional buildings in a campus setting to a master planned residential community with an 18-hole executive golf course as its centerpiece. The proposed master plan, however, ensures that the open space character of the site will be preserved and enhanced and limits building heights to a maximum of 2.5 stories.

The proposed golf course, located in the central and southern portions of the site has been designed to be fully integrated with proposed housing units to maximize views for residents. The golf course will be landscaped with a mix of evergreen, shade and flowering trees to define and separate fairways and to enhance and frame views. Ponds will be created to enhance the aesthetic character of the course and to create wildlife habitat areas. The golf course clubhouse and community center will be located near the center of the development at the intersection of two proposed boulevards. A view of the proposed community center and golf course clubhouse from the golf course is illustrated on Exhibit 42.

The various housing types are arranged to create distinct neighborhoods yet are linked to each other and to the golf course and community center by a series of common open space areas and small parks, pedestrian walkways, streetscape amenities (benches, kiosks, game tables, gazebos, decorative pavers, etc.) and a comprehensive lighting and landscape plan.

Although the proposed assisted living facility, golf course villas, townhouses, and condominiums will be uniquely designed, common design elements and materials will be incorporated throughout the development to create a sense of continuity. The proposed subdivision will provide luxury housing consistent with the high quality and character of the surrounding community. These homes will most likely be custom built and will, therefore, vary in

Exhibit 42

VIEW OF GOLF COURSE CLUBHOUSE AND COMMUNITY CENTER

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

SOURCE: Ehasz Giacalone Architects, P.C.

style. Views of the proposed golf course villas, townhouses, and condominiums are illustrated in Exhibits 43, 44, and 45, respectively.

The proposed landscape plan utilizes a variety of shade trees, flowering trees evergreen trees, shrubs and perennials to create a park-like setting and to provide shade, seasonal interest (fall color, spring flowers, winter berries, etc.) wildlife habitat and food, and screening. A vegetated buffer will be maintained at the perimeter of the property to screen off-site views and to provide privacy for residents. Each of the proposed entrances to the site will be extensively landscaped. A park-like entrance will be located at Old East Neck Road; boulevards, lined with shade trees, and planted with evergreen groundcovers and perennials, will define the two entrances off of Old South Path; and a decorative gate and planted median will designate the Carman Road entrance.

Individual residential units will be landscaped with a mix of small flowering trees, evergreen and flowering shrubs, and ground covers. Clusters of evergreen trees will provide screening and privacy between units. Central parking courts will be landscaped with flowering shrubs and shade trees to create a woodland ambiance. Many of the parking courts will have central sitting areas. Typical planting plans for the golf course villas, townhouses and condominiums are shown on Exhibit 12, 19, and 23, respectively in Section II of the DGEIS.

Views to the Site

Exhibit 46 indicates the relationship between the proposed development and adjacent roadways, residential, and institutional properties.

<u>Views from the Northern State Parkway</u> - The existing landscaped buffer between the Northern State Parkway and North Road will be maintained and enhanced. This buffer will continue to screen views of the site from the Parkway when vegetation is in full foliage. Potential views of the site during the winter, however, will be improved with the demolition of the existing structures in the northern portion of the property, most notably the utility and service buildings located in the northwestern portion of the site and the five-story former hospital.

Exhibit 43

VIEW OF GOLF COURSE VILLAS

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

SOURCE: Ehasz Giacalone Architects, P.C.

Exhibit 44

VIEW OF TOWNHOUSE UNITS

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

SOURCE: Ehasz Giacalone Architects, P.C.

Exhibit 45

VIEW OF CONDOMINIUM UNITS

The Greens at Half Hollow

Town of Huntington, New York

SOURCE: Ehasz Giacalone Architects, P.C.

Saccardi & Schiff, Inc. - Planning & Development Consultants

SOURCE: Ehasz Giacalone Architects, P.C.
DATE: December 1, 1999

Views from Carman Road - Limited portions of the proposed subdivision may be visible from Carman Road directly opposite the project site particularly in the winter. As indicated above, homes within the subdivision will be up-scale and custom built. The subdivision has been designed, however, to minimize visual impacts to Carman Road. All homes within the subdivision and the proposed clubhouse will be accessed from internal roads (limiting the curb cut on Carman Road to the site entrance only). The site entrance will be a gated and attractively landscaped boulevard. The proposed recharge basin, clubhouse and rear yards of the two lots which will back onto Carman Road will be will be screened from the road with a landscaped buffer.

Views from Half Hollow Road - The proposed project will enhance views of the site from Half Hollow Road. The proposed golf course including a large pond will be visible from Half Hollow Road north of Old South Path and south of the Sagamore Children's Psychiatric Center. A fairly steep slope and existing woodland to remain will screen views of the golf course and interior portions of the site from Half Hollow Road north of the Sagamore Children's Psychiatric Center and south of the SRU development.

Half Hollow Hills Road's views of the portion of the property to the south of Old South Path will remain essentially the same. The western portion of this parcel (31 acres) will be offered for dedication to the Town for parkland. It is anticipated that soccer fields will be constructed in the park and that a landscaped buffer will be maintained at its perimeter. Additional landscaped screening is proposed in the eastern portion of this parcel (15.5 acres) to minimize views of the sewage treatment facilities.

The proposed golf course will be visible from the Sagamore Children's Psychiatric Center to the south/southwest and north/northeast. The existing vegetated slope to the rear of the Center, will screen views of the golf course and residential units.

Views from Old South Path - The existing site entrance off of Old South Path onto South Road will be removed and two new, attractively landscaped boulevard-type entrances will be created. A landscaped buffer will be maintained along the extent of the site frontage on the northern side of Old South Path. The proposed golf course and a large landscaped pond will be visible from the road near its intersection with Half Hollow Road. Golf course villas may be visible in the distance.

Open space views from Old South Path to the 46.5-acre parcel south of the road will remain essentially the same. The western portion of this parcel (31 acres) will be offered for dedication to the Town for parkland. As indicated above, it is anticipated that soccer fields will be constructed in the park and that a landscaped buffer will be maintained at its perimeter. Additional landscaped screening is proposed in the eastern portion of this parcel (15.5 acres) to minimize views of the sewage treatment facilities.

Views from Old East Neck Road - The proposed park-like entrance to the site will substantially improve views from Old East Neck Road. The proposed assisted living facility may be visible beyond the park but will be screened by both existing and proposed vegetation.

Views from Echo Lane - With the demolition of the power plant and other maintenance facilities in the northwestern portion of the property, views of the site from residences located on the northern end of Echo Lane will be substantially improved. A landscaped buffer will be maintained along the property line in this area to minimize views of the proposed assisted living facility and condominium units.

Views from Altamore and Grossman Streets - Open space views from Altamore and Grossman Streets will remain the same. However, as indicated above, the 31 acres of the 46.5-acre parcel located to the south of Old South Path will be offered for dedication to the Town as parkland. It is anticipated that soccer fields will be constructed in portions of the park and that a landscaped buffer will be maintained at its perimeter.

Building, Site Design and Circulation Objectives

The proposed plan complies with the building, site design and circulation objectives as outlined in the proposed PUD zoning. These objectives are listed below.

Building and Site Design Objectives

- The development should be designed around an integrated open space system, including active and passive recreation areas that tie the site together.

- Entryways into the development should be attractively designed with landscaped boulevards or park-like areas identifying access points.

- Extensive landscaping treatment should be provided throughout the development, with a variety of plant materials utilized for accent, interest and buffering.

- Building types should be individually designed; however, some common elements should apply, making a maximum building height of 2.5 stories for housing and community facilities.

- The development should strategically located community centers, water features and open spaces to provide a focus for the vehicular and pedestrian circulation systems.

Circulation Objectives

- Roads should not be over-designed; the development should include a hierarchy of roads, including collector roads, local roads and site access drives, with their geometry designed to accommodate the anticipated level of traffic.

- The road system should be designed to facilitate access throughout the development, but to avoid through-traffic.

- Traffic calming techniques should be utilized to reduce the speed of vehicular traffic; this should include the use of boulevards, curvilinear alignment, designated pedestrian crosswalks and other features.

- The pedestrian circulation system should include pathways that are sufficiently wide to accommodate walkers, joggers and bicyclists; pathways should be provided throughout the site and should be easily accessed from all housing units in the proposed development.

- The pedestrian circulation system should be designed with a variety of amenities along its route, including benches, kiosks, gazebos, bollards and specially designed crosswalks that encourage resident use of the system.

- Collector roads should be designed with an effective right-of-way of 50 feet and a pavement width of 34 feet, which is sufficient to accommodate anticipated traffic and utility needs. Local roads shall be 24 feet in width, with a 40 foot effective right-of-way provided where possible. Access roads should be 20 feet in width. Parking lots should be designed with extensive landscaping. Handicapped parking should be designed to meet the specific needs of the population of the proposed development.

3. Proposed Mitigation

Unattractive, undistinguished and deteriorating institutional buildings will be removed from the site. The proposed development will be a master planned community with a fully integrated open space system, attractively designed residential units and community facilities, and a comprehensive landscape plan. A landscaped buffer will be maintained at the perimeter of the property to screen off-site views of the development In addition, the proposed plan complies with the building, site design and circulation objectives as outlined in the proposed PUD zoning. As a result, no further mitigation is needed.

D. Geology, Soils, Topography and Slopes

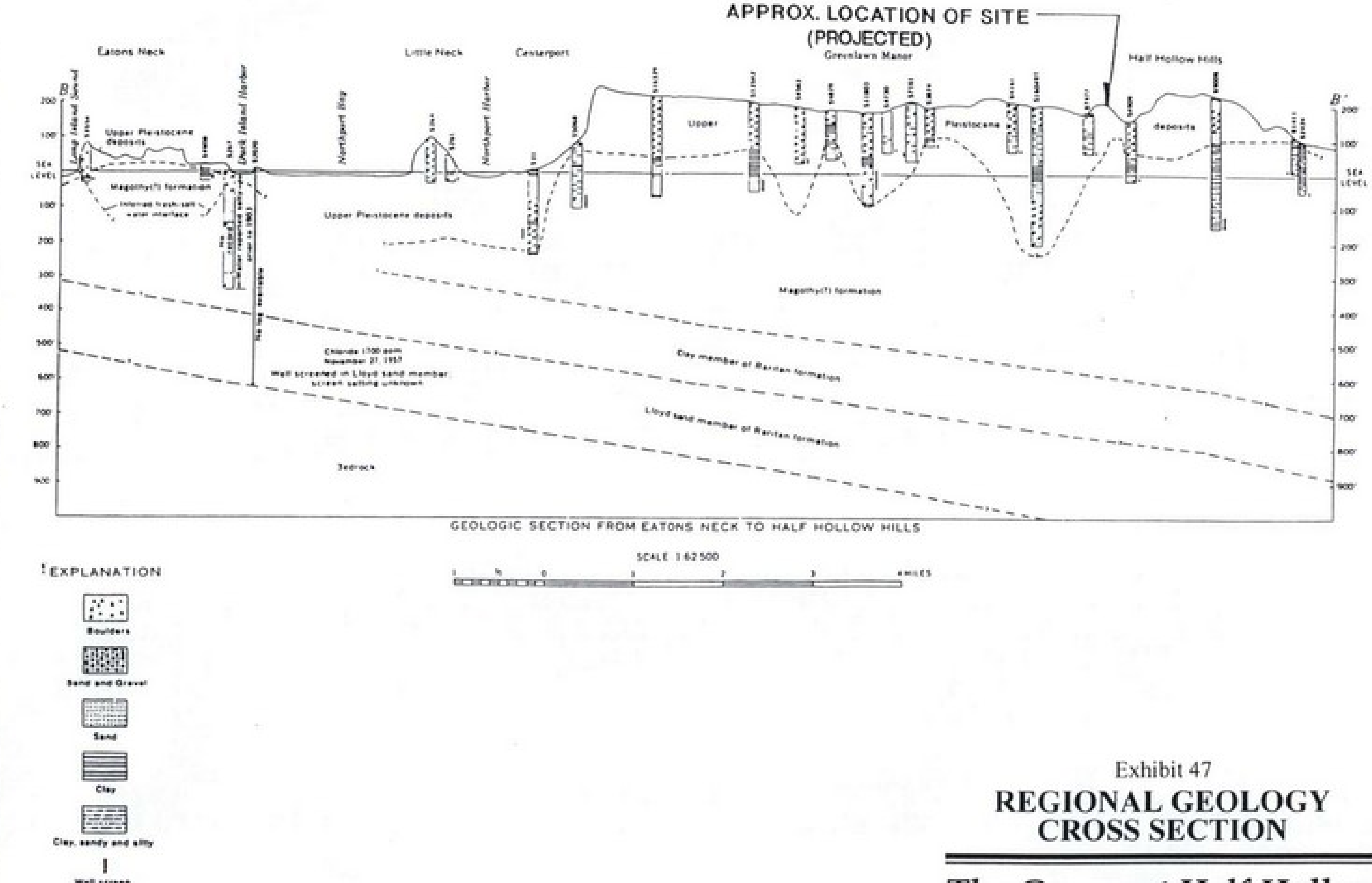
1. Existing Conditions

The site and the surrounding region is underlain by thick unconsolidated deposits of late Cretaceous to Pleistocene Age resting on Precambrian (?) bedrock as shown on Exhibit 47 which is a cross section that illustrates the regional geology. The bedrock is metamorphic gneiss and schist that is hard and dense. The eroded surface occurs about 1000 feet below sea level beneath the site dipping gently to the southeast. In general, site specific data is limited due to the limited number of wells have been drilled on the site.

The basal unit of the unconsolidated deposits is the Late Cretaceous Raritan Formation, which is divided into the Lloyd Sand Member and an unnamed clay member. The Lloyd Sand consists chiefly of beds and lenses of light colored sand and gravel, interbedded with beds and lenses of clay, silt, and clayey and silty sand. The top of the Lloyd Sand occurs at an elevation of about 750 feet below sea level and the unit is about 200 feet thick in vicinity of the site. The clay member rests on the Lloyd Sand and consists mostly of beds and lenses of gray clay, silt, and clayey sand, with occasional sandy beds. The upper surface of the clay member occurs about 600 feet below sea level and the unit is about 200 feet thick in vicinity of the site.

The remaining Cretaceous Age deposits comprise the Matawan Group-Magothy Formation, undifferentiated. The upper surface of this thick geologic unit was extensively eroded during Pleistocene time and its depth and thickness can vary over a wide interval. The site appears to overlie a relatively high area where the surface may range from about 100 feet above sea level to an estimated 100 feet below (Exhibit 48). Just east of the site is a deep northward trending valley; the Huntington buried valley, which has been incised to as deep as 400 feet below sea level. The Matawan Group-Magothy Formation, undifferentiated is an estimated 700 feet thick beneath the site. Its composition varies and consists of beds and lenses of light gray fine to coarse sand interbedded with thin to thick beds of clay, silt, and clayey sand. A typically coarse-grained basal layer a hundred or more feet thick occurs in many places.

The surficial geologic unit across the site is the Upper Pleistocene Deposits. This unit includes a variety of glacial deposits, but has been mapped chiefly as glacial fluvial deposits, which consist of mostly stratified sand and gravel deposits that are virtually free of interstitial clay and silt. The Upper



ADAPTED FROM: Hydrology of Huntington-Smithtown area, Suffolk County, New York, Geological survey water-supply paper 1669-D

Exhibit 47

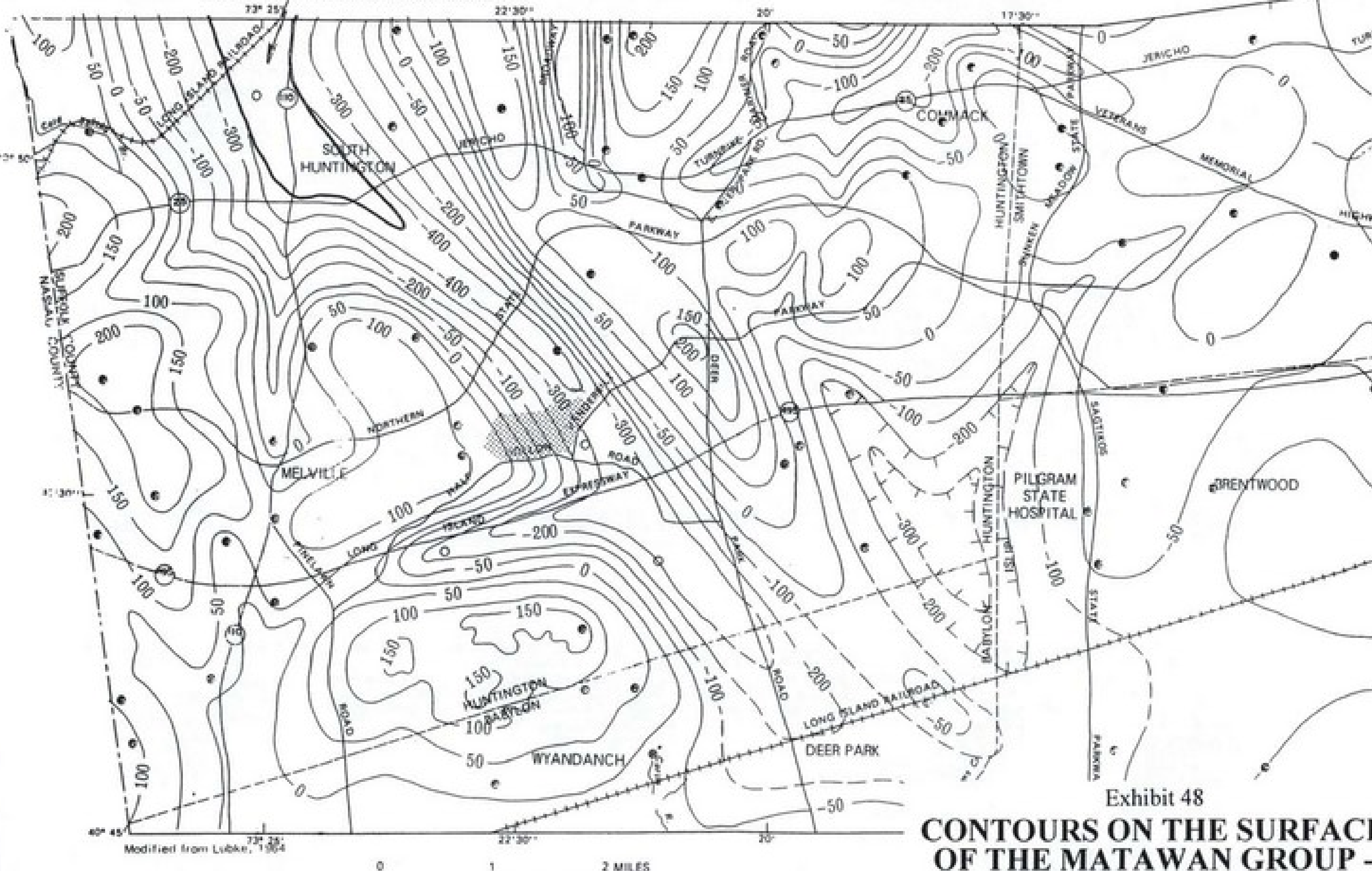
REGIONAL GEOLOGY CROSS SECTION

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

NOTE: Clay member of Raritan formation



SOURCE: Soren, 1971

Exhibit 48

CONTOURS ON THE SURFACE OF THE MATAWAN GROUP - MAGOTHY FORMATION, UNDIFFERENTIATED

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

Pleistocene Deposits on the site are about 100 feet thick. The Upper Pleistocene Deposits would be thicker in valleys and depressions eroded into the underlying Cretaceous surface.

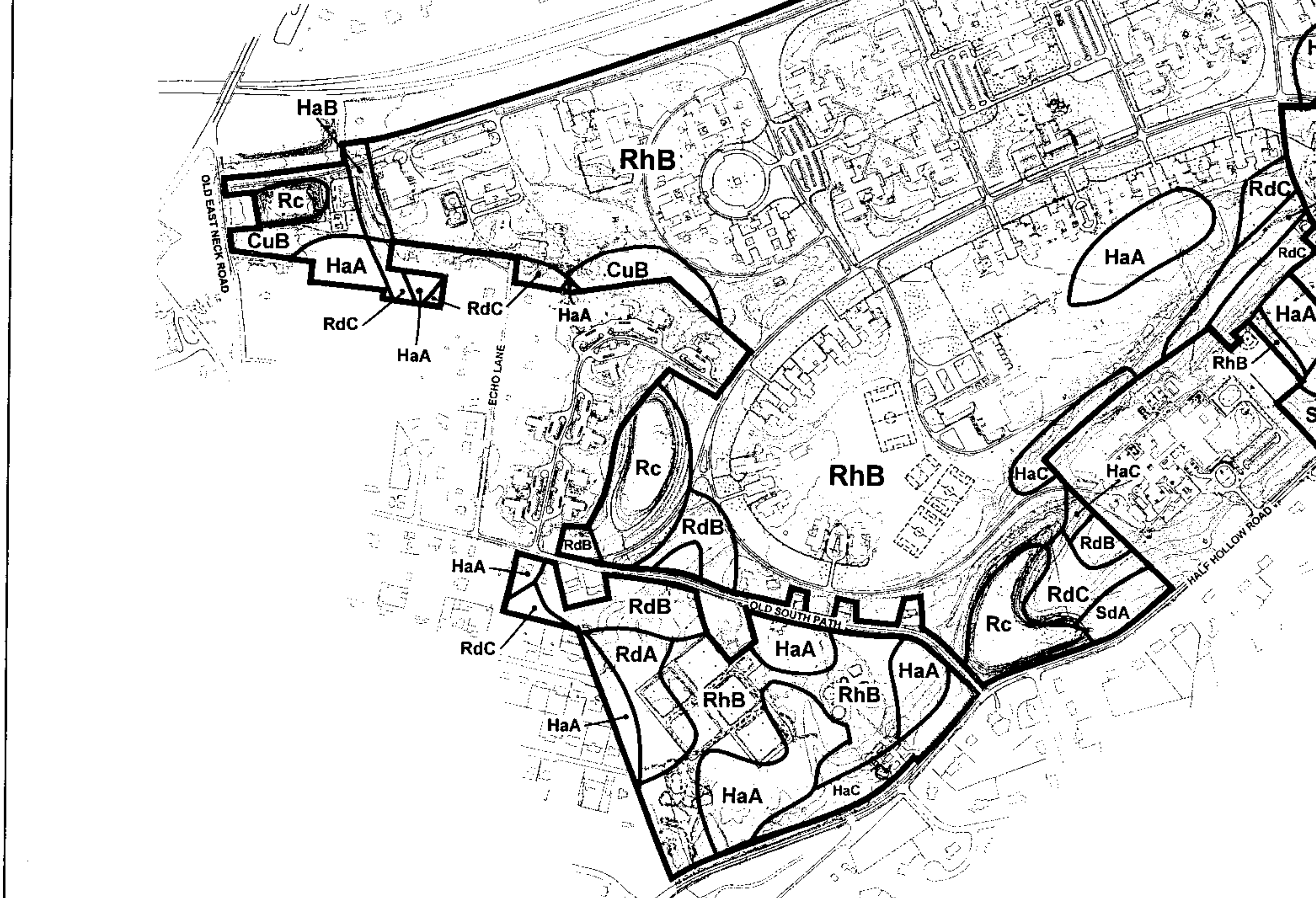
Soils

The surface soil at the site, shown in Exhibit 49, Soils, consists mainly of Riverhead soil. The Riverhead soil consists of sandy loam over thick layers of coarse sand and gravel. The Riverhead soil has three classifications based on its degree of slope. The three types of Riverhead soil present at the site are the Riverhead sandy loam with a 0 to 3 percent slope (RdA), the Riverhead sandy loam with a 3 to 8 percent slope (RdB), and the Riverhead sand loam with a slope of 8 to 15 percent (RdC). In addition to the Riverhead soil, there is also some Haven soil, which consists of deep, well-drained, medium-textured (loam) soil. Like the Riverhead soil, the Haven soils are categorized by their degree of slope. The three types of Haven soil present at the site are the Haven loam with a 0 to 2 percent slop (HaA), the Haven loam with a 6 to 12 percent slope (HaC), and the Haven loam (less than 3%) that is a thick surface layer (He). Exhibit 49 also indicates the presence of two recharge basins and other less predominant soils on the site that include gently sloping cut and fill land, plymouth loamy sand, and scio silt loam.

Topography and Slopes

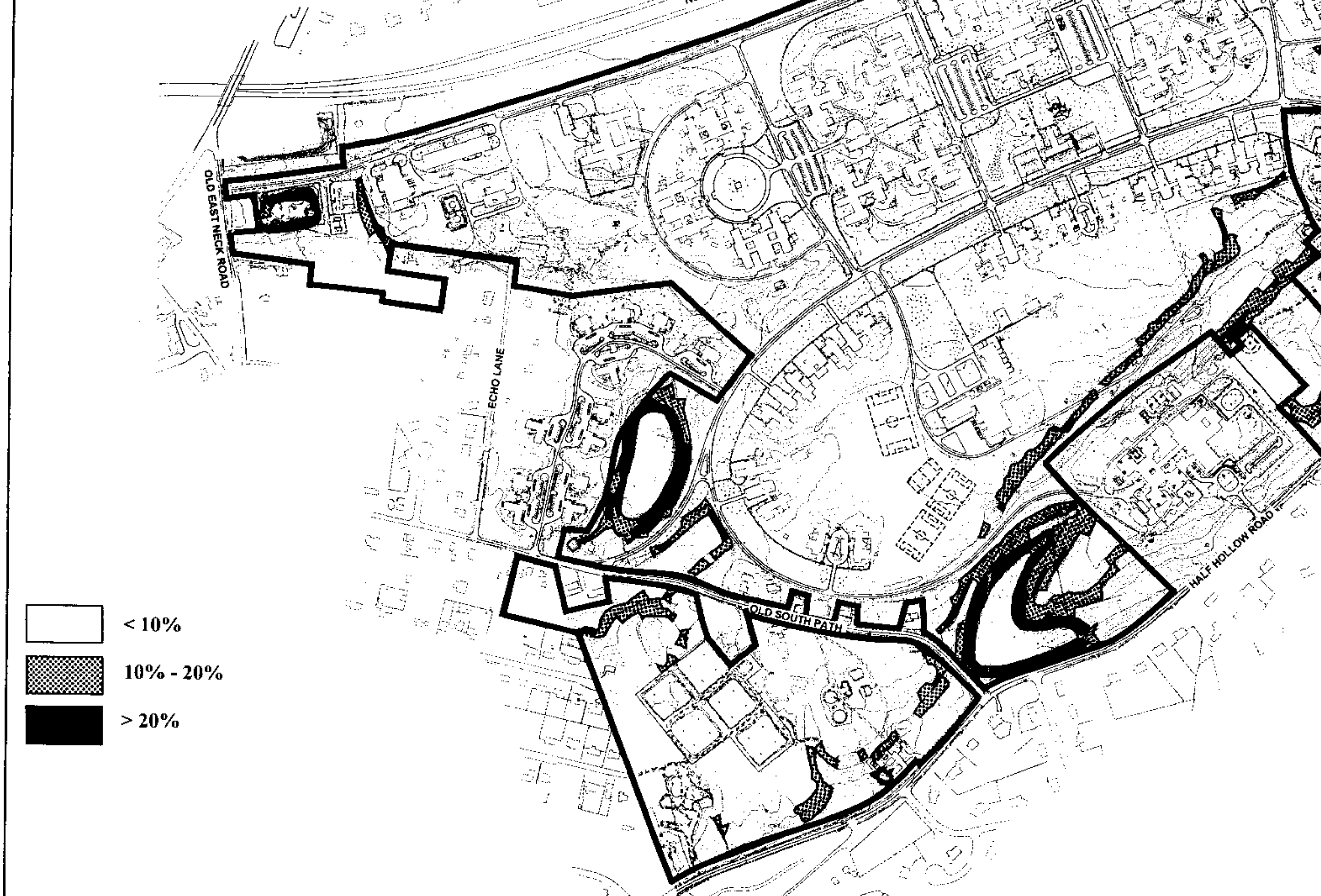
As illustrated on Exhibit 50, Topography, the terrain of The Greens at Half Hollow site generally slopes up from the western, southwestern and southern property boundaries, where elevations vary from approximately 135 to 150 feet, to a high point of 191 feet in the northeastern corner of the site. The site low point, approximately 117 feet, is at the base of the recharge basin located in the southern portion of the site near the intersection of Old South Path and Half Hollow Road.

As shown on Exhibit 51, Slope Analysis, the majority of the site (encompassing all developed areas) is relatively flat, with slopes less than 10 percent. Steeper slopes (greater than 10%) encircle the three existing recharge basins and are located in isolated areas south of Old South Path (the existing sewage treatment facility) and directly north and west of the Sagamore Children's Psychiatric Center.



Base Map Source: Barrett, Bonacci & Van Weele, P.C.

Base Map Source: Barrett, Bonacci & Van Weele, P.C.



Base Map Source: Barrett, Bonacci & Van Weele, P.C.

Table 9 indicates the slope areas within three different categories.

Table 9
Existing Slopes

Slope Category	Acres	Percent of Site
0-10%	366.7	96
10-20%	11.5	3
20% +	3.8	1
Total	382	100

2. Anticipated Impacts

The proposed Master Plan will disturb approximately 271 acres of the 382-acre site (area within the limit of disturbance). Impacts to surface soils topography and slopes will occur as a result of clearing and grading activities to construct or install the proposed golf course, roads, buildings, drainage facilities and utilities. However, almost all of the area to be disturbed is currently developed with former LIDC buildings, roads, parking areas, walkways, drainage structures and utilities. In addition, as noted above, more than 96 percent of the site is characterized by flat to moderate slopes (slopes 0-10%). Therefore, significant impacts to topography and slopes will be minimal.

3. Proposed Mitigation

To mitigate and minimize potential impacts from soil erosion or sedimentation, a detailed Erosion and Sediment Control Plan will be developed for the site during the site plan and subdivision approval process. The Erosion and Sediment Control Plan will be prepared in accordance with best management practices.

Erosion control measures will be implemented during construction to minimize impacts to surface soils. Sediment and erosion will be controlled by leaving as much vegetation on site as possible, minimizing the time that soil is exposed, preventing runoff from flowing across disturbed areas, providing controlled drainage means for increased runoff, and removing sediment from stormwater runoff prior to it leaving the construction site. Vegetative protection measures will include using buffer zones and temporary seeding practices. Structural mitigations to prevent soil erosion during construction will also be used. Structural practices control soil erosion by diverting stormwater flows away from exposed areas, preventing sediments from moving off site, and reducing the erosive forces of runoff waters. Such structural controls include interceptor dikes and swales, straw bale barriers, gravel or stone filter berms, and storm drain inlet protectors.

E. Vegetation

1. Existing Conditions

Identification of on-site vegetation, including entire plant communities as well as individual species, included a review of previously completed vegetation inventories and a field investigation. Previous inventories were conducted as part of the LIDC Master Plan in 1995 and previously completed Draft Environmental Impact Statements (DEIS) for portions of the site including one for the Long Island Developmental Center Small Residential Units project (1987) and one for the proposed Olympus corporate headquarters project (1993). Based on this previously prepared information and field inspections conducted in November 1995 and October 1999, the vegetation and dominant species on site are noted below.

Maintained Lawn/Landscaped Areas - This community type comprises the majority of the site and consists of maintained (mowed) lawns and various landscape plantings, including Norway spruce, white pine, and ornamental cherry as well as various shrubs. These areas are associated with existing on-site development.

Coniferous Stands - Five noteworthy stands of coniferous trees exist on-site. Four stands consist of dense Norway spruce. The stand located in the northern corner of the property is most noteworthy due to its size and the presence of three plant species listed as exploitably vulnerable by the NYS Department of Environmental Conservation -- American bittersweet, flowering dogwood, and northern bayberry. The fifth stand consists of white pines located within the southeastern corner of the property. This area contains two species listed as exploitably vulnerable -- flowering dogwood and winterberry holly.

The New York State Department of Environmental Conservation (NYSDEC) defines "exploitably vulnerable" as species that are likely to become threatened in the near future throughout all or a significant portion of their habitat range within New York State, if casual factors continue unchecked, such as large scale development.

Woodlands - This community type exists primarily along the periphery of the site, most notably along the southern and eastern property boundaries. These areas are divided into noncontiguous stands of forest vegetation which are described below.

- A relatively small wooded area located on the western property boundary. Three separate communities were identified as comprising this wooded area -- the pine-oak community, the pine community, and the aspen community. Butterflyweed, which NYSDEC has listed as exploitably vulnerable, was noted within this area.

- A relatively small wooded area located north of Old South Path in the vicinity of the sewage disposal area. This area is dominated by various oaks and pines as well as black cherry. Northern bayberry (NYSDEC listed exploitably vulnerable) is present in the understory.

- A relatively large wooded area located just south of Old South Path, in the vicinity of the existing sewage disposal area. This area is dominated by various oaks, pines, black cherry and American beech.

- A relatively large wooded area located north of and adjacent to Upper Half Hollow Road, east of the existing recharge basin). This area is dominated by the pine-oak association, comprised predominantly of pitch pine and black oak with a scrub oak understory.

- A relatively large wooded area located adjacent to the north side of Upper Half Hollow Road and extending north towards the central portion of the site. This area is also dominated by the pine-oak association as described above. A portion of this area was identified as supporting the following exploitably vulnerable species: American bittersweet, strawberry-bush, and northern bayberry.

- A small wooded area located along the eastern property boundary, adjacent to Carman Road is a disturbed woodland dominated by black cherry, and black locust. This area was identified as supporting American bittersweet.

- A relatively small mixed oak woodland located within the vicinity of the intersection of South and Carman Roads. This area is dominated by white, scarlet, and scrub oaks, hickory, chestnut, and black cherry. The following rare and exploitably vulnerable species were identified as existing within this area: American bittersweet, flowering dogwood, pink lady's slipper, and blackjack oak.

- A relatively narrow band of pine-oak woodland is located between the Northern State Parkway and the project site. Pitch pine and various oaks are dominant within this area, which serves as a buffer between the site and the highway.

Successional/Disturbed Areas - This community type exists throughout the site but most notably along the centralwestern section and along the northeastern edge, adjacent to Carman Road. These areas include old field communities (dominated by weedy species) and areas which have started to become colonized with woody species (dominated by weedy species, sumacs, oaks, pines, and olives. American bittersweet, flowering dogwood, pink lady's slipper, northern bayberry, and butterflyweed were noted by previous studies as occurring in these areas. Refer to Table10 for a listing of all noted on-site plant species.

Documentation regarding the presence of threatened and endangered wildlife species was obtained from the U.S. Department of the Interior, Fish and Wildlife Service (USFWS) and the NYSDEC Significant Habitat Unit, Wildlife Resources Center, Natural Heritage Program (NHP).

The USFWS maintains a list of Federally threatened and endangered species for New York State. This list currently identifies nine plant and twenty-one threatened or endangered wildlife species as existing throughout the State of New York. The majority of the wildlife species identified on this list are restricted to oceanic habitats and therefore are not present on the site. The remaining wildlife species are not noted to exist within Suffolk County, with exception of the Indiana Bat, which has documented habitat throughout the State. Of the nine plant species identified on the list, only two have the possibility of being present in Suffolk County, the small whorled pogonia, and the sandplain gerardia.

More specific to the site is the data provided by the Natural Heritage Program. The NHP data base consists of historical records of observations of threatened, endangered, rare, and exploitably vulnerable species throughout the State. Threatened and endangered species are protected by law under Environmental Conservation Law section 11-0535. The latter two categories are special concern species which receive no statutory protection.

Table 10
Vegetation Composite Species List

Trees			
Red Maple	Eastern Red Cedar	White Oak	Boxelder
Silver Maple	Apple spp.	Scarlet Oak	Southern Catalpa
Norway Maple	Crabapple	Scrub Oak	Butternut
Sweet Birch	Norway Spruce	Blackjack Oak	Black Walnut
Gray Birch	Austrian Pine	Chestnut Oak	London Plane Tree
Mockernut Hickory	Eastern White Pine	Northern Red Oak	Red Mulberry
Pignut Hickory	Scotch Pine	Black Oak	American Plum
American Chestnut	White Spruce	Pin Oak	American Sycamore
Flowering Dogwood	Balsam Fir	Sassafras	White Ash
Alternate-leaf Dogwood	Cherry spp.	Cork Tree	White Poplar
Singleseed Hawthorn	Black Cherry	European Mountain Ash	Bigtooth Aspen
Hawthorn spp.	Sweet Cherry	Black Locust	Quaking Aspen
Shrubs			
Sweetfern	Autumn Olive	Smooth Sumac	Tea Viburnum
Common Elderberry	Black Huckleberry	Staghorn Sumac	Maple-leaf Viburnum
Japanese Barberry	Northern Bayberry	Multiflora Rose	Blackhaw Viburnum
Russian Olive	Black Jetbead	Lowbush Blueberry	Southern Arrowwood
Strawberry-bush	Winged Sumac	Highbush Blueberry	
Woody Vines			
Oriental Bittersweet	Virginia Creeper	Greenbriar	Summer Grape
American Bittersweet	Cat Greenbriar	Posion Ivy	
Japanese Honeysuckle	Carrion Flower	Grape spp.	

Table 10
(continued)

Wildflowers/Herbs			
Common Yarrow	Chickory	Wineberry	Fall Dandelion
Spotted St. Johnswort	Spotted Wintergreen	Common Dandelion	Black Nighshade
Blue Toadflax	Canada Goldenrod	White-top Fleabane	Climbing Nightshade
Joe-pye Weed	Early Goldenrod	Hairy Lettuce	False Solomon's Seal
Graden Asparagus	Gray Goldenrod	Oxeye Daisy	Sheep Sorrel
Yellow Wood-sorrel	Showy Goldenrod	Canada Thistle	Blackberry
Curly Dock	Stout Goldenrod	Pink Lady's Slipper	Heal-all
Bitter Dock	Rabbit-foot Clover	Wild Carrot	Common Cinquefoil
Spreading Dogbane	Red Clover	Deptford Pink	Motherwort
Bluets	White Clover	Daisy Fleabane	Small Solomon's Seal
Annual Ragweed	Moth Mullien	Virginia Strawberry	Common Pokeweed
Mugwort	Common Mullien	Ground Ivy	Lady's Thumb
Common Milkweed	Graden Flox	Hawkweed spp.	English Plaintain
White Wood Aster	Whorled Loosestrife	Smoothish Hawkweed	Common Evening Primrose
Bush Aster	Common Dayflower	Hairy Hawkweed	Indian Pipe
New England Aster	Celandine	Field Peppergrass	
Panicled Aster	Garlic Mustard	Slender Bush Clover	
Spotted Knapweed	Jewelweed	Butter and Eggs	
Grasses/Ferns/Reeds/Sedges			
Brome Grass	Turf	Coarse Fescue	Hayscented Fern
Panicum Grass	Grabgrass	Sensitive Fern	Sedge spp.
Velvet Grass	Meadow Fescue	New York Fern	Stiff Clubmoss
Canada Bluegrass	Nodding Fescue	Lady Fern	Common Reed
Little Bluestem	Sheep Fescue	Bracken Fern	

Source: DGEIS prepared by Buckhurst Fish Hutton Katz for the NYS Office of Mental Retardation and Developmental Disabilities proposed Long Island Developmental Center Small Residential Units project; DGEIS prepared by Abeles Phillips Preiss and Shapiro, Inc. for the New York State Urban Development Corporation's proposed Olympus Corporate Headquarters Project; Field investigations conducted in November 1995 and October 1999.

The NHP has records of observances of two plant species on or in the vicinity of the site as follows:

- Collins Sedge - NYSDEC listed rare;
- Small Whorled Pogonia - NYSDEC listed exploitably vulnerable, Federally listed threatened.

Recorded sightings of these plants are very old (pre-1925) and have not been confirmed since that time.

Additional information regarding sensitive resources was obtained from previously completed natural resource inventories undertaken on various portions of the project site. These studies identified the following sensitive resources as being located on-site:

- Butterfly Weed - NYSDEC listed exploitable vulnerable.
- American Bittersweet - NYSDEC listed exploitably vulnerable;
- Strawberry-bush - NYSDEC listed exploitably vulnerable;
- Winterberry Holly - NYSDEC listed exploitably vulnerable;
- Northern Bayberry - NYSDEC listed exploitably vulnerable;
- Pink Lady's Slipper Orchid - NYSDEC listed exploitably vulnerable.
- Flowering Dogwood - NYSDEC listed exploitably vulnerable;

Of the above-listed species, none are protected by law, with the exception of the small-whorled pogonia, which is a Federally listed species and protected under the Endangered Species Act of 1973. This species was not identified by either of the above-mention environmental studies or field investigations conducted as part of this project.

2. Anticipated Impacts

As indicated above, the vast majority of the site consists of lawn and landscaped areas associated with the former LIDC campus. Although these areas will be disturbed as a result of the proposed development, they will be revegetated with new lawn and a variety of shade, evergreen and flowering trees, shrubs, groundcovers, and perennials. Wooded areas at the perimeter of the property will be preserved to the greatest extent possible and where necessary, will be enhanced with additional plantings.

Proposed landscaping concepts have been prepared for the site. Detailed landscape plans will be prepared during the site plan approval process. The proposed development will be extensively landscaped with a mix of evergreen, shade, and flowering trees to define and separate fairways and to enhance and frame views on the golf course and to create a park-like setting for the integrated common open space areas and community courtyards. Attractively landscaped site entrances and tree-lined boulevards will enhance this park-like setting. Small flowering trees, evergreen and deciduous shrubs, groundcovers and perennials will be used as foundation plantings around individual residential units and community buildings. A mix of native and ornamental species will be used to provide shade, seasonal interest (fall color, spring flowers, winter berries, etc.) as well as wildlife habitat and food.

3. Proposed Mitigation

Nearly all of the vegetation removed as a result of project implementation is common to the site as well as the region, and no individual plant species are protected by law. In addition, a landscape plan will be prepared for the site. No further mitigation is required.

F. Wildlife

1. Existing Conditions

The variety and number of wildlife species present on the site corresponds to the habitats provided by the vegetative communities that exist there. Because the majority of the site is developed and the dominant vegetative community is maintained lawn, most of the species inhabiting the site are comprised of those species adapted to such environs. These species include common avian species such as American robins, and various sparrows, and small mammals such as the eastern chipmunk. Transient Canadian geese have been observed using large grassed lawn areas as temporary resting areas. Wooded areas on-site support a wider variety of species including common flickers, downy and hairy woodpeckers, crows, blue jays, nuthatches, brown creepers, cardinals, opossums, rabbits, skunks, and various mice. Refer to Table 11 for a list of all wildlife species observed or reported to have been observed on-site.

No wildlife species were identified by the Natural Heritage Program as threatened, endangered, rare, or exploitably vulnerable were identified on-site. Of the Federally-listed species only one has the potential to be present on-site -- the Indiana Bat. Habitat for this species includes wooded and semi-wooded areas along streams in summer, and caves in winter. This type of habitat is not present on-site, therefore it is unlikely that they inhabit the wooded portions that currently exist on-site. Additionally, this species was not identified during recent field investigations.

Table 11
Wildlife Composite Species List

Birds			
Red-winged Blackbird	Northern Mockingbird	American Robin	Yellow-bellied Cuckoo
Canada Goose	Black-capped Chickadee	Mourning Dove	House Finch
Northern Cardinal	Ring-necked Pheasant	Common Grackle	Owl spp.
American Crow	Downy Woodpecked	Bob-white	Cedar Waxwing
Blue Jay	Hairy Woodpecker	Eastern Phoebe	Brown Creeper
Song Sparrow	Common Flicker	Flycatcher spp.	White-breasted Nuthatch
Field Sparrow	Yellow-bellied Sapsucker	Veery	Grosbeak spp.
Chipping Sparrow	Scarlet Tanager	Hermit Thrush	Warbler spp.
House Sparrow	European Starling	Gray Catbird	
Mammals			
Meadow Vole	Shrew spp.	Raccoon	White-tailed Deer
Deermouse	Eastern Gray Squirrel	Opossum	
White-footed Mouse	Eastern Cottontail	Striped Skunk	
Eastern Mole	Eastern Chipmunk	Woodchuck	
Reptiles			
Eastern Box Turtle	Eastern Garter Snake	Northern Brown Snake	Milk Snake

Source: DGEIS prepared by Buckhurst Fish Hutton Katz for the NYS Office of Mental Retardation and Developmental Disabilities proposed Long Island Developmental Center Small Residential Units project; DGEIS prepared by Abeles Phillips Preiss and Shapiro, Inc. for the New York State Urban Development Corporation's proposed Olympus Corporate Headquarters Project; and field investigations conducted in November 1995.

2. Anticipated Impacts

Development of the proposed project will result in temporary impacts to on-site existing wildlife populations. Temporary impacts occur during construction where increases in human activity (operation of construction machinery) and noise levels usually push species from the site of construction to adjacent areas located away from the construction activity. Upon completion of the project, most of these species return to inhabit the original site. This would be the case with this project, because it leaves some portions of existing natural areas intact and creates similar open habitats akin to that which currently exists, such as the golf course, parks, recharge basins, and lawn areas associated with the residential units. In addition, these species are common to the region and coexist with human intervention. The construction of five ponds and three recharge basins will create new habit areas on site as well.

3. Proposed Mitigation

Because threatened and endangered species would not be adversely effected, specific mitigation measures are not required. Landscaping activities associated with the proposed plan would provide habitat for those species temporarily displaced thus providing mitigation for habitat lost as part of the proposed project.

G. Wetlands

1. Existing Conditions

All wetlands/waters within the State of New York are under Federal Jurisdiction and are regulated by the US Army Corps of Engineers (USACOE). The USACOE regulates wetlands and open waters as per the following:

- *Section 404 of the Clean Water Act (33 U.S.C. 1344).* Section 404 prohibits the discharge of dredged or fill material into waters of the United States without a permit. Waters of the United States are defined as navigable waters, tributaries to navigable waters, and wetlands.

- *Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).* Section 10 prohibits the obstruction or alteration of navigable waters of the United States without a permit. Navigable waters subject to the ebb and flow of the tide shoreward to the mean high water mark and/or are presently used, or have been used in the past or may be susceptible to use to transport interstate or foreign commerce.

State mapped wetlands are regulated by New York State Department of Environmental Conservation (NYSDEC), above and beyond the USACOE's regulations. NYSDEC is provided jurisdiction over wetlands and waters via the following:

- Article 24, Environmental Conservation Law, Implementing Regulations: 6 NYCRR Parts 662, 663, 664, and 665;

- Article 25, Environmental Conservation Law, Implementing Regulations: 6 NYCRR Part 661;

- Article 15, Title 5 - Environmental Conservation Law, Implementing Regulations: 6 NYCRR Part 608.

Investigation for the presence of wetland resources, which was undertaken as part of the LIDC Preliminary Master Plan process in 1995, included a review of existing mapping, including the US Fish and Wildlife Services's National Wetland Inventory (NWI) maps and the NYS Freshwater Wetlands Mapping.

The NWI Huntington NY quadrangle illustrates the following wetland resources as located on-site:

- PFLAx - Palustrine Flat Temporary Excavated;
- POWKh - Palustrine Open Water Artificial Diked/Impounded;
- POWFx - Palustrine Open Water Semi-permanent Excavated.

The NYS Freshwater Wetland map (Huntington, NY quadrangle) illustrates only those wetlands regulated by the NYSDEC. According to this map, State regulated wetlands do not exist on-site.

Field investigations were conducted as part of the LIDC Preliminary Master Plan process to determine the accuracy of the mapping and the presence/absence of additional wetland resources identified the presence of one low-lying poorly-drained area and four detention/ponding basins, located as follows:

- low-lying, poorly-drained area located on the southeastern corner of the site, adjacent to Upper Half Hollow Road. This area exhibits standing water only after precipitation events, and because the dominant vegetation is comprised of uplands plants, this area is not a wetland;

- one recharge basin located in the northwestern corner of the site. It is identified on the NWI map as POWFx;

- a recharge basin located in western central portion of the site, identified on the NWI map as PFLAx, and;

- a recharge basin located in the southern central portion of the property, adjacent to Upper Half Hollow Road. This basin is identified on the NWI map as POWFx.

- the existing sewage disposal area located in the southwestern corner of the property. This area is identified on the NWI map as POWKh.

None of the above-listed elements classify as wetlands, due to the lack of hydrophytic (wetland) vegetation, hydric soils, and consistent source of hydrology.

2. Anticipated Impacts

Currently, no wetlands or open water exists on site. The proposed plan however, will include five ponds and a total of three recharge basins.

3. Proposed Mitigation

The lack of on-site wetland resources precludes the need for mitigation.

H. Population and Housing

1. Existing Conditions

The project site lies amidst the unincorporated residential communities of Dix Hills, Half Hollow Hills, Melville, and South Huntington. Dix Hills, to the east, and Half Hollow Hills, to the south, consist of predominantly low density single-family residences. South Huntington, to the north, and Melville, to the west, have higher densities with five times as many rental units as Dix Hills/Half Hollow Hills. According to the 1990 Census, South Huntington and Melville contained 23,961 persons while Dix Hills and Half Hollow Hills contained 14,742 persons.

While the average age of residents in the two areas is similar, the age characteristics are distinct. Dix Hills and Half Hollow Hills are composed predominately of families with children, illustrated by the preponderance of persons aged 35 to 59 and 10 to 24 (see Table 12). In contrast, the age distribution for South Huntington/Melville is more even with a smaller percentage of children and more persons aged 25 to 45 (see Table 13). As a result, Dix Hills and Half Hollow Hills on average have larger households than South Huntington and Melville (see Table 14).

Table 12
Distribution of Population by Age in Dix Hills/Half Hollow Hills

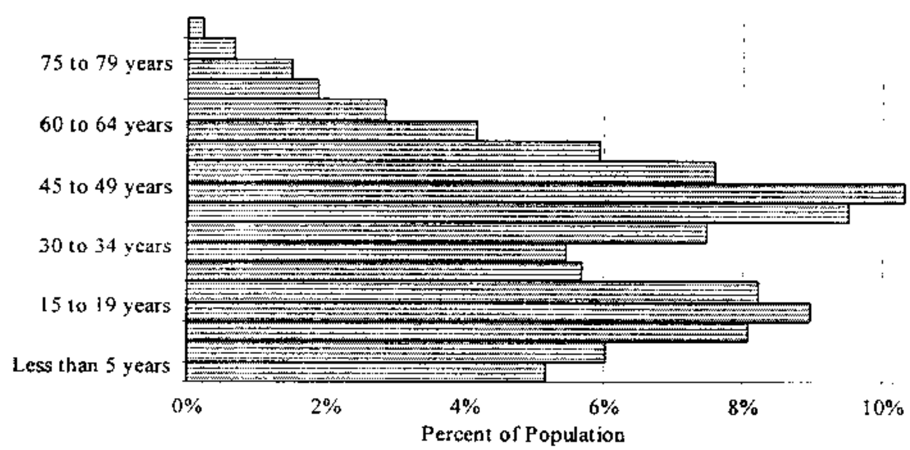


Table 13
Distribution of Population by Age in South Huntington/Melville

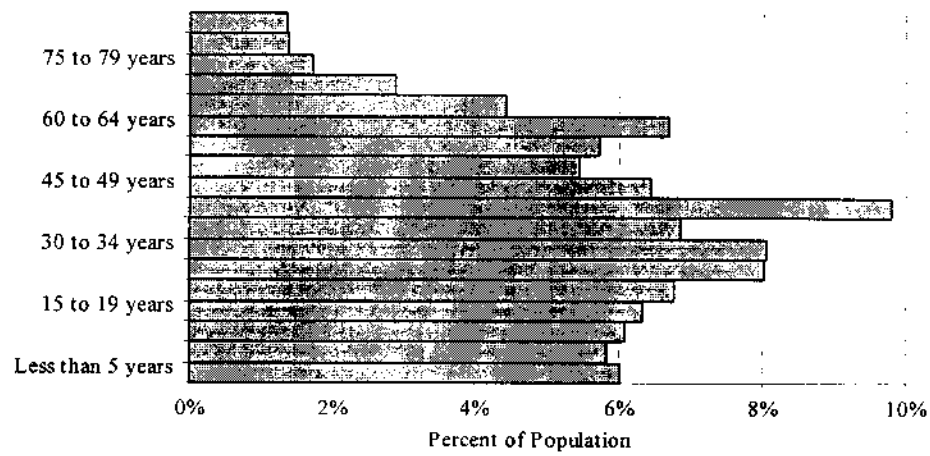
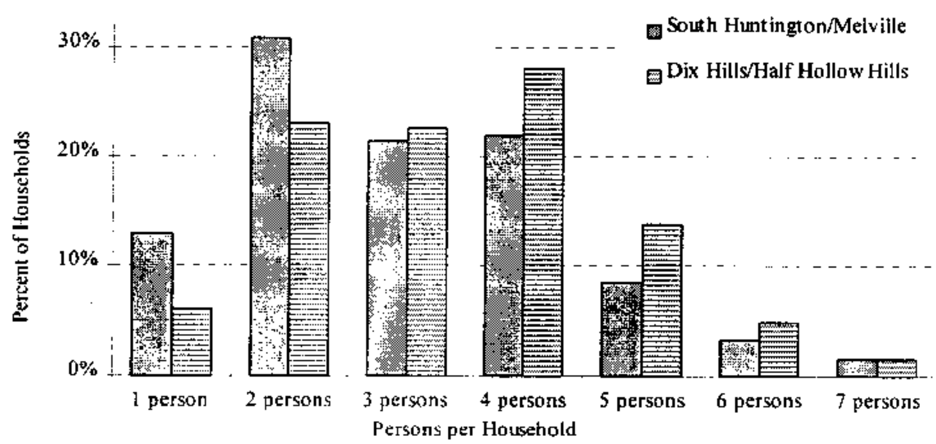
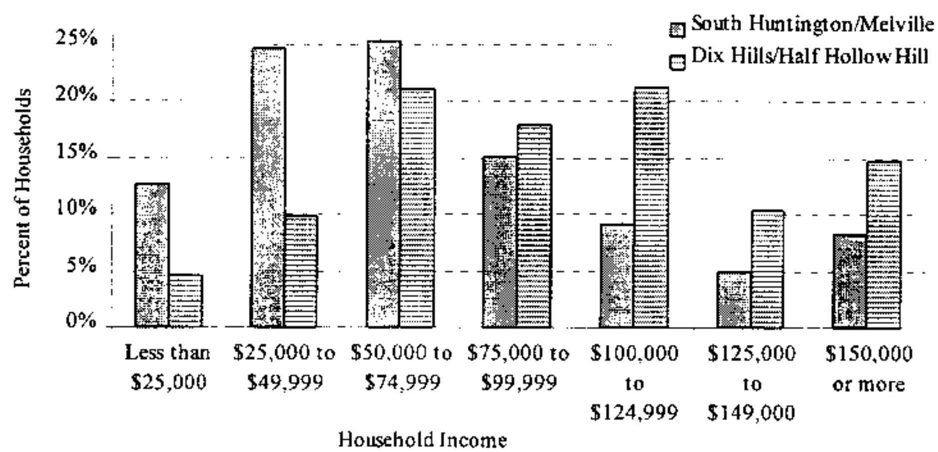


Table 14
Distribution of Household Size



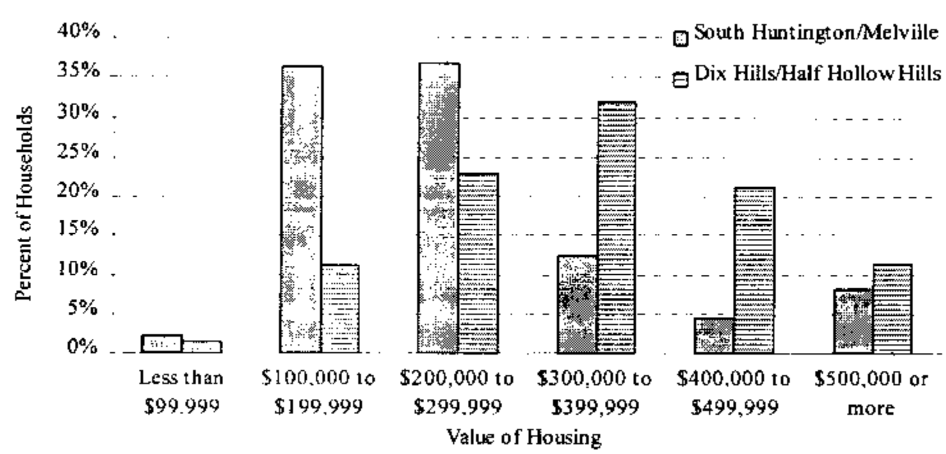
According to the 1990 Census, 85% of the households in Dix Hills and Half Hollow Hills had annual incomes greater than $100,000 with 45% greater than $100,000. In comparison, only 62% of South Huntington and Melville household incomes were greater than $50,000 with only 22% over $100,000 (see Table _).

Table 15
Distribution of Household Income



The 1990 Census indicated that 25% of owner-occupied housing in South Huntington and Melville was valued at greater than $300,000. By contrast, 64% of the owner-occupied housing in Dix Hills and Half Hollow Hills was valued at greater than $300,000 (see Table 16).

Table 16
Distribution of Housing Value



At present, there are very few housing choices for senior citizens in Huntington. Aside from the 228-unit Knolls at Melville development, the other senior housing options focus on publicly assisted or congregate housing needs. With approximately 60,000 housing units in the total, the current total of approximately 1,000 senior units represents less than 2 percent of the housing stock. (Source: Knolls at Melville DEIS, 1994).

2. Anticipated Impacts

By adding a golf course/retirement community to the area, the proposed development will enhance property values in the surrounding neighborhoods. The Greens at Half Hollow is estimated to add 2,885 residents to the area. Based on the type of unit, the target market, and patterns in other residential communities, the average persons per unit can be estimated for each housing type proposed (see Table 17). The proposed single family homes will have population characteristics similar to the Dix Hills neighborhood immediately east. All other housing in The Greens at Half Hollow will be age-restricted to those over 55, resulting in smaller household sizes.

Table 17
Estimated Population of the Greens At Half Hollow

Housing Type	Number of Units Planned	Anticipated Persons Per Unit	Estimated Population
Golf Course Villas	400	2.5	1,000
Condominiums	400	1.5	600
Townhouses	350	2.5	875
Assisted Living	150	1.1	165
Single-Family Houses	75	3.25	245
Total			2,885

The project has been designed to offer a wide spectrum of housing choices with a range of prices that relate to unit type, size and location. The projected prices are: $175,000 for condominium units, $275,000 for townhouse units, $375,000 for golf course villas (1999 dollars). The single-family homes will be sold at market rates. The condominium units, which represent approximately 30% of the total number of units, would be affordable housing for many senior citizens given that the median income of seniors in the market area is approximately $69,000 per year. The equity that seniors typically have in their existing single family residence will be more then sufficient for a cash purchase of condominiums at The Greens at Half Hollow with no mortgage costs incurred. The net result will be lesser housing costs for the seniors that moves into a new, but smaller condominium residence, but will include all amenities included in the proposed retirement community.

3. Proposed Mitigation

Given the above socio-economic factors, no further mitigation is required.

I. Community Facilities and Services

1. Open Space and Recreation

a. Existing Conditions

A number of parks are located in the vicinity of the project site. These parks range in size from 3/4 of an acre (Knickerbocker Park) to 855 acres (West Hills County Park) and provide a full complement of passive and active recreational facilities including tennis, basket and handball courts; baseball and soccer fields; horseback riding and hiking trails; playgrounds; and picnic facilities. Exhibit 52, indicates the location of parks and other community facilities in the vicinity of the site.

Currently, the only recreation facilities located on the site are a number of soccer fields which surround the existing school building. These fields are used by local soccer leagues.

b. Anticipated Impacts

The Greens at Half Hollow will provide a variety of recreational opportunities for residents of the development including the 18-hole executive golf course (a limited number of memberships may be available to residents of the surrounding area as well), swimming pools, tennis courts, and pedestrian/bike trails, game tables and a fitness center. Other social and recreational activities will be available on a regular basis at the community center (movies, card games, arts and crafts, exercise classes etc.) and as special events (community dinners, musical programs, etc.). These on-site recreational amenities will minimize potential impacts to surrounding park and recreation facilities.

The existing on-site soccer fields will be eliminated as a result of the proposed development. However, the Applicant proposes to offer for dedication to the Town approximately 31 acres in the southwest portion of the site for parkland to replace these soccer fields. In addition, a park-like entrance to the development is proposed at Old East Neck Road and the vast majority of units will have direct access to an interconnected series of landscaped open space areas. All in all, approximately 247 acres, or more than 64 percent of the site, will be preserved as open space of various types as shown in Table 18.

Parks/Open Space

School

Library

Fire House

Exhibit 52

COMMUNITY FACILITIES

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

Table 18
Proposed Open Space

Type of Open Space	Acres	Percent of Total Site Area
Golf Course	86	22.5
Interconnected Open Space Areas/Community Parks	36.5	9.6
Lawns, Landscaped Buffers and Medians	93.5	24.5
Open Space to be Dedicated to the Town for Parkland	31	8.1
Total	**247**	**64.7**

c. Proposed Mitigation

Since the proposed development will provide a wide range of recreational opportunities for residents and will preserve more than 64 percent of the site as open space, no mitigation is necessary.

2. Police Services

a. Existing Conditions

The Suffolk County Police Department Second Precinct provides protection for the Town of Huntington, including the project site. The Second Precinct offers 24-hour coverage utilizing a contingent of officers from its station located on Park Avenue, north of Jericho Turnpike in Huntington.

b. Anticipated Impacts

The Greens at Half Hollow will have security personnel on-site on a 24-hour basis to patrol the development and to respond to minor calls for assistance. In addition, the proposed assisted living facility will have its own 24-hour security. The provision of on-site security will augment Police Department services and will help address routine call typical for senior citizens (e.g., keys locked in the car). Impacts to the department will be further mitigated since the golf course and on-site community facilities will be privately owned and operated, and generally available to residents of The Greens at Half

Hollow only (a limited number of golf course memberships may be available to area residents).

It is likely that the Police Department may assign an additional sector car to patrol the project area. This cost will be offset by tax revenue generated by the proposed project.

c. Proposed Mitigation

As noted above, proposed on-site security will mitigate potential impacts to the Police Department. No additional mitigation is necessary.

3. Fire Services

a. Existing Conditions

The site is located wholly within the Melville Fire District, an area of 14 square miles which includes the Route 110 business corridor and a residential population of approximately 30,000. The district contains four stations. Headquarters for the Melville Fire Department are located on Sweet Hollow Road west of Route 110. Substations are located on Amityville Road east of Route 110, on South Service Road south of the Long Island Expressway and on North Road in the northeastern portion of the site. Currently, the department uses the North Road station for storage but does not actively respond from this location. The department also owns property at the center of the triangle formed by New York Avenue, Old South Path and East Neck Road just west of the site entrance onto North Road.

The district is served by approximately 108 volunteer fire fighters including 35 emergency medical technicians (EMT's), advanced medical technicians (AMT's) and paramedics. EMT's, AMT's, or paramedics respond to all emergency calls.

According to Dave Hobart, District Manager, in 1998 the department responded to approximately 1,800 calls including approximately 30-40 calls to the project site. He estimates that in 1999 the department will respond to approximately 1900 calls.[1]

[1]Dave Hobart, District Manager, Melville Fire District, telephone conversation, September 10, 1999.

b. Anticipated Impacts

Mr. Hobart estimated that the proposed project would increase calls to the department by approximately 35 percent (increasing total calls from 1,900 to approximately 2,565). However, with regard to the proposed development, the department's main concern is continuing to maintain a station in the immediate area and the potential for increased traffic.

With regard to the potential for increased traffic as a result of the proposed development, DGEIS Section III.K, Traffic and Transportation, addresses potential traffic impacts and proposed mitigation measures.

The Applicant proposes to provide sprinklers in the assisted living building and the golf course and community clubhouses.

It is estimated that the proposed project will generate approximately $1,777,000 in annual tax revenues to the Melville Fire District which will mitigate potential impacts to the department. (See Section III.J, Fiscal Conditions).

c. Proposed Mitigation

The Greens at Half Hollow development will generate substantial tax revenues to the fire department. No further mitigation is required.

4. School District

a. Existing Conditions

The Greens at Half Hollow site is located within the Half Hollow Hills Central School District. During the 1998-99 school year, the district operated six elementary schools, two middle schools and two high schools and had a total enrollment of 7,857 students in grades K through 12.[2] Enrollments in each school are listed in Table 19.

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[2]Source for 1998-99 enrollment figures: *1998-99 Update, Half Hollow Hills School District, Enrollment Projections, Instructional Facilities, Facility Utilization*, Lloyd Bishop, November 1998.

Table 19
Half Hollow Hills Central School District Enrollments
1998-1999

School	Enrollment
Elementary Schools (K-5)	
Chestnut Hill	823
Forest Park	637
Otsego	559
Paumanok	543
Signal Hill	689
Vanderbilt	647
Middle Schools	
Candlewood	825
West Hollow	978
High Schools	
High School East	1252
High School West	904
District Total	**7,857**

The central administration offices for the district are located in the former Manasquan Elementary School located on Half Hollow Road west of Vanderbilt Parkway. The district's transportation center, which operates and maintains more than 100 vehicles, is located just southeast of the project site on Burr's Lane.

b. Anticipated Impacts

<u>School District Enrollment Projections</u>

The school district estimates that total enrollments will increase by approximately five percent between the 1998-99 and the 1999-2000 school years. It is anticipated that enrollments will increase by approximately 23 percent over the next five years and by approximately 36.2 percent over the next ten years.

In response to these increasing enrollments, the school district reopened the Sunqaum Elementary School which was closed in 1990. This school, which opened for classes in September 1999, has been renovated and expanded and will relieve space constraints in the six other elementary schools. In addition, according to Robert Sandak, Associate Superintendent of Schools, the district may relocate the Central Administration offices and reopen the Manasquan Elementary School if necessary to meet increasing enrollments in the future.

An enrollment and facility utilization study prepared for the school district by Lloyd Bishop in 1997 (*1997-1998 Demographic Study*). Mr. Bishop prepared an update to the report in November 1998. In both the original report and in the 1998 update, Mr. Bishop anticipated development of the LIDC site which would result in an increase public school children in the district. This assumption was factored into the district's enrollment projections and facilities planning decisions. Mr. Bishop's assumptions included the construction of 75 single-family homes on the LIDC site resulting in 89 new school age children including 85 public school children. Estimates of school-age children based on the proposed plan for The Greens at Half Hollow are provided below.

By letter to the Town, dated December 23, 1999, the Half Hollow Hills School Board endorsed the project as consistent with the projection planning and economics of the School District (See DGEIS Appendix C).

Estimate of School-Age Children Residing at The Greens at Half Hollow

Estimates of the number of school-age children anticipated to live in the proposed 75 single-family homes were prepared for this DGEIS using industry-standard (the Urban Land Institute or ULI) multipliers for four-bedroom single-family homes in the northeast.

Based on the ULI multipliers for four-bedroom single-family homes, it is estimated that 66 new school-age children would reside in the 75 proposed single-family homes. According to school district reports, approximately 4.3 percent of all school-age children in the district attend private or parochial schools and 95.7 percent attend public schools. Therefore, it is anticipated that 63 of the 66 new school-age children would attend public schools.

Generally, in a K-12 district the numbers of elementary (K-6) and secondary (7-12) school-age children are not evenly distributed. Table 20, indicates the anticipated number of new children in grades K-6, 7-9 and 10-12 as a result of the proposed development. These numbers were derived using the ULI multipliers for school-age children by grade category and are consistent with an estimate provided to the Applicant's planning consultant by Robert Sandak, the Associate Superintendent of Schools (he estimated that 75 new homes would generate 42 new elementary school children).[3]

Table 20
Estimate of School-Age Children
Using ULI Multipliers

Grade Level	Proposed Single-Family Homes	Multiplier* (4-BR homes)	New School-Age Children	Percent to Public Schools**	Total Public School-Age Children
K-6	75	0.6188	46	.957	44
7-9	75	0.1285	10	.957	9
10-12	75	0.1265	9	.957	9
Total	**75**	**0.8738**	**66**	**.957**	**63**

*Source: *Development Impact Assessment Handbook*, The Urban Land Institute, 1994.
**Source: *1998-99 Update, Half Hollow Hills School District, Enrollment Projections, Instructional Facilities, Facility Utilization*, Lloyd Bishop, November 1998.

For purposes of analysis, the projected number of public school age children would therefore range from 63 (ULI method) to 85 (Bishop study).

Fiscal Impacts to the School District

During the 1998-99 school year, the school districts per-pupil costs were approximately $12,760. Approximately 81 percent of these costs, or $10,340, were paid by local taxes. As discussed in Section H, Fiscal Conditions, of the DGEIS, the site currently generates approximately $856,920 in annual revenues to the school district.

[3]Saccardi & Schiff, Inc. meeting with Robert Sandak, Associate Superintendent of Schools, Half Hollow Hills School District, June 24, 1999.

Based on the district's per pupil costs paid by local taxes, it can be anticipated that 63 new public school children residing in the 75 proposed single-family residences would create an additional cost to the school district of approximately $651,420 ($10,340 x 63 students). However, as discussed in Section III.J, Fiscal Conditions, of the DGEIS, it is anticipated that The Greens at Half Hollow development as a whole will generate approximately $4,663,720 to the school district. Deducting the approximately $856,920 in tax revenues to the school district currently generated from the site as well as the cost to educate the 63 new public school children, the proposed development is anticipated to generate approximately $3,115,380 in new net tax revenues to the school district annually ($4,663,720 - ($856,920 + $651,420) = $3,115,380).

Assuming that 85 new public school children will reside in the 75 single-family residence, additional costs to the school, district paid by local taxes, would total approximately $878,900 ($10,340 x 85 students) and new net annual tax revenues as a result of the proposed development would total approximately $2,927,900 ($4,663,720 - ($856,920 + $878,900) = $2,927,900).

Hence, in either case, the projected tax surplus to the school district is approximately $3,000,000 per year.

Conclusion

It is anticipated that the proposed single-family subdivision will generate approximately 63 to 85 new public school age children (i.e., less than an as-of-right development),with annual costs to educate these children, paid by local taxes, ranging from $651,420 to $878,900. These costs however, will be substantially off-set by the approximately $4,663,720 in annual tax revenues generated to the school district as a result of the proposed project.

It should be noted that the estimated costs to the school district as a result of the proposed development, whether based on the ULI multipliers or on Lloyd Bishop's multipliers, are probably higher than actual costs since many of the school district's budget items are unlikely to be affected by the minimal increase in overall enrollments (63 new students and 85 new students represent an increase over current enrollments of 0.8 percent and 1.1 percent, respectively). Many budget items would not be impacted at all, others would be impacted on a proportionate basis (0.8% to 1.1% of each item).

c. Proposed Mitigation

The proposed development will not adversely impact the school district. Therefore, no mitigation is necessary.

5. Libraries

a. Existing Conditions

The site is located within the four-square mile service area of the Half Hollow Hills Community Library which is coterminant with the Half Hollow Hills Central School District and serves a population of approximately 43,500. The 42,000-square-foot main library is located on Vanderbilt Parkway west of Winthrop Drive in Dix Hills. The 8,000-square-foot Sweet Hollow Road branch is located in Melville, just west of Route 110. The library provides a full array of collections, reference, multimedia, and cultural services on-site and has a community outreach program.

According to the Director of the Half Hollow Hills Community Library, planning for the library over the past few years has anticipated the construction of approximately 3,000 new homes within the area including the 1,375 units proposed at The Greens at Half Hollow. In response to the anticipated increase in demand on library services as a result of these new homes, a referendum will be put to the public in January 2000 for a 9.5 million dollar expansion of existing library facilities including a 12,000-square-foot expansion to the Melville library and a 15,000-square-foot expansion to the Dix Hills library.[4]

b. Anticipated Impacts

The Greens at Half Hollow development will increase demands on the Half Hollow Hills Community Library. However, as indicated above, according to its Director, the library has anticipated the proposed development, along with other recently constructed and proposed developments in the area, and has planned for it.

In addition, the proposed community center at The Greens at Half Hollow will include an 800-square-foot library and computer center for use by

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[4] Telephone interview with Mary Jane Schmidt, Director, Half Hollow Hills Community Library, December 1, 1999.

residents of the development. This on-site library and the $ 250,000 in annual tax revenues, which are anticipated to be generated to the Community Library as a result of the proposed development, will mitigate potential impacts to the Community Library.

c. Proposed Mitigation

Since no significant impacts are anticipated, no mitigation is required.

6. Health Services

a. Existing Conditions

The LIDC site is served by several community hospitals. The community hospitals include Brunswick Center, a privately-owned 474-bed hospital located approximately eight miles south of the LIDC site on Route 110 in Amityville; Central General Hospital, a 239-bed community hospital located approximately four miles west of the site on Old County Road at the Seaford Oyster Bay Expressway in Plainview, and Huntington Hospital, a 398-bed hospital located on Park Avenue north of Route 252A in Huntington Village, approximately seven miles north of the LIDC site.

The Nassau County Medical Center in East Meadow is located approximately 14 miles south and west of the LIDC site. The 615-bed public facility is the closest of the region's tertiary care facilities, and has specialized services such as a trauma care, burn center, cardiac center, and AIDS center.

Existing nursing homes in the vicinity of the site include the 320-bed Pinelawn Nursing Home, located on the LIE South Service Road east of Pinelawn Road, which was recently constructed and is not yet fully occupied. A 201-bed congregate care facility has been proposed in the vicinity of the Pinelawn Nursing Home.

The Sagamore Children's Psychiatric Center, immediately adjacent to the project site, is a State hospital, serving children ages 5-18 from Nassau and Suffolk Counties. The facility provides custodial, educational and therapeutic care for children with acute, intermediate and long term psychiatric needs. The facility has a capacity of 69 beds, and operates a day clinic on site to address acute care needs. The center receives patients from regional ambulance calls, and transfer patients from Nassau County Medical Center and University Hospital at SUNY Stony Brook.

b. Anticipated Impacts

The proposed development will include an on-site health and wellness clinic in the community building which will provide services to all residents of The Greens at Half Hollow. In addition, the proposed assisted living facility will include health care and hygiene services, short-term respite care, physical therapy, and a pharmacy for residents of the facility. These on-site health services will mitigate potential impacts to local health-care providers.

The proposed development is not anticipated to adversely impact services provided by the local hospital network.

c. Proposed Mitigation

As indicated above, The Greens at Half Hollow will include a number of on-site health care services for residents of the development. No additional mitigation is required.

J. Fiscal Conditions

1. Existing Conditions

Although the property had been state-owned, PILOT payments had been provided to Half Hollow Hills School District and the South Huntington Library, with a total of $906,101 paid in 1998-1999. The property is currently owned by the Applicant, it will be assessed as vacant land with taxes based on existing improvements and current zoning

2. Anticipated Impacts

Projected tax revenues shown in Table 21 for the 1,375 unit development are based on estimates made in conjunction with Brian Monahan, the Huntington Tax Assessor. As indicated, the property tax potential is $7.6 million per year, $6.7 million more than the total 1998-1999 PILOT payment.

Table 21
Projected Tax Revenues

Use	Market Value	Assessed value (1.8%)	Taxes Per Unit ($134.641/00)	Taxes Rounded	No of Units	Total Taxes Generated (1999 Dollars)
Single-Family Homes	$700,000	$12,600	$16,965	$17,000	75	$1,275,000
Golf Course Villas	$350,000	$6,300	$8,482	$8,500	350	$2,975,000
Townhouses	$250,000	$4,500	$6,059	$6,000	400	$2,400,000
Condominiums	$175,000	$1,350*	$1,818	$1,800	400	$720,000
Assisted Living Facility	$65,000/bed	$1,170	$1,575	$1,600	150	$240,000
Golf Course	$2,500,000	$45,000	$60,588	$60,600	(1)	$60,600
					1,375	$7,670,600

*Assessed value estimate reduced to $75,000 per unit for condominium flats, as per Tax Assessor

The distribution of projected taxes to various taxing jurisdictions is estimated below. Note that the Half Hollow Hills School District would receive the largest share of the projected revenues: approximately $4,600,000.

Table 22
Distribution of Projected Tax Revenues

Taxing Jurisdiction	**Projected Revenues (rounded)**
Half Hollow Hills School District	$4,600,000
Half Hollow Hills Library	$250,000
Melville Fire District	$150,000
Town of Huntington (Miscellaneous Lines)	$1,400,000
Suffolk County	$150,000
Total	$7,650,000

It is anticipated that the costs to service the proposed development would be significantly less than projected revenues, given the following factors.

- Most of the proposed housing would be age-restricted, with school age children limited to the single family subdivision. As indicated in Section III.J of this DGEIS, the projected tax school district revenues from the proposed development far exceed projected school taxes. The School District's had already accounted for the school children from future development at the LIDC, based upon the 75 single family homes proposed in the **Preliminary Master Plan for the Long Island Developmental Center** in 1995.

- The proposed development will have a private road system and its own internal park and recreation system with facilities designed to serve the needs of the senior population. This will include two club houses, swimming pools, tennis courts, an 18-hole golf course, walking and jogging paths, etc. The development will generate significant tax revenues for the Town of Huntington; costs would be minimized given on-site facilities. Hence, no adverse fiscal impact is anticipated.

- Similarly, the revenues generated for other taxing jurisdictions would be expected to cover the costs necessary to service the development. For the Melville Fire Department, the plan includes the construction of a new fire station, to the west of the projected entry on Old East

Neck Road. This new facility would enable the Fire Department to serve the proposed development and surrounding area with a new facility on the east side of Route 110.

3. Proposed Mitigation

No mitigation is required.

K. Traffic and Transportation

1. Study Approach

As part of the preparation of this portion of the DGEIS, the following tasks were undertaken by Eschbacher & Associates:

- Personal visits to the site were made to observe traffic conditions at various times.

- A physical inventory of the adjacent roadway network was completed.

- An analysis was made of the traffic volume data available from the Suffolk County Department of Public Works and the New York State Department of Transportation.

- Supplementary manual and automatic traffic counts were collected to provide additional traffic volume data.

- A trip generation analysis was undertaken to estimate the volumes of traffic that are expected to enter and exit the site during peak hours.

- A directional distribution analysis was made to distribute site-generated traffic onto the adjacent street network.

- A trip assignment analysis was performed to examine the composite traffic volumes that would result from adding site-generated traffic to background and other planned development traffic volumes, in order to determine design hour volumes at key locations near the site.

- Capacity analyses were performed at key intersections to examine the effects of site traffic.

- A review of the site access was also undertaken.

- The need for traffic mitigation was evaluated.

- Conclusions and recommendations were made regarding the traffic impacts of the proposed traffic impact study.

2. Existing Conditions

a. Roadway System

Regional highway access to the site is available via the Long Island Expressway (LIE) and its Service Roads from Half Hollow Road and from Bagatelle Road, and via the Northern State Parkway from Route 110 and from Wolf Hill Road. These roads then feed into the local arterial roadway system. Both limited access roads are major carriers of traffic through the area, and they help to distribute and disperse traffic to and from the site.

The arterials, which are expected to carry most of the traffic generated by additional development at The Greens at Half Hollow site, are described below.

- Bagatelle Road supports four lanes of traffic (two in each direction) within its 44 to 45-foot width and proceeds in a north-south direction. Its length within the study area is unsignalized, except at its northern terminus at Half Hollow Road, and at the north and south service roads of the LIE to the south.

- Carman Road borders a portion of the project site. The sole access to the east side of the site is from Carman Road. Carman Road runs in a north-south direction, is generally 25 to 30 feet in width and carries a single lane of traffic in each direction. Its full length is unsignalized, except for its northern terminus at Wolf Hill Road and its southern terminus at Bagatelle Road.

- Old East Neck Road borders a small portion of the western edge of the LIDC site where it provides an entrance to the center. Old East Neck Road extends in a north-south direction and carries a single lane of traffic within its 25 to 28-foot width. Its intersections with Old Country Road and Old South Path/New York Avenue are controlled by Stop signs, as are the intersections with the north and south service roads of the LIE.

- Half Hollow Road extends in an east-west direction and carries two lanes of traffic (one in each direction) except between Bagatelle Road and Carman Road where it carries four lanes of traffic (two in each direction) within its 46 to 47-foot width. It provides access to the Sagamore Children's Center located within the site. Its intersections with the LIE's service roads are signalized, as are its intersections with Old South Path, Carman Road and Bagatelle Road.

- LIE Service Roads extend in an east-west direction. Both service roads carry two lanes of traffic with a 10-foot shoulder area within a total street width of 36 feet. In the vicinity of the on/off ramps of the LIE and the signalized intersections at Half Hollow Road and Bagatelle Road, both service roads widen to three lanes to accommodate turning movements. The service roads within the study area are unsignalized, except at the aforementioned intersections.

- Melrose Road extends in a southwest-northeast direction between Wolf Hill Road and Carman Road. Its width varies from 28 to 40 feet and it carries a single lane of traffic in each direction. It is an unsignalized street, except at its intersection with Wolf Hill Road.

- New York Avenue carries a single lane of traffic each way within its 28 to 32-foot width and proceeds in a north-south direction. It is an unsignalized street, except at its intersection with Old Country Road which was recently reconstructed. At its intersection with Old East Neck Road, New York Avenue becomes Old South Path.

- Old Country Road carries a single lane of traffic each way within its 30 to 32-foot width and proceeds in an east-west direction. Its intersections with Wolf Hill Road and New York Avenue are signalized.

- Old South Path borders the southern edge of The Greens at Half Hollow site and provides access to the site. Old South Path runs in an east-west direction, is generally 32 to 34 feet in width and carries a single lane of traffic in each direction. Its full length is unsignalized, except at its eastern terminus at Half Hollow Road. At its intersection with Old East Neck Road, Old South Path becomes New York Avenue.

- Wolf Hill Road extends in an east-west direction. In the vicinity of the Northern State Parkway on-off ramps at Exit 41, it carries a single lane of traffic in each direction. At its approaches to Carman Road, it carries two lanes of traffic in each direction. The intersections at Old Country Road, Carman Road and Melrose Road are signalized, while the intersections at the Northern State Parkway are unsignalized.

Although there are other roadways in the vicinity of The Greens at Half Hollow site, they are primarily residential in character and are not expected to be used to any significant degree.

b. Traffic Volumes

It is recognized that, although the surrounding roadway system is generally operating adequately, any development at the site will result in some amount of additional traffic flow passing through a series of intersections. These key intersections, rather than the connecting roadway links, will limit the amount of site-generated trips able to travel to and from the site under satisfactory level-of-service conditions.

For this study, the following locations were identified as key intersections which should be evaluated as part of the traffic impact analysis process:

- New York Avenue – Old Country Road
- Old South Path – Half Hollow Road
- Half Hollow Road – LIE N. Service Road
- Half Hollow Road – LIE S. Service Road
- Bagatelle Road – LIE N. Service Road
- Bagatelle Road – LIE S. Service Road
- Bagatelle Road – Half Hollow Road
- Half Hollow Road – Carman Road
- Carman Road – Wolf Hill Road
- Wolf Hill Road – Caledonia Road
- Wolf Hill Road – Melrose Road
- Wolf Hill Road – Northern State Parkway Eastbound Ramps
- Wolf Hill Road – Northern State Parkway Westbound Ramps
- Wolf Hill Road – Old Country Road
- Old South Path – Old East Neck Road

These locations are presented in Exhibit 53.

The manual turning movement counts were collected at each of the above key intersections during the morning and evening peak hours during typical weekdays. The resulting peak hour volumes are presented in Exhibit 54 for the AM peak hour and Exhibit 55 for the PM peak hour. Presented in

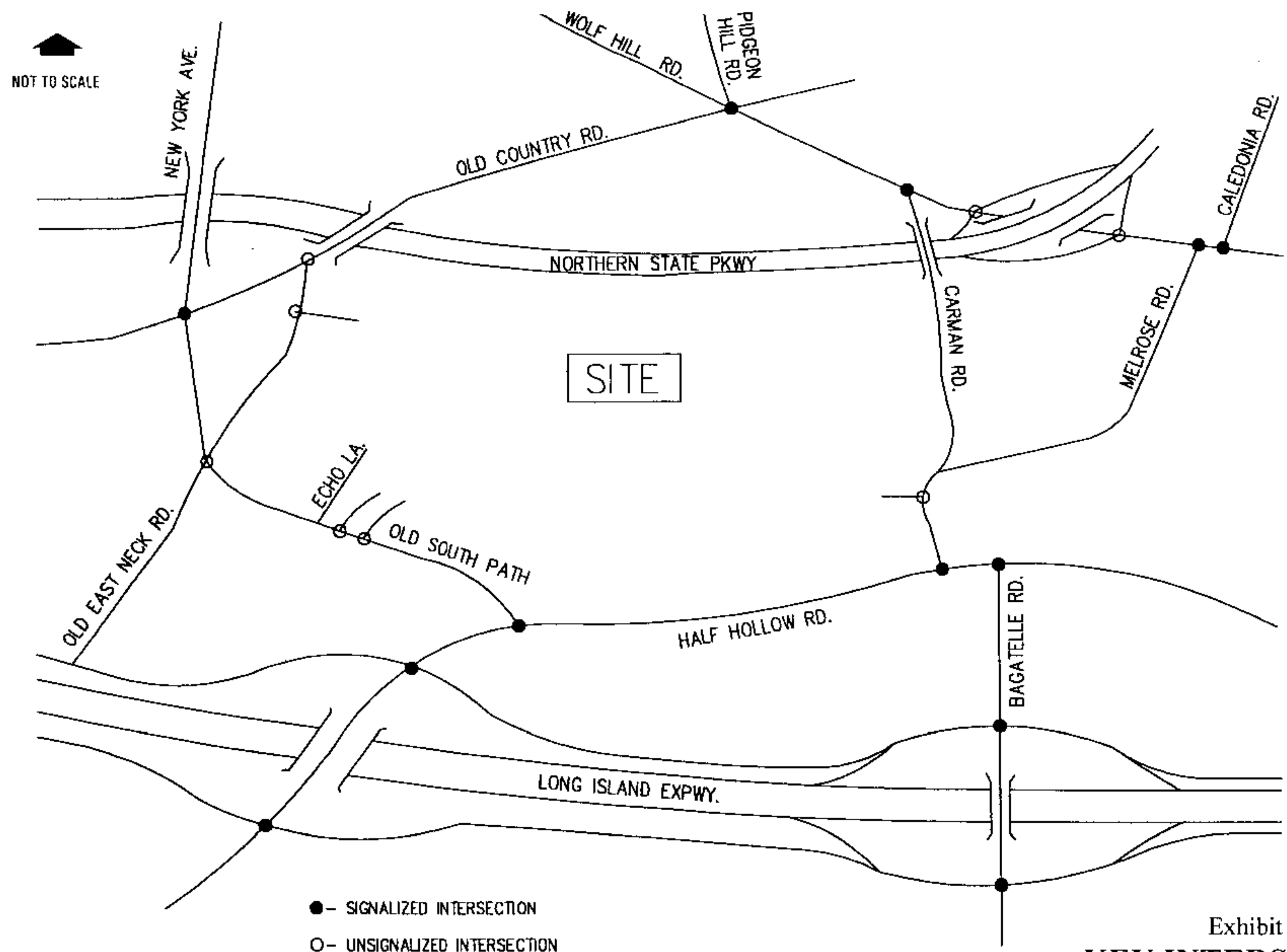


Exhibit 53

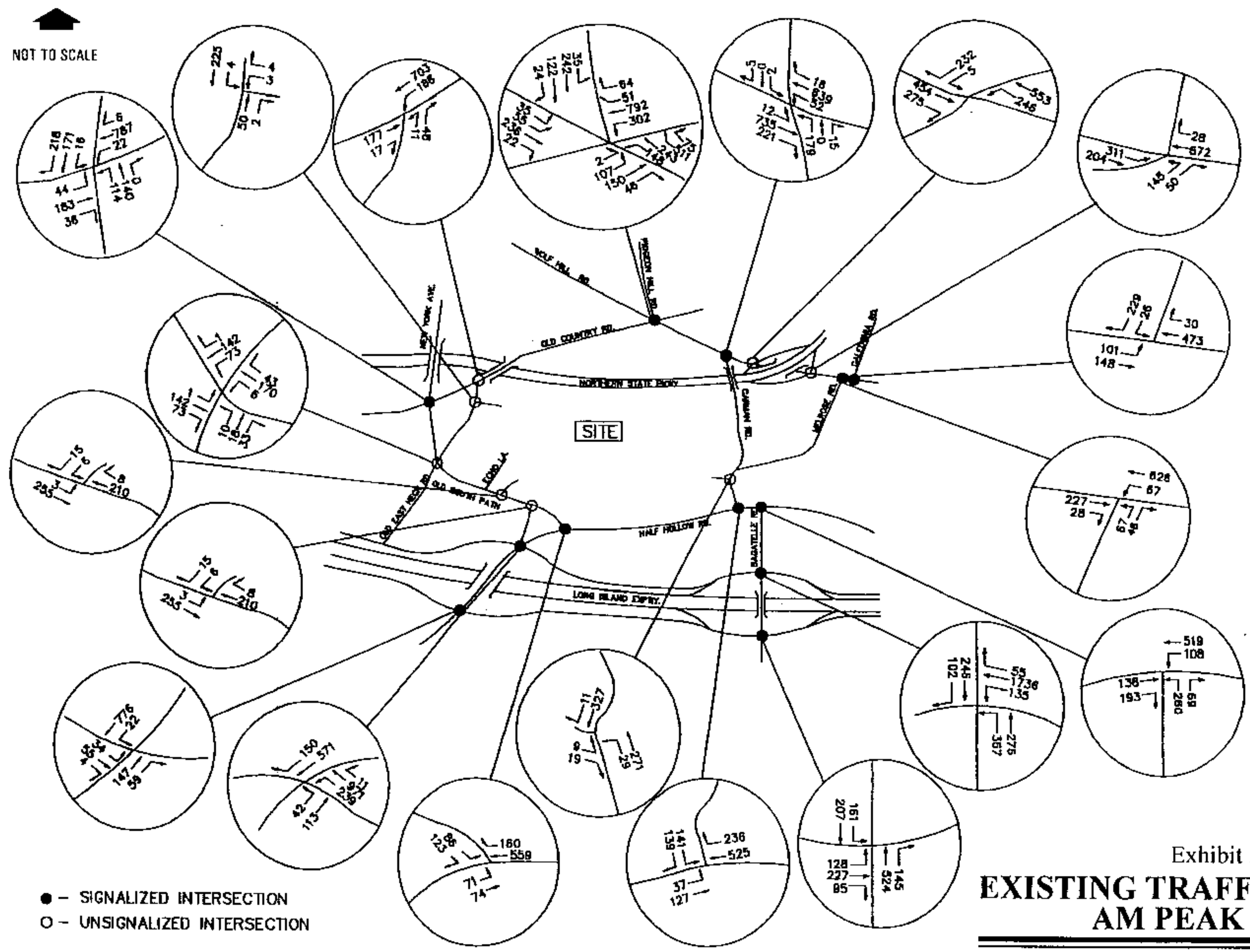
KEY INTERSECTIONS

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

SOURCE: Eschbacher Engineering, P.C.



● – SIGNALIZED INTERSECTION
○ – UNSIGNALIZED INTERSECTION

SOURCE: Eschbacher Engineering, P.C.

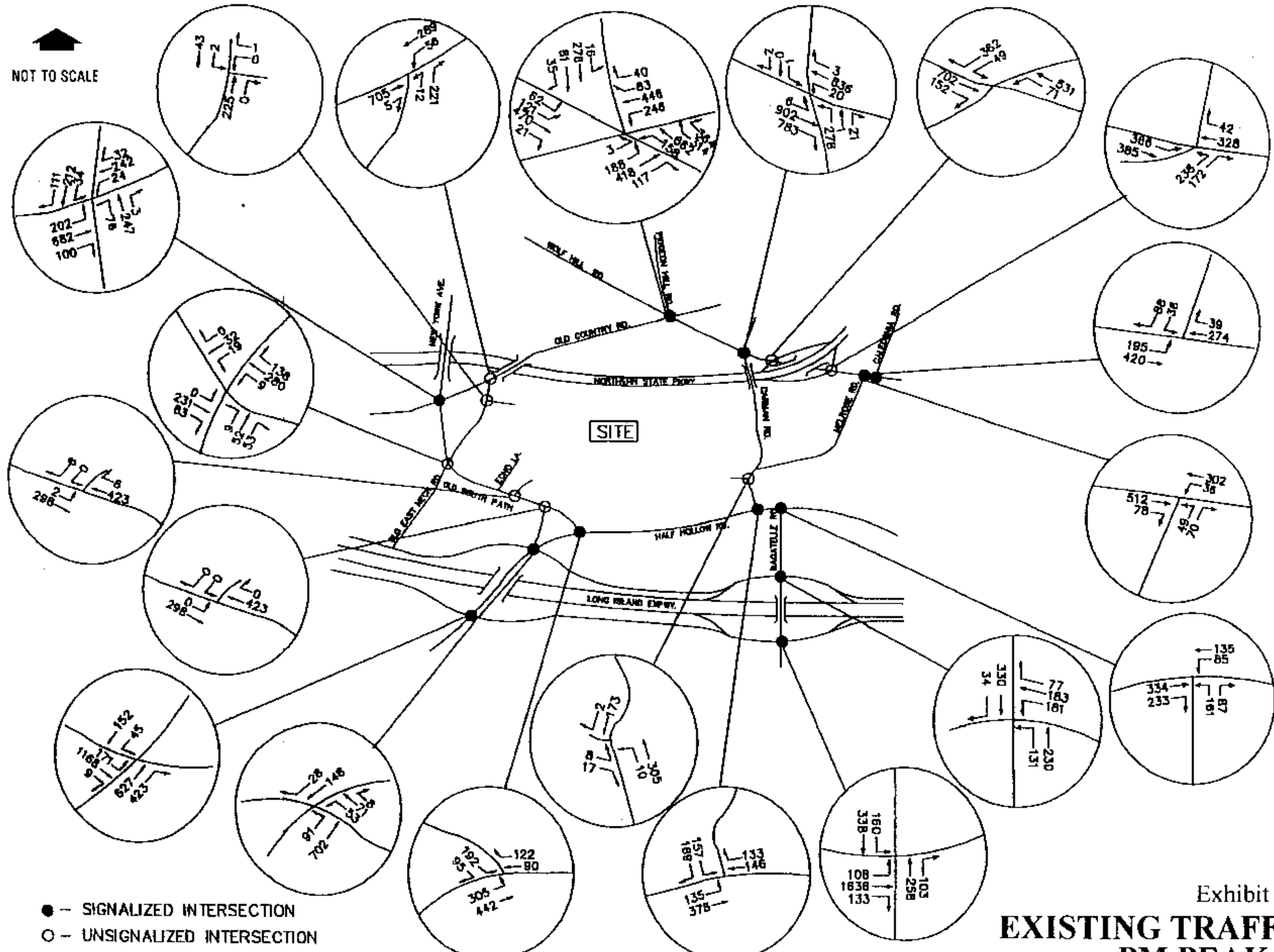
Exhibit 54

EXISTING TRAFFIC VOLUMES AM PEAK HOUR

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants



SOURCE: Eschbacher Engineering, P.C.

Exhibit 55

EXISTING TRAFFIC VOLUMES
PM PEAK HOUR

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

Exhibit 56 are the 24-hour traffic volumes recorded along various roads in the study area. The detailed traffic volumes are presented in the Appendix.

The pattern of fluctuation in traffic volumes along each roadway is generally consistent with expectations based upon the types of land uses served. Also, as expected, the connecting arterial streets around the site carry the heavier traffic volumes, and will continue to do so in the future.

c. Accident Information

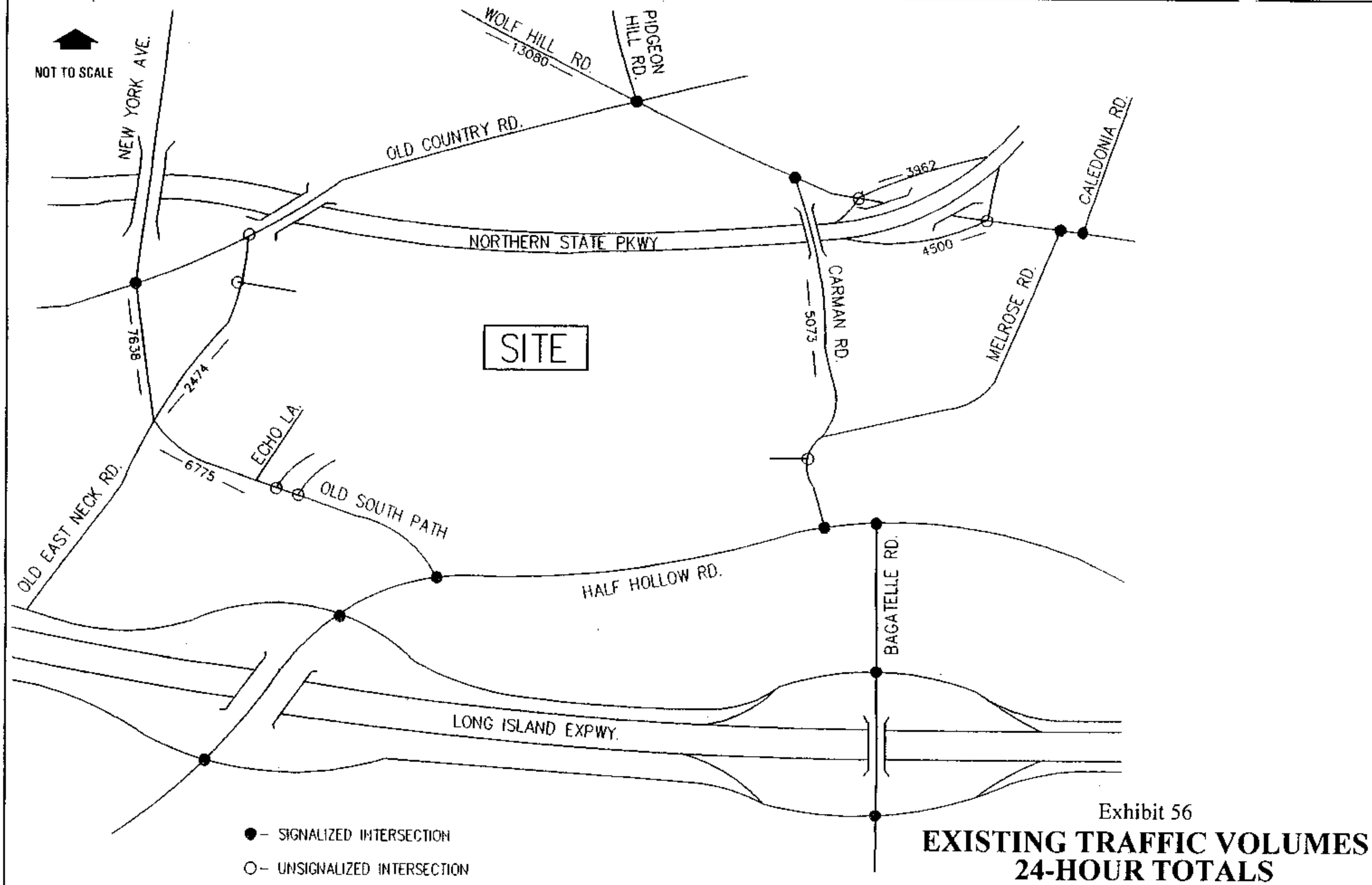
Information was obtained from the New York State Department of Transportation regarding accidents that have occurred in the vicinity of the site for the three-year period from April 1, 1995 through March 31, 1998. These data made it possible to identify the existing accident patterns and to evaluate the effects of the proposed development on the rate of accidents in the area. A summary of the three-year totals is presented in Exhibit 57. There are generally low rates of accident occurrence on the roadways in the site vicinity, except for the intersection of Old Country Road at Wolf Hill Road/Pidgeon Hill Road. Of 37 accidents recorded at this intersection over a three-year period (an average of just over 12 accidents per year), 16 accidents were non-reportable. This higher accident rate is not unusual for such 5-legged intersections. It is expected that the proposed development will not significantly change the rate of accidents in the vicinity of the project area.

d. Public Transportation

Transit service in the vicinity of The Greens at Half Hollow site is provided by the Long Island Rail Road (LIRR) and by Suffolk County Transit. A portion of the railroad system map is shown in Exhibit 58, followed by a bus system map in Exhibit 59.

The closest LIRR stations are at Farmingdale and Wyandanch (both on the Ronkonkoma Branch) which are approximately four miles to the south, and at Huntington Station (on the Port Jefferson Branch) which is 5 miles to the north. Both branches are electrified, with service primarily scheduled to accommodate the needs of New York City bound commuters.

Suffolk County Transit currently provides bus service to the Carman Road entrance of the LIDC site Monday-Saturday on the S23 bus route, which operates between Walt Whitman Mall and the Babylon LIRR station. No bus



SOURCE: Eschbacher Engineering, P.C.

Exhibit 56

EXISTING TRAFFIC VOLUMES
24-HOUR TOTALS

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

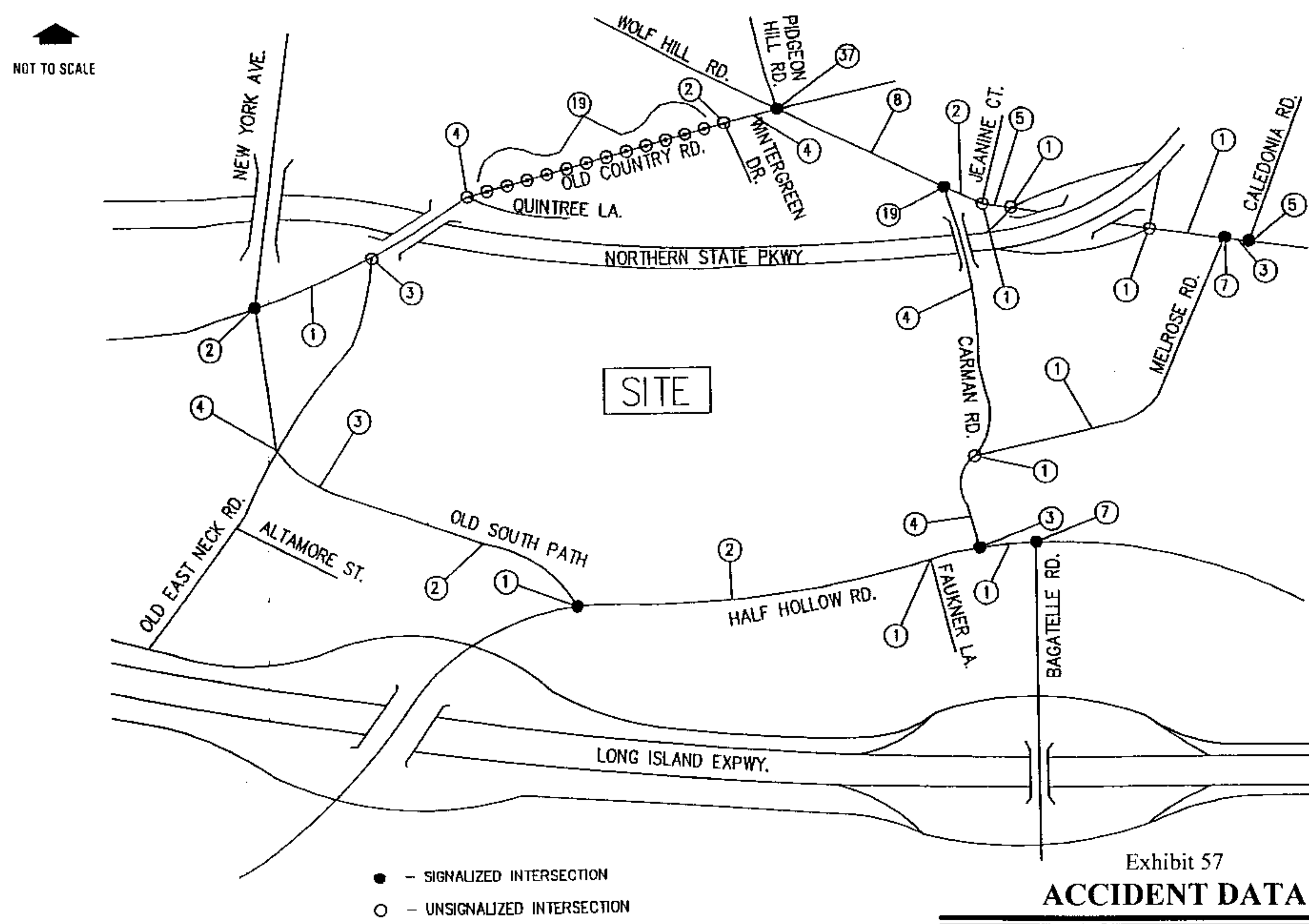


Exhibit 57
ACCIDENT DATA

The Greens at Half Hollow
Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

SOURCE: Eschbacher Engineering, P.C.

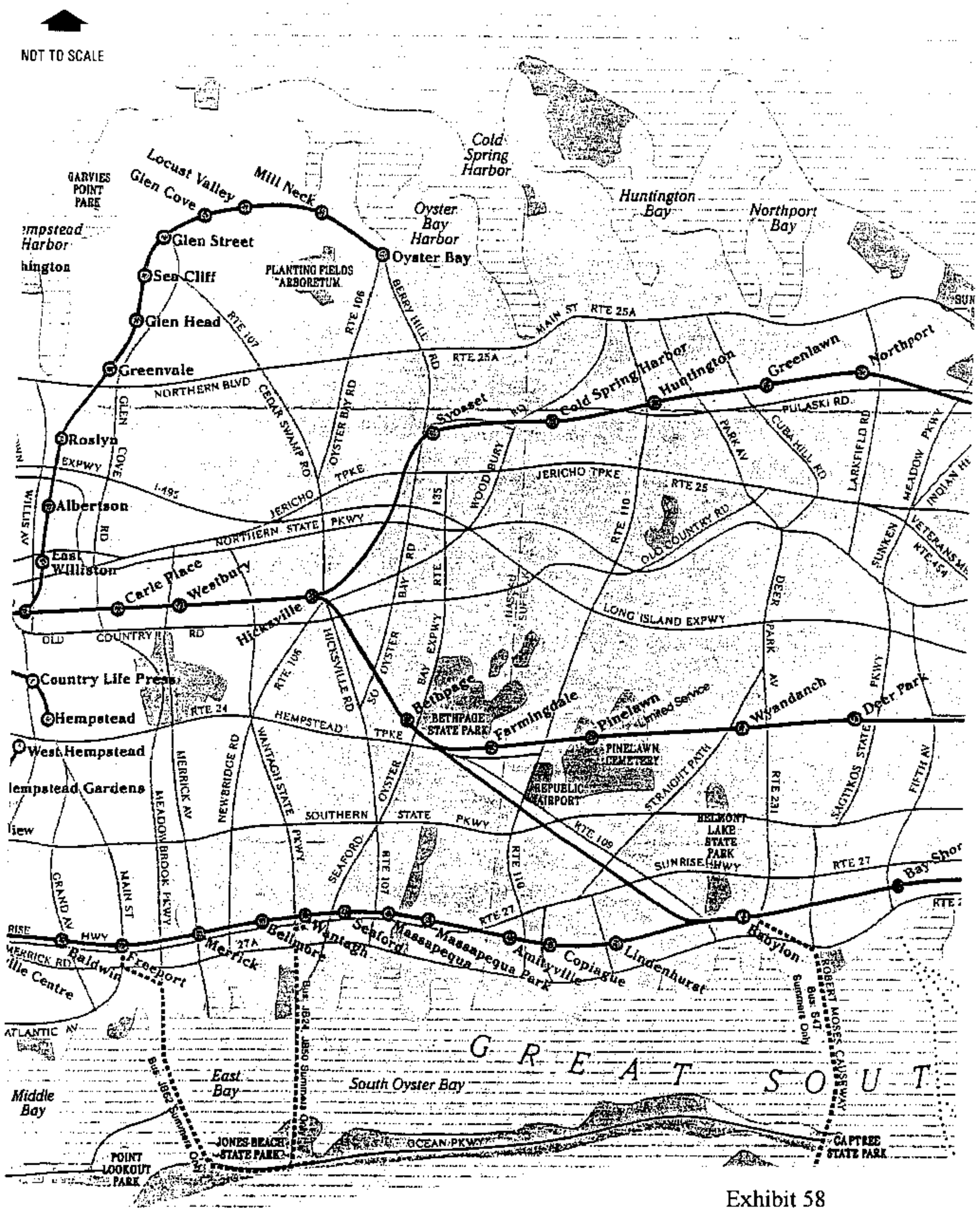


Exhibit 58

LIRR SYSTEMS

The Greens at Half Hollow

Town of Huntington, New York

SOURCE: Eschbacher Engineering, P.C.

Saccardi & Schiff, Inc. - Planning & Development Consultants

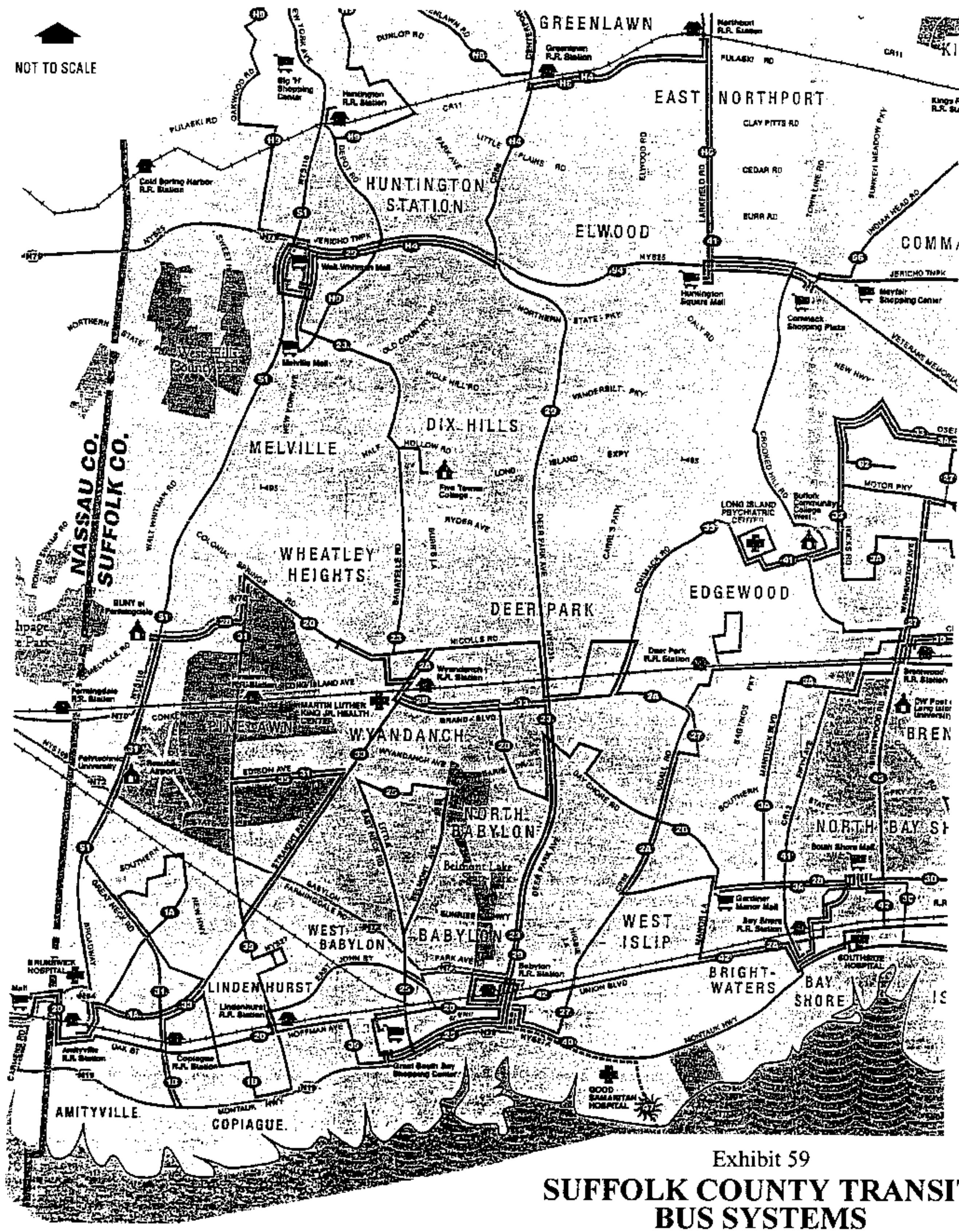


Exhibit 59

SUFFOLK COUNTY TRANSIT BUS SYSTEMS

The Greens at Half Hollow

Town of Huntington, New York

SOURCE: Eschbacher Engineering, P.C.

Saccardi & Schiff, Inc. - Planning & Development Consultants

service is provided to the other site access points on Old East Neck Road, Half Hollow Road or Old South Path.

Bus service from the site to the Huntington LIRR Station requires taking the S23 route to the Walt Whitman Mall and transferring to the S1 route, which operates along Route 110.

The Applicant will provide jitney bus service between The Greens at Half Hollow site and the adjoining shopping areas. In addition to increasing mobility for the senior population, this will also reduce traffic generation.

3. Trip Generation Analysis

a. Trip Generation

Projections of the volumes of traffic expected to be generated by the proposed development of the site were developed using the widely-recognized research document "Trip Generation" (Sixth Edition, 1997) published by the Institute of Transportation Engineers (ITE). The resulting trip generation data were determined and are presented in Table 23. The detailed calculations are contained in the Appendix.

The trip generation rates reflect the fact that some of the senior residents of the proposed development will be working full-time during normal work hours, others will be working part-time or have flexible work hours, and others will be retired.

Table 23
Trip Generation Data

	Am Peak Hour Trips			PM Peak Hour Trips		
	Entering	Exiting	Total	Entering	Exiting	Total
75 Single family houses	14	42	56	49	27	76
150 Assisted living units	21	12	33	15	22	37
1150 Senior housing units	88	108	196	174	137	311
18 Hole golf course	16	4	20	11	14	25
Total Trips	**139**	**166**	**305**	**249**	**200**	**449**

b. Traffic Assignment/Distribution

Vehicular traffic originating from and destined to the project site was assigned to the street network based on the existing travel patterns, access to the major highways (LIE and NSP), major arterials and population densities in the area. Exhibit 60 presents the trip distribution percentages, for the senior housing and assisted living units, which access the site via Old East Neck Road and Old South Path. The distribution used for the single family housing is generally similar, but also includes access from Carman Road, as discussed later in this report. Exhibits 61 and 62 present the traffic volumes generated during the AM and PM peak hours.

4. Capacity Analysis

a. Methodology

In order to examine the impact on the adjacent roadways in the immediate vicinity of the site, intersection capacity analyses were performed for the key intersections for the weekday AM and PM peak hour time periods.

These calculations of intersection capacity and level-of-service were based on the methodology presented in the 1997 Highway Capacity Manual (HCM), published by the Transportation Research Board. The latest Federal Highway Administration Highway Capacity Software versions were used in this analysis. These analyses are used by traffic engineers to evaluate the ability of an intersection or roadway to efficiently handle the number of vehicles.

Level-of-service for intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption and lost travel time. Level-of-service criteria are stated in terms of average stopped delay per vehicle.

Based on the HCM methodology, there are six classes of level-of-service, ranging from A (best) to F (worst), and are defined below:

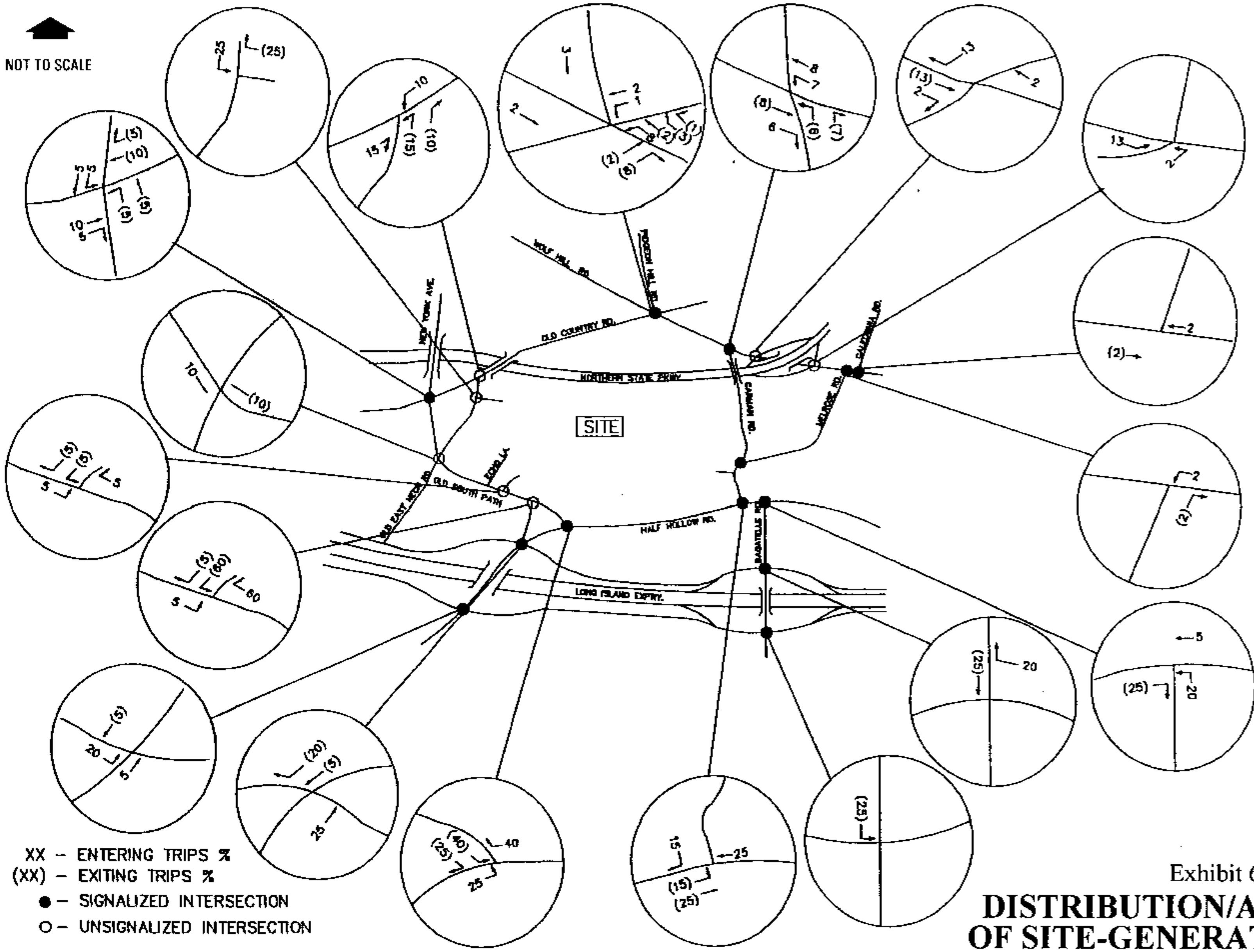


Exhibit 60

DISTRIBUTION/ASSIGNMENT OF SITE-GENERATED TRAFFIC

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

SOURCE: Eschbacher Engineering, P.C.

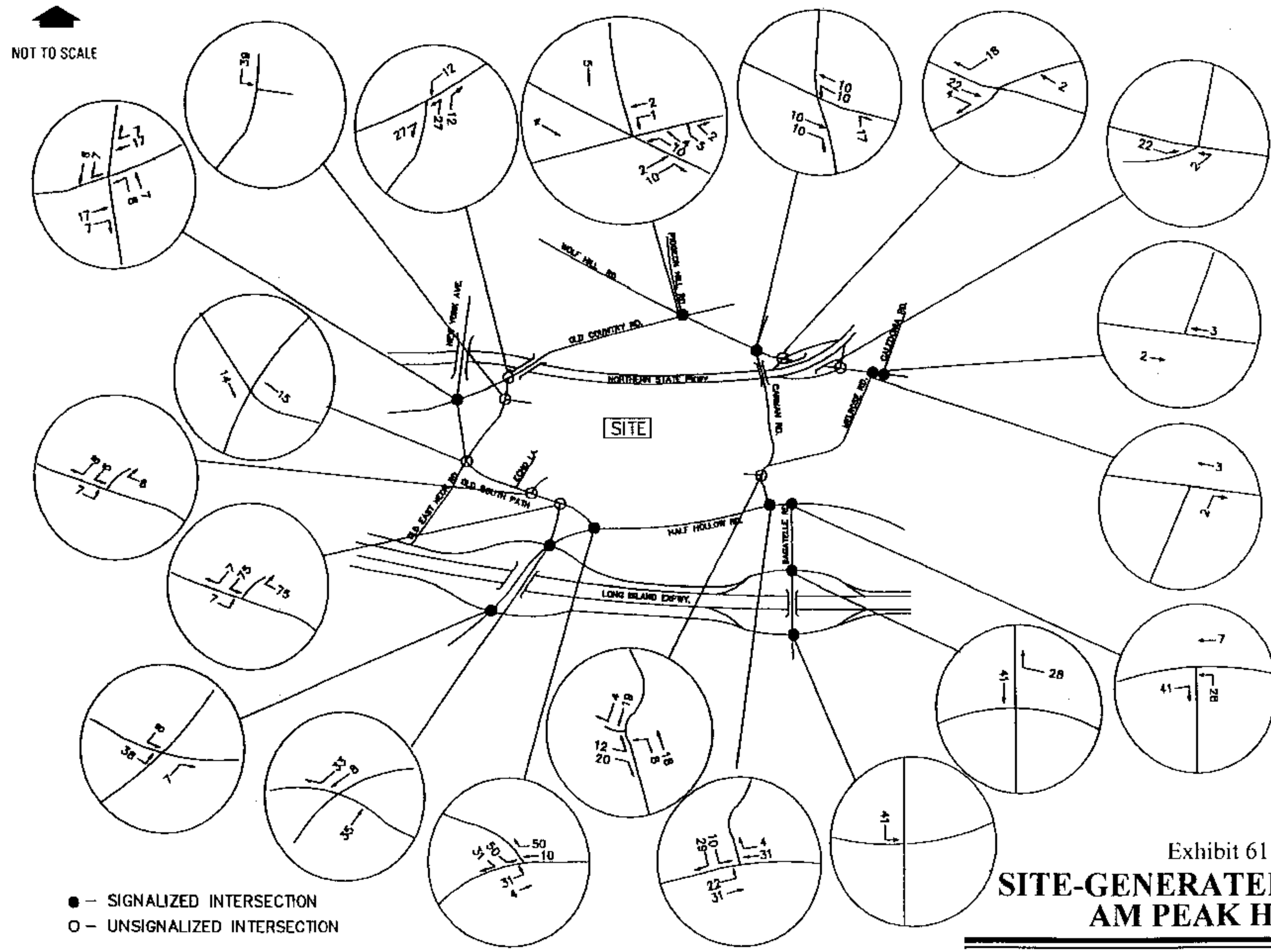


Exhibit 61

SITE-GENERATED TRAFFIC
AM PEAK HOUR

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

SOURCE: Eschbacher Engineering, P.C.

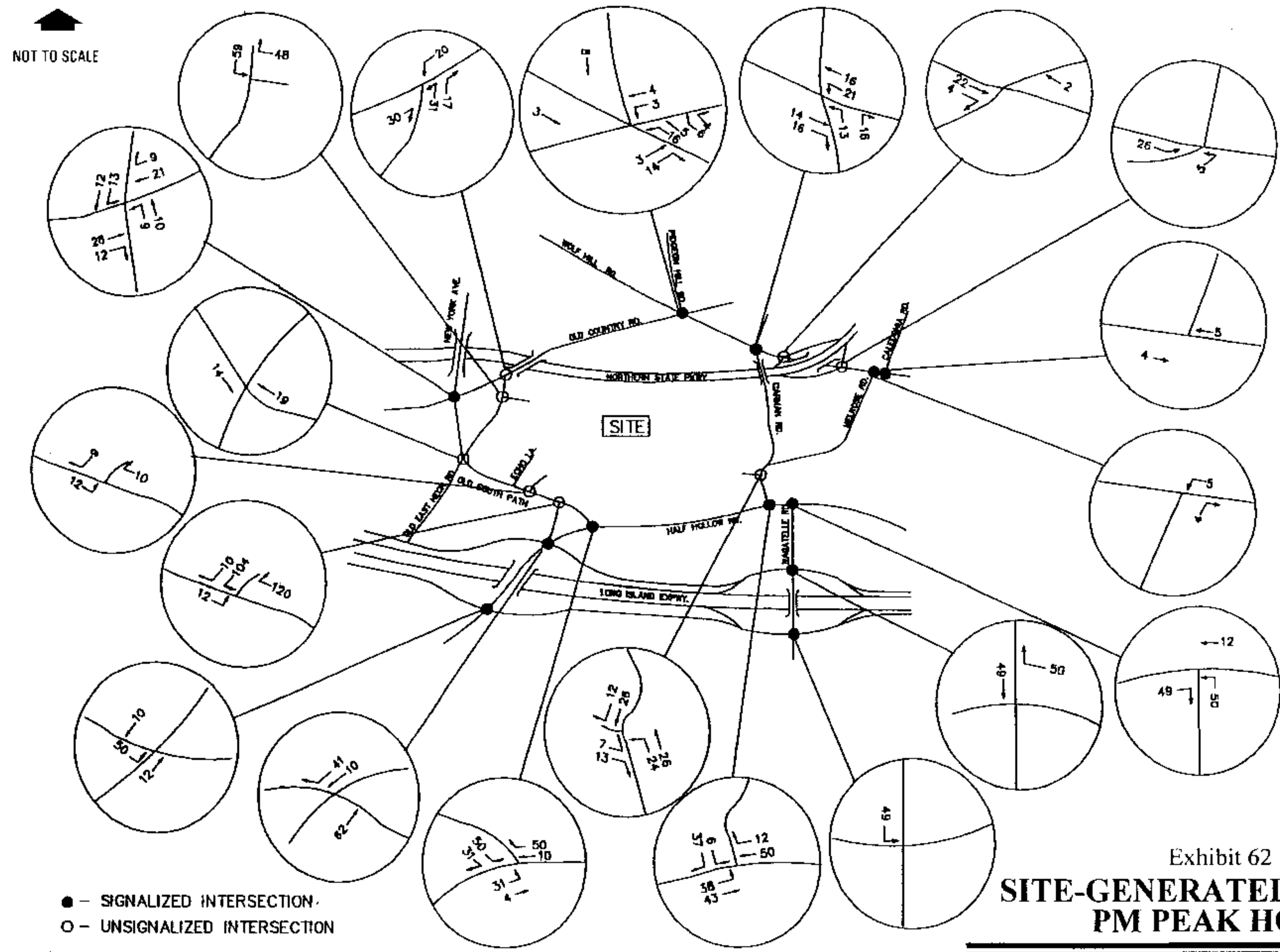


Exhibit 62

SITE-GENERATED TRAFFIC
PM PEAK HOUR

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

SOURCE: Eschbacher Engineering, P.C.

Table 24
Level-of-Service Criteria

Level-of-Service	Stopped Delay Per Vehicle	
	Signalized Intersection	Unsignalized Intersection
A	5.0 seconds or less	5.0 seconds or less
B	5.1 to 15.0 seconds	5.1 to 10.0 seconds
C	15.1 to 25.0 seconds	10.1 to 20.0 seconds
D	25.1 to 40.0 seconds	20.1 to 30.0 seconds
E	40.1 to 60.0 seconds	30.1 to 45.0 seconds
F	greater than 60.0 seconds	greater than 45.0 seconds

b. Existing Conditions

Capacity analyses were first performed to examine current levels of service, based upon 1999 traffic volumes and existing intersection configurations.

c. Future No-Build Conditions

The analysis of the future conditions without the proposed development ("no-build" conditions) was next performed to evaluate the expected future traffic conditions attributed to the normal growth in traffic and any additional traffic generated by other potential developments in the area.

In order to identify other potential developments in the study area, input was sought from the Planning Department of the Town of Huntington, and it was determined that the following projects should be considered for their possible impact on the key intersections being evaluated for the LIDC project:

Table 25
Other Planned Developments

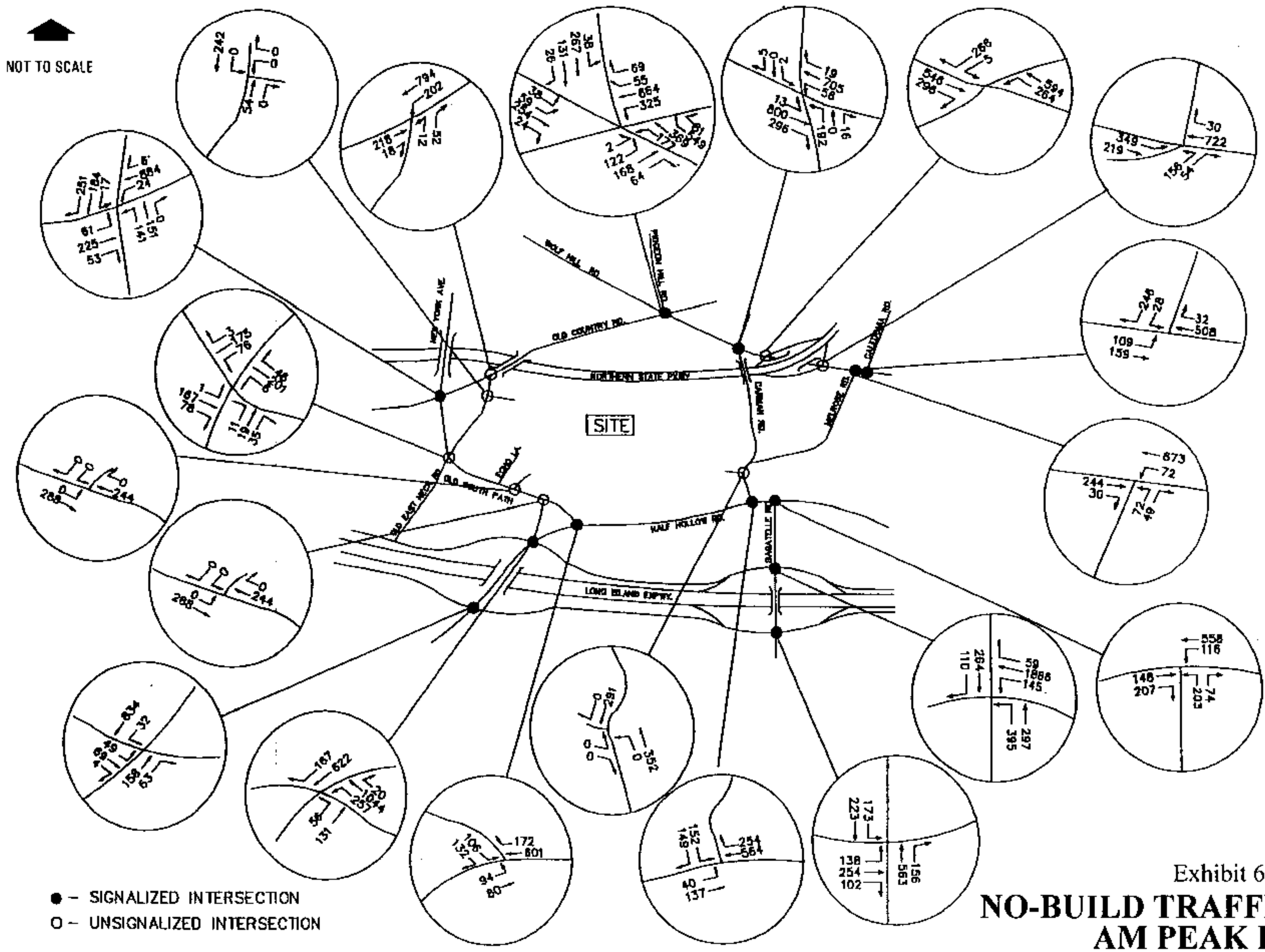
Project Name	Location	Size
Maxess Corporate Center (expansion)	Maxess Road, south of Corporate Center Drive	210,000 SF office
Melville Law Center (proposed)	Old Country Road, west of New York Avenue	16,000 SF office
Pinelawn Nursing Home (not fully occupied)	L.I.E. South Service Road, east of Pinelawn Road	320 beds
Congregate Care Facility (proposed)	Pinelawn Road, south of LIE South Service Road	201 beds
Astoria Federal Savings (vacancy)	Old Country Road, east of Route 110	209,000 SF office
The Villages at Huntington (under construction)	Old Country Road, west of New York Avenue	248 single family homes 259 condominiums

The background traffic growth was considered by multiplying the existing peak hour traffic volumes by an annual growth factor of 1.5 percent for five years (or 7.5 percent total to the year 2004).

Exhibits 63 and 64 present the future no-build traffic volumes for the AM and PM peak hours, respectively.

d. Future Build Conditions

The analysis of future conditions with the proposed Greens at Half Hollow development ("build" condition) was performed to evaluate the expected future traffic conditions with the addition of the vehicles that would be generated by the proposed project.



SOURCE: Eschbacher Engineering, P.C.

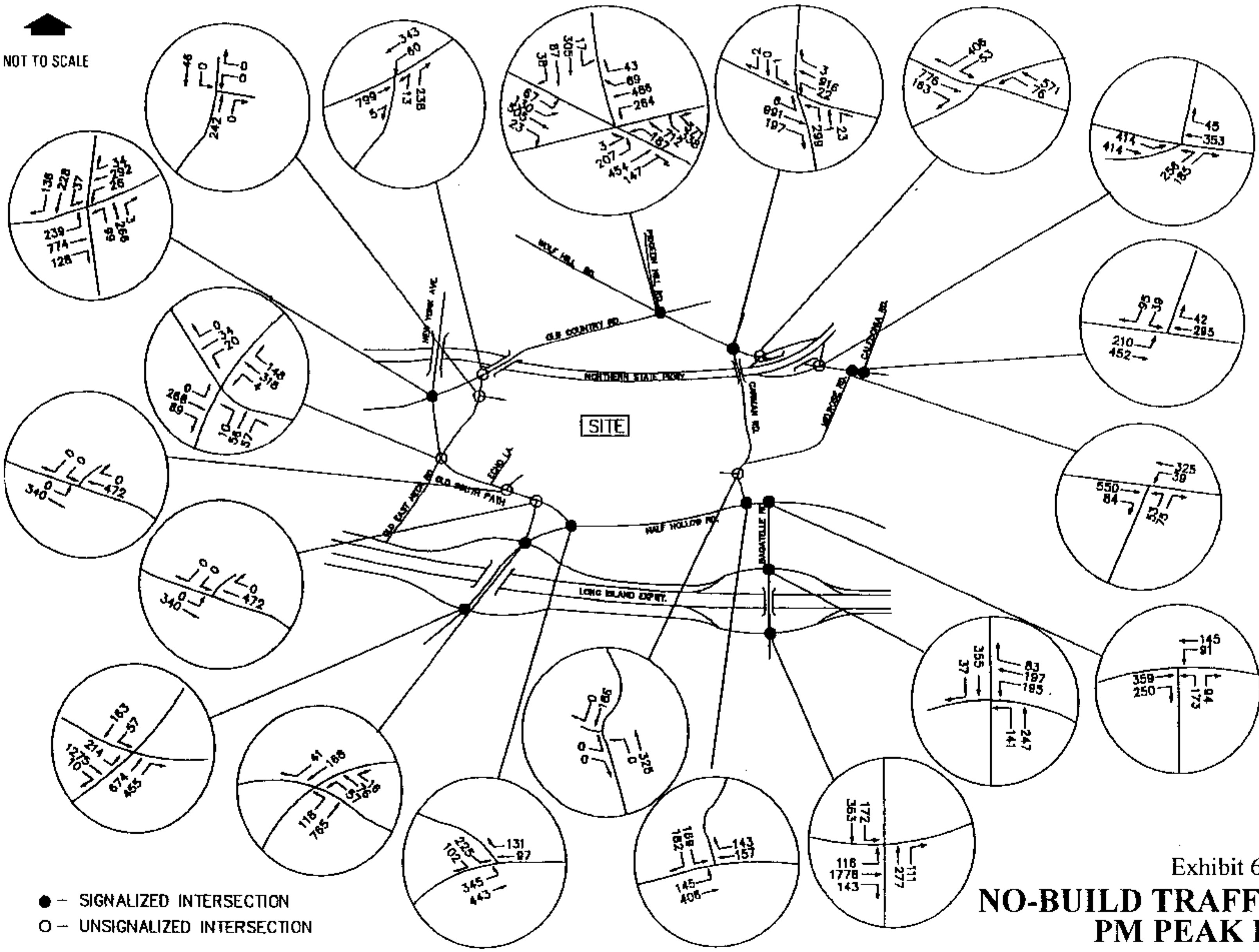
Exhibit 63

NO-BUILD TRAFFIC VOLUMES AM PEAK HOUR

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants



● – SIGNALIZED INTERSECTION

O – UNSIGNALIZED INTERSECTION

SOURCE: Eschbacher Engineering, P.C.

Exhibit 64

NO-BUILD TRAFFIC VOLUMES PM PEAK HOUR

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

There will be four access points serving this project site: one from Old East Neck Road, one from Carman Road and two from Old South Path. The access from Carman Road will be restricted to residents/visitors of the single family houses, and will be controlled by gates. Motorists traveling to and from the senior housing and assisted living areas of the site will not be able to pass through the single family housing section of the site to Carman Road.

The 2004 future build traffic volumes were estimated by adding the traffic volumes generated by the proposed LIDC development to the no-build traffic volumes. Exhibits 65 and 66 present the year 2004 future traffic volumes for the AM and PM peak hours.

e. Analysis Results

The level-of-service results for the various conditions during the AM and PM peak hours have been summarized and are presented in Tables 26 and 27 (for the signalized intersections) and Tables 28 and 29 (for the unsignalized intersections). The detailed computer analysis data sheets are presented in the Appendix.

The results indicate that the signalized intersections will operate at an acceptable overall level-of-service during both the AM and PM peak hours. Thus, traffic mitigation will not be required for the signalized intersections.

For the unsignalized intersections, attention has been directed to the level-of-service for turning movements, which must be made through gaps in the traffic flow. These locations are addressed in the next section.

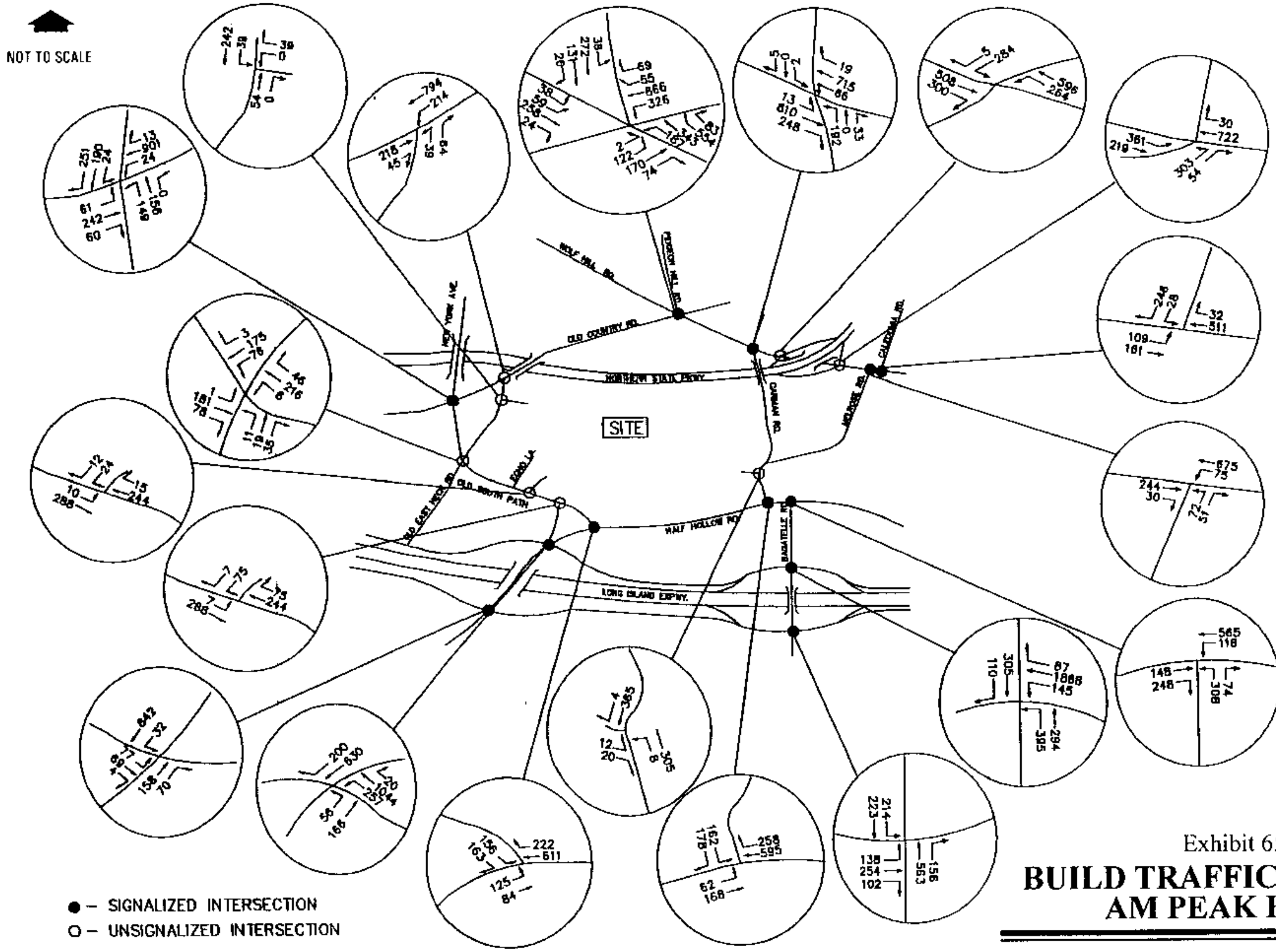


Exhibit 65

BUILD TRAFFIC VOLUMES
AM PEAK HOUR

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

SOURCE: Eschbacher Engineering, P.C.

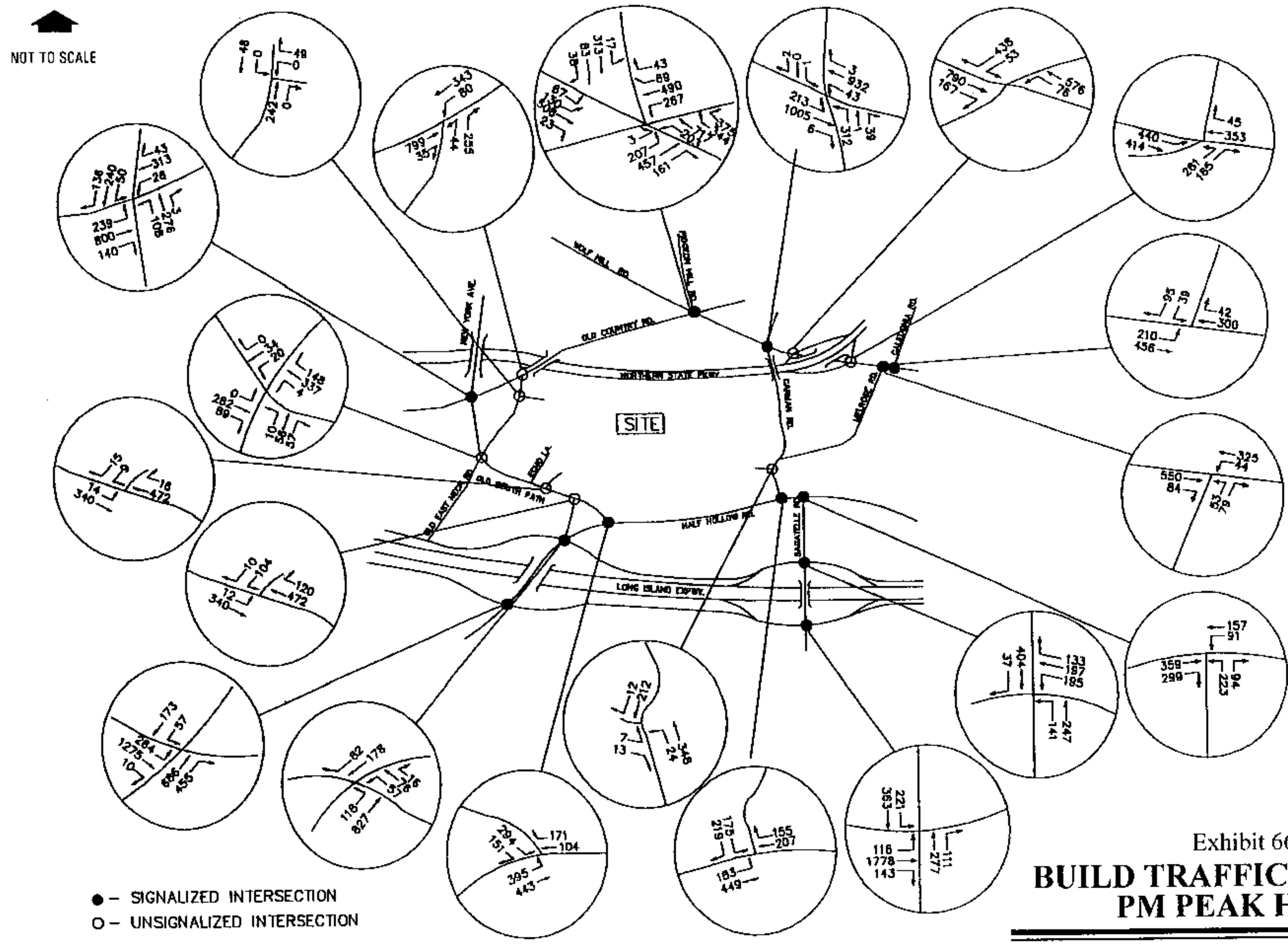


Exhibit 66

BUILD TRAFFIC VOLUMES
PM PEAK HOUR

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

SOURCE: Eschbacher Engineering, P.C.

Table 26
Level of Service Summary: Signalized Intersections - Weekday A.M. Peak Hour

Intersection/Approach	Existing Conditions	No-Building Conditions	Build Condition
Bagatelle Road @ Half Hollow Road			
Northbound	C	C	C
Eastbound	A	A	A
Westbound	A	A	A
Overall Intersection	B	B	B
Bagatelle Road @ LIE N. Service Road			
Northbound	C	D	D
Southbound	B	B	B
Westbound	C	D	D
Overall Intersection	C	D	D
Bagatelle Road @ LIE S. Service Road			
Northbound	B	C	C
Southbound	B	B	B
Eastbound	B	B	B
Overall Intersection	B	B	B
Carman Road @ Half Hollow Road			
Southbound	D	D	E
Eastbound	A	A	A
Westbound	A	A	A
Overall Intersection	B	B	B
Half Hollow Road @ LIE N. Service Road			
Northbound	B	B	B
Southbound	B	B	B
Westbound	B	B	B
Overall Intersection	B	B	B
Old South Path @ Half Hollow Road			
Southbound	B	B	B
Eastbound	A	A	B
Westbound	A	A	A
Overall Intersection	B	B	B
Half Hollow Road @ LIE S. Service Road			
Northbound	B	B	B
Southbound	C	C	C
Eastbound	B	B	B
Overall Intersection	B	C	C
New York Avenue @ Old Country Road			
Northbound	C	C	C
Southbound	B	C	C
Eastbound	B	B	B
Westbound	B	B	B
Overall Intersection	B	B	B

Table 26
(continued)

Intersection/Approach	Existing Conditions	No-Building Conditions	Build Condition
Wolf Hill Road @ Old Country Road			
Northbound	D	E	E
Southbound	C	D	D
Eastbound	C	C	C
Westbound	D	D	D
Overall Intersection	D	D	D
Wolf Hill Road @ Caledonia Road			
Northbound	A	A	A
Southbound	A	A	A
Westbound	D	E	E
Overall Intersection	B	B	B
Wolf Hill Road @ Melrose Road			
Northbound	A	A	A
Southbound	A	A	A
Eastbound	C	C	C
Overall Intersection	A	A	A
Wolf Hill Road @ Carman Road			
Northbound	B	B	B
Southbound	B	B	B
Eastbound	A	A	A
Westbound	A	A	A
Overall Intersection	A	A	A

Table 27
Level of Service Summary: Signalized Intersections - Weekday P.M. Peak Hour

Intersection/Approach	Existing Conditions	No-Building Conditions	Build Condition
Bagatelle Road @ Half Hollow Road			
Northbound	C	D	E
Eastbound	A	A	A
Westbound	A	A	A
Overall Intersection	B	B	B
Bagatelle Road @ LIE N. Service Road			
Northbound	B	B	B
Southbound	B	B	B
Westbound	B	B	B
Overall Intersection	B	B	B
Bagatelle Road @ LIE S. Service Road			
Northbound	B	B	B
Southbound	B	B	B
Eastbound	B	C	C
Overall Intersection	B	C	C
Carman Road @ Half Hollow Road			
Southbound	B	B	C
Eastbound	A	A	A
Westbound	A	A	A
Overall Intersection	B	B	B
Half Hollow Road @ LIE N. Service Road			
Northbound	B	C	D
Southbound	B	B	B
Westbound	B	B	B
Overall Intersection	B	C	C
Old South Path @ Half Hollow Road			
Southbound	B	B	B
Eastbound	A	A	B
Westbound	A	A	A
Overall Intersection	B	B	B
Half Hollow Road @ LIE S. Service Road			
Northbound	B	B	B
Southbound	B	B	B
Eastbound	B	C	C
Overall Intersection	B	B	B
New York Avenue @ Old Country Road			
Northbound	C	C	C
Southbound	B	C	D
Eastbound	B	B	B
Westbound	B	B	B
Overall Intersection	B	B	B

Table 27
(continued)

Intersection/Approach	Existing Conditions	No-Building Conditions	Build Condition
Wolf Hill Road @ Old Country Road			
Northbound	C	D	D
Southbound	D	D	D
Eastbound	D	D	E
Westbound	D	E	E
Overall Intersection	D	D	D
Wolf Hill Road @ Caledonia Road			
Northbound	A	A	A
Southbound	B	B	B
Westbound	B	B	B
Overall Intersection	B	B	B
Wolf Hill Road @ Melrose Road			
Northbound	A	A	A
Southbound	A	A	A
Eastbound	C	C	C
Overall Intersection	A	A	A
Wolf Hill Road @ Carman Road			
Northbound	B	C	C
Southbound	B	B	B
Eastbound	A	A	A
Westbound	A	A	B
Overall Intersection	A	B	B

Table 28
Level of Service Summary: Unsignalized Intersections - Weekday A.m. Peak Hour

Intersection/Approach	Existing Conditions	No-Building Conditions	Build Condition
Old East Neck Road @ Old Country Road			
Northbound – Left/Right	B	B	D
Westbound - Left	A	A	A
Old East Neck Road @ Old South Path			
Northbound - Left/Thru	B	B	B
Northbound - Right	A	A	A
Southbound - Left/Thru/Right	B	C	C
Eastbound - Left	A	A	A
Westbound - Left	A	A	A
Wolf Hill Road @ EB Northern State Parkway Entrance Exit Ramp			
Eastbound – Left/Right	F	F	F
Southbound - Left	B	C	C
Wolf Hill Road @ WB Northern State Parkway Entrance Exit Ramp			
Westbound – Left	F	F	F
Westbound - Right	B	B	C
Northbound - Left	B	C	C

Table 29
Level of Service Summary: Unsignalized Intersections - Weekday P.m. Peak Hour

Intersection/Approach	Existing Conditions	No-Building Conditions	Build Condition
Old East Neck Road @ Old Country Road			
Northbound – Left/Right	C	C	D
Westbound - Left	B	B	B
Old East Neck Road @ Old South Path			
Northbound - Left/Thru	B	C	C
Northbound - Right	A	A	A
Southbound - Left/Thru/Right	B	C	C
Eastbound - Left	A	A	A
Westbound - Left	A	A	A
Wolf Hill Road @ Northern State Parkway Eastbound Exit Ramp			
Eastbound – Left/Right	F	F	F
Southbound - Left	B	B	B
Wolf Hill Road @ Northern State Parkway Westbound Exit Ramp			
Westbound – Left	F	F	F
Westbound – Right	C	C	C
Northbound - Left	B	B	B

5. Mitigation Measures and Improvements

Site Access

Site entrance roads have been designed to provide for two exiting lanes – one for right turns and one for left turns. Left and right turns into the site will be made from the through traffic lane passing by the site entrance. In order to evaluate the level-of-service for the access design, capacity analyses were performed at each location for the AM and PM peak hours. The results are presented in Table 30.

Table 30
Level of Service Summary
Site Access Points - Build Conditions

	Weekday A.M.	Weekday P.M.
OLD EAST NECK ROAD		
Southbound – Left	A	A
Westbound – Right	A	A
Westbound - Left	B	B
OLD SOUTH PATH (westerly access)		
Eastbound – Left	A	A
Southbound - Left	B	C
Southbound - Right	A	B
OLD SOUTH PATH (easterly access)		
Eastbound – Left	A	A
Southbound - Left	B	C
Southbound - Right	A	B
CARMAN ROAD		
Northbound - Left	A	A
Eastbound - Left	B	B
Eastbound - Right	A	A

As indicated, all turns will be accommodated at an acceptable level-of-service under the proposed design.

A proposed jitney bus service will provide residents of the development access to the proposed clubhouse and nearby shopping centers and will further minimize traffic impacts in the area.

Off-Site Improvements

The unsignalized intersection level-of-service results indicate significant delays during the AM and PM peak hours for traffic exiting the eastbound and westbound Northern State Parkway ramps at Wolf Hill Road. This is a situation which currently exists, and will be further impacted by the general future area wide growth in traffic, and by the traffic generated by the proposed development. In order to mitigate this condition, it is recommended that traffic signals be installed at these intersections, if approved by the Town of Huntington (which has jurisdiction over Wolf Hill Road) and the New York State Department of Transportation (which has jurisdiction over the parkway ramps).

Although it is not anticipated that The Greens at Half Hollow development will result in significant adverse impacts to existing traffic patterns, the Applicant proposes additional mitigation measures (beyond the installation of traffic signals at the Wolf Hill Road ramps from the Northern State Parkway) which will result in desirable general improvements to traffic and safety conditions on the roadways in the vicinity of the project area. The comprehensive traffic mitigation program is described below.

Traffic Signal Timing

It is recommended that adjustments to the traffic signal timings be made to result in improved levels-of-service for various roadway approaches at the following locations:

- Carman Road – Half Hollow Road
- Wolf Hill Road – Caledonia Road
- Wolf Hill Road – Melrose Road
- Bagatelle Road – Half Hollow Road
- New York Avenue – Old Country Road

Deceleration Lanes at Site Entrance Points

It is recommended that a short deceleration lane be provided at the proposed site entrance points on Carman Road, Old South Path and Old East Neck Road, in order to accommodate vehicles slowing down prior to making a right turn to enter the property.

Intersection Widening

It is recommended that minor widening be undertaken at the Old Country Road/Old East Neck Road intersection, including provisions for a westbound left turn lane and an eastbound right turn lane. These will serve traffic leading to the site. In addition, it is recommended that the northbound approach to the intersection be widened to provide two lanes – one for left turns and one for right turns onto Old Country Road. Appropriate signs, pavement markings and drainage structures should also be installed.

Old East Neck Road Entrance

It is recommended that Old East Neck Road be widened at the site entrance to provide a left turn lane for vehicles entering the property. Appropriate signs, pavement markings and drainage structures should also be installed.

Pavement Markings

It is recommended that raised centerline reflectors be installed along Old East Neck Road, Old South Path and Carman Road, in order to provide improved guidance during night time and wet pavement conditions.

Roadside Shoulders

It is recommended that roadside shoulders be improved along Old East Neck Road, Old South Path and Carman Road to provide a minimum paved shoulder width of three feet. In addition, it is recommended that overgrown roadside vegetation be removed within the limits of the Town right-of-way in order to improve visibility and sight distance for motorists.

Traffic Monitoring

It is recommended that future traffic conditions be monitored at the intersection of Old Country Road/Old East Neck Road to determine if a traffic signal becomes warranted at this location.

L. Air Quality

The air quality analysis for The Greens at Half Hollow development's discussed below within the context of the Clean Air Act requirements and applicable air quality standards.

Primary Pollutants

Six pollutants have been identified by the U.S. Environmental Protection Agency (USEPA) as being of concern nationwide: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10}), sulfur dioxide (SO_2), and lead (Pb). Of these, the primary pollutant emissions from automobiles are carbon monoxide, hydrocarbon (HC), and nitrogen oxides. Levels of nitrogen oxides (NO_x) are influenced by both mobile and stationary sources, while levels of inhalable particulates (PM_{10}) and sulfur dioxide are directly associated with stationary sources. A summary of the characteristics of the pollutants follows:

Carbon Monoxide - Carbon monoxide is a colorless and odorless gas which is associated with the incomplete combustion of vehicle fuel. Carbon monoxide (CO) is very reactive and its concentrations are limited to relatively short distances near crowded intersections and along slow-moving, heavily traveled roadways. Therefore, it is important to predict CO concentrations on a local or microscale basis. For projects of regional significance such as new rail or highway corridors, it is important to predict CO emissions on a regional, or mesoscale basis.

Nitrogen Oxides - Nitrogen oxides are produced when fuels are burned at high temperatures. Although there are a number of nitrogen oxides, only nitric oxide (NO) and nitrogen dioxide (NO_2) are released by motor vehicles into the atmosphere in appreciable quantities. Together, nitrogen oxides are often referred to as NO_x. Nitrogen oxides are also of particular concern due to their role in the formulation of photochemical oxidants, commonly known as ozone. Ozone is formed through a series of chemical reactions which occur in the presence of sunlight. Elevated levels of ozone typically occur miles from the source since the series of chemical reactions is slow and pollutants are diffused downwind.

Lead - Lead emissions are associated with industrial uses and motor vehicles that use gasoline containing lead additives. Most U.S. vehicles available since 1975 and all after 1980 are designed to use unleaded fuel. As these older vehicles have been replaced by newer models, lead emissions have significantly decreased.

Sulfur Dioxide - Sulfur dioxide (SO_2) emissions are primarily associated with the combustion of sulfur-containing fuels such as oil and coal. The major sources of this emission are fossil fuel fired power plants and oil refineries. No significant quantities are emitted from mobile sources.

Inhalable Particulates (PM_{10}) - Particulate matter is emitted into the atmosphere from a variety of sources including industrial facilities, power plants, and construction activity. Gasoline-powered vehicles do not produce any measurable quantities of particulate emissions. Diesel-powered vehicles, especially heavy trucks and buses, emit particulates. Inhalable particulate concentrations may, therefore, be locally elevated near roadways with high volumes of heavy diesel-powered vehicles. Of primary concern are particulates that are less than 10 microns (μm, 1 micron equals 0.000001 meter or one-millionth of a meter) in diameter (PM_{10}), which can affect human respiratory functions.

Hydrocarbons - Hydrocarbons (HC) include a variety of organic compounds emitted from the storage, handling, and use of fossil fuels. Hydrocarbons are considered a precursor to the formation of ozone.

1. Existing Conditions

a. Air Quality Standards and Regulations

National and State Ambient Air Quality Standards (NAAQS) - National Ambient Air Quality Standards (NAAQS) and New York State Standards (shown in Table 31, along with Existing Conditions) have been established for six major air pollutants: carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), particulate matter (PM_{10}), sulfur dioxides (SO_2), and lead (Pb). The primary standards are intended to prevent adverse health effects while the secondary standards are intended to further protect the public welfare by minimizing material damage and maximizing visibility.

State Implementation Plan (SIP) - The Clean Air Act requires each state to submit a State Implementation Plan (SIP) to the U.S. Environmental Protection Agency (USEPA) for attainment of NAAQS. In 1992, the New York State Department of Environmental Conservation (NYSDEC) submitted to the USEPA a CO attainment demonstration which stated that with an enhanced Inspection and Maintenance (I/M) program in effect, there would be no CO violations by the deadline of December 31, 1995[1]. As part of its effort to attain the CO standard, New York State is also committed to implementing areawide and site-specific control measures to reduce CO levels.

Table 31
National and State Ambient Air Quality Standards and Existing Air Quality Conditions

Pollutant	Monitoring Station	1997 Maximum Values		NY State Standards	Federal Standards	
					Primary	Secondary
Carbon Monoxide	Eisenhower Park	1-hour	8.5 ppm	35 ppm	35 ppm	35 ppm
		8-hour	4.9 ppm	9 ppm	9 ppm	9 ppm
Ozone	Babylon	1-hour	0.146 ppm*	0.12 ppm	0.12 ppm	0.12 ppm
Nitrogen Dioxide (NO_2)	Eisenhower Park	12-month	0.025 ppm	0.05 ppm	0.05 ppm	0.05 ppm
Lead (Pb)	**	3 months	--	1.5 μg/m^3	1.5 μg/m^3	1.5 μg/m^3
Particulates (PM_{10})	Eisenhower Park	24-hour	73 μg/m^3	150 μg/m^3	150 μg/m^3	150 μg/m^3
Sulfur Dioxide (SO_2)	Eisenhower Park	3-hour	0.072 ppm	--	--	0.5 ppm
		24-hour	0.031 ppm	0.14 ppm	0.14 ppm	--

1) The standards are not to be exceeded more than once a year (one-hour period), except for the O_3 standard. The O_3 standard is not to be exceeded more than one day per year averaged over the last three years.
2) ppm = parts per million
* represents a contravention of the NAAQS
** There are no monitoring stations for lead in Nassau or Suffolk counties. The nearest monitoring station for lead is located in Greenpoint, Brooklyn where conditions are not representative of the project area.

Source: New York State Department of Environmental Conservation, 1999

b. Ambient Conditions

The NYSDEC operates a network of monitoring stations throughout the state to measure ambient air quality with the results published on an annual basis. From NYSDEC's *1997 Air Quality Report - Ambient Air Monitoring System*, existing air quality levels were identified for the study area (see Table 31)

[1] There have been no recorded exceedances of the one- and eight-hour NAAQS in the prior three years (i.e., 1995, 1996, and 1997) at any of NYSDEC's CO monitoring sites in the proximity of the study area.

based on the latest available data from the nearest monitoring stations, and compared to the current federal and state standards.

Background air quality levels for the project area are below the National Ambient Air Quality Standards (NAAQS) for all pollutants, including ozone. Ozone levels recorded in 1997 exceeded the NAAQS on four occasion at the NYSDEC monitoring site in Babylon. The highest recorded ozone levels in 1997 at the NYSDEC monitoring site in Babylon was 0.146 ppm which is above the NAAQS of 0.12 ppm. The project area is located within Suffolk County, which is part of a region that has been designated by the USEPA as a severe nonattainment area for ozone. There are five levels of severity classifications for ozone nonattainment: marginal, moderate, serious, severe, and extreme. Compliance in New York State with the NAAQS for ozone must be achieved by the year 2007.

In New York State, the standard for ozone continues to be exceeded in many areas. In November 1993, a proposed revision to the *New York SIP for Ozone Meeting the 15 Percent Rate of Progress Requirements* was submitted to EPA by the NYSDEC. The report documents how the 15 percent reduction in ozone precursors will be achieved by the end of 1996. Subsequent SIPs were submitted to the USEPA, as required by the Clean Air Act, to demonstrate the manner in which the severe nonattainment area was to achieve a further 9% rate of progress for the period 1997 through 1999 (Phase I Alternative Attainment), and future 3% per annum rate of progress for the years 2002, 2005, and 2007 (Phase I Alternative Attainment).

Reductions in mobile-source emissions are expected through a combination of measures, including the new motor vehicle emission control program, low emission vehicle (LEV) program, reformulated gasoline program, oxygenated fuel program, and a centralized enhanced I/M program. Projects which do not result in violation of the NAAQS are considered consistent with the SIP. Suffolk County is in compliance with carbon monoxide, nitrogen dioxide, lead, hydrocarbons, particulates, and sulfur dioxide air quality standards.

2. Anticipated Impacts

To determine the need for a rigorous air quality analysis at each affected intersection location for peak traffic periods, a screening analysis based on procedures outlined in the New York State Department of Transportation

(NYSDOT) *Environmental Procedures Manual's* (*EPM,* March 1999) was applied which utilized the following criteria:

Level of Service (LOS) Screening - If the Build level of service is at "A", "B", or "C", an air quality analysis using a rigorous modeling procedure would not be required.

Capture Criteria Screening - If the Build level of service is at "D" or worse, the following criteria should be considered:

- a significant increase (greater than 10% increase) in traffic volume on affected roadways,
- a significant (approximately 10%) reduction in source-receptor distance,
- a significant increase (approximately 10%) in vehicle emissions
- any increase in the number of queued lanes
- a 20% reduction in travel speed.

A more stringent set of capture criteria applies if an affected intersection was analyzed in the New York State CO SIP attainment demonstration. For these intersections, the following criteria should be considered if the Build intersection LOS is at "D" or worse:

- a 5% or more increase in traffic volume on affected roadways,
- a 5% or more reduction in source-receptor distance,
- a 5% or more increase in vehicle emissions
- any increase in the number of queued lanes
- a 10% reduction in travel speed.

If none of the above criteria is met, no further air quality analysis would necessary.

a. Level of Service Screen

Traffic data for the air quality analysis were derived from traffic counts, volume forecasts, and other information developed as part of the traffic analysis for this project. The screening analysis was based on traffic conditions for the AM and PM peak traffic periods, when the greatest project-related traffic volumes would exist, resulting in slower speeds and poorer levels of service.

The levels of service were identified for the proposed facilities AM and PM peak activity periods. Table 32 below summarizes the results from the initial screening process.

Table 32
Level of Service Screen

Intersection	2004 Build		Pass/Fail Screen
	AM	PM	
Bagatelle Road @ Half Hollow Road	B	B	Pass
Bagatelle Road @ LIE N Service Road	D	B	**Fail**
Bagatelle Road @ LIE S Service Road	B	C	Pass
Carman road @ Half Hollow Road	B	B	Pass
Half Hollow Road @ LIE N Service Road	B	C	Pass
Old South Path @ Half Hollow Road	B	B	Pass
Half Hollow Road @ LIE S Service Road	C	B	Pass
New York Avenue @ Old Country Road	B	B	Pass
Wolf Hill Road @ Old Country Road	D	D	**Fail**
Wolf Hill Road @ Caledonia Road	B	B	Pass
Wolf Hill Road @ Melrose Road	A	A	Pass
Wolf Hill Road @ Carman Road	A	B	Pass

From the data presented, a level of service of "D" was shown at two intersections for the two peak periods under the Build condition. The next step in determining if a rigorous air quality analysis is needed is the Capture Criteria Screen.

b. Capture Criteria Screen

Of the five criteria listed in the Capture Criteria Screen, only the traffic volume is expected to change for this project from the No-Build condition to the Build condition. Table 33 below summarizes the traffic volume under the two future conditions at the affected intersections.

Table 33
Total Intersection Traffic Volumes

Intersection	Dir	2004 No-Build		2004 Build		% Increase	
		AM	PM	AM	PM	AM	PM
Bagatelle Road at LIE North Service Road	WB	2,070	475	2,098	525	1.4%	10.5%
	NB	692	388	692	388	0.0%	0.0%
	SB	374	392	415	441	**11.0%**	**12.5%**
Wolf Hill Road at Old Country Road	EB	356	811	368	828	3.4%	2.1%
	WB	1,241	882	1,316	889	6.0%	0.8%
	NB	1,170	1,608	1,197	1,639	2.3%	1.9%
	SB	375	725	379	728	1.1%	0.4%

c. Screening Analysis Results

Of the twelve signalized intersections studied under the Build condition, only two intersections would exhibit a LOS of "D" or worse during any of the peak time periods. Of the two intersections that warranted further screening considerations, the project would increase traffic at one intersection minimally (i.e., less than ten percent[2], 10%, at any approaches).

At the Wolf Hill Road at Old Country Road intersection, none of the approaches would experience traffic increase of more than ten percent. Therefore, no further air quality analysis is necessary at this intersection.

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[2] Since none of the studied intersections were analyzed in the New York State CO SIP attainment demonstration, the 10% traffic volume increase criteria would apply.

The maximum percentage increase in traffic as a result of the implementation of this project would be 12.5% at the southbound approach to the intersection of Bagatelle Road and the Long Island Expressway North Service Road during the PM peak hour. Since the project would create an increase of ten percent (10%) or more in traffic volume at this approach, a rigorous air quality analysis would be needed at this intersection. See Item d. below.

d. Mobile Source Microscale Analysis

Carbon monoxide levels were predicted at the intersection of Bagatelle Road at LIE North Service Road, located where maximum pollutant concentrations would occur due to the project-induced vehicular activity. Higher emissions usually occur near intersections due to vehicular acceleration, deceleration and idling. Carbon monoxide concentrations for the AM and PM peak hours were identified and assessed.

Prediction of vehicular-related CO concentrations was based on environmental and meteorological conditions, traffic characteristics and the physical configuration of study area intersections. Air pollutant dispersion models used for this analysis simulate the effects of meteorological, physical and environmental characteristics of the project area on pollutant concentrations.

To ensure that pollutant concentrations were not underestimated, the methodology considered "worst-case" parameters relating to meteorological conditions, and traffic. The combination of these parameters results in a conservative estimate of CO emissions generated by the proposed project.

- *Vehicular Emissions* - Vehicular emission factors for the modeling-based CO microscale analysis were obtained from emission factor Table AA of the EPM. These emission factors were estimated using the EPA emission factor model MOBILE5B. Vehicular emissions are greatly affected by vehicle speed, thermal state (i.e., engine operating conditions), ambient temperature, vehicle age, and mileage distribution of the fleet. The NYSDOT default vehicle classifications for Suffolk County (see Table 34) were used in the emission modeling. Other parameters used in the emission modeling reflect New York Metropolitan Area conditions.

Table 34
Vehicle Mix

Type	Autos	LDGT1	LDGT2	HDGV	LDDV	LDDT	HDDV
Urban Arterial	73.6%	12.6%	6.4%	2.7%	0.4%	0.3%	4.0%
LDGT1: Light-duty gas trucks (under 6000 lb)				LDDV: Light duty diesel vehicles			
LDGT2: Light-duty gas trucks (under 8500 lb)				LDDT: Light duty diesel trucks			
HDGV: Heavy duty gas trucks				HDDV: Light duty diesel Vehicles			

- *Vehicular Thermal Conditions* - Vehicular thermal conditions pertain to whether an automobile is operating in a cold state (operating subsequent to a one-hour or more non-operating period; i.e., in the cold start mode), operating in a hot start mode (after being off for less than one hour), or operating in a hot stabilized state (fully warmed up). These conditions are important parameters for estimating CO levels, as vehicles emit greater levels of emissions while operating in a cold state. The percentages of hot and cold starts listed in Table 35 were used to model the thermal conditions of all the roadways for the proposed project.

Table 35
Thermal Conditions

Roadway Type	Hot Starts	Cold Starts
Urban Principal/Minor Arterial	11.0%	50.0%

- *Receptor Locations* - Air quality receptor locations were selected based on the results of the screening analysis, peak-period traffic projections, and estimates of where the greatest potential for project-related air quality impacts would occur. The receptor selected for microscale analysis were sidewalk locations along the queuing links.

- *Dispersion Model* - The prediction of CO concentrations was conducted using the CAL3QHC (Version 2.0) air quality dispersion model (EPA-404/12-92-006). This model is currently recommended in the *EPA Guidelines for Modeling Carbon Monoxide from Roadway Intersections* (EPA-454/R-92-005) for estimating CO levels near congested intersections and along heavily traveled roadways. This model estimates air pollutant concentrations downwind of a roadway based on the assumptions that pollutants emitted from motor vehicles traveling along a segment of roadway can be represented by a line source of emissions, and that pollutants will disperse in a Gaussian or normal distribution from a defined mixing zone over the roadway being modeled. The rate at which pollutants disperse is assumed to be a function of wind speed, direction, and ambient temperatures.

Different emission rates occur when vehicles are stopped (idling), accelerating, decelerating, and traveling at different speeds. CAL3QHC includes emissions contributions from freeflow and idling vehicles. CAL3QHC estimates the average number of vehicles that would queue during the red phase of an intersection based on the characteristics of both the intersection and the traffic. Contributions from idling emissions contribute significantly to the CO concentration at the intersection.

- *Wind Direction* - At complex intersections, it is difficult to predict which wind angle will result in maximum concentrations. At each receptor location, therefore, all wind angles from 0° to 360° (in 1° increments) were analyzed. The maximum pollutant concentrations were reported in the analysis.

- *Wind Speed* - CO concentrations are greatest at low wind speeds. A conservative wind speed of 1 meter per second was used to predict CO concentrations during peak traffic periods.

- *Atmospheric Stability* - Neutral (or "D") atmospheric stability, an ambient temperature of 43°F and a mixing height of 1,000 meters were used in estimating CO concentrations.

In accordance with instructions from the *EPM*, other parameters used as input to CAL3QHC were:

Average time	60 minutes
Surface roughness	106 cm
Settling velocity	0 cm/sec
Deposition velocity	0 cm/sec
Mixing height	1000 m
Wind speed	1 m/s
Receptor height	1.8 meter (breathing zone)
Emission height	0 meters

- *Traffic Data* - Traffic data for the air quality analysis were derived from traffic counts, volume forecasts, and other information developed as part of the traffic analysis for this project. The microscale CO analysis was based on traffic conditions for the AM and PM peak traffic periods under the Build condition, when the greatest traffic volumes would exist, resulting in slower speeds and poorer levels of service.

- *Persistence Factor* - Peak eight-hour concentrations of CO were obtained by multiplying the peak hour CO projections by 0.7. This factor, which is specified in NYSDOT's *EPM* for this study area, takes into account the fact that over a period of eight hours (as distinct from during a single hour) vehicle volumes fluctuate downwards from the peak, vehicle speeds may vary, and meteorological conditions, including wind speeds and wind direction, change to some degree as compared to the very conservative assumptions used for the peak hour.

- *Background Concentrations* - Microscale modeling is used to predict CO concentrations resulting from emissions from motor vehicles using roadways immediately adjacent to the location at which predictions are being made. A CO background concentration must be added to this value to account for CO emitted from existing sources, in the vicinity, independent of the project. A value of 1.9 ppm (parts per million) was added to the eight-hour results for year 2004[3].

[3] The background values of 1.9 ppm for the year 2004 was calculated using the Rollback method recommended in the *EPM*.

e. Microscale Analysis Results

Predicted carbon monoxide concentrations at the affected intersection was compared against the NAAQS. Significant impacts are defined as concentrations that exceed the one- and eight-hour standards of 35 and 9 ppm, respectively.

The results of the CO microscale analysis for the Build condition are summarized in Table 36 below. Estimates of peak one-hour and eight-hour concentrations of CO are provided for the Build condition. The intersection analyzed exhibited eight-hour concentrations that were below their respective NAAQS.

Table 36
2004 Build Condition
Carbon Monoxide Concentrations

	Intersections	**8-hour Concentrations***	
		AM	**PM**
1	Bagatelle Road and the Long Island Expressway North Service Road	6.7	4.6

* Includes 1-hour background concentration of 1.9 ppm for year 2004.

For the Build condition, all estimated concentrations in the year 2004 are well within the eight-hour carbon monoxide standards. Since the project is not expected to cause or contribute to new violations of air quality standards or exacerbate existing violations, the project would be consistent with the State Implementation Plan.

3. Proposed Mitigation

Because the project is not expected to cause or contribute to new violations of air quality standards or exacerbate existing violations, and is therefore consistent with the State Implementation Plan, no mitigation measures are necessary.

M. Infrastructure and Utilities

An extensive underground utility system runs beneath the project site and includes water mains, sanitary sewers, storm sewers, high pressure hot water lines, and electric, gas, and telephone lines. Exhibit 67, Existing Generalized Utilities, indicates the general location of existing water mains, sanitary sewers and storm sewers. These and other utilities are discussed below.

1. Sanitary Sewer

A detailed description of the existing on-site sewage treatment plant (STP) and proposed improvements to the facility is provided in DGEIS Appendix D, *Engineering Report for the Reactivation of the Long Island Developmental Center Sewage Treatment Plant*, prepared by Nelson & Pope, LLP, August 12, 1999.

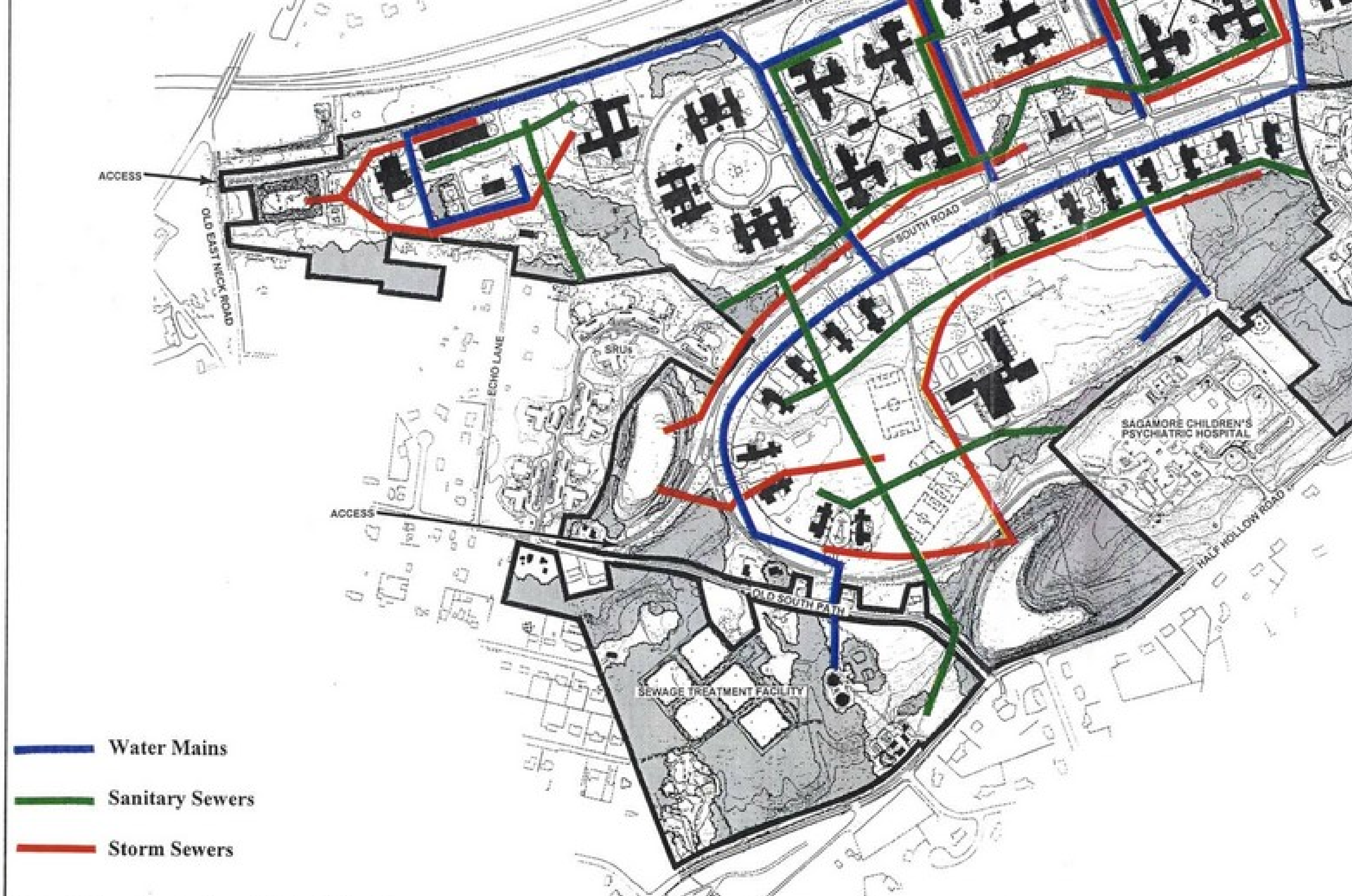
a. Existing Conditions

STP Facility Description

An interconnected system of sanitary sewer lines runs from each of the former LIDC buildings on the property to the LIDC STP located on the approximately 46.5-acre portion of the site south of Old South Path. Wastewater currently generated on the property is conveyed to the existing STP via a series of pump stations, force mains and gravity sewers. Wastewater entering the facility is under gravity flow. The existing STP site plan and a current process flow chart are shown on Exhibits 68 and 69, respectively.

Upon entering the STP, wastewater is directed into the screening area, which removes rags, sticks, branches and other large objects, which if not removed, could hinder downstream operations. Under normal circumstances, the flow passes through a concrete channel leading to a mechanical bar screen. When the mechanical bar screen is being maintained or during an emergency, the flow is directed through a different concrete channel leading to a manual bar screen.

Immediately after leaving the screening area, the wastewater passes through a Parshall Flume, which contains an overhead ultrasonic flow level system. Real time data obtained at this point is transferred to a circular chart recorder, which is located in the office area of the main building.



Base Map Source: Barrett, Bonacci & Van Weele, P.C.

BASE MAP SOURCE: Barrett, Bonacci & Van Weele, P.C.

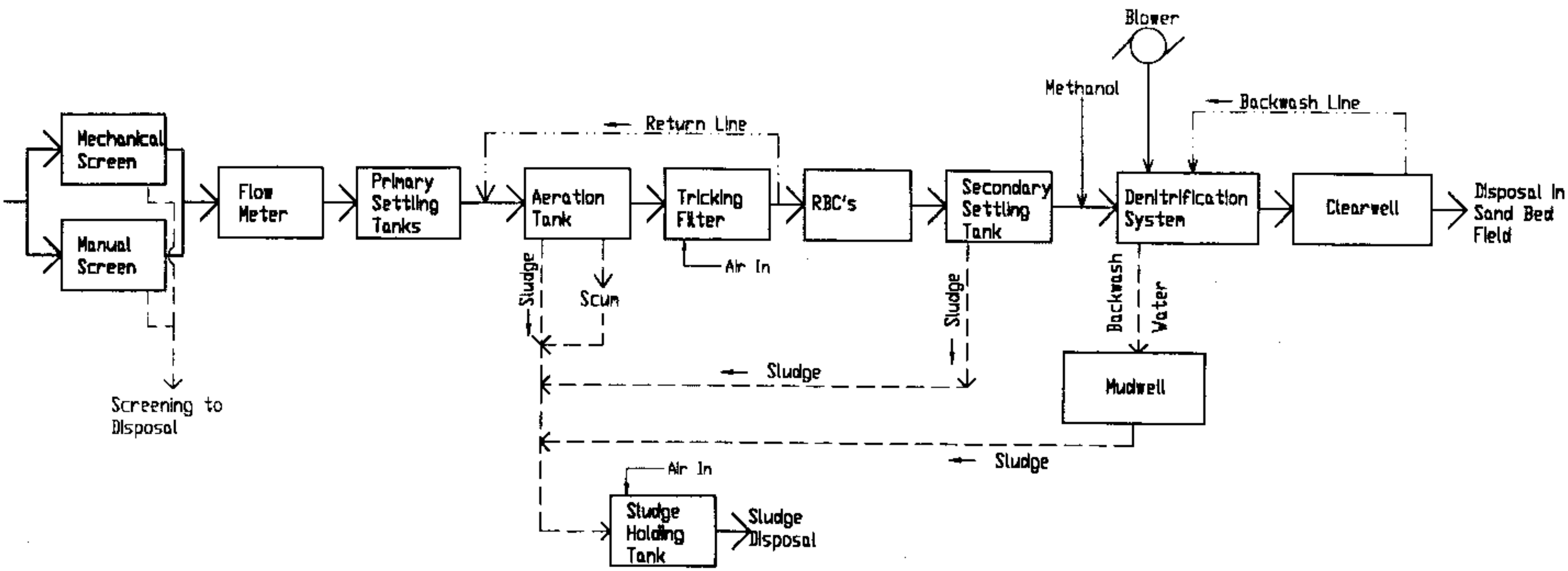


Exhibit 69

CURRENT PROCESS FLOW CHART

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

SOURCE: Nelson & Pope, LLP

After discharging from the Parshall Flume, the wastewater is conveyed into the primary settling tanks, where, as a result of the low velocity of the wastewater, inorganic solids settle and floatable material rises. Chain driven collectors concentrate sludge in a depressed area of the tank and push floatable material toward a rotating skimmer. Currently, sludge is pumped from the primary settling tanks to the sludge holding tank daily. Any floatable material that is collected is also pumped to the sludge storage tank on an as-needed basis.

After overflowing the weir of the primary settling tanks, the wastewater is mixed with unsettled secondary wastewater and is directed to the recirculation wet well which is located in the basement area of the main building, under the screening room. The mixed liquor is then pumped to an aeration tank, which is located at the crest of a hill. Pumping is currently performed using a duplex configuration of recirculation pumps located in the basement of the main building, under the office area. Upon entering the aeration tank, the wastewater is aerated using a submerged aerator system.

After overflowing the weir of the aeration tank, the wastewater enters the secondary treatment portion of the plant where it first passes through a trickling filter system consisting of a concrete tank with a rotating arm assembly, which distributes the wastewater over the filter media. Wastewater flowing over the filter media is collected in an underdrain system and conveyed to a distribution box, which splits the flow between the Rotating Biological Contractor (RBC) system and a return line to the recirculation wet well.

The RBC system contains round plastic filter media, which rotate on a shaft driven by an electrical motor. As the shaft rotates, the filter media becomes partially submerged in and saturated with the wastewater, which is contained inside a concrete tank.. As the shaft continues to rotate, the previously submerged media is aerated as it is exposed to the open air. This process allows for the removal of additional BOD_5.

After being treated by the RBC's the wastewater is conveyed to the secondary settling tanks which allow for the removal of growth material which has sloughed off the filter media of the trickling filter and the RBC. As in the primary settling tanks, the velocity of the wastewater is low enough to allow for the settling of the sludge material. Once again, a chain collector system is used to collect the sludge for removal to the sludge holding tank.

After overflowing the weir of the secondary settling tanks, the wastewater enters the tertiary portion of the treatment plant. The STP uses a LYCO, Inc., denitrification system. In this type of system, methanol (C_5H_5OH) is mixed with the incoming wastewater to oxidize the organic matter. The mixture is then passed down through a filter consisting of anthrafilt and sand. The filtered wastewater is collected in an underdrain and directed into a clearwell for holding. An underground methanol storage tank is located near the main building in the underground chemical storage area.

The denitrification filters automatically backwash themselves when an excessive loss of head through a filter occurs or based on an automatic timer system. When a backwash cycle is initiated, the influent flow is diverted to another cell. Upon isolation of the dirty bed, the backwash pumps turn on and pump previously filtered water from the clearwell to fluidize and clean the dirty filter bed. At the same time an air blower unit provides compressed air which drives off any nitrogen into the atmosphere and assists the backwash pump with fluidizing the bed to allow scouring of the filtering material. Any material which leaves the fluidized bed is collected in a backwash trough which directs the collected liquid into the mudwell. Periodically, the mudwell is pumped to the sludge storage tank for processing.

To "reseed" the cleaned (backwashed) filter bed with active, denitrifying organisms, the LYCO system has a reseed box which retains a portion of the bacterial solids backwashed from the cell. After backwashing of the cell is complete, the stored solids are automatically reapplied to the filter bed upon return of the cell to service.

Excessive filtered wastewater, which is not needed for backwashing, is collected in the clearwell of the denitrification system. Using a duplex pumping system, the excess treated wastewater is then conveyed to sand beds for disposal. Five sand beds are located in the western portion of the existing STP site. In 1990, three beds were reconstructed and two additional beds were constructed. Currently, one sand bed is in use and the other four sand beds are on stand-by use.

If needed, pH adjustment is accomplished using Caustic Soda (NaOH), which is introduced between the screening process and the Parshall Flume. Currently pH adjustment is not needed but is readily available at the site. NaOH is stored in an underground tank located near the main building.

Normal operating and emergency power used at the STP are received via a connection to the LIDC power grid, located on the project site.

Potable water is received via a connection with the South Huntington Water District.

STP Operations

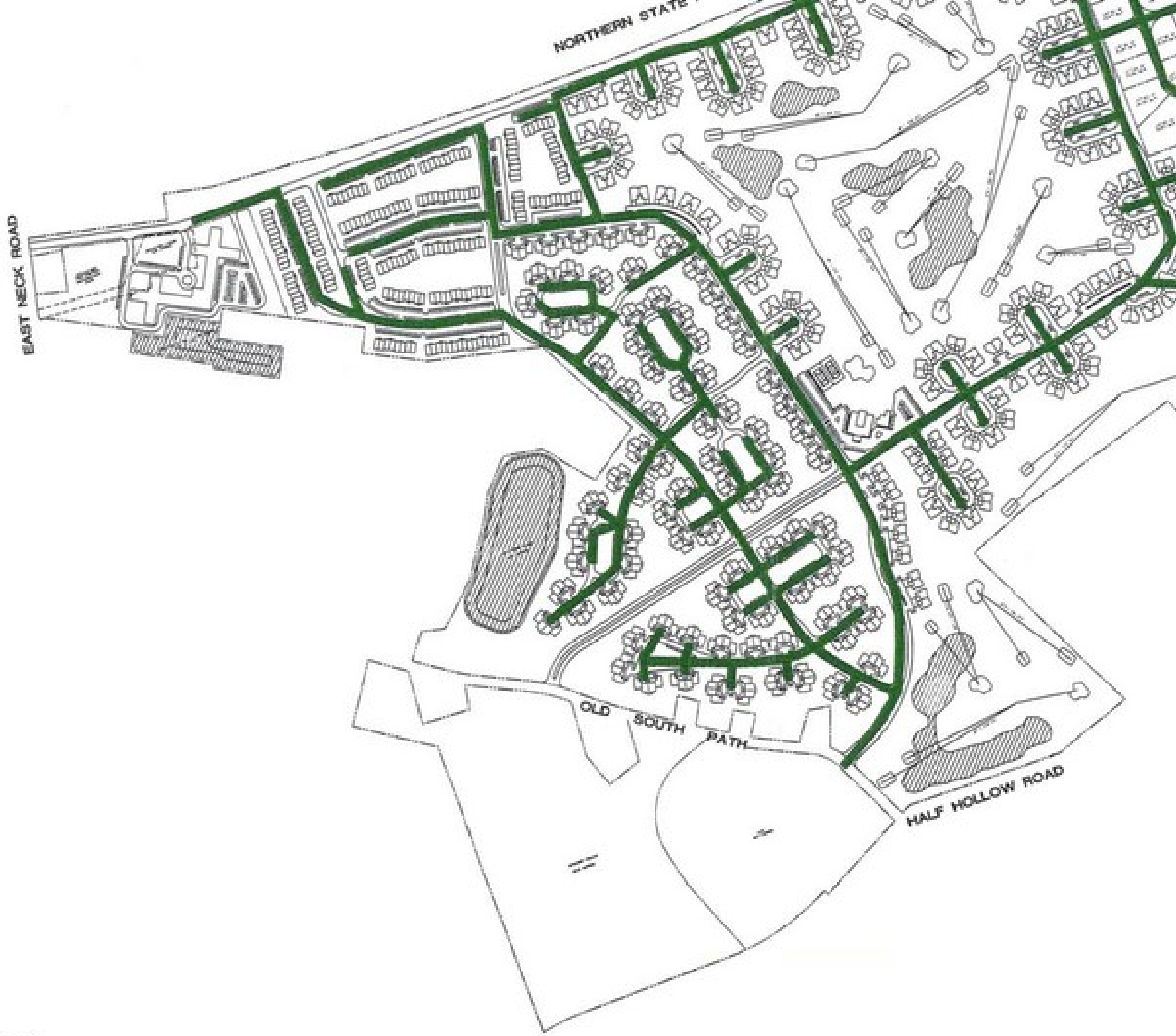
Under its current NYS Department of Environmental Conservation State Pollution Discharge Elimination System (NYSDEC SPDES) permit, the STP is permitted to discharge a maximum of 330,000 gallons of treated effluent daily. However, with the exception of the Small Residential Units (SRU's) and the Sagamore Children's Psychiatric Center, most of the former LIDC buildings are vacant or underutilized and the STP is operating well below capacity. Using weekly flow charts for the weeks of June 27, July 4, July 12 and July 20, 1999, it was determined that the average daily flow rate to the STP is approximately 80,794 gallons per day (gpd). Weekly flow charts for the period January 1, 1999 to July 27, 1999 are included in Appendix B of DGEIS Appendix D.

b. Anticipated Impacts

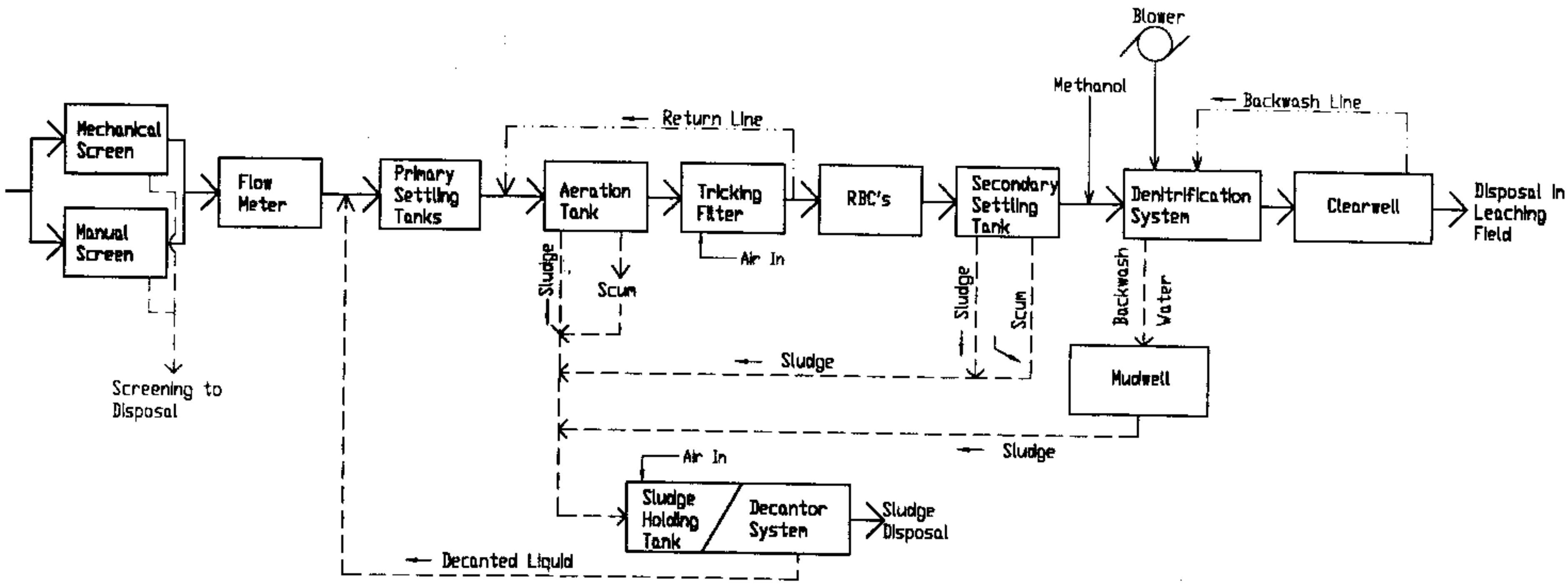
Proposed STP Site Plan and Improvements

The Applicant proposes to upgrade the existing sewage treatment plant and to locate all sewage treatment facilities on 15.5 acres in the eastern portion of the 46.5-acre parcel. The remaining 31 acres will be dedicated to the Town of Huntington for parkland. The proposed subdivision and proposed STP site plan are shown on Exhibit70. The STP will treat all wastewater generated from The Greens at Half Hollow development as well as from the SRU's and Sagamore Children's Psychiatric Center.

Nelson & Pope, LLP, inspected the existing STP and spoke to key plant personnel and operators to identify process related issues at the facility which need to be improved, repaired, replaced or abandoned so that the sewage treatment plant can treat the permitted capacity flow rate of 330,000 gpd. The results of the inspection are discussed in detail in Appendix D of the DGEIS. Proposed STP improvements are summarized below in flow operations order. The proposed process flow chart is shown on Exhibit 71.



SOURCE: Barrett, Bonacci & Van Weele, P.C.



SOURCE: Nelson & Pope, LLP

Exhibit 71

PROPOSED PROCESS FLOW CHART

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

- **Manual and Mechanical Bar Screens** - No work is required.

- **Flow Meter** - The flow meter will be re-installed on a new mounting bracket and will be re-calibrated to ensure proper operation. After these improvements, the flow meter system should be operational for 25-30 years.

- **Pumps (Recirculation, Sludge, Chemical Feed)** - All pumps will be inspected and serviced to ensure proper operations. Afterwards, their useful life should be 25-30 years

- **Primary Settling Tank** - The overflow weir of the primary settling tank will be replaced with a new plastic or metal coated weir to ensure a long life. A broken chain on the collector system will be repaired to allow the tank to return to operation. At the time of the repair, the system will be further inspected to determine if additional work is necessary.

  The existing scum trough will be cleaned and greased to allow it to operate freely. If easy operation cannot be achieved, the gear assembly will be replaced.

  After these improvements, the primary settling tank should have a useful life of 25-30 years.

- **Aeration Tank** - The existing aerator system will be removed and replaced with a system which will provide a large degree of aeration. After replacement of the aerator, the useful life of the aeration tank should be 25-30 years.

- **Trickling Filter** - The trickling filter assembly will be completely re-worked to stop the discharge of wastewater from under the hood of the unit. All clogged heads will be cleaned and if any broken heads are encountered they will be repaired. After the assembly has been re-worked, the useful life of the trickling filter should be 25-30 years.

- **Rotating Biological Contractor** - No work is required.

- **Secondary Settling Tank** - The existing weir of the secondary settling tank will be replaced with either a plastic or covered metal weir. The chain collector system will be replaced with a new four-point system to allow for the collection/removal of floatable material. A new scum trough system will be installed to collect any floating material which is collected by the new collector system. After the new items have been installed, the primary settling tank should have a life span of 25-30 years.

- **Denitrification System** - A by-pass assembly will be installed to allow the system to be taken off-line for maintenance without shutting down the rest of the facility. After the by-pass assembly has been installed, the denitrification system will be taken off-line so that repairs to the rusted areas can occur. While off-line, the individual components of the system will be inspected to ensure that no defects or other problems are visible.

  Fall protection systems will be installed on all ladders, which are used to enter the different tanks of the denitrification system. The system shall have a positive stop and lock to ensure that the system will lock in all weather conditions. After all proposed improvements are complete, the life of the denitrification system should be 25-30 years.

- **Sludge Holding Facility** - With the proposed increase in wastewater flow, a higher volume of sludge will be produced. The existing aerobic system will be overhauled and the existing aerator repaired or replaced.

  The second anaerobic digester will be converted into an aerobic sludge storage tank to allow for the storage of the added volume of sludge. All old anaerobic equipment will be removed and any voids in the concrete will be repaired. A new aerator will be installed and will be same model as the aerator installed in the existing tank.

  A decanter system will be installed inside both tanks to allow for the removal of supernatant liquid that has risen to the top of the sludge mass. The removal of this liquid will reduce the amount of sludge, which will need to be hauled by either an outside contractor or by the County. The liquid removed by the decanter system will be returned back to the headworks of the facility.

  A new stairway will be installed to allow easier entry to the top of the sludge holding tanks. Railings will also be installed around the portions of the tanks accessible to plant personnel. These new railings will prevent workers from accidentally slipping and falling into the tanks. The new stairway and railings will be constructed of either Fiberglass Reinforced Plastics (FRP) or galvanized metal to ensure a long life expectancy.

After the proposed improvements are complete, the life of the sludge holding facility system should be 25-30 years.

- **Sand Disposal Beds** - The existing sand disposal beds will be abandoned to allow for that portion of the property to be dedicated to the Town for parkland. All concrete structures will be removed and all piping cut and capped to be left in place. The abandoned beds will be restored to grade by the addition of clean fill material. Abandonment of the beds will be in accordance with Suffolk County Department of Health (SCDOH) Services and New York State Department of Environmental Conservation (NYSDEC) regulations.

  A new underground leaching disposal system will be constructed to the northeast side of the main treatment building. This will allow for a smaller footprint of the treatment plant. The new rings shall have a four-foot effective depth with eight feet between each row of rings per current SCDPW design requirements. After installation of the leaching rings a new fence will be installed around the area. Immediately outside the fence, white pines (with a maximum trunk diameter of two inches) will be installed five-feet on-center to provide an effective screen. Additional new plantings will be installed in areas where screen plantings are currently inadequate.

  After the new infiltration rings have been installed, the final disposal system will have a life expectancy of more than 25 years.

- **Distribution Boxes -** No work is required.

- **Electrical System** - The Long Island Power Authority (LIPA) will be bringing new three-phase electrical service to the facility. This new service will allow the treatment plant to be taken off of the existing LIDC power grid.

  To provide a secondary source of power in the event of a loss of primary power, a new generator system will be installed. Due to the size of the proposed generator, it will be powered by diesel fuel. The generator will be of sufficient size to operate all pumps, aerators, motors, the flow meter and any safety lighting within the facility. The system will be located outdoors within a weatherproof enclosure. The generator system will have ample noise pollution control equipment due to the fact that the facility is located adjacent to a residential area. A new underground double wall diesel fuel storage tank will also be installed to provide fuel to the generator. The proposed tank will meet all federal, state, county and local requirements of an underground storage tank.

- **Potable Water System** - The existing potable water supply system is of sufficient capacity for the plant and no repairs/replacements are necessary. However, the existing RPZ device will be tested to ensure that it is operating as designed. All hose bibs will be inspected to ensure that they have a vacuum breaker installed.

- **General Work** - The grounds of the treatment plant will be put back into working order. The grass will be cut and any excess growth removed. The main processing building and the two support buildings will be painted.

A new fence will be installed around the proposed leaching pool area. This new fence will be tied into the existing fences, which encompasses the main treatment area. This will allow for site control to any of the buildings, tanks, or disposal areas. Any holes in any of the existing fences will be repaired.

Adequate provisions will be made to effectively protect plant personnel and visitors from hazards:

- Signs indicating that the entrance of unauthorized persons is prohibited will be located on fences surrounding the facility.

- Signs for slippery areas, non-potable water fixtures, low head clearance areas, open service manholes, hazardous chemical storage areas, flammable fuel storage areas, etc., will be appropriately placed.

- No-smoking signs will be placed in hazardous areas.

- Provisions will be made for local lockout on stop motor controls.
- First aid equipment will be accessible to plant personnel.

STP Dedication

After all proposed improvements are complete, the STP facilities and the 15.5-acre site will be dedicated to the Suffolk County Department of Public Works (DPW) to ensure proper operation and maintenance of the facility. The facility will meet all setback requirements of the New York State Department of Environmental Conservation (DEC), the Suffolk County Department of Health Services (DHS) and the Suffolk County DPW.

The 31 acres directly west of the proposed treatment facility will be dedicated to the Town of Huntington for parkland.

Proposed STP Operations

Using Suffolk County DHS typical wastewater generation rates, approximately 249,195 gpd of wastewater would be generated from the new development. Table 37, shows estimated flows for each of the proposed building types. Exhibit 72 indicates the location of proposed sanitary sewer lines.

Table 37
Anticipated Wastewater Generation Rates

Proposed Building Type	Number of Units/Beds/SF	Generation Rate	Flow (GPD)
Condominiums	400 units	150 gpd/unit	60,000
Townhouses	350 units	150 gpd/unit	52,500
Golf Course Villas	400 units	225 gpd/unit	90,000
Single-Family Homes	75 units	300 gpd/unit	22,500
Assisted Living Facility	150 beds	110 gpd/bed	16,500
Community Building	19,500 sf	0.3 gpd/sf	5,265*
Golf Course Clubhouse	4,000 sf	0.3 gpd/sf	1,080*
Subdivision Clubhouse	5,000 sf	0.3 gpd/sf	1,350*
Total Estimated Flow			**249,195**

* Reduced by 10 percent to account for storage areas.

In addition to flows generated from the new development, it is anticipated that existing flows to the treatment plant, primarily generated from the SRU's and Sagamore Children's Psychiatric Center, will remain the same (±80,794 gpd).

c. Proposed Mitigation

The Applicant proposes to upgrade and repair the existing STP to service the proposed development as well as the existing SRU's and Sagamore Children's Psychiatric Center. This work will ensure that the treatment plant can operate at its permitted capacity of 330,000 gpd. After all proposed work is complete the STP will be dedicated to the Suffolk County DPW and it is expected to operate in a cost efficient manner for more than 25 years, provided that it is regularly maintained. No further improvements or mitigation measures are necessary.

2. Water Supply

a. Existing Conditions

Currently, the project site is served by an on-site water distribution system consisting of two supply wells (located in the south central portion of the site, north of the Sagamore Children's Psychiatric Center) and a network of transmission mains (see Exhibit 67, Existing Generalized Utilities). In the past, water from the wells was treated at the well site with chlorine, then pumped directly into the campus transmission system. The existing mains are cement-lined cast iron pipes which vary in size from 2.5 inches to 12 inches, with service connections to all of the former LIDC buildings, including the SRU's but excluding the Sagamore Children's Psychiatric Center and the LIDC-STP. (Water for the Sagamore Children's Psychiatric Center was and continues to be provided by the Dix Hills Water District. Water for the LIDC-STP was and continues to be provided by the South Huntington Water District.) The system provided water for domestic and firefighting purposes. In general, the roughly 35-year old LIDC system components, including the pumps and mains, are in good condition.

In 1995/1996, however, the existing supply wells were removed from service due to an inability to meet certain Suffolk County Department of Health Services (DHS) standards and the site has been served by an emergency interconnection with the Dix Hills Water District.

b. Anticipated Impacts

The Greens at Half Hollow development will utilize the public water supply to obtain potable water required for the proposed residential units, golf course clubhouse, community center, subdivision clubhouse, and golf course maintenance facility. Water to irrigate the proposed golf course will be obtained from on-site wells.

The proposed water distribution system is shown on Exhibit 73.

<u>Public Water Demand</u>

As the site is not located within the service area of any established water district, arrangements are being made to extend the boundaries of the Dix Hills Water District to include the site and provide public water to The Greens at Half Hollow development. In conjunction with the extension of the district boundaries, a study has been commissioned to determine the impact of the inclusion of the site on the Dix Hills Water District. The study, prepared by the district's consultant, has identified certain improvements that will be necessary in order for the district to effectively serve the property. The recommendations outlined in the study include the installation of a new well and pump station on the site, and the dedication of property for the construction of a water storage tank. The Applicant is working with the Dix Hills Water District to ensure that the demands of the proposed project can be met and has agreed to fund a fair share of required improvements.

Anticipated public water demand for each component of the proposed plan is listed in Table 38.

Table 38
Anticipated Water Demand

Proposed Building Type	Number of Units/SF	Demand Per Unit/SF (GPD)	Average Day Demand (GPD)	Peak Day Demand (GPD)	Peak Hour Demand (GPD)
Condominiums	400 units	225	90,000	270,000	405,000
Townhouses	350 units	300	105,000	315,000	472,500
Golf Course Villas	400 units	300	120,000	360,000	540,000
Single-Family Homes	75 units	300	22,500	67,500	101,250
Assisted Living Facility	150 beds	150	22,500	67500	101,250
Community Building	19,500 sf	0.3	5,850	NA	NA
Golf Course Clubhouse	4,000 sf	0.3	1,200	NA	NA
Subdivision Clubhouse	5,000 sf	0.3	1,500	NA	NA
Total Estimated Flow			**368,550**	**1,080,000**	**1,620,000**

c. Proposed Mitigation

As indicated above, the Applicant is working with the Dix Hills Water District, and has agreed to fund a fair share of required improvements, to ensure that the potable water demands of the proposed project can be met . In addition, well tests show that there are ample on-site water resources to irrigate the proposed golf course. Therefore, no mitigation is necessary.

3. Stormwater Management

a. Existing Conditions

The project site currently includes facilities for the collection and recharge of stormwater which include piping and three on-site recharge basins.

b. Anticipated Impacts

A comprehensive Stormwater Management Plan has been developed for the site which outlines proposed provision for the collection and disposal of runoff throughout the development, generally including the following:

- The single-family subdivision will be self-contained, essentially through the construction of a standard subdivision recharge basin located within the subdivision. The recharge basin will be maintained by the Homeowners Association (HOA).
- The golf course and adjacent common areas will include decorative ponds which will provide for the storage of stormwater runoff.
- Additional recharge basins are proposed for two other locations in the development to recharge runoff from the other housing types. Maintenance will be provided by the HOA.

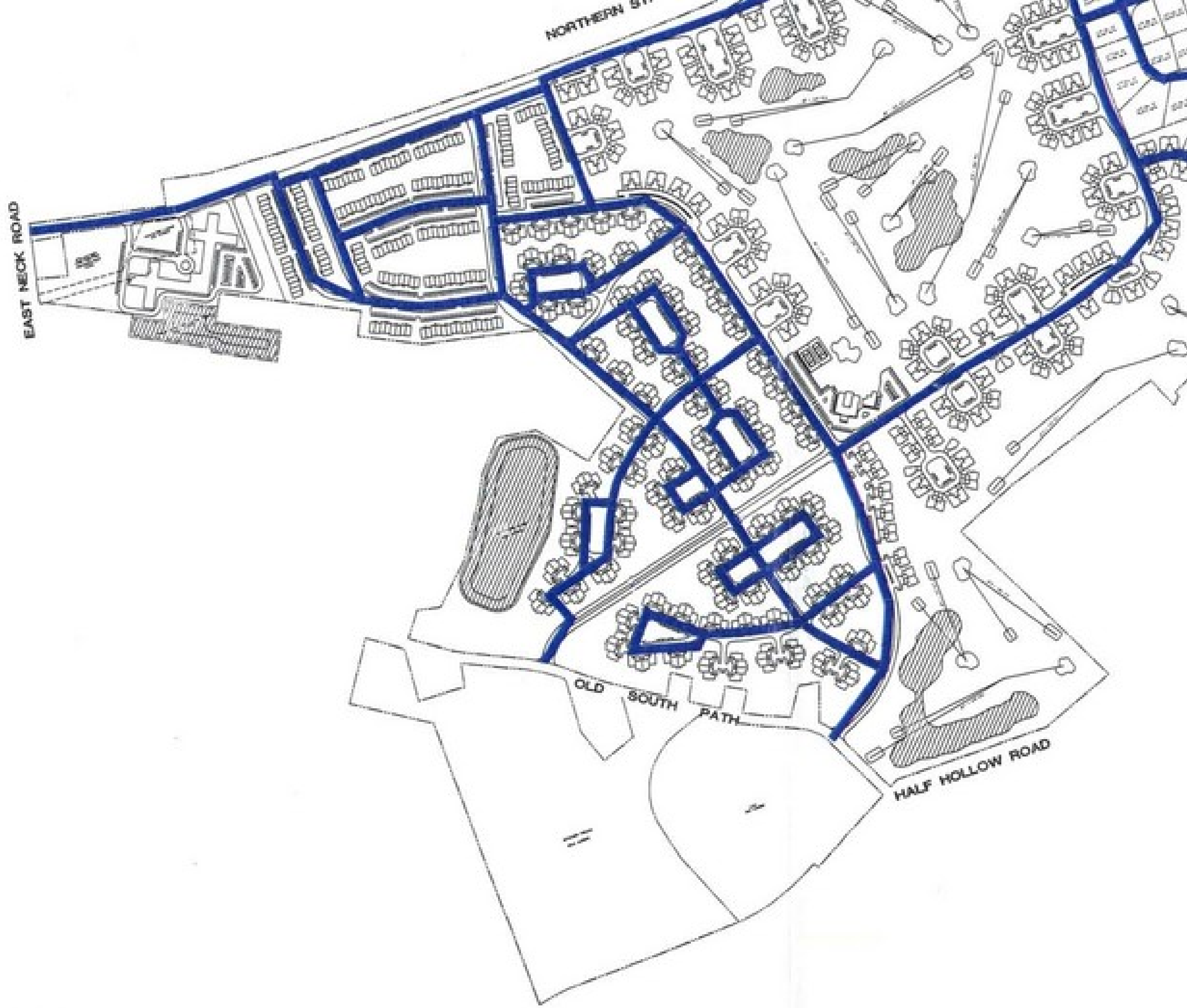
All stormwater collection and recharge facilities will be designed in accordance with the Town of Huntington *Subdivision Regulations and Site Improvement Specifications*.

Each of the proposed drainage areas is shown on Exhibit 74 and is described below. Exhibit 75 shows the location of proposed storm sewers.

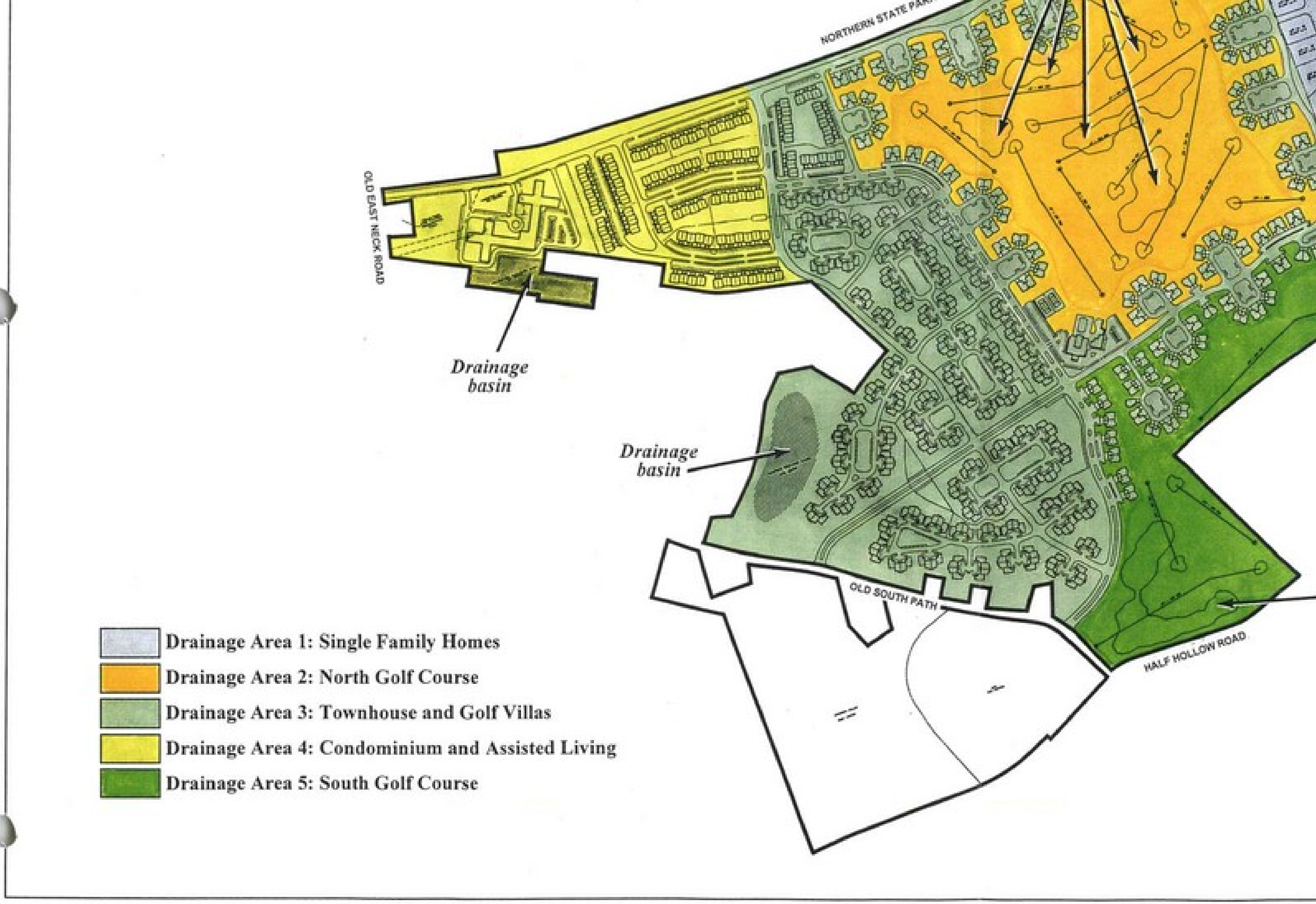
<u>Drainage Area 1 - Single-Family Residential Subdivision</u>

The volume of stormwater detention to be provided in the single-family residential subdivision will be as follows:

(56.0 ac) x (5,450cf/ac) x (1.5 (no overflow provided)) = 457,800 cf



SOURCE: Barrett, Bonacci & Van Weele, P.C.



NORTHERN STATE PARKWAY
OLD EAST NECK ROAD
Drainage basin
Drainage basin
OLD SOUTH PATH
HALF HOLLOW ROAD
Drainage Area 1: Single Family Homes
Drainage Area 2: North Golf Course
Drainage Area 3: Townhouse and Golf Villas
Drainage Area 4: Condominium and Assisted Living
Drainage Area 5: South Golf Course

SOURCE: Barrett, Bonacci & Van Weele, P.C.

This volume of runoff will be stored in a recharge basin designed in accordance with Town standards and will be located in the southeast corner of the subdivision.

<u>Drainage area 2 - Golf Course (north)</u>

Storage for a 2 inch storm is to be detained in ponds located within the golf course perimeter. Runoff in excess of a 2 inch storm will be contained in low areas of the course, with overflow provided to the on-site recharge basins.

The volume of water contained is based on the golf course's land use breakdown:

- 196,544 s.f. water surface
- 2,691,799 s.f. landscaping (golf course)

Storage required:

((1.0) x (196,544) + (0.2) x (2,691,799)) x 2 inches = 122,484 c.f.

This quantity of runoff will require 0.67 feet of storage in the 196,544 s.f. of ponds situated within the north golf course area.

<u>Drainage area 3 - Townhouses and Golf Villas</u>

Stormwater retention for the majority of the site will be contained in an existing recharge basin located adjacent to the western property line near the Old South Path entrance. This basin will require cleaning and expansion in order to contain the anticipated quantity of runoff.

The volume of water contained is based on the basin's tributary area land use breakdown:

- 1,315,345 s.f. roadway
- 1,243,783 s.f. roof
- 80,068 s.f. sidewalk
- 342,840 s.f. driveway
- 232,566 s.f. water surface
- 2,309,168 s.f. landscaping

Storage required:

((1.0) x (1,315,345 + 1,243,783 + 80,068 + 342,840 + 232,566) + (0.2) (2,309,168)) x 9 inches + 2,757,327 c.f.

Nine inches of storage will be provided since no overflow to off-site areas is anticipated.

Drainage area 4 - Condominiums and Assisted Living Facility

Stormwater retention for this area will be contained in an recharge basin located in the northwest corner of the site near an existing basin which will be abandoned.

The volume of water contained is based on the basin's tributary area land use breakdown:

- 387,611 s.f. roadway
- 247,680 s.f. roof
- 58,085 s.f. sidewalk
- 86,869 s.f. water surface
- 861,219 s.f. landscaping

Storage required:

((1.0) x (387,611 + 247,680 + 58,085 + 86,869) + (0.2) (861,219)) x 9 inches + 714,367 c.f.

Nine inches of storage will be provided since no overflow to off-site areas is anticipated.

Drainage area 5 - Golf Course (south)

Storage for a 2 inch storm is to be detained in ponds located within the golf course perimeter. Runoff in excess of a 2 inch storm will be contained in low areas of the course, with overflow provided to on-site recharge basins.

The volume of water contained is based on the golf course's land use breakdown:

- 162,214 s.f. water surface
- 1,954,186 s.f. landscaping (golf course)

Storage required:

(1.0) x (162,214) + (0.2) x (1954,186) 2 inch = 92,175 c.f.

This quantity of runoff will require 0.67 feet of storage in the 162,214 s.f. of ponds situated within the south golf course area.

c. Proposed Mitigation

All stormwater collection and recharge facilities will be designed in accordance with the Town of Huntington *Subdivision Regulations and Site Improvement Specifications*. No mitigation is necessary.

4. Other Utilities and Services

a. Existing Conditions

The site is currently served with a full component of utility services, including electric and telephone lines which are underground. An electric sub-station currently exists in the northwestern portion of the site along North Road. In this same portion of the property, there is a dormant power plant, that provided hot water (steam) heat, via a series of underground lines, for most of the buildings on the former LIDC site.

b. Anticipated Impacts

With the exception of the electric substation, existing utility services described above will be eliminated with new electric, gas, telephone and cable television lines provided to service the proposed development. Utility lines will be underground.

Impacts associated with the removal of existing utilities will be short-term construction impacts. Removal of the power plant will include any necessary site remediation.

Solid waste generated from the proposed development will be collected by a private carting company and will be transported to the Town of Huntington Resource Recovery Facility on Town Line Road in East Northport.

c. Proposed Mitigation

None required. Removal of utilities will be undertaken in accordance with all applicable regulations.

N. GROUNDWATER

1. Existing Conditions

a. Groundwater

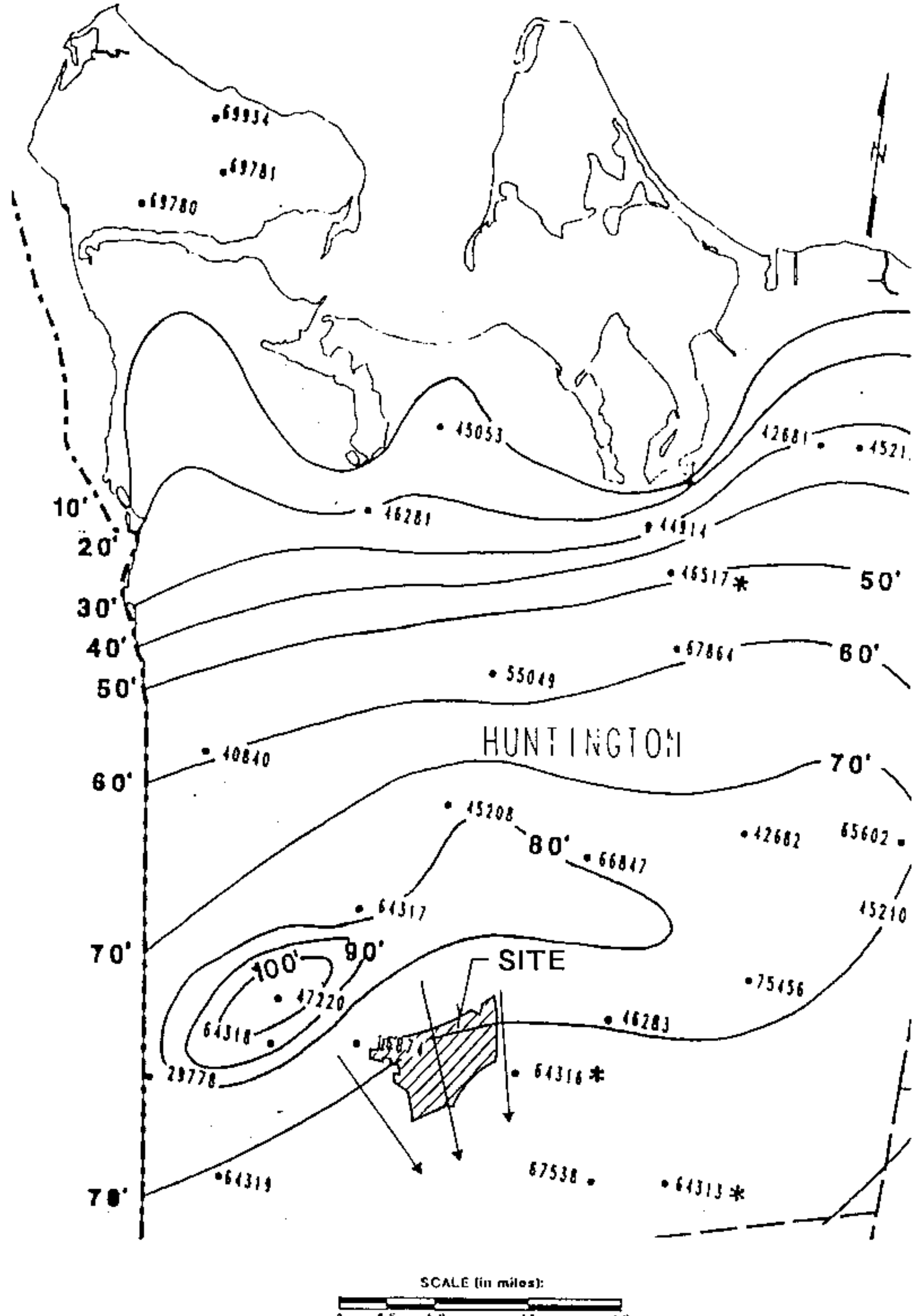
The unconsolidated deposits comprise a groundwater system that is divided into several aquifers. The Lloyd Sand Member forms the Lloyd Aquifer, which is a deep artesian aquifer that extends under most of Long Island. It is a relatively permeable aquifer that supplies water to wells in other parts of the island. At present, there is no withdrawal from this aquifer in the vicinity of the Green at Half Hollow site, mainly because of its great depth and because productive aquifers are found at shallower depth. The overlying clay member of the Raritan Formation is typically of low permeability and forms a confining bed above the Lloyd.

The Matawan Group-Magothy Formation undifferentiated comprises the Magothy Aquifer. Because of its great thickness, the Magothy Aquifer provides large supplies of water to wells throughout Long Island. A well search conducted as part of the Preliminary Master Plan for the Long Island Developmental Center in 1995 revealed six (6) private supply wells and two (2) LIDC supply wells on and near the site (see Exhibit 76). The upper surface of the Magothy Aquifer is in contact with the overlying Upper Glacial Aquifer. Clay layers in the Magothy Aquifer form local confining beds.

The Upper Glacial Aquifer is the most permeable aquifer and composed chiefly of permeable stratified glacial outwash deposits. These deposits are highly permeable in most areas, resulting in high capacity wells typically yielding as much as 1,700 gallon per minute.

The site is located close to a groundwater divide. The water table configuration is shown on Exhibit 76. Although there is a lateral component of groundwater movement, most of the groundwater beneath the site will migrate vertically or obliquely downward to the Magothy Formation.

Aquifers are recharged by water from precipitation that falls on Long Island. Precipitation varies, but averages approximately 42 inches per year. The U.S. Geological Survey has calculated that approximately half of the precipitation recharges the groundwater system, at an average rate of about one million gallons per day per square mile. The Upper Glacial Aquifer is recharged directly by infiltrating precipitation and the deeper Magothy and Lloyd Aquifers are replenished by water moving downward through the groundwater system.



• 16874 OBSERVATION WELL

WATER TABLE CONTOUR LINE (DATUM IS MEAN SEA LEVEL)

* WATER LEVEL NOT USED IN CONTOURING

DIRECTION OF GROUNDWATER FLOW

SOURCE: Suffolk County Department of Health Services
DATE: March 1994

Exhibit 76

WELL LOCATIONS AND WATER TABLE CONTOURS

The Greens at Half Hollow

Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

b. The Special Groundwater Protection Area (SGPA)

The Green at Half Hollow site is located within the West Hills-Melville Special Groundwater Protection Area (SGPA). This recharge watershed area is designated as such because of its importance in recharging the sole source aquifers beneath Long Island. The site is a relatively small portion of the 6,708 acre West Hills-Melville SGPA (approximately 5%). A key objective of developing the former LIDC site is adherence with the recommendations set forth in the Long Island Comprehensive Special Groundwater Area Protection Plan to the extent practicable.

As part of the **Preliminary Master Plan for the Long Island Developmental Center**, completed by the LIDC Task Force in 1995, it was proposed that the redevelopment of the LIDC site be designed to limit population and impervious surface coverage to approximately the same levels present in the early 1980s when the site was in full operation. See Section III.A of this DGEIS for a discussion and SGPA plan compliance. The Preliminary Master Plan also included a evaluation to determine potential impacts on groundwater. Simulations were mathematically calculated to determine base line conditions and projected nitrogen impacts from various developmental options by use of the BURBS model developed by Cornell University.

The BURBS model is a mass balance model that uses specified parameters to compute the nitrogen concentration that would be recharged from a residential development. Baseline conditions for the peak period (1980-81) of activity at the LIDC Site ranged from 4.2 mg/L to 6.4 mg/L depending on actual fertilization loading rates utilized at that time. The nitrogen concentration in recharge is calculated by dividing the total amount of nitrogen leached in the system by the total amount of water recharged into the system.

Laboratory data from groundwater samples collected from monitoring wells associated with the on-site wastewater treatment plant in 1994 identified concentrations of Nitrates as N ranged from a high of 17 mg/L in MW-1 to <0.5 mg/L. It is believed that these monitoring wells are screened above a clay layer. Water supply wells, which are screened beneath the clay layer,

were also tested in 1994 for Nitrates as N, with analytical results for Nitrates as N ranging from <0.2 to 1.16 mg/L.

2. Anticipated Impacts

a. Anticipated Impacts from Development

The findings of the 1978 Long Island Comprehensive Waste Treatment Management Plan ("208 Study") noted that nitrogen is a parameter that is used as an indicator of water quality. Planning for the nitrate level not to raise above its standard of 10 ppm (NYSDEC 6 NYCRR Parts 700-705) guaranteed that other water quality standards were also not exceeded ("208 Study"). However, the **Preliminary Master Plan for the Long Island Developmental Center** noted that 6 mg/l is the concentration that ensures that 90% of groundwater samples will be less than the standard. That is, by planning not to exceed 6 mg/l, there is 10% chance of exceeding the 10 mg/l, standard in any well in this area. Hence, the target value becomes 6 mg/l.

In order to evaluate potential impacts to groundwater from development of the property, the BURBS model was used to calculate projected nitrogen impacts to groundwater. Input parameters for the BURBS model, such as percentage of impervious cover, average persons per dwelling, precipitation rates, fertilization rates, etc., were based on the proposed Plan development plan described in this DGEIS, supplemented with regional information and documents. The BURBS model also accounted for the anticipated application of nitrogen to the proposed golf course. Based on this information the BURBS model calculated that no significant impact to groundwater quality would occur. The projected nitrogen impact based on the "The Greens at Half Hollow" Master Plan was calculated to be approximately 4.8 mg/L of nitrogen in water recharging the shallow aquifer. The calculated nitrogen impact to groundwater was below the previously established 1980-81 baseline of 6.4 mg/L and the target level of 6.0 mg/l in the 1995 Master Planning for the Long Island Developmental Center, as approved by the LIDC task force. Therefore, based on the results of the BURBS model, no significant adverse impacts to the groundwater quality from nitrogen loading are anticipated.

b. Water Required for Irrigation of The Greens at Half Hollow Golf Course

It is estimated that approximately 150 gallons of water per minute will be required during the golf season to irrigate the golf course. Groundwater will be withdrawn from the shallow aquifer in order to supply this need. Regional shallow groundwater is not used for public supply because of concerns regarding the quality of shallow aquifers which have been affected by past agricultural and industrial practices.

Discharge from the sanitary sewage collection system will be piped to the proposed on-site wastewater treatment plant in the southern portion of the site. Discharge from the wastewater treatment plant will be recharged on-site to the shallow aquifer system. On-site recharge basins will also assist in replenishing groundwater withdrawn from shallow aquifers to irrigate the golf course and selected oriental landscaped areas. Because the treated effluent and stormwater runoff will be recharged to the shallow aquifer, no significant adverse impacts to the groundwater hydrology are anticipated as a result of golf course irrigation.

3. Proposed Mitigation

a. Golf Course Operations

If not controlled, impacts to shallow groundwater could result from the operation of the golf course and general application of fertilizers, and pesticides during landscaping of vegetation on-site. The Integrated Turfgrass and Pest-Management Program (ITPMP) proposed for the golf course, will be designed to strictly control the application of pesticides and fertilizers .

Since some limited pesticide use will be included in the ITPMP, it is important to understand and plan for the mechanisms that control the fate and transport of pesticides in the environment. There are numerous chemical, biological and physical processes that govern the fate of pesticides in the environment. These processes include:

- Adsorption – desorption by soil minerals and organic matter;
- Degradation by soil microorganisms;
- Chemical degradation;
- Volatilization and evaporation; and
- Vegetative uptake.

In general, the research literature on the fate of pesticides applied to golf courses indicates that properly managed golf courses as proposed for The

Greens at Half Hollow, will not compromise environmental quality by exceeding environmental health standards. Research has shown that the thatch layer and root zone of the turfgrass system acts as a filter and provides an opportunity for microbial degradation. Below is a discussion of the results of such research.

Research conducted by Gross, et.al. (1990) observed that surface runoff losses of nutrients from established cool-season tall fescue/Kentucky bluegrass turfgrass from research plots for the growing season averaged 0.14 kilograms per hectare (0.13 pounds per acre) for total nitrogen and 0.02 Kg/ha (0.018 lbs/ac) for phosphorus. Gross et al. concluded that "....nutrient losses from established turfgrass are also low due to the thick, densely matted nature of turfgrass and the hydraulic resistance provided by the erect turfstand. It is therefore believed that properly managed and judiciously fertilized turf is not a significant source of nutrients or sediment in surface or groundwater".

Harrison et al. (1993) observed from research plots that "nutrient concentrations [in runoff] remained rather constant and generally reflected the nutrient concentration of the irrigation water. Results of this study suggest that runoff quantities and mean concentrations of dissolved pesticides and nutrients in turfgrass runoff and percolate are generally low." Harrison et al. observed that natural precipitation events did not produce detectable levels of runoff during the course of the study. Irrigation applied at the rate of 75 mm/hr (3 in/hr) was not sufficient to produce runoff from newly sodded plots. Irrigation of 150 mm/hr (6 in/hr) was used to produce adequate runoff for sampling and analysis. Harrison et al. also concluded that SCS Curve Numbers (values for estimating runoff) for the sodded plots were observed to range from 30 to 40.

The limited amount of surface water runoff from turfgrass plots observed by Harrison et.al. is consistent with the findings of Linde et.al. (1995) and Cooper et al. (1990). Linde et al. compared surface runoff volumes and peak rates from plots grown with creeping bentgrass and perennial ryegrass turf. Linde observed that the high-density, thatch-forming bentgrass provided a more tortuous pathway for water movement, which increased hydraulic resistance and, in turn, increased residence time and allowed for greater infiltration. Linde concluded: "For golf courses that have potential runoff concerns, the selection of creeping bentgrass rather than perennial ryegrass could reduce surface runoff from golf fairways."

Kussow (1994) observed that nitrogen and phosphorus losses in surface water runoff from test pilots "...were very low." The total nitrogen loss ranged from 0.0136 to 0.316 lb/1,000 sf, or less than 0.53 percent of the amount of fertilizer nitrogen applied during the same period of time. Phosphorus losses ranged from 0.00351 lb/1,000 sf to 0.0049 lb/1,000 sf, or less than 0.68 percent of the amount of fertilizer applied.

Morton et al. (1988) studied the influence of overwatering and fertilization on nitrogen losses from home lawns. Morton observed total nitrogen losses of 2.4 kg/ha (0.5 lbs/1,000 sf) or one percent of the amount of fertilizer nitrogen applied.

b. Site Specific Integrated Turfgrass and Pest Management Program (ITPMP)

The implementation of the ITPMP, along with a comprehensive pesticide management program, fertilization program, management practices and monitoring program, will minimize potential impacts to shallow groundwater caused by operation of the golf course and general application of fertilizers and pesticides during landscaping of vegetation on-site.

Each element of the program is described below.

(1) Integrated Turfgrass and Pest Management Program

As previously noted, the Integrated Turfgrass and Pest Management Program (ITPMP) will be developed prior to construction of the golf course component of The Greens at Half Hollow development. The program will contain a program of fertilizer, pest control options and other maintenance practices to be used on the golf course. The program will be designed to serve as the maintenance blueprint for the golf course and will describe materials to be used. The golf course superintendent will be responsible for implementing this program.

The basic philosophy of the ITPMP is to produce a healthy pest-resistant golf-playing surface that will have little or no impact on the surrounding environment. Selection and use of fertilizers and pesticides will be based on producing a healthy plant while not contaminating either surface water (via runoff) or groundwater (via leaching). The ITPMP will conform to the principles of sustainable resource management developed by Audubon International for golf courses.

The ITPMP will be compiled from the following information: site specific soil properties provided by the USDA- Soil Conservation Service for Suffolk County, New York, as presented in this DGEIS; review of the detailed site plans that follow the proposed golf course routing plan included in this DGEIS; preparation of an environmental risk assessment (risk to surface and groundwater) of the currently registered pesticides in the State of New York for golf courses (as described below); and a determination of the anticipated pest complex. The ITPMP will provide an environmentally sound fertilizer and pest management program to be followed by the golf course management personnel. Any chemical (fertilizer or pesticide) found by the environmental risk assessment to pose a risk to either surface or groundwater quality will not be used on the proposed course.

(2) Environmental Risk Assessment

The environmental risk assessment will be composed of three parts. First, the surface and groundwater contamination (runoff and leaching) potential of **all** pesticides registered for use on golf courses in New York for the soils of this site will be evaluated. Second, the pesticides identified to have either a moderate or a high potential for surface or groundwater contamination will **not** be used on the golf course at The Greens at Half Hollow. Pesticides with a low potential for both surface and ground water contamination may be used, but only after all other pest control measures have failed. Third, a worst case estimate of concentration of fertilizers (nitrogen and phosphorus) and pesticides application to the golf course in surface and groundwater will be made.

The environmental risk assessment will be performed by utilizing the NPURG computerized information system developed by the US Department of Agriculture and the Soil Conservation Service. NPURG, a very conservative model, will predict the outcome of pesticide and nitrate leaching, for the specific pesticides and fertilizers included in the ITPMP.

(3) Management

The basic premise underlying the ITPMP is that a healthy plant will be most resistant to pests and will recover much faster than less healthy turf. Therefore, the golf course superintendent will follow standard accepted maintenance practices like proper mowing (height and frequency); top dressing and cultivation for thatch management and compaction alleviation as examples. Below is a discussion of practices that more directly affect pest problems and are part of the pesticide management component of the ITPMP proposed for The Greens at Half Hollow.

The basic philosophy of the ITPMP program is to produce a healthy pest resistant golf playing surface that will have very little or no impact on the surrounding environment. Every available pest management practice will be utilized with the goal of using pesticides as a last resort after all other control options have been followed. A new golf course provides the opportunity to construct a system that is less prone to stress, which is often the main cause of pest damage or invasion of weedy species. This will be accomplished by: 1) establishing grasses in the ITPMP that are best adapted for the golf course and are pest resistant; 2) by providing a soil system to minimize the stress caused by the golfer; and 3) reducing moisture plant stress by having an irrigation system that can provide the necessary amount of water needed by the plant (thus reducing over irrigation which can lead to the potential for ground/surface water contamination or more pest problems). Thus, the purpose of the ITPMP is to document the approach that meets the goals of developing a healthy pest resistant golf playing surface that poses little or no threat to the environment on or surrounding this site. The ITPMP for The Greens at Half Hollow will identify the following:

- Turfgrass Selection: Performance and Pest Resistance Criteria
- Target Pests and Pest Control Options
- Anticipated Pest Problems (Disease and Insects)
- Pesticides Approved for use based in Risk Screening Criteria

(4) Application Procedures

To protect surface waters from drift of pesticide spray, all areas to be treated with pesticides will use a shrouded sprayer to apply pesticides. The shrouded sprayer applies the pesticides spray directly on the turf reducing drift to near zero at wind speeds less than 15 miles per hour. Granular application can also be used to reduce the potential for any off-site movement of pesticides and fertilizers by spray drift. No applications of pesticides or fertilizers will be made within 48 hours of a predicted heavy rainfall event. Pesticides will only be applied to areas that exceed thresholds and climatic conditions indicated for each pest so as to minimize the amount of pesticide used. Spot treatments will be the rule, not the exception.

(5) Fertilization

The fertilizer nutrients of concern from an environmental perspective are nitrogen (as nitrate) and phosphorus (phosphates). Nitrate can cause a reduction in the quality of water in a drinking water source or cause eutrophication of streams, ponds, or lakes. Phosphorus is needed in small amounts by turfgrass and is mostly of concern for surface water eutrophication.

There has been considerable research on the fate of nitrogen applied to turfgrass (Petrovic, 1990). About half of the applied fertilizer nitrogen is found in the clippings, 30 to 40 percent is stored on the soil as organic matter, and gaseous loss back to the atmosphere constitutes from 0 to 40 percent of the applied nitrogen. Thus, there is little fertilizer nitrogen available for either runoff in surface waters or leaching into groundwater. Factors that influence the degree of nitrate leaching are the source of nitrogen, the rate of application, the timing of the application and irrigation practices (Morton et al., 1988). These factors are integrated into the fertilization program to produce a good quality golf course with a low probability of any negative impact on the surrounding environment.

Phosphorus can be a problem in runoff, but in turfgrass situations, runoff from turf seldom occurs due to the high amount of water infiltration into the soil (Harrison et. Al., 1993). Phosphorus runoff has been a problem in traditional agricultural production when erosion has occurred or the application of phosphorus was in excess of the amount needed for plant growth (based on soil tests). On established, turf erosion is virtually eliminated. Phosphorus (potassium, pH modification and other nutrients other than nitrogen) application will be based on soil test results to insure that the proper amounts be applied to provide for acceptable plant health and avoiding excesses that can lead to contamination of surface water. Soil testing will be done just prior to establishment of the turfgrass to determine the amount of phosphorus to apply at seeding/sodding and two times per year thereafter for maintenance application. All greens, tees, fairways and roughs will be sampled.

Clippings will be removed from the greens and tees at The Greens at Half Hollow, while clippings will be returned in the fairways and roughs. Clipping management will be used in developing the ultimate nitrogen application rates.

The fertilization program to be specified in the ITPMP will incorporate a balanced approach to fertilization: the amount of each nutrient applied will provide for adequate plant growth, will not over or under stimulate growth at the expense of disease resistance or weed encroachment, will act in a disease suppressive manner by the use of natural organic fertilizer, and will not lead to either a significant amount of runoff or leaching because there will not be a large pool of water soluble nitrogen available at one time. The fertilization program will avoid several of the major factors that encourage nitrate leaching. No fertilizers will be applied in advance of inclement weather predictions (48 hrs.) to further reduce the likelihood or leaching or runoff.

There will be no late fall fertilization with highly water soluble sources; the nitrogen sources have not been shown to leach from golf course type turf (Petrovic, 1990 and Petrovic, 1991) and the rates of application are low, thus resulting in little soluble nitrogen available for off site transport. Tissue testing will be done bi-weekly during establishment and monthly thereafter on greens and tees during May-September to assess the nitrogen content. Nitrogen levels will be maintained between a range of 4.5 to 5.25% nitrogen, on a dry weight basis, to reduce both Dollar Spot and Brown Patch disease. Small amount of soluble nitrogen fertilizer (0.10 lbs. nitrogen/1000 sq. ft. from normal surface applications) will be applied if nitrogen contents drop below 4.5%. If nitrogen contents are above 5.25%, any scheduled N applications will not be made. As previously noted, no fertilizers will be applied in advance of inclement weather predictions (48 hr) to further reduce the likelihood of leaching or runoff.

(6) Daily Management Practices

Each golf course is managed differently based on numerous factors. The following is the proposed management routine for The Greens at Half Hollow. Note that this is typical of similar golf courses in the Metropolitan New York area.

<u>*Mowing*</u>: Greens and tees will be removed 6 to 7 times per week during the major growing portion of the year (May-October). Fairways will be mowed 3 to 5 times per week with clippings left in place or distributed to the roughs. Roughs will be mowed one to three times per week and clippings left in place.

Clipping Management and Disposal: Clippings collected from greens, and tees will spread in rough areas. Clippings from all other areas will be left in place or as the case with fairways spread on the adjacent roughs.

Irrigation Management: A computer-controlled irrigation system will be able to irrigate to the amount needed for adequate plant growth while not over irrigating. Over-irrigation can make many disease problems more severe, can lead to significantly greater likelihood for either pesticide or nitrate leaching into groundwater and runoff into surface waters (Petrovic, 1990, and 1994) and can waste upwards of 50% more water than is actually needed.

This golf course will apply irrigation water based on an estimate of the amount of water used by the turfgrass plant. This irrigation system will either have a weather station linked to the controller that estimates plant water use and will irrigate accordingly or use evapotranspiration rate data provided by the North East Climate Center, Ithaca, NY and Nassau County Cooperative Extension. This proper amount of irrigation will be applied to minimize any environmental impact, reduce the potential for pest problems, reduce the waste of water from excess irrigation and produce a healthy pest-resistant grass. Irrigation will only take place when wind speeds are below the maximum specified for this irrigation system (irrigation heads and operating pressure).

Cultivation: Several times per year, the greens, tees, fairways and high-traffic areas of the roughs will be cultivated to alleviate soil compaction caused from foot traffic golfers and vehicular traffic. The cultivation method used will include shallow core cultivation, deep drill and water injection on greens/tees during the summer months if necessary. A soil penetrometer will be used to judge the need for cultivation. Compacted soils are much more prone to runoff and therefore, cultivation is necessary to protect surface water quality.

Topdressing: Topdressing is a practice of adding a small amount of soil (or sand) to the surface of the turf so as to reduce the development of thatch while smoothing and firming the putting surface. Greens and tees will be topdressed with the same material used to construct the root zone during most of the growing season.

Equipment Cleaning: A covered wash bay area will be used to clean the routine maintenance equipment. The wash bay will have a sloped floor to the center and a floor drain with a grease/oil and solids (clipping) trap. The sediment collected will be hauled to the proper licensed disposal facility. The wash water will be collected in a 1,000 underground doubled lined storage tank. The stored wash water will be pumped from the tank as needed and sprayed in the roughs.

(7) Storage

All pesticides will be mixed, loaded and stored in a maintenance building located in the southern portion of the site. The proposed structure will be equipped as follows: a small section for record keeping; mixing/loading area; application equipment washdown area; and pesticide storage space. It is anticipated that only small quantities of materials will be stored in the building. A general contact fungicide like chlorothalonil or a specialized fungicide like etridiazole (for Pythium control) will be stored in case of an outbreak of a disease posing an imminent threat to the golf course requiring immediate action. For insect and weed control, insecticides and herbicides will be purchased and used on an as needed basis. All empty containers will be handled and disposed of by a licensed hauler. Fertilizers will be stored in a walled off section of the maintenance facility. The floor will be sealed and will not contain a floor drain. The concrete for the floor and lowest one foot of the walls will be poured at the same time with out joints so as not to allow water in or out of the storage area. Only small amounts of fertilizers will be stored at any one time, usually no longer than several days (from the time of delivery until it is applied).

(8) Monitoring

The following is a description of the monitoring procedures to be followed at The Greens at Half Hollow to determine the need for application of fertilizers and pesticides to the proposed golf course.

Pest Scouting, Monitoring and Action Thresholds: Scouting is one of the most common disease management practices followed by golf course superintendents. The extent and form of the scouting program varies widely between superintendents. Many superintendents rely on indicator sites or "hot spots" as areas where diseases (or other pests) first occur and use these sites as early warning signs. Many golf courses are now having pest populations mapped during a scouting visit. In this way a more permanent record of pest pressure is recorded and the effectiveness of control options evaluated. Scouting forms will be used by the proposed golf course to monitor pest populations.

Monitoring for pests involves determining the location and number of pests or area affected by pests. Threshold pest occurrence have been developed for many golf course pests and will be used to determine of a pesticide application is warranted.

Determining Fertilizer Applications: Soil testing, tissue testing and visual inspections may be used to determine the need for a fertilization application. Soil testing is used to determine the amount of available nutrients currently found in the soil and the amount of nutrients needed to be applied to provide for healthy plant growth. Soil testing will be used to determine the basic application rates for phosphorus, potassium, calcium and magnesium. Soil samples will be collected in May, July, September and December on all greens, tees and fairways until it has been determined that certain sections are similar and fewer samples will be necessary. Soil pH modification to maintain a pH in the range of 5.5 to 7.2 will also be used, based on the quarterly soil testing results.

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O. Cultural Resources

1. Introduction

Stage 1A and 1B Archaeological Surveys were conducted for the project site by Jo-Ann McLean Inc., Archaeological Consultants. The full reports are included in Appendix E of the DGEIS.

A Stage 1A survey includes researching relevant maps, references and other information sources pertaining to a project area to determine whether or not prehistoric and/or historic cultural resources are potentially present and to provide data on documented ground disturbance, if any, that may have destroyed such resources. The purpose of this research is to determine the potential for undisturbed subsurface cultural resources, both historic and prehistoric within the parcel bounds.

The documentary research for the project site included a review of the New York State Site Files for identification of prehistoric and historic sites and the State and National Register listings for the Town of Huntington as of July 20, 1999. Manuscripts, maps, atlases and historical documents available at the Huntington Historical Society were also reviewed. An assessment of the limited Stage 1A research, *Stage 1A Archaeological/Historical Sensitivity Evaluation of Planned Construction at the Long Island Developmental Center, Melville, Suffolk County*, (Roberts, 1988) and the limited Stage 1B research, *Stage 1B Archaeological Survey Small Residential units Project Long Island Developmental Center, Melville, Suffolk County, New York* (Pickman, 1988) was undertaken. Also reviewed were *Preliminary Comprehensive Plan for Long Island Developmental Center, Melville, New York* (Rubano et al, 1986), and the *Draft Environmental Impact Statement: Long Island Developmental Center Small Residential Units, Melville, New York* (Buckhurst et al, 1987). Research included a drive over and evaluation of the site.

A documentary survey was conducted to establish a) prehistoric sensitivity and the relationship of the site to other local prehistoric sites and b) historic land use.

2. Prehistoric Sensitivity

Study Area

Eight recorded sites in Huntington lie within a two mile radius of the project site.

1. West Hills Site 5521 (SCAA#123) - Reported by R. Latham in 1954. No information is available regarding this site with the exception that it was collected by Latham in 1922 and 1927.

2. Dix Hills Site 7673 (NCM#202) - No available information

3. Sunqaum School Site A103-04-0963 - A Late Archaic site containing Wading River points, quartz debitage and flakes, steatite sherds and hammerstones.

4. Half Hollow Tree Nursery Site 5484 - Reported by Saxon included an unprovenienced collection from the Whitson Farm. It included ±100 lithic tools including Brewerton, Wading River, Rossville, Orient Fishtail and Levana points. No pottery and no bone tools were present in the collection, however, it is unknown if this is due to a selective collection strategy, a lack of recognition of these materials or the result of absence of these materials at the site.

5. Sweet Hollow Site 5506 (A103-04-0116/NCM26/SCAA122) - Primarily considered a Mid-Late Camp/Village and possible winter hunting station. The Suffolk County Cultural Resource Inventory includes 200 projectile points including Voxburh, "levanna-like", "Wading River-like", "Lamoka-like" points and pipe fragments

6. Old East Neck Road Site 5520 (SCAA 121/ncm 198) - The site consisted on unprovenienced finds of projectile points and debitage on the surface after plowing. Apparently there were several distinct concentrations producing Wading River points or Levanna points. The collection consists of approximately 200 pieces. "Brewerton-like", Rossville and Poplar Island points are also described for the site as well as a single Orient point base and possible Susquehanna Broadpoint. The collection includes a small celt or adz, a flake knife of gray chert, a possible sinewstone, biface preforms and substantial amounts of debitage.

The presence of these sites indicates a preference for this drainage valley by Native Americans indicating that fresh water sources, unavailable today, were once present. Although all sites have not been typed and none was professionally excavated, four of them are categorized as Archaic/Late Archaic based on lithic topology. This coupled with the area's reputation for game suggest that the area was likely preferred for inland seasonal hunting camps during this period.

Project Site

The project site is situated in the north eastern corner of a drainage valley. During the site evaluation for planned construction of the Small Residential Units (SRU's) in 1988, two reports were completed. The first was a limited Stage 1A documentary study prepared by William Roberts of Greenhouse Consultants. The second was a limited Stage 1B prepared by Arnold Pickman for the two areas to be impacted by construction of the proposed Small Residential Units.

For the Stage 1B sub-surface archaeological survey 153 shovel tests were established within these two "Phases" determined by Pickman to be the most sensitive sections based on the availability of fresh water in the form of possible prehistoric intermittent streams. 63 tests were conducted in the Phase I site and 90 in the Phase II site. These tests were conducted at 100-foot and 50-foot intervals. Some of the target construction areas had been previously disturbed, however, portions of the tested areas demonstrated intact plow zone.

No prehistoric occupation horizons were located and no prehistoric cultural material were located.

3. Historic Overview

Study Area

A search of the New York State Historic Site files indicated the presence of three historic sites within a two mile radius of the project site. These sites are:

1. NYS Conservation Department Forest Fire Observatory Site A103-04-0097 - Erected 1916, demolished 1952. Reported by Henry Shea, 1974

2. Mountain Mist Spring House Site A103-04-0900 - Marble lined well and pipes remaining. Reference: Atlas of Suffolk County, Long Island Shore, and Brooklyn. By E. Belcher Hyde, 1909, archives of state historian. Historical marker at site 'Mountain mist spring house. Water was bottled here and sent to Montauk as "cure' for yellow fever for soldiers returning from the Spanish-American War. 1898"

3. Stone Fort Site A103-04-0902 - Visible until early 20th Century. Reference: Henry C. Pratt in Old Times in Huntington (1896), describes a stone fort without doors, accessible by a ladder which was pulled in at night. The fort was built shortly after the town was settled.

Some 1,000 properties have been/are being considered for State and National Register listing in the Town of Huntington. Of these 33 are listed for Melville. Of the 33, six residences are listed for Half Hollow Road which skirts the southern edge of the project site. One has been approved for listing, the John Rogers House "Five Gates" at 627 Half Hollow Road. Of the two residences closest to the project site, the Carman-Gustivan-Regan House at 361 Half Hollow Road built prior to 1837 was torn down circa 1994. The other, The Ketchum-Baylis-Furst House at 395 Half Hollow Road was built prior to 1837.

Project Site

Although the Carman house was located across the street form the southeast corner of the LIDC site, map research indicated that no known significant historic structures exist on the project site. However, this research did reveal early structures were present on the property.

4. Site Development and Disturbance

In 1965 the State purchased the property to be developed into the Suffolk State School to provide care for "retarded adults" and children. In 1974 the name was changed to the Suffolk Developmental Center, and again in 1984 to the Long Island Development Center. In 1986 the site was described as comprising 515.9 acres. One mile of it fronting on Half hollow Road, 293 feet on Carman Road and slightly over one mile along the Northern State Parkway. Entrances existed from Half Hollow Road, Carman Road, Old East Neck Road and Old South Path.

In 1988 two additional portions of the site were developed for Small Residential Units. It was these two sections that were the subject of the 1988 Stage 1A and Stage 1B surveys.

Approximately 100 acres of the LIDC site contain structures. With the exception of less than 70 acres, the entire property has been disturbed by construction, grading and landscaping activities, underground sewer, water and or electric lines. Very little of the site remains undeveloped or undisturbed. Six areas have been identified as undisturbed. These areas are noted in Exhibit 77 and identified as Sections A, B, C, D, E, and F.

5. Archaeological Potential

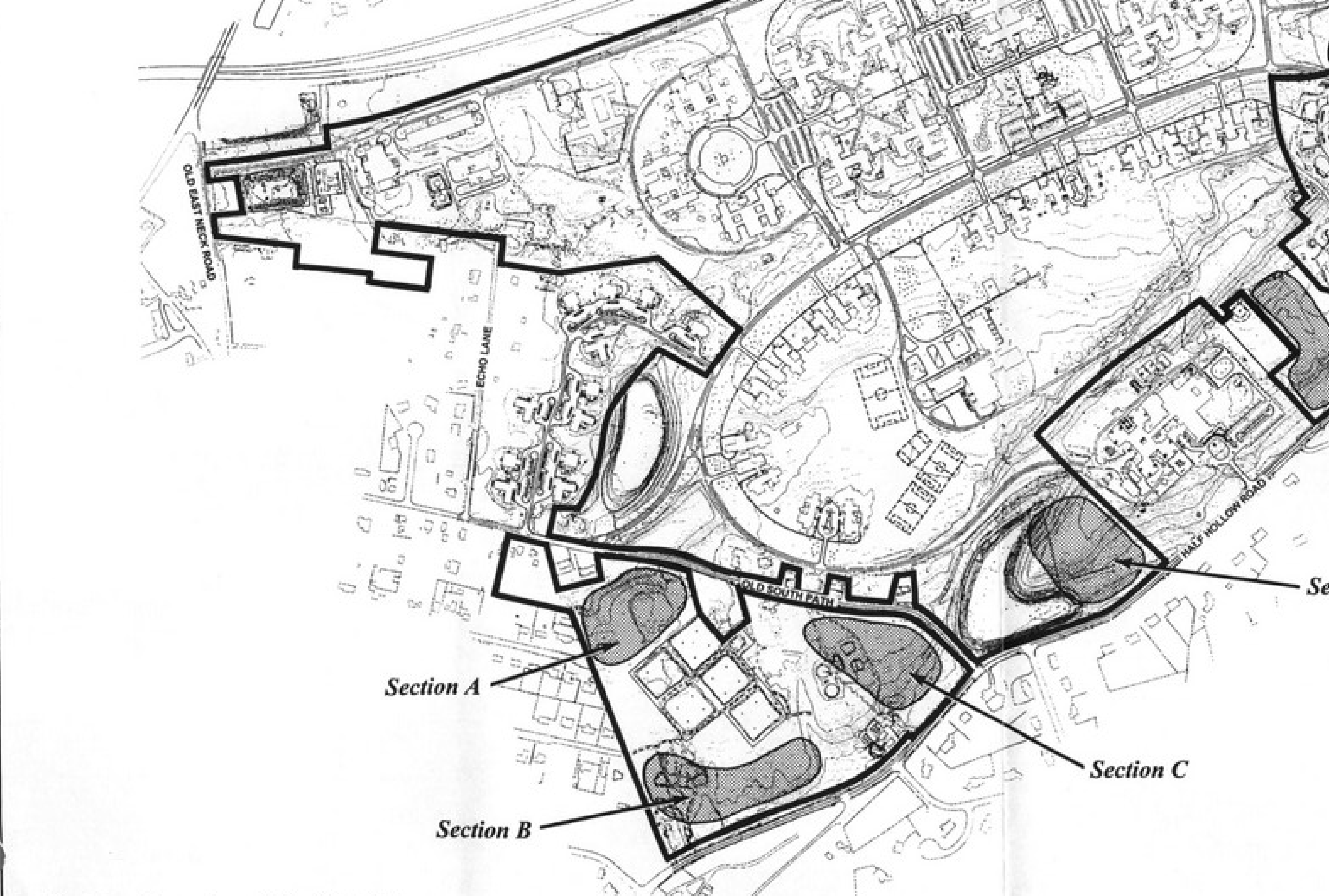
Potential for sub-surface archaeological resources is dependent on several factors including:

- Reasonable assumptions regarding prehistoric sensitivity for the area.
- Identification of specific historic indicators.
- Site integrity or documented land disturbance.
- Results of previous archaeological survey.

In general, the likelihood for undisturbed prehistoric subsurface archaeological resources on the LIDC property is low. Although a number of prehistoric resources have been identified within a two mile radius of the project site, most of the 400 project acres have been disturbed by vast earthmoving episodes, construction and construction related activities.

Construction on the majority of the site is obvious. These building and landscaping activities have leveled the natural topography, grading it to produce grassy lawns, play areas, playing fields, roads and level ground for construction of the more than one-hundred structures on the grounds, as well as, the unseen disturbance as a result of the installation of underground utilities. The entire perimeter of the property appears to have been stripped of natural vegetation and planted with pine trees.

Approximately 40 acres of the grounds were systematically tested in 1988 by Arnold Pickman. The two sections tested were considered to be the most sensitive portion of the LIDC property based on the convergence of



Base Map Source: Barrett, Bonacci & Van Weele, P.C.

intermittent streams in these areas. Although some portions of the two sections tested were disturbed, intact plow zone and sub-soils were encountered. No prehistoric artifacts or features were encountered. In addition, all the local sites were based on surface finds reported by locals or early archaeologists as a result of farming activities. Although farmed for several hundred years no such reports are recorded for this parcel. For these reasons, archaeological sensitivity on the majority of the project site is considered to be extremely low.

Some historic buildings were likely to have been located within the boundary of the project site. None are now standing. The likelihood of identifying remains of these homesteads is variable. Pickman identified stone features likely relating to the Hammon/Heck structures. These are located on LIDC in the area of the east side SRU's and therefore, east of the project site. The O'Brian structure has some potential to be located with Area F or on the Sagamore Children's Psychiatric Center grounds, just west of Area F. Possible remains of the two unidentified structures noted on the 1873 Beers Atlas (and perhaps later associated with Mason circa 1917) may be located along Half Hollow Road within the Sanitary Disposal Area, therefore within the project grounds (Area A). These features, if present, may have been impacted during construction of the sanitary sewer area.

6. Archaeological Sensitivity

The following sections of the project site have been assessed to have had little to no construction related impact to the original ground surface. Based on the lack of disturbance and the identification of prehistoric sites within a 2 mile radius they are considered to have archaeological potential. However, their potential is moderated by a lack of recorded surface finds recorded for the site and the Pickman 1988 excavations adjacent to the project site which were sterile of prehistoric resources. The are therefore considered to have low to moderate sensitivity for cultural reso7urces. Section B and Section F may contain historic features related to the Mason and O'Brian structures respectively.

<u>Section A</u> - Section A is an area of approximately 10 acres located north of the existing sanitary disposal area. It is covered with woodland. Based upon the appearance of undisturbed topography and the fact that Pickman's survey of a much larger area to the northeast was sterile, Area A has a low to moderate potential for prehistoric resources.

Section B - Section B is a narrow area of approximately 5-7 acres bordering Half Hollow Road. It has potential to hold features associated with the Mason structures discussed above as well as potential for prehistoric resources.

Section C - Section C an approximately 10 acre area of natural topography, covered in grassland just east of the Sanitary Disposal Area and west of Old South Path. It is presumably undisturbed, although some portion may contain underground utility/sanitation lines associated with the sanitary disposal Area. It has low to moderate potential for prehistoric resources

Section D - Section D is a 12 acre wooded area on Half Hollow Road, east of the Ponding Basin and west of the Sagamore Children's Psychiatric Center. It contains a low trough which may at one time have been an intermittent stream. Either the low lying land bordering Half Hollow Road or the higher ground to the north have moderate potential for prehistoric resources. The area is approximately 12 acres.

Section E - Section E is a portion of the perimeter of the project site which borders Carman Road north of the Main Entrance on Carman Road. Although the interior of this section appears to have been graded and landscaped, the topography along the road appears to be natural and is considered to have low to moderate prehistoric potential. This area appears to be no more than 8 acres running south to north along Carman Road.

Section F - Section F is an area between 15-17 acres situated between the Sagamore Children's Psychiatric Center and the east side SRU's. This wooded section borders half hollow Road on the south where it is road level and contains the low trough also seen in Section C. It rises to the level of the higher plateau of the property and extends north. It is considered to have moderate potential for prehistoric resources. It may contain structural remains associated with the O'Brian house.

7. Stage 1B Subsurface Testing

Based on the findings of the Stage 1A Archaeological Survey, sub-surface testing (Stage 1B) was recommended for areas A, B, C, D, E, and F, according to New York Standards.

A Stage 1B survey primarily involves systematic sub-surface testing of a project area in order to determine whether or not cultural deposits or artifact scatters are present in their general locations. Sub-surface testing carried out during a Stage 1B survey usually consists of "shovel tests". Shovel tests are small excavations covering approximately 1.5 square feet of surface area extending to the depth necessary to reach sterile sub-soil. All soils removed from each test are passed through a 1/4 inch mesh screen to detect the presence of artifacts. All artifacts are bagged in the field, with each bag labeled according to provenience, and returned to the laboratory for analysis and tabulation. If a Stage1B survey indicates that possibly National or State Register eligible archaeological deposits are present, the next stage of investigation usually involves a more intensive investigation of the identified site area or areas.

Overall the six sections tested for historic and prehistoric sub-surface cultural materials at the project site were sterile of artifacts. Areas believed to be largely undisturbed proved to contain some forms of disturbance: Portions of Area A appear to have experienced some disturbance in relation to the construction of the sewer treatment facility. Area D showed disturbance in the form of twentieth century walkways and fence construction and some additional disturbance in the area of the recharge basin. Area C showed disturbance near half Hollo3 Road where historic features were expected to ve encountered. This disturbance was likely associated with road construction, construction of the sewer treatment facility and perhaps removal of the features themselves. Are b, Area E, and Area F though largely undisturbed were virtually sterile. Area F exhibited no remnants of historic occupation.

The absence of archaeological deposits has been clearly established by Stage 1B testing at The Greens at Half Hollow site. No further archaeological survey is required.

IV. SIGNIFICANT ADVERSE IMPACTS THAT CANNOT BE AVOIDED IF THE PROPOSED ACTION IS IMPLEMENTED

The proposed development will result in certain impacts to the environment such as increased traffic on area roadways, removal of on-site vegetation and increased demand for certain community facilities. Each of these impacts has been mitigated to the extent practicable. As a result, none are considered to be significant adverse impacts pursuant to SEQRA.

In addition, short-term construction activities will likely result in several minor, temporary adverse impacts to the project site and surrounding area. These impacts will be associated with demolition, site clearing and grading activities; excavation of foundation areas; installation of utilities; and construction of roadways, residential buildings and recreational facilities. Proposed measures to mitigate and minimize these impacts are discussed in the appropriate chapters in Section III of the DGEIS. The short-term construction impacts are summarized below.

- Soils will be disturbed on the project site by grading, excavation and mounding activities during construction.

- Temporary increases in soils erosion will result from construction operations, and minor amounts of soil will be carried off site in surface runoff waters.

- Wildlife utilizing the project site and immediate adjacent areas will be temporarily displaced by construction activities onto adjacent wooded and open areas; and construction operations will discourage wildlife from feeding at or migrating through the project site during the construction phase of the proposed action.

- Operation of construction equipment and trucks, and worker vehicles, may temporarily impede traffic in the area of the project site during the construction period.

- Minor release of air contaminants will occur from construction equipment; and emissions of fugitive dust will occur during some construction operations.

- The visual quality of the area may be temporarily degraded by the presence and operation of construciton equipment on the project site; and

- Slight increases in noise levels at the site boundary may result from construction activities.

The demolition of existing buildings, roads and utilities will be undertaken in strict conformance with all local, state and federal laws and requirements to ensure the safety of construction workers and compliance with all applicable environmental regulations. Where appropriate, demolition materials will be used as fill on-site.

V. ALTERNATIVES

The **Preliminary Master Plan for the Long Island Developmental Center** prepared by the LIDC Task Force in 1995 describes five alternative development plans for the former LIDC campus. These plans range from a single-family subdivision based on existing zoning (Plan D) to a maximum density of multifamily age-restricted housing (Plan E). Plans A, B-1 and C-1 contain a mix of housing types and incorporate distinctive features such as cluster housing, a village center and a golf course. Consideration of alternatives to the Proposed Action -- The Greens At Half Hollow -- itself a slight variation of Plan C-1, draws on the alternative plans and impact analysis discussed in the **Preliminary Master Plan for the Long Island Developmental Center**.

A scenario based on existing zoning (Plan D from the Preliminary Master Plan) and the two options preferred by the LIDC Task Force (Plan B-1 and C-1 from the Preliminary Master Plan) are described below. These three alternatives are compared with the Proposed Action and each other with respect to their potential impacts. A No-Build scenario and the Proposed Action with a nine-hole golf course rather than an 18-hole executive golf course are considered as well. Two additional plans discussed in the Preliminary Master Plan, Plans A and E, were rejected by the LIDC task force and were not evaluated in detail in the Preliminary Master Plan. Therefore, Plan A (a variation on Plan B-1) and Plan E (a total of 2,650 senior housing units) are not presented in the DGEIS as alternatives to the Proposed Action.

A. Description of Alternatives

1. Alternative 1: Conventional Single-Family Subdivision

Alternative 1 is equivalent to Plan D in the **Preliminary Master Plan for the Long Island Developmental Center**. (See Exhibit 78). Based on densities allowed under Huntington's Zoning Ordinance, the former LIDC campus could contain a subdivision composed of approximately 120 single-family houses on 2-acre lots. This plan does not include any age-restricted housing.

Major existing infrastructure components are retained in this plan including the existing road patterns with several loop roads and cul-de-sacs added. Several of the houses would front directly onto Old South Path and Carman Road. The area between the Sagamore Children's Psychiatric Center and the eastern group of SRUs is preserved as open space along with green areas as buffers separating the homes from the Northern State Parkway, the SRUs, and the utility and sanitary disposal areas.

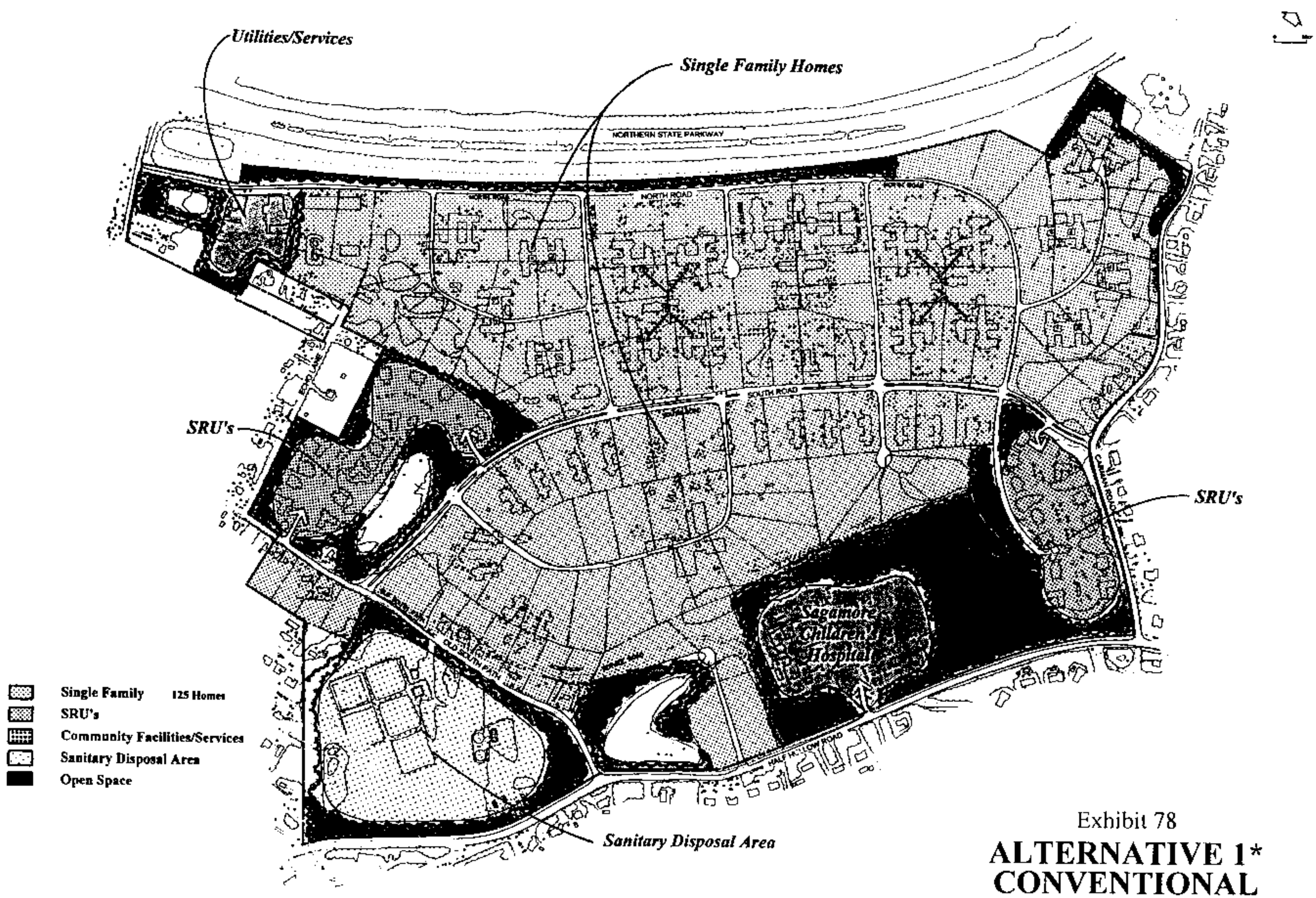


Exhibit 78

ALTERNATIVE 1*
CONVENTIONAL
SINGLE-FAMILY SUBDIVISION

The Greens at Half Hollow
Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

Plan D from the *Preliminary Master Plan for the Long Island Developmental Center

Empire State Development Corporation
Long Island Developmental Center Advisory Task Force

2. Alternative 2: Cluster Subdivision with Village Center

Alternative 2 is equivalent to Plan B-1 in the **Preliminary Master Plan for the Long Island Developmental Center**. (See Exhibit 79) This alternative proposes a mix of senior and non-senior housing and utilizes clustering techniques to concentrate development on selected portions of the site, as opposed to traditional subdivision design illustrated in Alternative 1. Clustering preserves significant environmental features, provides greater density and diversity in proposed housing types, and permits the creation of a village center as a community focal point.

This plan includes 200 single-family housing units, 100 townhouses and 1,100-1,200 senior housing units. Housing density would be higher toward the center of the site with less dense housing closer to the perimeter. The plan includes a variety of single-family lot sizes including the use of zero lot line configurations for traditional housing on smaller lots. Most of the single-family units would be divided between one-half-acre lots in the southwestern portion of the site and one-acre lots in the northeastern portion. The senior housing would consist of a continuum of care with 50 percent independent living units and 50 percent in a mix of assisted living, congregate housing, and nursing home beds developed separately or considered as a life care community.

The main feature of this plan is the village center. A village green would be designed as a gathering place for community residents and a common area for community activities. Immediately south of the green, the existing school building would be adapted as a multi-purpose community center possibly containing a child or senior day-care center. Townhouses would be grouped around the green on the east and west. A 20,000-square-foot neighborhood retail and service center would be built to the north, across South Road from the green. South Road would be widened into a boulevard that would function as the unifying structural element of the community. Several of the single-family homes have access from Old South Path and Carmen Road.

3. Alternative 3: Cluster Subdivision with Nine-Hole Golf Course

Alternative 3 is equivalent to Plan C-1 in the **Preliminary Master Plan for the Long Island Developmental Center**. (See Exhibit 80) This plan includes a nine-hole golf course in the center of the site surrounded by distinctive clusters of townhouses and other housing types. This plan recognizes the increasing popularity of golf and the added value that a golf

Exhibit 79

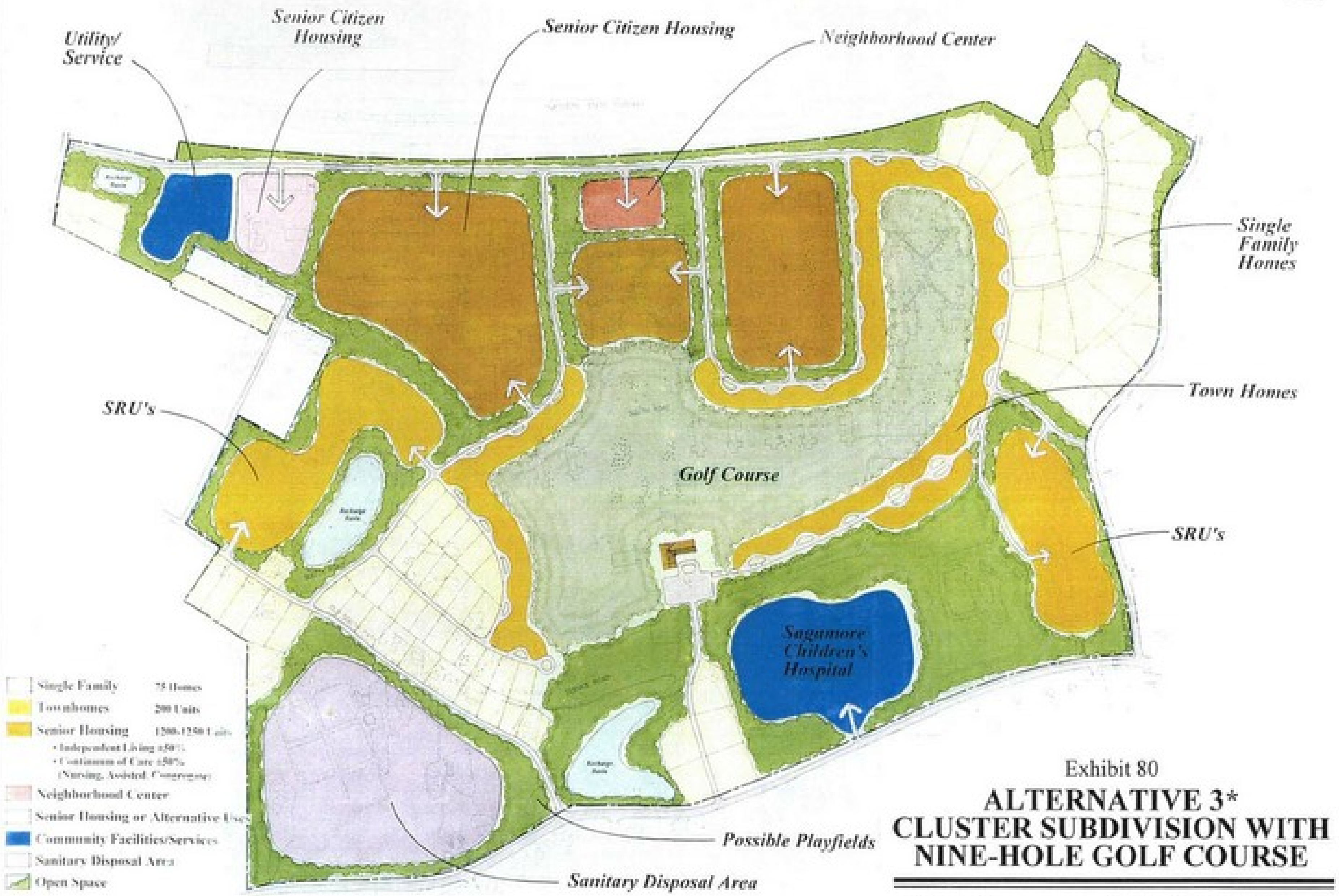
ALTERNATIVE 2*
CLUSTER SUBDIVISION WITH VILLAGE CENTER

The Greens at Half Hollow
Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

Plan D from the *Preliminary Master Plan for the Long Island Developmental Center

Empire State Development Corporation
Long Island Developmental Center Advisory Task Force



*Plan C-1 from the *Preliminary Master Plan for the Long Island Developmental Center*

Empire State Development Corporation
Long Island Developmental Center Advisory Task Force

Exhibit 80

ALTERNATIVE 3*
CLUSTER SUBDIVISION WITH NINE-HOLE GOLF COURSE

The Greens at Half Hollow
Town of Huntington, New York

Saccardi & Schiff, Inc. - Planning & Development Consultants

APPENDIX A

The Greens at Half Hollow

Town of Huntington, New York

Proposed Master Plan

SBJ Associates, L.L.C.
November 1999

PROPOSED MASTER PLAN
The Greens at Half Hollow, Huntington, New York

The Master Plan for The Greens at Half Hollow development encompasses approximately 382 acres of the former 465-acre Long Island Developmental Center (LIDC) site in the Town of Huntington, N.Y. The Master Plan calls for development of an upscale community of homes designed primarily for senior citizens, empty-nesters and active adults, who are 55 years of age and older, with the development focusing on an 18-hole executive golf course. The golf course will be a private facility available for residents of The Greens at Half Hollow community. Subject to availability, a limited number of memberships may also be offered for residents in the surrounding area.

A total of 1,375 homes are incorporated within the Master Plan; a reduction from the ±1,500 units included in the 1995 Plan of the Long Island Developmental Center Task Force. The new homes will include a broad range of housing types and choices, responding to various needs of prospective residents, including condominiums, townhomes, golf course villas, assisted living units and single family detached homes. In addition to the golf course, a series of parks, landscaped buffers and a pedestrian pathway system that connects all of the residential units and other open space areas together, have been incorporated into the Master Plan, with over 60% (or 245± acres) of the site retained as permanent open space of various types. Included within the open space area is a 30 acre site that will be developed with active recreation facilities (e.g., soccer fields). This site will be dedicated to the Town.

The Master Plan is more fully described below.

A. Site Location

The Greens at Half Hollow site is located in the southwestern portion of the Town of Huntington between the Northern State Parkway and the Long Island Expressway. The site currently contains over 100 buildings that were part of the Long Island Developmental Center (LIDC), a de-commissioned State facility for the developmentally disabled run by the New York State Office of Mental Retardation and Developmental Disabilities (OMRDD). Also part of the former LIDC property, but not subject to The Greens at Half Hollow Master Plan, are two clusters of Small Residential Units (SRUs) for the developmentally disabled, the Sagamore Children's Psychiatric Center, and a number of single family homes on Old South Path and Carman Road. These uses encompass an area of approximately 80 acres.

The Northern State Parkway forms the site's northern boundary, with exit #40 and exit #41 both located within one half mile of the site's boundaries. The Long Island Expressway runs approximately one half mile to the south of The Greens at Half Hollow site, with its exit #50 at Bagatelle Road, within one mile of the site's eastern edge. Half Hollow Road, Carman Road, Old South Path and Old East Neck Road are the local roads in Huntington that define the site's boundaries and provide three existing site access points. Half Hollow Road, which forms the project site's southern border, also provides access to the Sagamore Children's

Psychiatric Center. Approximately one mile to the west of the site is the Route 110 corridor, a regional office, retail and service center.

B. Existing On-Site Development

As indicated on Map 1, the site is dominated by approximately 100 mostly vacant and abandoned institutional-type buildings containing some 1,300,000 square feet of floor area. The generally low scale buildings have accommodated a variety of uses, including: (1) housing and treatment of patients; (2) group homes; (3) schools; (4) hospitals; (5) administration; and (6) various utilities and services.

Open spaces, which are interspersed throughout the LIDC site, include a number of natural areas with dense vegetation, including a wooded area that visually separates the Sagamore Children's Psychiatric Center from the balance of the former LIDC site. Clusters of SRUs create their own neighborhood settings at the westerly and easterly sections of the LIDC site, and are also separated from adjoining areas by wooded buffers. Other major open spaces include recharge basins, a sanitary disposal area, a number of soccer fields that surround a school building in the central portion of the site, and a wooded buffer that separate the site from the Northern State Parkway. Of these, the largest land area is devoted to the existing sanitary disposal area.

Other uses of the site include various utility buildings and facilities that served the former use of property. These include a fire station, maintenance building, power plant, electric substation, and three production wells, all of which are located at the periphery of The Greens at Half Hollow site.

The two main on-site roads are North Road and South Road, both of which cross the property from east to west. North Road begins at Old East Neck Road and runs parallel to and in close proximity to the Northern State Parkway. South Road is the major spine through the property. It cuts through the central portion of the site, from Carman Road to Old South Path, and loops down to the Sagamore Children's Psychiatric Center service road to the south of the existing school and soccer fields. Four north-south running roads cross the northern portion of the site, forming a grid pattern. Two semi-circular roads at the eastern and western ends of this northern section enclose groups of buildings completing the generally symmetrical street pattern in the northern portion of the campus.

All of the existing buildings and roads on the site will be removed as part of the development of The Greens at Half Hollow.

course brings to surrounding homes. This plan is similar to the Proposed Action, which calls for an 18-hole executive golf course and a slightly different layout of housing units.

Alternative 3 includes a total of 75 single-family lots located along Carman Road and Old South Path, 200 non-age restricted townhouse units surrounding the golf course and 1,200-1,250 senior housing units in the northern portion of the site. The senior citizen housing would include the same continuum of care housing concept as in Alternative 2, with 50 percent independent living units and 50 percent a mix of assisted living, congregate living, and nursing home beds.

B. Comparative Impacts

1. Land Use, Zoning and Visual Resources

The three alternatives and the Proposed Action share a number of general land-use characteristics. The eastern portion of the site, along Carman Road north of the SRUs, would be developed with single-family detached homes in each of the alternatives and in the Proposed Action. The alternatives retain the existing site entrance at the intersection of South Road and Carman Road with access to the single-family subdivision from North Road. The Proposed Action relocates the entrance to the north with a gated boulevard that passes through the center of the single-family subdivision. The Proposed Action adds a new site access from Old South Path, north of Half Hollow Road. Alternative 1 provides access to the subdivision in the same general area; the other two alternatives do not, however. Alternative 3 shows access for the golf course clubhouse directly from Half Hollow Road.

In all three alternatives the area fronting the north side of Old South Path would be composed of single-family houses. In the Proposed Action this area would contain clusters of townhouses. Alternative 1 proposes a lower density of single-family development than the other plans and continues this land use over the entire property.

With the exception of Alternative 1 that conforms to existing zoning, the Proposed Action and alternative plans would require adoption of new zoning, (presumably a Planned Unit Development district which was proposed in the 1995 plan) and an amendment to the zoning map.

2. Physical and Natural Features

The location and use of open space varies in the alternatives. The three alternatives and the Proposed Action preserve the space between the Sagamore Children's Psychiatric Hospital and the SRUs along Carman Road as open space though the Proposed Action uses it actively as part of the golf course. Likewise the three alternatives and the Proposed Action suggest that playing fields could be located in the vicinity of the wastewater treatment plant south of Old South Path though the Proposed Action is more specific and reserves 31-acres for dedication to the town as parkland.

Alternative 1 creates the least open space. With its low density and small population, it creates less impervious surface as the Proposed Action. Alternatives 2 and 3 create similar quantities of impervious cover to the Proposed Action, with Alternative 2 slightly higher and Alternative 3 slightly lower. With the golf course, Alternative 3 contains significant open space, however, less than the Proposed Action with its 18-hole golf course and additional open space features.

None of the alternatives would have significant effects on groundwater quality. Compliance with the Long Island Comprehensive Special Groundwater Protection Area Plan (SGPA) is an objective for the redevelopment of the former LIDC campus. Limiting the amount of impervious surface and the intensity of activity in future development to approximately that existing in the early 1980s when LIDC was in full operation was a basis for the formation of the alternative plans in the **Preliminary Master Plan for the Long Island Developmental Center**.

3. Community Facilities

The **Preliminary Master Plan for the Long Island Developmental Center** included consideration of the various alternatives with respect to the operations and services of the surrounding Half Hollow Hills Central School District and estimated a student population. In each case, the school-age population was greater than projected for the Proposed Action. With the exception of the single-family scenario (Alternative 1), taxes would likely cover the increase in school expenditures given the emphasis of senior housing in Alternatives 2 and 3 and the Proposed Action. The Proposed Action, however, would generate the largest surplus in school district revenues.

With regard to school capacities, Alternatives 2 and 3 include both single-family homes and non-age restricted townhouses. The alternatives resulted in a greater number of school-age children. The long-range planning undertaken by the local school district accounted for 75 single-family homes on the subject site (plus the senior development) as proposed in The Greens at Half Hollow Master Plan.

The development of the LIDC site under the Proposed Action or one of the alternatives would result in increased demand for service, though at different levels, from the Half Hollow Hills Community Library. Alternative 1 will generate significantly less demand due to the lower expected population. In general, demand would be offset by taxes generated by each development.

None of the alternatives will be expected to result in any significant adverse impact on the resources and capabilities of the local fire department serving the greater Melville, Dix Hills, and Route 110 corridor region. During the preparation of the **Preliminary Master Plan for the Long Island Developmental Center** in 1995, the Fire Department expressed concern regarding senior residences and congregate adult care concepts based on a belief that they would result in a high demand for ambulance services. While senior residence and continuum of care facilities would be anticipated to generate an additional number of ambulance calls for emergency and acute medical response, the presence of qualified medical personnel within those facilities would mitigate the need for ambulance response to less serious medical matters.

The alternatives raise no security or public safety issues which cannot be met by the existing resources and expertise of the Suffolk County Police Department Second Precinct. A sector car may need to be assigned to patrol the project area on a 24-hour basis to provide first response to calls though security measures adopted by the homeowners association or golf course management in Alternatives 2, 3 or the Proposed Action would provide the additional security necessary.

The LIDC site is convenient to health care resources though development under any of the plans is not expected to adversely impact these resources. Brunswick Hospital, a nearby privately-owned hospital, provides emergency care, general medical and surgical services, and intensive care though the facility offers no maternity or pediatric department. This hospital may not offer the full range of services required by residents of non age-restricted communities such as Alternative 1 or the single-family homes of the other plans but the potential range and type of services that may be generated by the senior independent living and continuum care portions of the site are consistent with the expertise and practice of Brunswick. Proximity to Central General Hospital, Huntington Hospital, the North Shore University Hospital and Nassau County Medical Center will provide improved access to tertiary medical care for future residents regardless of which development plan is implemented.

General state, county and town park resources in the region are considered to be adequate for the proposed population under each alternative. While Alternative 1 would create less new demand for recreational resources, Alternatives 2 and 3 would increase the supply of recreational open space and facilities such as the conversion of the existing school building to a community center or golf course clubhouse. Likewise the Proposed Action and alternatives 2 and 3 strive to preserve assets currently enjoyed by the greater Dix Hills, South Huntington, and Melville community, specifically the soccer fields. Alternative 2 would retain some of the existing fields, while alternative 3 and the Proposed Action offer relocation of the fields. Developmental of the golf course under Alternative 3 would increase available golfing opportunities, though the golf course in the Proposed Action is larger. Demand for golf resources continues to exceed available resources throughout the western Nassau and eastern Suffolk region. The Proposed Action would provide the open space features of Alternatives 2 and 3 and offer 31 acres of parkland for dedication to the town.

4. Fiscal Considerations

For the Preliminary Master Plan revenue projections to local taxing jurisdictions were calculated for Alternatives 2 and 3. The number of residential units, the size (square footage and lot size) of the units, and projected market value were considered. Properties in the context of a clustered site development and proximity to open space or golf course area were also considered in estimating assessed valuation. Using 1995 tax rates, projected tax generation for Alternatives 2 and 3 each totaled $3.1 million. Due to the small number of residences, Alternative 1 would generate significantly less revenue. The Proposed Action offers a significantly more upscale project with revenues projected to be more than double those projected for Alternatives 2 and 3 in 1995. See Section III.J, Fiscal Conditions, of this DGEIS for details.

5. Traffic and Air Quality

While the basic circulation system is similar throughout, the Proposed Action makes more changes to existing roads than the alternatives. Alternative 1, 2 and 3 retain the three existing access points, one each from Carman Road, Old South Path, and Old East Neck Road. The Proposed Action adds an additional access point on Old South Path and relocates the access from Carman Road to a point further north. Unlike the Proposed Action, all three alternatives contain single-family lots that front onto Old South Path and Carman Road.

For the **Preliminary Master Plan for the Long Island Developmental Center**, an initial assessment of vehicular trips generated by the plan options was conducted. The alternative plans were compared in terms of the amount of vehicular traffic that they would generate, both during the AM and PM peak hours, using standard Institute of Transportation Engineers (ITE) trip generation rates for their different housing types and program components. The results demonstrated that the alternatives would not create any unmitigatable traffic impacts. The single-family housing, Alternative 1, would generate the least amount of traffic, due to the low resident population. Alternatives 2 and 3 generate significantly more trips, including trips from non-residential uses like the retail center and golf course. Most of the signalized intersections in the study area operate at a level-of-service C or better with ample capacity to accommodate the project-generated traffic. The **Preliminary Master Plan for the Long Island Developmental Center** noted that in 1995 two signalized intersections within a short distance of the LIDC site—Old Country Road at Wolf Hill Road and at New York Avenue would likely result in adverse impacts as result of Alternatives 2 and 3 and that mitigation would be required. For the Proposed Action, the traffic studies presented in Section III.K of this DGEIS call for mitigation at several locations. Other intersections in the area have been or are being improved by other entities.

6. Infrastructure and Utilities

As the anticipated population in the alternatives and the Proposed Action will be equivalent to or less than that of the peak activity at LIDC, the demands on utility services will not be significantly greater than what has been historically provided for the site. The existing wastewater treatment plant will be utilized in the alternatives and the Proposed Action. As in traffic and community facilities comparisons, Alternative 1 will have significantly less impact due to its smaller population. Alternatives 2 and 3 would require utility services similar to that of the Proposed Action in which case the plant would need upgrading in order to meet the expected need. Similarly water system upgrading would be required for these two alternatives; however, Alternative 2 with no golf course, would not require additional water for irrigation purposes.

7. The Preliminary Master Plan Development Objectives

The **Preliminary Master Plan for the Long Island Developmental Center** articulated nine development objectives. The alternatives and the Proposed Action meet these objectives to varying degrees. In all the plans, the development would be a fiscal benefit to the Town of Huntington (Objective 8) though in some cases more so than others. In each case measures would be considered, as they are earlier in this DGEIS, to ensure that adequate public facilities are provided (Objective 7), that the aquifer is protected (Objective 6) and that level and intensity of development is approximately that reached during peak operation of LIDC (Objective 5).

Alternative 1 satisfies the development objectives the least: diversity in housing options (Objective 1) are lacking and opportunities for multifamily senior citizen housing (Objective 2) are non existent. As a result the other objectives — a transition from single-family adjoining properties to proposed senior housing (Objective 3), continuum of care concept in senior housing (Objective 4)and flexibility to enable developers to respond to the market (objective 9) — can not be met.

Alternatives 2 and 3 and the Proposed Action satisfy all of the objectives in one way or another. The Proposed Action achieves a satisfactory result by providing a diversity of housing types and prices.

C. No-Build/No Action Alternative

In a no-build scenario the site would remain in its vacant, underutilized state. Buildings would continue to deteriorate and the currently overgrown landscaped areas would become more so. No impacts would result from additional traffic or demand on public utilities and community facilities. Conversely, none of the development objectives outlined in the **Preliminary Master Plan for the Long Island Developmental Center** would be obtained, no diverse, cohesive residential community would develop, and no tax revenue would be generated.

The project site is privately owned and is zoned for single-family residences. Without the proposed PUD zoning and the proposed Master Plan for The Greens at Half Hollow, the site could be developed with approximately 120 single-family homes. The potential impacts of a single-family subdivision on the site are discussed above.

D. Proposed Plan with Nine-Hole Golf Course

A nine-hole conventional golf course would require approximately 10 percent less land area than the proposed 18-hole executive golf course, and would result in fewer greens and tees, reduced irrigation needs, and reduced use of pesticides and fertilizers. However, as discussed in Section III.M.2 of the DGEIS, the proposed water supply system for the proposed 18-hole executive golf course will be developed with no significant adverse impact. Similarly, the ITPMP proposed for the 18-hole executive golf course will protect water resources with no significant adverse impacts anticipated. See Section III.N of this DGEIS for detail. Thus, the slightly larger 18-hole executive golf course would be comparable, in terms of impacts, to a similar size nine-hole conventional course.

The decision to propose an 18-hole executive golf course is based upon market factors associated with the development of The Greens at Half Hollow, and the appeal that a shorter 18-hole course would have to be project's senior population.

VI. OTHER ANALYSES

A. Irreversible and Irretrievable Commitment of Resources

The proposed project will require the irreversible and irretrievable commitment of some resources:

- Groundwater drawn from on-site wells will be used to provide water to irrigate the proposed golf course and other landscaped areas.
- Existing vegetation will be removed from the site during construction.

B. Impacts on The Use And Conservation of Energy Resources

The proposed The Greens at Half Hollow development will incrementally increase demand for energy resources at the site. Gasoline, oil, diesel fuel and electricity will be used during construction of the project as well as for maintenance and operations. Residents and staff of the proposed project would be expected to use private automobiles for some trips to and from the property. This site-generated traffic would result in the consumption of fossil fuels.

A number of measures will be taken to conserve energy resources, including using water-conserving fixtures for toilets, sinks, and showers installed in the restored friary building and in the new facilities proposed. All structures will be designed to meet the New York State Energy Conservation Code. The exterior walls and roofs of the new structures will be provided with thermal insulation so as to reduce heat loss in the winter and heat gain in the summer.

C. Growth Inducing Aspects of the Proposed Action

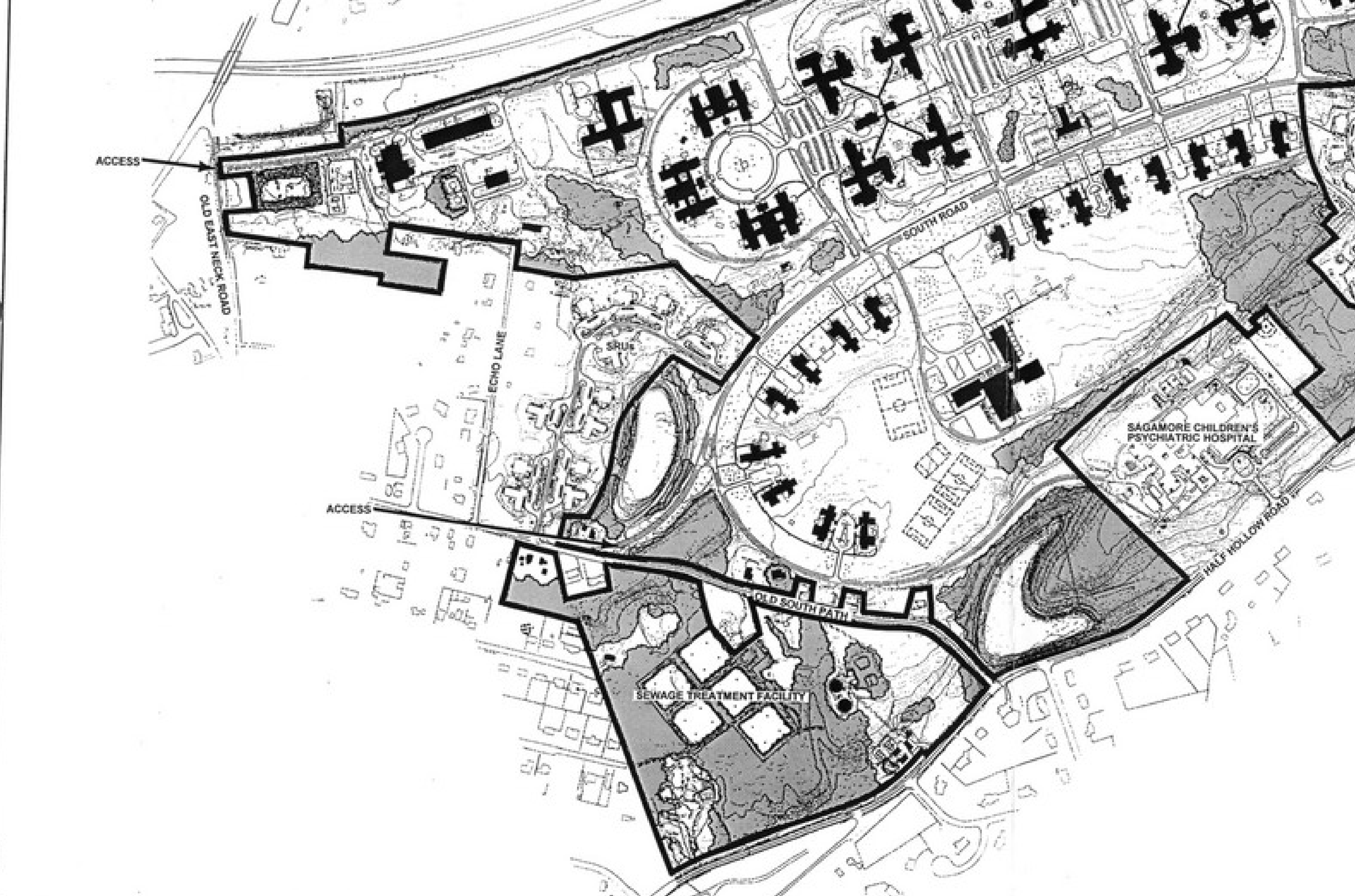
The adoption by the Town of the proposed PUD regulations and Master Plan for The Greens at Half Hollow will have the effect of spurring senior housing development in the Town. Because the text amendment has specific standards, it would have applicability to the subject site only. The impact would therefore be directly related to the proposed site development and the direct growth inducing effect of the new zoning would not be experienced elsewhere in the Town.

To the extent that residents at The Greens at Half Hollow are not already residents of Huntington, the additional population would increase the overall number of residents in the Town. Due to the extensive provision of on-site services to be provided on-site, the new population would not significantly adversely affect existing senior services.

To the extent that employees of the senior housing are not already working elsewhere in Huntington, this workforce would represent an increase in the workforce of the Town.

The population and employees at The Greens at Half Hollow will utilize existing retail facilities and services offered along Route 110 and, to a lesser extent, facilities located elsewhere in the community. Given the extensive supply of such services on Route 110, it is not anticipated that many new stores or shops would be necessary to serve the proposed development. It is more likely that the sales and services at existing establishments would increase as a result of the projected population.

IX. APPENDICES



Base Map Source: Barrett, Bonacci & Van Weele, P.C.

C. Proposed Development

The proposed development has been designed to address a number of land planning objectives, including:

- permanent protection of approximately 60% of the site as open space.
- provision of an extensive pedestrian circulation system that results in a reduction of automotive dependency and potential traffic congestion.
- enhancement of the character of the surrounding community, replacing former institutional buildings and uses with a mixture of housing types, community facilities and open spaces in a master planned community.
- provision of significant tax revenues to all taxing jurisdictions, including the local school district, and the provision of on-site and off-site community facilities, addressing various recreation and fire district needs.
- creation of a safe and secure community for senior citizens, empty nesters and active adults, with a variety of housing choices and prices provided, consistent with the objectives of the local community and the overall economics of the proposed development.

The manner in which these objectives are incorporated into the Master Plan are described below, starting with the proposed open space system; the main component that structures the overall Master Plan.

1. Open Space and Related Facilities

The Greens at Half Hollow will be a planned golf course community, with a mix of housing types designed primarily for senior citizens, empty nesters and active adults. Following traditional open space cluster planning and urban design principles, the vast majority of the housing at The Greens at Half Hollow will have direct access to the linked system of parks and trails that form a continuous open space system that ties various components of the site and various housing types together in a cohensive community. This interconnected open space system encompasses over 35 acres of land. It will extend from Old East Neck Road, where a park-like entrance is proposed, through areas planned for assisted living, townhomes and condominiums, ending at the golf course clubhouse. In addition to its 18-hole executive golf course – which encompasses over 80 acres of land and forms the centerpiece of this open space system – the development will have a 20,000 square foot community center, swimming pool and tennis court complex located adjacent to the clubhouse for the golf course. A second community center will further serve a single-family home development planned for the eastern portion of the site. Additional open space areas include over 30 acres of land that will be dedicated to the Town of Huntington for active recreation use in the form of soccer fields, and an additional 80+ acres of green space in the form of lawn areas, buffer areas, and boulevards. The proposed open space system is shown on Map 2.

The larger community center and the golf course clubhouse will be located in the southwestern portion of the site at the intersection of two of the boulevard-type collector roads planned for the property. This prominent location will be the focus of the new community, where various open space systems, pedestrian trails and major active recreation facilities come together. Tees for golf holes 1 and 10 will be located in this area, along with a putting green, golf cart area, locker rooms and light refreshment area for golfers. The golf course will be a Par 60 facility with a total length of 4,010 yards.

The community center located adjacent to the golf course clubhouse will be an expansive facility, offering indoor and outdoor pools, saunas, multi-purpose meeting rooms, a wellness center and a café. The community center will not include catering facilities open to non-residents.

Throughout the open space system, the plan calls for pedestrian amenities including kiosks, outdoor seating, games tables, etc., all of which are designed to further enhance the living environment of The Greens at Half Hallow site.

2. Proposed Housing Types

As shown on Map 3, the plan for The Greens at Half Hollow includes five basic housing types:

Housing Type	Number of Residences
Golf Course Villas	400 homes
Townhomes	350 units
Condominiums	400 units
Assisted Living Facility	150 units (beds)
Single-Family Subdivision Homes	75 units
Total	1,375 units

Villas. Surrounding the golf course will be approximately 400 golf course villas, a unique housing type that blends indoor and outdoor living spaces with an expansive floor plan. Approximately 90% of the villas will be designed in a semi-attached fashion, with two units contained in each building. The balance will be detached zero lot line homes. The villas will contain 3 bedrooms plus den/computer room, with a total floor area of approximately 2,500 square feet. Each unit will have a two car garage. The golf course villas will be age restricted housing for persons 55 years of age and older.

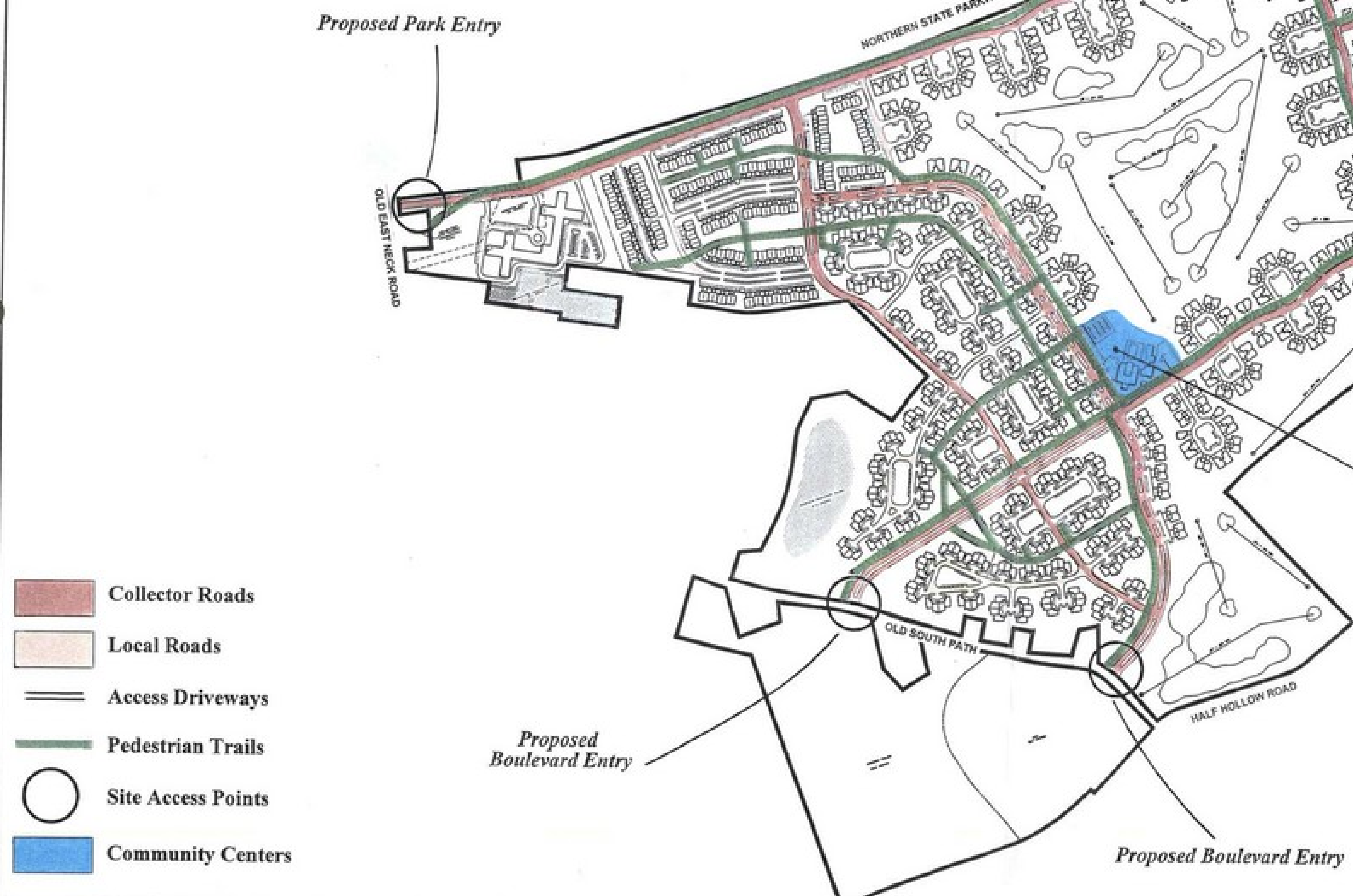
Townhomes and Condominiums. Linked to the central open space/community center area by a series of open space and pedestrian walkways is the housing that is proposed in the western portions of the site. Two basic, age restricted housing types are contemplated here. In the southwestern portion, near the community center, the plan calls for a neighborhood of townhomes that are grouped in a fashion where owners can walk to neighborhood parks and to the golf club and community center. Approximately 350 units are planned in this area. The townhomes will contain upstairs and downstairs living, with units having two or three bedrooms plus a den/computer room, and one garage space. The townhomes will be clustered around landscaped parking courts, which will provide access to small groups of townhome units. The total square footage for each townhome will be ± 2,000 square feet per unit.

To the north of this area, the senior development will include condominium-styled, owner-occupied units, with each unit occupying one floor of the two story building. Approximately 400 condominiums are envisioned here. Each two bedroom unit will have approximately 1,100 square feet of floor area. Parking will be provided in surface lots, adjacent to each unit. Open spaces and pedestrian paths will interconnect the condominiums/townhouses and the nearby golf course villas with the community center and outdoor recreation areas.

Assisted Living. To the west of the condominiums, a site has been set aside for a 150 unit assisted living development, which will anchor the open space area for the adjacent 400 unit condominium development and the proposed park-like entryway from Old East Neck Road. As with the balance of the proposed development, the assisted living building will not exceed 2 stories in height. Sufficient surface parking will be provided for residents, employees, and visitors. Visitor parking will also be strategically located throughout the development serving each of the above housing types.

Source: Site Planning and Design: Ehasz, Giacalone Architects, P.C.
Site Engineering and Base Map: Barrett, Bonacci & Van Weele, P.C.

Source: Site Planning and Design: Ehasz, Giacalone Architects, P.C.
Site Engineering and Base Map: Barrett, Bonacci & Van Weele, P.C.



Source: Site Planning and Design: Ehasz, Giacalone Architects, P.C.
Site Engineering and Base Map: Barrett, Bonacci & Van Weele, P.C.

Single Family Homes. In the eastern portion of the site, the plan calls for a development of luxury single family detached homes on lots of 20,000 to 40,000+ square feet in size. Housing in this area will not be age-restricted; however, given the overall orientation and amenities provided in the balance of the community, it is anticipated that many of the homes in this area will be purchased by empty nesters or couples with grown children.

The proposed subdivision is designed to complement the abutting single-family community to the east of Carman Road and the act as a transition to the higher density senior housing proposed to the west around the golf course. The subdivision will be accessed through a gated, boulevard type driveway at Carman Road. Lots will be served by an internal road system, with no lots having driveways on Carman Road.

Each single-family home in the subdivision will be upwards of 3,500 to 4,000 square feet with 4 bedrooms and two car garages provided. Although the subdivision will have its own community center, residents of this area will also be able to use the golf course and larger clubhouse located in the southwestern portion of the development.

3. Site Access and Traffic Calming

As previously noted, access to the proposed Greens at Half Hollow development includes a new gated, boulevard-type access drive from Carman Road on the east, and a new entryway, also a boulevard design, from Old South Path in the southwest, near the proposed clubhouse and community center. Additional site access is provided through roadways that intersect with Old East Neck Road and Old South Path at the locations of the existing driveways to the LIDC campus. These include a second boulevard entryway on Old South Path and a park-like entryway from Old East Neck Road. Adjacent to this latter entryway, a Firefighters Recognition Park will be provided on vacant land owned by the fire department on Old East Neck Road, providing an attractive amenity for the site and the surrounding area.

The on-site circulation system includes several collector roads that serve each of the housing developments, plus a series of access roads, parking courts and cul-de-sacs that afford privacy for individual units and groups of units. The pedestrian circulation system extends throughout the entire site, connecting various housing developments and community facilities. The proposed circulation system is illustrated on Map 4.

Details of the road design include traffic calming measures where the pedestrian paths and roadways intersect, helping to avoid traffic movements that are inappropriate to an age-restricted community. Several of the collector roads have a boulevard-type design to add additional landscape interest to the site and to help facilitate pedestrian crossings. Pedestrian crossings will be clearly marked, with traffic slowed at key locations to yield to pedestrians. The path system has been designed to tie various components of the plan together, providing facilities for walking, jogging, cycling and golf carts. The path system and the proposed roads all lead to the proposed community center and golf course clubhouse located in the southwestern portion of the site; the focus of the new community.

A shuttle bus will be provided as part of the development to address transportation needs within the community and to provide alternate access to shopping and community facilities outside the site's boundaries.

5. Site Engineering

Water Supply. At present, the LIDC site is served by an on-site water distribution system consisting of three supply wells and a network of transmission mains. Since 1995/1996 when the existing supply wells were removed from service due to an inability to meet certain SCDHS standards, the site has been served by an emergency interconnection with the Dix Hills Water District.

As the site is not located within the service area of any established water district, arrangements are being made to extend the boundaries of the Dix Hills Water District to include the site and provide public water to the residents. In conjunction with the extension of the district boundaries, a study has been commissioned to determine the impact of the inclusion of the site on the Dix Hills Water District. The study, prepared by the district's consultant, has identified certain improvements that will be necessary in order for the district to effectively serve the property. The recommendations outlined in the study include the installation of a new well and pump station on the site, and the dedication of property for the construction of a water storage tank.

Sanitary Sewers. The existing LIDC site is served by an on-site sewage treatment plant owned and operated by the State of New York. The plant is located on a 46-acre parcel on the south side of Old South Path. It is intended that the developer will take over the ownership and operation of the plant, and will be responsible for upgrading the plant to meet current standards for the expected design flows from proposed development. An engineering study has been undertaken to determine the requirements for upgrading the plant, including replacement of the existing open sludge beds with underground leaching pools.

Discussions with the Suffolk County Sewer Agency indicate that, upon completion of the required upgrade, the County will take over ownership and operation of the plant. A new sewer district will be formed, which will encompass the entire LIDC site, including the project and the remaining State-operated facilities. In conjunction with the development of The Greens at Half Hollow, a new sewage collection system will be constructed on a portion of the former sewage treatment plant site, to convey sewage from the project to the sewage treatment plant. The remaining State facilities will also be re-connected to the plant as necessary.

That portion of the former sewage treatment plant not needed as part of the proposed development represents the 30 acre park site that will be dedicated to the Town of Huntington for active recreation.

Stormwater Management. The LIDC site currently includes facilities for the collection and recharge of stormwater which include collection piping and three on-site recharge basins. A comprehensive Stormwater Management Plan has been developed for the site which outlines proposed provisions for the collection and disposal of runoff throughout the development, generally including the following:

- The single-family subdivision will be self-contained, essentially through the construction of a standard subdivision recharge basin located within the subdivision and maintained by the homeowners association that will be established for the development.

- The golf course and adjacent common areas will include decorative ponds which will also provide for the storage of stormwater runoff.

- Additional recharge basins are proposed for two locations in the development to recharge runoff from the other housing types.

All stormwater collection and recharge facilities will be designed in accordance with the Town of Huntington *Subdivision Regulations and Site Improvement Specifications.*

Integrated Turf Management Program. The golf course component of the proposed The Greens at Half Hollow development will incorporate contemporary management strategies to minimize the risk of potential environmental impacts by implementing an Integrated Pest Management (IPM) Program. The basic philosophy of the IPM program is to produce a healthy pest resistant golf-playing surface that will minimize or avoid impacts on the surrounding environment. Every available pest management practice will be utilized with the goal of using limited pesticides as a last resort after all other control options have been followed, including every available biological and cultural methods. As a new golf course, the proposal provides the opportunity to construct a system that is less prone to stress, which is often the main cause of pest damage or invasion of weedy species. This will be accomplished by: 1) establishing grasses that are best adapted for golf courses and are pest resistant, 2) by providing a soil system to minimize the stress caused by the golfer, and 3) reducing moisture plant stress by having an irrigation system that can provide the necessary amount of water needed by the plant, thus reducing over irrigation which can lead to the potential for ground/surface contamination or more pest problems.

This IPM Program, which will be provided prior to site plan approval, will be compiled using site-specific information including: site-specific soil properties and soil test results, analysis of the final golf course routing plan, determination of the anticipated pest complex from a golf course in close proximity to the site, and extensive literature search on the environmental fate of fertilizers and pesticides, and irrigation/fertility requirements for the proposed golf course turf.

D. APPROVALS

Approval of the Master Plan by the Town Board of the Town of Huntington would occur concurrently with the zoning of the site as a Planned Unit Development (PUD). (See proposed PUD regulations.) The PUD and this Master Plan provide the overall framework for the proposed community. The PUD statute defines permitted uses, lot and bulk controls, parking and design requirements for the entire development and for three housing sub-areas encompassing: (1) the single family residential subdivision; (2) the age-restricted housing (townhomes, condominiums and villas) and; (3) the assisted living development areas. A fourth sub-area includes the proposed soccer fields and the sewage treatment plant.

Prior to approval of the PUD and Master Plan, the Town will complete an environmental review pursuant to the requirements of the State Environmental Quality Review Act (SEQRA) including the preparation of a generic environmental impact statement.

Detailed building designs, site plans and subdivision plans would then follow the requirements of the adopted PUD regulations and the principles set forth in this Plan. The detailed site plans and subdivision plans would be reviewed and approved by the Planning Board of the Town of Huntington in accordance with procedures established for all developments.

Although the maximum total dwelling units (1,375) and maximum single-family detached homes near Carman Road (75) are fixed in the proposed PUD zoning, the mix of housing types for age-restricted homes may vary as the project is developed, responding to market conditions that emerge during build-out. For example, the 350 condominium-style units in the western sector could be decreased to 300 or increased to 400 units; however, a corresponding increase or decrease in other senior units would be required to make certain that the overall maximum of 1,375 units is not exceeded.

APPENDIX B

§ ___. R-PUD, Greens at Half Hollow Planned Unit Development District.

Purpose and Intent. The purpose and intent of the Greens at Half Hollow Planned Unit Development District ("R-PUD"), to be located on approximately 382 acres formerly owned by the State of New York in the Town of Huntington, is to address a variety of housing needs primarily for senior citizens, and to facilitate the design and development of a master planned community. The R-PUD regulations are intended to permit a variety of housing types designed primarily for senior citizens, together with accessory uses and open space areas including a golf course. These R-PUD regulations are intended to establish development parameters within which individual site plans and/or subdivisions will be developed. Such site plans and/or subdivisions shall be consistent with the regulations contained in this Article and the planning objectives described in the "Greens at Half Hollow Master Plan", and the "Greens at Half Hollow Master Plan Map" (collectively the "Greens at Half Hollow Master Plan"), both adopted by the Town Board simultaneously with this Article.

A. Definitions.

Unless provided to the contrary in this Article, the definition of words used in this Article shall be the same as provided in § 198-2 of this Chapter.

B. Maximum Yield, Building Coverage and Minimum Open Space - R-PUD.

(1) Building area in the R-PUD shall not exceed twenty-five (25%) percent of the total area included within the district.

(2) The total number of dwelling units, including single family dwelling units and dwelling units within an assisted living facility, shall not exceed 1,375.

(3) The PUD shall contain the following areas of active recreational areas, passive recreational areas and open space:

Golf Course - 80 acres;

Dedicated Open Space for Soccer Fields - 30 acres;

Community Open Space - 30 acres.

Parking areas, streets and community buildings shall not be considered as open space. Open space not dedicated to the Town shall be owned and maintained by a home owner's association created pursuant to the laws of the State of New York.

C. Designation of Sub-districts.

In order to adopt dimensional standards applicable to the specific land uses within the R-PUD, the following sub-districts are hereby established and are spatially defined and located on the Greens at Half Hollow Master Plan:

SFD - Detached Single Family Dwelling

SRC - Senior Residential Community

ALC - Assisted Living Community

PRU - Public Park, Recreation and Utility Area

D. **Detached Single Family Dwelling Community - SFD.**

The SFD Sub-district shall be developed in accordance with the following:

1. **Use Regulations.** In the SFD Sub-district, a building or premises shall be used only for the following purposes:

   (a) Detached single family dwellings, together with uses and activities normally accessory thereto as specified and limited in § 198-13(B)(1), (2), (4), (7) and (8), and § 198-59(H)(1)(2) and (3).

   (b) Community Building for use by residents of the SFD, not to exceed 5,000 square feet.

2. **Height Area and Building Coverage - SFD.**

   (a) Building area, excluding accessory structures, shall not exceed twenty-five (25%) percent of the area in the SFD Sub-district;

   (b) Height of buildings shall not exceed 35 feet;

   (c) Detached accessory buildings shall not occupy more than forty (40%) percent of a required rear yard, nor be greater than twenty (20) feet in height.

3. **Maximum Number of Dwellings - SFD.**

   The maximum number of detached single family dwellings in the SFD shall not exceed 75.

4. **Lot Area and Setbacks - SFD.**

The following dimensional standards shall apply to the detailed single-family dwellings within the SRC Sub-district.

Minimum Front Yard	30 feet
Minimum Rear Yard	30 feet
Minimum for Each Side Yard	20 feet
Minimum Lot Size	20,000 sq. feet
Minimum Lot Width (at the minimum set-back line)	100 feet

Senior Residential Community - SRC.

The SRC sub-district shall be developed as a planned residential community for persons over fifty-five (55) years of age in accordance with the following:

1. **Use Regulations.** In the SRC Sub-district, a building or premises shall be used for the following purposes only:

   (a) Dwellings specifically designed for use and occupancy by persons fifty-five (55) years of age and older, including attached condominiums and attached and detached townhouses.

   (b) Outdoor recreational facilities, including swimming pools and tennis courts for the exclusive use of residents of the entire R-PUD and their guests.

   (c) Community building not to exceed 25,000 square feet, which may contain community indoor pools, lockers, showers, support services and passive recreational facilities for the use of residents and their guests, including but not limited to meeting rooms, library, computer rooms, other passive activity facilities, a beauty salon and a gift shop;

(d) Recreational fields;

(e) Golf courses, including driving ranges, maintenance buildings, club house and other accessory facilities necessary to operate and maintain a golf course. The golf course shall be private and for members only. Membership shall be limited to residents of the entire R-PUD. Excess memberships, if any, shall be available to the residents of the surrounding community in the Town of Huntington.

2. **Age Eligibility - SRC.**

All dwellings in the SRC shall be occupied only by the following:

a) Persons who shall have attained the age of fifty-five (55) years or older (hereinafter "senior citizens");

b) The spouse of said senior citizen;

c) Children or grandchildren of said senior citizen or of the spouse of said senior citizen, provided each child has attained the age of eighteen (18) years.

d) Adults under fifty-five (55) years of age may be admitted as permanent residents if it is established to the satisfaction of the Town Board that the presence of such person is essential for the physical care and economic support of a senior citizen residing in the SRC Sub-district.

3. **Maximum Number of Dwelling Units - SRC.**

The maximum number of residential dwelling units within the SRC Sub-district shall be 1,150. The type of dwelling units shall be limited to attached and detached townhouses, condominiums and other multiple dwellings in a single building.

4. **Lot Area and Building Separation Distances - SRC.**

The following dimensional standards shall apply to the various housing types within the SRC Sub-district:

Minimum Lot Size	2,000 sq. feet
Minimum Building Separation Distances	10 feet

Assisted Living Community - ALC.

1. **Use Regulations.**

In the ALC Sub-district, a building or premises shall be used only for the following purposes:

(a) Assisted living facility designed to provide living accommodations for aged or infirm persons, which facility may include dining, social, healthcare or other supportive services located within the facility's structure.

2. **Height, area and bulk regulations - ALC.**

(a) The maximum number of dwelling units in ALC Sub-district shall not exceed 150 dwelling units located on not less five (5) acres.

(b) The building area of all principal and accessory buildings in ALC Sub-district shall not exceed 25% of the area within the sub-district.

(c) Height of buildings within the ALC Sub-district shall not exceed 35 feet.

(d) Minimum building separation distance between the principal buildings in the ALC Sub-district shall be 50 feet.

G. **Parks, Recreation and Utilities - PRU.**

The PRU Sub-district shall be developed in accordance with the following:

1. **Use Regulations.**

The uses in the PRU Sub-district shall be as follows:

(a) Recreational and athletic fields, including soccer fields and tennis courts;

(b) Accessory buildings for storage and related accessory uses;

(c) Utilities and services, including a sewage treatment plant.

H. **General Road, Path and Parking Specifications - R-PUD.**

The following specifications shall apply throughout the R-PUD:

(1)	Road Widths:	Minimum Pavement Width
	a. Collector Roads	34 feet
	b. Access Roads	24 feet
	c. Driveways	20 feet
(2)	Cul-de-Sac:	50 foot paved radius
(3)	Width of Pedestrian Paths:	6 feet
(4)	Width of Sidewalks (If provided)	4 feet
(5)	Parking Lots	
	a. Driveway Width:	24 feet
	b. Stall Sizes:	9 x 18 feet

I. **Parking and Loading - R-PUD.**

1. Except as otherwise provided in this Article, the amount of parking for principal buildings in the R-PUD shall comply with Section 198-47 of this Chapter. Parking spaces located in garages and driveways of dwelling units shall not be excluded in connection with calculating minimum parking requirements under Section 198-47. Handicapped parking shall be provided for condominium and assisted living units with five (5%) percent of the provided spaces designed for the disabled.

2. Parking requirements for the Golf Course shall be as follows:

   Three (3) spaces for each hole.

3. Parking requirements for the Community Building in the SRC Sub-district shall be as follows:

   One (1) space for each 400 square feet.

4. Parking requirements for the community building in the SFR Sub-district shall be as follows:

   One (1) space for each 400 square feet.

5. Loading:

   Off-street loading shall be provided in the ALC Sub-district in accordance with Section 198-50 of this Chapter.

J. **Storm Water Management - R-PUD.**

Storm water drainage for the R-PUD shall be designed in conformance with the Planning Board's Subdivision Regulations and Site Improvement Specifications, and shall otherwise be designed with sufficient capacity in accordance with sound engineering practices.

K. **General Design Standards - R-PUD.**

1. The R-PUD, including the roads and open spaces to be incorporated therein, shall be developed in conformance with the layout and design concepts contained in the Greens at Half Hollow Master Plan.

2. Landscaping shall conform with the Greens at Half Hollow Master Plan, and shall be suitably designed to provide appropriate screening and buffers as determined by the Planning Board during site plan review.

3. Parking lots shall be in accordance with the design

standards set forth in Section 198-48(A) and (H) of this Chapter.

4. Facial signs and freestanding signs shall be permitted for the purpose of providing directions, instructions and building identification, and for such other purposes permitted by the Planning Board during site plan review. The location, size and placement of such signs shall be approved by the Planning Board during site plan review.

5. Exterior illumination of building entrances, recreation areas, parking areas, common areas and access ways, shall be limited to providing illumination for security and safety. The intensity of such illumination shall be the minimum necessary for such purposes. Lighting devices and location shall be approved during site plan review by the Planning Board and shall be so shielded or arranged so that no direct glare is cast toward any residential dwelling.

6. Collector Roads within the R-PUD shall have grassy or landscaped areas no less than eight (8) feet wide adjacent to the pavement.

7. Cul-de-sac turnarounds may be designed with landscaped islands and mountable curbs.

L. Approval of Site Plans - R-PUD.

(a) Site plans for the development of the uses depicted on the Greens at Half Hollow Master Plan shall be submitted to the Planning Board for review and approval before an application for a building permit is made. The Planning Board shall review such plans and act thereon as specified and limited in Article XVII and the general design standards in Sections H through K above. Building permit approvals may be requested in stages for various phases of the single integrated development depicted on the Greens at Half Hollow Master Plan.

(b) All site plans and subdivision plans shall be in conformity with the Greens at Half Hollow Master Plan approved by the Town Board. The review and approval of site plans and subdivisions consistent with the approved Greens at Half Hollow Master Plan shall not alter the maximum number of dwelling units provided in this Article, nor the roads, uses and subdistricts shown on the Greens at Half Hollow Master Plan and otherwise established in this Article.

(c) If the Planning Board determines that the proposed site plans or subdivisions are inconsistent with the approved Greens at Half Hollow Master Plan, a request which clearly identifies proposed changes to such Master Plan, and the basis for such changes, shall be submitted to the Town Board. Upon such request, the Town Board may, after a public hearing, amend the Greens at Half Hollow

Master Plan.

(d) Notwithstanding (c) above, minor modifications to an approved site plan which will not cause any material change to the overall layout, appearance or impact of a site, and not involving any additional structures, may be approved by the Planning Board without public hearing and without amendment of the Greens at Half Hollow Master Plan.

M. Time Limitations for Judicial Review.

The time periods provided in Town Law § 274-a, Subdivision 11, shall govern the review by any court of competent jurisdiction of the adoption of this law, any master plan adopted pursuant thereto, any site plan approved for property located in the RAO-PUD, and any amendments made pursuant to subsection L above.

N. Conflicts

The specific provisions of this Chapter shall control in the event such provision conflicts with provisions contained elsewhere in this Chapter.

Benjamin\PUD with Saccardi changes

APPENDIX C

HALF HOLLOW HILLS CENTRAL SCHOOL DISTRICT

OF HUNTINGTON AND BABYLON

BOARD OF EDUCATION

December 23, 1999

Mr. Morton Weber
Morton Weber & Associates
201 N. Service Road
Melville, New York 11747

Dear Mr. Weber:

On Monday, December 20, 1999, the Half Hollow Hills Board of Education unanimously approved the following letter:

In 1996, the Half Hollow Hills Board of Education sent a letter to the Task Force that was charged with shaping the future for the Long Island Developmental Center property. We kept it simple, at the request of the Supervisor of the Town of Huntington. We supported senior housing for this tract because it would have minimal impact on enrollment.

The Board of Education was pleased with the initial direction of the Benjamin Corp., the purchaser of the LIDC property. The plan retained the residential character of the area and most units were age-restricted. There would be a range of senior services and prices would run the gamut from "affordable" to "modest" to "higher-end" between $175,000 and $350,000. The plan would generate few students - there was even "talk" of reducing the number of single family homes proposed (75) and/or building them in a later rather than earlier phase.

This past week we became aware of outside groups favoring different plans. We have grave concerns for any potential impact on the school district and our taxpayers. We have grown since our 1996 letter to the LIDC Task Force from 7100 students to 8100 students. We are a District proudly characterized by socio-economic, racial, ethnic and religious diversity. We are still experiencing an annual loss of $6 million in state aid and currently a $10 million reduction in assessment ($7 million in Huntington, and $3 million in Babylon) from previous years.

The Town of Huntington, when recently looking at proposals for nursing homes, made a point of evaluating "cumulative impact". We believe it is important for the Town Board to view cumulative zoning and planning changes as they have impacted Half Hollow Hills.

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The Town decided it wanted more rental units, more "affordable" rentals, affordable/entry-level houses, low-income housing and lower-priced "below market" units. Some developers in Half Hollow Hills received rezonings and huge density bonuses to facilitate these goals. Five major projects have either been built or are "in the process of" in our school district.

1. The Reckson Rezone - A 33-acre parcel zoned C-6 (commercial) next to Costco. If developed under this zoning, it would have brought tax revenues and no students. The Town rezoned this parcel to R-5 (5,000 sq. ft.) 1/8 acre lots, on which 193 units were built: 111 4-bedroom single family homes, and 82 2-3 bedroom town houses. They were modestly priced "entry level".

2. Delalio Rezone - This 10.8 acre tract near BJ's was zoned R-40 (1 acre residential). If it could have been sold it would possibly have yielded 8 homes. The Town down zoned this to R3M and approved 154 rental units of 1, 2, and 3 bedrooms. In addition, a certain percentage of the units had to be priced "affordable" either "low" or "moderate" income.

3. McGovern Sod Farm - This 159 acre tract was rezoned from commercial to R-40 to R-20 to R-10 (1/4 acre lots). The approved site plan is for 508 units, 20% of which have to be "affordable" attached homes.

4. Avalon II - The Town down zoned 24 acres of R-40 (one-acre residential) to R-3-M. The Town approved 340 rental apartments, 1, 2, and 3 bedrooms, with 30% set aside for "affordable" units, low and moderate income.

5. "HUD" Housing - Eighty-four "affordable" rentals to be built in Melville with the help of Federal funds.

It is obvious that there has been a major cumulative impact from rezonings, density bonuses and conversions to more intensive uses. The first four parcels - some of which were originally zoned commercial and some of which were originally zoned 1-acre residential - were approved to instead yield 1200 residential units.

The town Master Plan wanted more rentals. Five hundred units have been built since then in Half Hollow Hills. These rezones also provided "affordable" rental units and "affordable" and "entry-level" homes. These five projects have, and will continue to have, a significant cumulative impact on the Half Hollow Hills School District and our taxpayers. Eight school districts serve the children in our Township, but we are not aware if the Town has similarly rezoned for greater density and required "affordable" units in projects throughout the rest of the town.

Half Hollow Hills tries very hard to plan intelligently for our future. Although we were never consulted, anytime a zoning change was made, it impacted previous projections and plans.

Our input, and that of our community, was sought for LIDC. It is important to Half Hollow Hills that the LIDC project go forward as predominately age-restricted residential units. Certainly, the concept of a "golf course" community has been successful in Commack and Hauppauge. We believe, based on our recent demographic history of growth and rezoning, that no more than 75 single-family homes should be built on LIDC. We believe that would be in the best interest of our school district and our residents.

Thank you very much for addressing our concerns.

Sincerely,

Fran Greenspan

Fran Greenspan
Board of Education President

FG:rm

H2MGROUP

Holzmacher, McLendon & Murrell, P.C. • H2M Associates, Inc.
H2M Construction Management, Inc. • H2M Labs, Inc.

ACEC Member
Supporting Excellence in Engineering

575 Broad Hollow Road, Melville, NY 11747-5076
(516) 756-8000 • Fax: (516) 694-4122

October 11, 1999

Mr. Thomas Mazzola, P.E.
Director of Engineering Services
Town of Huntington
100 Main Street
Huntington, New York 11743

Re: Dix Hills Water District
The Greens at Half Hollow – LIDC Property
H2M Project No.: DHWD 99-01

Dear Mr. Mazzola:

The Dix Hills Water District (District) has retained the services of H2M to conduct this preliminary evaluation of the potential impacts on District operations should the District decide to provide water to the proposed development, "The Greens at Half Hollow". This development is being proposed for the former Long Island Developmental Center (LIDC) property by SBJ Associates L.L.C., a joint venture between JOBCO and Benjamin Construction Company. SBJ Associates L.L.C. is in the process of purchasing the 336 acre site from the State of New York. The developer is proposing to develop the site into a multiple use facility with various residential units, an assisted living facility and golf course. At the present time, the property is not within the service area of any public water supplier. It receives its water from an on-site water system maintained by the State. However, due to on-site mechanical failures and additional treatment requirements for the facility, the facility currently receives all of its water from the Dix Hills Water District through an emergency interconnection.

Since the property is not within any public water supply service area, the Suffolk County Water Authority (SCWA) has the first option of supplying water to this area. We have been informed by the developer that the SCWA is not interested in supplying water to the development unless no other water supplier is willing to provide water. The developer has contacted the Dix Hills Water District and has requested that the District's boundary be extended to include this property. Noting that the District currently does not have sufficient capacity to meet its existing demands and is presently in the planning stages of construction of two new supply wells and one new storage tank, it was felt that an evaluation would be necessary to determine the potential impact of the proposed development on the Water District's operations. As outlined in our proposal dated May 19, 1999, the enclosed evaluation includes the following:

- Estimate the water demand for the proposed development.

- Evaluate the District's ability to meet this future demand along with future build-out within the District boundaries.
- Determine what additional pumpage capacity and storage capacity will be needed to supply water to the proposed development.
- Study of the Long Island Developmental Center (LIDC) water system and evaluate the suitability of reusing the existing LIDC wells for District use.
- Evaluate land requirements for a potential well field and storage tank to be located on-site.
- Prepare a preliminary layout of the water distribution system to service the proposed development.
- Prepare a preliminary cost opinion for on-site water mains, on-site well improvements and/or new supply wells and storage to meet the demands of the development.

We have based our evaluation on previously completed studies that evaluated the LIDC water system, as well as, New York State Department of Environmental Conservation (NYSDEC) and Suffolk County Department of Health Services (SCDHS) documents, field investigations and interviews with state and county officials and LIDC personnel. We have summarized our evaluation as follows:

A. ESTIMATED WATER DEMAND

Based on a preliminary site plan submitted by the developer, the proposed development will consist of approximately 75 single family homes, 400 condominiums, 350 town houses, 300 golf villas, an assisted living facility with 150 beds and a 9 hole golf course. Table 1 shows the estimated average day, peak day and peak hour water demand for the development. As you can see from Table 1, the peak day demand is estimated at 997,500 GPD (gallons per day) with the peak hour demand estimated at 1,496,250 GPD. The average day demand is estimated at 332,500 GPD. It should be noted that we have assumed that the developer will not utilize the public water supply for golf course irrigation. The developer has indicated that he may utilize one of the existing facility wells as an irrigation well. Should the developer decide to use Dix Hills water for golf course irrigation, the water demands will be significantly higher. This demand has not been calculated in this report.

B. EVALUATION OF THE DISTRICT'S ABILITY TO SERVICE THE PROPOSED DEVELOPMENT

Before the District can agree to service the proposed development, the District must determine whether it has sufficient pumpage and storage capacity to meet the needs of the proposed development. If the District does not have sufficient pumpage and storage capacity, the District would need to increase its water supply capacity by constructing new water supply and/or storage facilities.

The District currently maintains and operates a total of 15 water supply wells located throughout its service area as indicated in Table 2. Current design practices typically recommend that a public water supplier be able to meet the peak demand with 20% of its wells out of service and the remaining wells at 80% utilization. However, due to the high irrigation use demands during the early morning period throughout the District, the Dix Hills Water District utilization rate is equal to 60%. With 20% of its wells out of service and a utilization rate of 60%, the District's available pumpage capacity is 13.82 MGD (million gallons per day) as calculated in Table 2. Thus, the District's current available pumpage capacity is not sufficient to meet the District's historical maximum day demand of 17.4 MGD. This justifies the need for the two new wells currently being designed. These two new wells will increase the District's available pumpage capacity to just about meet the existing in-District demand. Therefore, the District does not have any additional pumpage capacity for the proposed development. In order to supply water to the proposed development with an estimated peak hour demand of approximately 1.5 MGD, the District would need one additional high capacity water supply well.

In addition to the District's existing water supply wells, the District operates and maintains two storage tank facilities as indicated in Table 3. Current design practices for medium sized public water suppliers recommend that the supplier should provide sufficient storage equal to approximately one-half of the average daily water use. Since the District's average day demand is approximately 5.4 MGD, the District should have at least 2.7 MG (million gallons) of storage as compared to 1.25 MG of current storage. Therefore, the District currently requires an additional 1.45 MG of storage capacity. The District is already in the preliminary planning stages of the construction of additional storage to partially meet in-District needs (0.75 MG). If the District decides to service the proposed development with an average day demand of 0.33 MG, the District's storage capacity deficiency would increase 0.165 MG to 1.62 MG. Even with this new tank, an additional storage tank will be necessary to provide sufficient pressure and fire flow to the site. The developer should be responsible for the cost of a portion of a new tank. Assuming 20% (0.165 MG out of 0.75 MG) of the cost of a new tank, the developer's share would be approximately $350,000 out of the $1.75 million estimated cost.

C. *EXISTING LIDC WATER SYSTEM*

This section evaluates the value of the existing LIDC water system including suitability of existing facilities for District use. The existing water system of the LIDC consists of three water supply wells and a network of water transmission and distribution mains. The water system was installed in conjunction with the construction of the LIDC campus in the 1960's. Prior to 1995/1996, two of the water supply wells (Well Nos. 2 & 3) supplied all water to the LIDC campus. In 1995/1996, both wells were removed from service and the LIDC campus began receiving all of its water through a 10" emergency interconnection with the Dix Hills Water District. Well No. 1 was removed from service many years ago due to structural problems with the well.

The water supply wells were removed from service when the LIDC failed to comply with the Lead and Copper Rule as administered by the Suffolk County Department of Health Services (SCDHS). In order to comply with the Lead and Copper Rule, the LIDC attempted to install caustic feed systems to elevate the pH of the raw well water. The wells, being equipped with variable speed drives, also required variable rate caustic feed systems. The caustic feed systems, however, were installed without the variable feed rate capability. Since the LIDC campus was in the process of being sold, the State decided not to modify the caustic feed system and decided to receive water exclusively from the Dix Hills Water District.

The existing water supply wells are located in the south central portion of the LIDC property, just north of the Sagamore Children's Center. The well located closest to Carman Road is known to the LIDC as Well No. 2 (NYSDEC No. S-21362). The other well is known to the LIDC as Well No. 3 (NYSDEC No. S-22451). Both wells are equipped with vertical turbine pumps, electric motors and variable speed drives. Well No. 3 is also equipped with a standby diesel engine in the event of a power failure. The water quality of both wells has been tested to be excellent with the exception of slightly depressed pH levels ranging from approximately 6 to 7 according to the most recent data on file with the SCDHS. This data is attached as an appendix to this report. No data available after 1994, since wells have been inoperable.

Well No. 2 is housed in an aluminum building with aluminum roofing. The well was completed on April 5, 1963 and has a clear depth of 556 feet. It is constructed with a 20 inch diameter outer casing extending from grade to a depth of 480 feet. The well also has a 12 inch diameter inner casing extending from 370 feet to 481 feet, followed by 75 feet of 14 inch diameter Cook-Silicon Bronze screen with 60 slot openings. The authorized capacity of the well is 1400 gpm.

Well No. 3 is housed in an 8" concrete block masonry building with aluminum roofing. The well was completed on March 5, 1964 and has a clear depth of 560 feet. It is constructed with a 20 inch diameter outer casing extending from grade to a depth of 504 feet. The well is presumably constructed with a 12" diameter inner casing followed by 56 feet of 12" diameter Cook-Silicon Bronze screen with 60 slot openings. The authorized capacity of the well is 1400 gpm.

The LIDC water transmission and distribution system will become obsolete with the construction of the proposed development. The proposed development will require a new transmission and distribution system that follows the proposed development's new roads. The two LIDC wells may, however, have some value. While the mechanical equipment at each well has reached the end of its useful life and does not meet District standards, the wells themselves may be reusable.

Long Island wells, with construction similar to that of Well Nos. 2 and 3, should have a useful life of approximately fifty years. Therefore, each well should still have approximately 15 years of useful life remaining. If the District decides to reuse one or both of the wells, a TV inspection and caliper log should be performed in order to determine what measures may be necessary to bring the wells up to District standards. Please note that the wells are proposed to be located in the middle of a golf course hole on the proposed golf course. Therefore, if the District decides to reutilize either of the wells, the development's layout will have to be modified to accommodate a new well pump house.

D. NEW WATER SUPPLY WELL

D.1 OPTION A – REUSE ONE LIDC WELL

As previously discussed, the two existing supply wells at the LIDC most likely have approximately 15 years of useful life remaining. An inspection of the site indicated that the electrical and mechanical equipment do not have any value. Therefore, a complete new pump station including building, chemical storage and treatment equipment, electrical controls and instrumentation would need to be constructed around one of the existing wells. We do not recommend that the District make the large investment of new mechanical and electrical equipment around a well that only has 15 years of life remaining. Therefore, we do not recommend this option for an additional well supply source.

D.2 OPTION B – NEW WATER SUPPLY WELL

A new supply well could be located on the subject property and would discharge to the District's high zone distribution system. Construction of the new well would be similar to the existing LIDC wells, with a clear depth of approximately 600 feet. The new well would be constructed with a 20 inch diameter outer casing, 12" diameter partial inner casing and 12" diameter 316 L stainless screen. The outer casing would be cement grouted in place. The well would be equipped with a 1380 gallon per minute (gpm) deep well type multi-stage centrifuge pumping unit driven by a vertical hollow shaft 150 - 200 HP high efficiency electric motor. A new pump station would also be necessary to house chemical treatment equipment, electrical controls and instrumentation. The new well would have a useful life of approximately 50 to 75 years. The estimated cost of a new water supply well is $1.65 million as shown on Table 4.

E. ADDITIONAL STORAGE CAPACITY

The proposed development of the LIDC property will add to the existing "shortage" in the storage capacity needs of the District. Even with the District proposing to construct a low zone storage tank, an additional storage tank is necessary. The District may need to locate a future tank in close proximity to the development. We recommend that the District obtain a sufficient area of land to construct a elevated water storage tank within the developer's property, preferably adjacent to the proposed well site. A portion of the cost of the new tank (approximately 20%) should be paid by the developer.

F. LAND REQUIREMENTS FOR A NEW WELL AND STORAGE TANK SITE

In order to meet the water supply needs of the development, it is recommended that the District negotiate with the developer to designate a parcel of land within the new development that would be large enough to accommodate a new well and future storage tank. The parcel should be at least three to four acres in size, be accessible to District operating personnel and adjacent to the proposed 12" transmission main (See Section F). The enclosed map shows several potential well and tank locations. We recommend that the developer and District consider the site adjacent to the proposed recharge basin. This site is large enough to accommodate a three acre parcel. The site could be made accessible to District personnel and the site is located near the 12" transmission main. In addition, the current layout of the proposed development would not have to be changed considerably to accommodate the new well and storage tank site.

G. PRELIMINARY DISTRIBUTION SYSTEM

Attached with this report is a map of the preliminary on-site water distribution system for the proposed development. The preliminary water distribution system connects to the Dix Hills Water District at two places: at an 8″ Main on Carman Road and at an 8″ Main on Half Hollow Road. A 12″ transmission main is proposed to be installed through the development. New 6″ and 8″ main would be installed off the 12″ main to service the development. Fire hydrants would be located with approximately 500 foot spacing to provide fire-flow protection. We recommend that the water main remain under the ownership and operation of the Dix Hills Water District. A preliminary cost opinion of the on-site water distribution system work is estimated at $985,000 as shown on Table 5.

H. CONCLUSIONS & RECOMMENDATIONS

A review of the proposed development of the LIDC property indicates a future water demand of 332,500 GPD on average, 997,500 GPD for a peak day and 1,496,250 GPD for the peak hourly demand. The Dix Hills Water District does not currently have sufficient capacity to meet these water demands. Even with the proposed construction of the two new wells at Plant No. 11, the District still will not have sufficient well capacity to meet the needs of any development outside the District boundaries. In order to supply water to the proposed development, the District would need to make plans to construct a new water supply well. Based on the projected water demands for the project, one 1380 gallon per minute well would be necessary to meet the maximum hourly demand. The new well and pump station should be located on the subject property. In addition, the District should obtain a sufficiently sized piece of land that would also permit the construction of a elevated water storage tank. We estimate the size of the property needed for the well and tank at approximately 3 to 4 acres.

The cost of constructing the new well pump station is estimated at $1.65 million. The cost to construct a portion of the new tank is estimated at $350,000. We recommend that the total cost be borne by the developer since the residents of the Dix Hills Water District will not receive any benefit from this plant site. The cost of the entire on-site water mains estimated at $985,000 shall also be borne by the developer.

If the developer wishes to pursue connecting to the Dix Hills Water District, the developer shall cause the District to prepare necessary documents for the extension of the District.

H2M GROUP

If you should have any questions regarding the above, please free to contact our office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

Dennis Kelleher

Dennis M. Kelleher, P.E.

DMK:slj
Enclosure

cc: Town Board
Benjamin Bletsch, P.E.
Vincent Candurra
SBJ Associates, L.L.C.

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TABLE 1

DIX HILLS WATER DISTRICT
THE GREENS AT HALF HOLLOW

ESTIMATED WATER DEMAND

USER	NO. UNITS	AVERAGE DAY DEMAND	PEAK DAY DEMAND	PEAK HOUR DEMAND
Single Family Homes (1/2 Acre lots)	75 Units	22,500 GPD	67,500 GPD	101,250 GPD
Condos (1,050 S.F.)	400 Units	90,000 GPD	270,000 GPD	405,000 GPD
Town Houses (2,000 - 2,500 S.F.)	350 Units	105,000 GPD	315,000 GPD	472,500 GPD
Golf Villas (2,500 - 3,000 S.F.)	300 Units	90,000 GPD	270,000 GPD	405,000 GPD
Assisted Living Facility	150 Beds	22,500 GPD	67,500 GPD	101,250 GPD
Club House, Pool & Tennis Courts	1 Unit	2,500 GPD	7,500 GPD	11,250 GPD
Golf Course	65 Acres	(1)	(1)	(1)
	TOTALS:	**332,500 GPD (231 GPM)**	**997,500 GPD (693 GPM)**	**1,496,250 GPD (1,039 GPM)**

LEGEND:

S.F. - Square Feet
GPD - Gallons Per Day
GPM - Gallons Per Minute

NOTES:

(1) - We have assumed that the developer will not utilize public water for golf course irrigation.

TABLE 2

DIX HILLS WATER DISTRICT
THE GREENS AT HALF HOLLOW

XISTING SUPPLY WELL CAPACITY AND STANDBY POWER

WELL NO.	CAPACITY (MGD)	STANDBY POWER
1-2	1.44	G
1-3	2.01	G
3-1	1.72	D
3-2	2.01	NONE
3-3	2.01	D
4-1	2.01	G
5-1	1.72	D
6-1	2.01	G
6-2	2.01	G
6-3	2.01	G
7-1	2.01	D
8-1	2.01	D
9-1	2.01	D
9-2	2.01	D
10-1	1.98	NONE
TOTAL CAPACITY	**28.97 MGD**	

LEGEND:

MGD - Million Gallons Per Day
G - Generator Set
D - Diesel Engine
None - No Standby Power Available

CALCULATIONS:

Total Capacity with 3 wells out of service = 23.04 MGD
(15 wells x 0.20 = 3 wells)

Current Available Pumpage Capacity
(60% utilization with 3 wells out of service) = 13.82 MGD

Future Available Pumpage Capacity (60% utilization
with 2 new wells and 3 wells out of service) = 16.4 MGD

TABLE 3

DIX HILLS WATER DISTRICT
THE GREENS AT HALF HOLLOW

STORAGE TANK CAPACITY

WATER DISTRICT PLANT NO.	AUTHORIZED DESIGN CAPACITY (MG)
2	0.5
4	0.75
TOTAL	**1.25 MG**

LEGEND:
MG - Million Gallons

TABLE 4

DIX HILLS WATER DISTRICT
THE GREENS AT HALF HOLLOW

PRELIMINARY COST OPINION FOR NEW WATER SUPPLY WELL

I. Construction Costs	
1. Well	$300,000
2. Buildings	$200,000
3. Site Work	$50,000
4. Mechanical Work, Piping and Treatment	$250,000
5. Electrical Work and Controls	$250,000
6. Emergency Generator	$250,000
TOTAL CONSTRUCTION COSTS:	$1,300,000
II. Non-Construction Costs	
1. Engineering Report and Well Permit	$12,000
2. Preliminary (Survey and Soil Borings)	$10,000
3. Design	$100,000
4. Construction Administration	$26,000
5. Inspection	$65,000
6. Contingency	$130,000
TOTAL NON-CONSTRUCTION COSTS:	$343,000
TOTAL COSTS:	$1,643,000

H2M GROUP

TABLE 5

DIX HILLS WATER DISTRICT
THE GREENS AT HALF HOLLOW

PRELIMINARY COST OPINION FOR WATER DISTRIBUTION SYSTEM

I. Construction Costs

ITEM	QUANTITY	UNIT PRICE	ITEM TOTAL
6" CLDI Water Main	1,800 L.F.	$13.00	$23,400.00
8" CLDI Water Main	23,000 L.F.	$15.00	$345,000.00
12" CLDI Water Main	8,600 L.F.	$21.00	$180,600.00
CLDI Special Castings	26,000 L.F.	$1.00	$26,000.00
6" Valves & Boxes	66 Units	$450.00	$29,700.00
8" Valves & Boxes	64 Units	$600.00	$38,400.00
12" Valves & Boxes	26 Units	$1,100.00	$28,600.00
Hydrants	62 Units	$1,000.00	$62,000.00
Chlorination of Mains	33,400 L.F.	$0.20	$6,680.00
Additional Excavation	100 C.Y.	$50.00	$5,000.00
8" Cut-Ins	2 Units	$4,500.00	$9,000.00
Trench Compaction	33,400 L.F.	$1.00	$33,400.00
Repaving Town Roads	500 L.F.	$15.00	$7,500.00
Moving Fees	2	$1,000.00	$1,000.00
Miscellaneous	1 Lump Sum	$1,000.00	$2,000.00
		TOTAL CONSTRUCTION COSTS:	**$798,280.00**

II. Non-Construction Costs

A. Engineering -	Extension Report	$6,000.00
	Design	$63,000.00
	Construction Administration	$16,000.00
B. Inspection & As-Built Drawings		$16,000.00
C. Survey/Topo		$4,000.00
D. Contingencies (10%)		$80,000.00
	TOTAL NON-CONSTRUCTION COSTS:	**$185,000.00**
	TOTAL COSTS:	$983,280.00

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SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES – WATER ANALYSIS

NAME: L.I. Developmental Ctr.
SAMPLE DATE: March 1,1993
Well 2 ~~S-21562~~

S-21362

	Result	MCL
total coliform ..	absent	absent
specific conduct.	23	– umhos/cm
pH	6.0	–
nitrate	0.2	10.0 mg/l
free ammonia	<0.02	– mg/l
chloride	3.0	250. mg/l
sulfate	<4.0	250. mg/l
iron	<0.10	0.3 mg/l*
manganese	<0.05	0.3 mg/l*
copper	<0.10	1.0 mg/l
sodium	4.6	– mg/l+
zinc	<0.4	5.0 mg/l
aldicarb	<1	–
aldicarb sulfoxide	<1	–
aldicarb sulfone	<1	–
TOTAL ALDICARB	–	7 ppb
carbofuran	<1	15 ppb
3-hydroxycarbfuran	<1	– ppb
oxamyl	<1	50 ppb
carbaryl	<1	50 ppb
ppb‡		
1-naphthol	<1	– ppb
methomyl	<1	50 ppb
propoxur	<1	50 ppb
methiocarb.......	<1	50 ppb

	Result	MCL
alpha-BHC	<0.2	0.2 ppb
beta-BHC	<0.2	0.2 ppb
gamma-BHC	<0.2	0.2 ppb
delta-BHC	<0.2	0.2 ppb
lindane (sum BHC)	–	0.2 ppb
heptachlor .	<0.2	0.4 ppb
heptachl' epoxide	<0.2	0.2 ppb
aldrin	<0.2	–
dieldrin	<0.2	–
4,4 DDE	<0.2	–
4,4 DDD	<0.2	–
4,4 DDT	<0.2	–
endrin	<0.2	0.2 ppb
endrin aldehyde	<0.2	–
chlordane	<1.	2. ppb
alachlor	<0.5	2. ppb
methoxychlor ...	<0.5	40. ppb
endosulfan I ...	<0.5	2. ppb
endosulfan II ..	<0.2	–
cadmium	<2.	10. ppb
lead	2.1	–
arsenic	<20.	50. ppb
selenium............	<2.	10. ppb
silver..............	<10.	50. ppb
chromium............	<10.	50. ppb

mg/l = miligrams per liter
* Iron and manganese combined should not exceed 0.5 mg/l.
\+ Moderately restricted sodium diet should not exceed 270 mg/l. Severely resticted sodium diet should not exceed 20 mg/l.
‡ If lead exceeds the 15 ppb Action Level, remedial actions are recommended.

	Result
vinyl chloride	<0.5 (2)
methylene chloride	<0.5
1,1 dichloroethane	<0.5
trans 1,2 dichloroethene	<0.5
chloroform	<0.5 100)
1,2 dichloroethane	<0.5
1,1,1 trichloroethane ..	<0.5
carbon tetrachloride ...	<0.5
1 bromo 2 chloroethane .	<0.5
1,2 dichloropropane	<0.5
trichloroethene	<0.5
chlorodibromomethane ...	<0.5 (100)
1,2 dibromoethane	<0.02 (0.05)
2 bromo 1 chloropropane	<0.5
bromoform	<0.5 (100)
tetrachloroethene	<0.5
cis dichloroethene	<0.5
freon 113	<0.5
dibromomethane	<0.5
1,1 dichloroethene	<0.5
bromodichloromethane ...	<0.5 (100)
2,3 dichloropropene	<0.5
cis dichloropropene	<0.5
trans dichloropropene ..	<0.5
1,1,2 trichloroethane ..	<0.5
1,1,1,2 tetrachlo'ethane	<0.5
s-tetrachloroethane	<0.5
1,2,3 trichloropropane .	<0.5
2,2 dichloropropane	<0.5
1,3 dichloropropane	<0.5

	Result
benzene	<0.5
toluene	<0.5
chlorobenzene	<0.5
ethylbenzene	<0.5
o-xylene....................	<0.5
m-xylene	<0.5
p-xylene	<0.5
total xylene	–
o-chlorotoluene	<0.5
m-chlorotoluene	<0.5
p-chlorotoluene	<0.5
total chlorotoluene	–
1,3,5 trimethylbenzene	<0.5
1,2,4 trimethylbenzene	<0.5
m,p-dichlorobenzene	<0.5
o-dichlorobenzene	<0.5
p-diethylbenzene	<0.5
1,2,4,5 tetramethylbenzene ..	<0.5
1,2,4 trichlorobenzene	<0.5
1,2,3 trichlorobenzene	<0.5
ethenylbenzene (styrene)	<0.5
1 methylethylbenzene (cumene)	<0.5
n-propylbenzene	<0.5
tert-butylbenzene	<0.5
sec-butylbenzene	<0.5
isopropyltoluene (p-cymene) .	<0.5
n-butylbenzene	<0.5
hexachlorobutadiene	<0.5
1,2 dibromo 3-chloropropane .	<0.02
methyl tertiary butyl ether .	<0.5 (50)

NOTE: < symbol means "less than" indicating no detection
The Maximum Contaminant Levels (MCL's) for volatile organic compounds are 5 parts per billion (ppb) each. Separate limits established for individual compounds and trihalomethanes are noted in parentheses ().

SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES - WATER ANALYSIS

NAME: Long Island Developmental Center
SAMPLE DATE: August 24, 1993
Well #3 S-22451

	Result	MCL
total coliform ..	absent	absent
specific conduct	40	- umhos/cm
pH	6.5	-
nitrate	0.5	10.0 mg/l
free ammonia	<0.02	- mg/l
chloride	4.0	250. mg/l
sulfate	<4.0	250. mg/l
iron	<0.10	0.3 mg/l*
manganese	<0.05	0.3 mg/l*
copper	<0.10	1.0 mg/l
sodium	<0.4	
zinc	<0.4	5.0 mg/l
aldicarb	<1	-
aldicarb sulfoxide	<1	-
aldicarb sulfone	<1	-
TOTAL ALDICARB	-	7 ppb
carbofuran	<1	40 ppb
3-hydroxycarbfuran	<1	- ppb
oxamyl	<1	50 ppb
carbaryl	<1	50 ppb
1-naphthol	<1	- ppb
methomyl	<1	50 ppb
propoxur	<1	50 ppb
methiocarb.......	<1	50 ppb

	Result	MCL
alpha-BHC	<0.2	0.2 ppb
beta-BHC	<0.2	0.2 ppb
gamma-BHC	<0.2	0.2 ppb
delta-BHC	<0.7	0.2 ppb
lindane (sum BHC)	-	0.2 ppb
heptachlor	<0.2	0.4 ppb
heptachl' epoxide	<0.2	0.2 ppb
aldrin	<0.2	-
dieldrin	<0.2	-
4,4 DDE	<0.2	-
4,4 DDD............	<0.2	-
4,4 DDT	<0.2	-
endrin	<0.2	0.2 ppb
endrin aldehyde	<0.2	-
chlordane	<1.	2. ppb
alachlor	<0.5	2. ppb
methoxychlor ...	<0.5	40. ppb
endosulfan I ...	<0.5	2. ppb
endosulfan II ..	<0.2	-
cadmium	<2.	10. ppb
lead	3.6	15. ppb

mg/l = miligrams per liter
* Iron and manganese combined should not exceed 0.5 mg/l.
+ Moderately restricted sodium diet should not exceed 270 mg/l. Severely resticted sodium diet should not exceed 20 mg/l.
# If lead exceeds the 15 ppb Action Level, remedial actions are recommended.

	Result	
vinyl chloride	<0.5	(2)
methylene chloride	<0.5	
1,1 dichloroethane	<0.5	
trans 1,2 dichloroethene	<0.5	
chloroform	<0.5	100)
1,2 dichloroethane	<0.5	
1,1,1 trichloroethane ..	<0.5	
carbon tetrachloride ...	<0.5	
1 bromo 2 chloroethane .	<0.5	
1,2 dichloropropane	<0.5	
trichloroethene	<0.5	
chlorodibromomethane ...	<0.5	(100)
1,2 dibromoethane	<0.02	(0.05)
2 bromo 1 chloropropane	<0.5	
bromoform	<0.5	(100)
tetrachloroethene	<0.5	
cis dichloroethene	<0.5	
freon 113	<0.5	
dibromomethane	<0.5	
1,1 dichloroethene	<0.5	
bromodichloromethane ...	<0.5	(100)
2,3 dichloropropene	<0.5	
cis dichloropropene	<0.5	
trans dichloropropene ..	<0.5	
1,1,2 trichloroethane ..	<0.5	
1,1,1,2 tetrachlo'ethane	<0.5	
s-tetrachloroethane	<0.5	
1,2,3 trichloropropane .	<0.5	
2,2 dichloropropane	<0.5	
1,3 dichloropropane	<0.5	

	Result	
benzene	<0.5	
toluene	<0.5	
chlorobenzene	<0.5	
ethylbenzene	<0.5	
o-xylene....................	<0.5	
m-xylene	<0.5	
p-xylene	<0.5	
total xylene	-	
o-chlorotoluene	<0.5	
m-chlorotoluene	<0.5	
p-chlorotoluene	<0.5	
total chlorotoluene	-	
1,3,5 trimethylbenzene	<0.5	
1,2,4 trimethylbenzene	<0.5	
m,p-dichlorobenzene	<0.5	
o-dichlorobenzene	<0.5	
p-diethylbenzene	<0.5	
1,2,4,5 tetramethylbenzene ..	<0.5	
1,2,4 trichlorobenzene	<0.5	
1,2,3 trichlorobenzene	<0.5	
ethenylbenzene (styrene)	<0.5	
1 methylethylbenzene (cumene)	<0.5	
n-propylbenzene	<0.5	
tert-butylbenzene	<0.5	
sec-butylbenzene	<0.5	
isopropyltoluene (p-cymene) .	<0.5	
n-butylbenzene	<0.5	
hexachlorobutadiene	<0.5	
1,2 dibromo 3-chloropropane .	<0.02	
methyl tertiary butyl ether .	<0.5	(50)

NOTE: < symbol means "less than" indicating no detection

SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES - WATER ANALYSIS

NAME: Long Island Develpmental Center
SAMPLE DATE: August 25, 1994
WELL # 2 S-21562

S-21362

	Result	MCL
total coliform ..	absent	absent
specific conduct	23	- umhos/cm
pH	6.2	-
nitrate	<0.2	10.0 mg/l
free ammonia	<0.02	- mg/l
chloride	3.0	250. mg/l
sulfate	<4.0	250. mg/l
iron	<0.10	0.3 mg/l*
manganese	<0.05	0.3 mg/l*
copper	<0.10	1.0 mg/l
sodium	2.6	
zinc...............	<0.4	5.0 mg/l
dacthal..........	<10	50 ppb
aldicarb	<1	-
aldicarb sulfoxide	<1	-
aldicarb sulfone	<1	-
TOTAL ALDICARB	-	7 ppb
carbofuran	<1	40 ppb
3-hydroxycarbfuran	<1	- ppb
oxamyl	<1	50 ppb
carbaryl	<1	50 ppb
1-naphthol	<1	- ppb
methomyl	<1	50 ppb
propoxur	<1	50 ppb
methiocarb.......	<1	50 ppb

	Result	MCL
alpha-BHC	<0.2	0.2 ppb
beta-BHC	<0.2	0.2 ppb
gamma-BHC	<0.2	0.2 ppb
delta-BHC	<0.2	0.2 ppb
lindane (sum BHC)	-	0.2 ppb
heptachlor	<0.2	0.4 ppb
heptachl' epoxide	<0.2	0.2 ppb
aldrin	<0.2	-
dieldrin	<0.2	-
4,4 DDE	<0.2	-
4,4 DDD...........	<0.2	-
4,4 DDT	<0.2	-
endrin	<0.2	0.2 ppb
endrin aldehyde	<0.2	-
chlordane	<1.	2. ppb
alachlor	<0.5	2. ppb
methoxychlor ...	<0.5	40. ppb
endosulfan I ...	<0.5	2. ppb
endosulfan II ..	<0.2	-
cadmium	<2.	10. ppb
lead	1.7	15. ppb
arsenic..........	<20.	50. ppb
selenium.........	<2.	10. ppb
silver...........	<10.	50. ppb
chromium.........	<10.	50. ppb

mg/l = miligrams per liter* Iron and manganese combined should not exceed 0.5 mg/l.
+ Moderately restricted sodium diet should not exceed 270 mg/l. Severely resticted sodium diet should not exceed 20 mg/l.
# If lead exceeds the 15 ppb Action Level, remedial actions are recommended.

	Result	
chlorodifluoromethane....	<0.5	
vinyl chloride	<0.5	(2)
methylene chloride	<0.5	
1,1 dichloroethane	<0.5	
trans 1,2 dichloroethene	<0.5	
chloroform	<0.5	100)
1,2 dichloroethane	<0.5	
1,1,1 trichloroethane ..	<0.5	
carbon tetrachloride ...	<0.5	
1 bromo 2 chloroethane .	<0.5	
1,2 dichloropropane	<0.5	
trichloroethene	<0.5	
chlorodibromomethane ...	<0.5	(100)
1,2 dibromoethane	<0.02	(0.05)
2 bromo 1 chloropropane	<0.5	
bromoform	<0.5	(100)
tetrachloroethene	<0.5	
cis dichloroethene	<0.5	
freon 113	<0.5	
dibromomethane	<0.5	
1,1 dichloroethene	<0.5	
bromodichloromethane ...	<0.5	(100)
2,3 dichloropropene	<0.5	
cis dichloropropene	<0.5	
trans dichloropropene ..	<0.5	
1,1,2 trichloroethane ..	<0.5	
1,1,1,2 tetrachlo'ethane	<0.5	
s-tetrachloroethane	<0.5	
1,2,3 trichloropropane .	<0.5	
2,2 dichloropropane	<0.5	
1,3 dichloropropane	<0.5	
2-butanone...............	<10.0	

	Result	
dichlorodifluoromethane.......	<0.5	
benzene	<0.5	
toluene	<0.5	
chlorobenzene	<0.5	
ethylbenzene	<0.5	
o-xylene......................	<0.5	
m-xylene	<0.5	
p-xylene	<0.5	
total xylene	-	
o-chlorotoluene	<0.5	
m-chlorotoluene	<0.5	
p-chlorotoluene	<0.5	
total chlorotoluene	-	
1,3,5 trimethylbenzene	<0.5	
1,2,4 trimethylbenzene	<0.5	
m,p-dichlorobenzene	<0.5	
o-dichlorobenzene	<0.5	
p-diethylbenzene	<0.5	
1,2,4,5 tetramethylbenzene ..	<0.5	
1,2,4 trichlorobenzene	<0.5	
1,2,3 trichlorobenzene	<0.5	
ethenylbenzene (styrene)	<0.5	
1 methylethylbenzene (cumene)	<0.5	
n-propylbenzene	<0.5	
tert-butylbenzene	<0.5	
sec-butylbenzene	<0.5	
isopropyltoluene (p-cymene) .	<0.5	
n-butylbenzene	<0.5	
hexachlorobutadiene	<0.5	
1,2 dibromo 3-chloropropane .	<0.02	
methyl tertiary butyl ether .	<0.5	(50)
tetrahydrofuran..............	<10.0	

NOTE: < symbol means "less than" indicating no detection

SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES - WATER ANALYSIS

NAME: Long Island Developmental Center
SAMPLE DATE: August 25, 1994
WELL # 3 S-22451

	Result	MCL
total coliform ..	absent	absent
specific conduct	45	- umhos/cm
pH	7.1	-
nitrate	0.5	10.0 mg/l
free ammonia	<0.02	- mg/l
chloride	4.0	250. mg/l
sulfate	<4.0	250. mg/l
iron	1.03	0.3 mg/l*
manganese	<0.05	0.3 mg/l*
copper	<0.10	1.0 mg/l
sodium	6.8	
zinc.............	<0.4	5.0 mg/l
dacthal..........	<10	50 ppb
aldicarb	<1	-
aldicarb sulfoxide	<1	-
aldicarb sulfone	<1	-
TOTAL ALDICARB	-	7 ppb
carbofuran	<1	40 ppb
3-hydroxycarbfuran	<1	- ppb
oxamyl	<1	50 ppb
carbaryl	<1	50 ppb
1-naphthol	<1	- ppb
methomyl	<1	50 ppb
propoxur	<1	50 ppb
methiocarb.......	<1	50 ppb

	Result	MCL
alpha-BHC	<0.2	0.2 ppb
beta-BHC	<0.2	0.2 ppb
gamma-BHC	<0.2	0.2 ppb
delta-BHC	<0.2	0.2 ppb
lindane (sum BHC)	-	0.2 ppb
heptachlor	<0.2	0.4 ppb
heptachl' epoxide	<0.2	0.2 ppb
aldrin	<0.2	-
dieldrin	<0.2	-
4,4 DDE	<0.2	-
4,4 DDD..........	<0.2	-
4,4 DDT	<0.2	-
endrin	<0.2	0.2 ppb
endrin aldehyde	<0.2	-
chlordane	<1.	2. ppb
alachlor	<0.5	2. ppb
methoxychlor ...	<0.5	40. ppb
endosulfan I ...	<0.5	2. ppb
endosulfan II ..	<0.2	-
cadmium	<2.	10. ppb
lead	2.5	15. ppb
arsenic..........	<20.	50. ppb
selenium.........	<2.	10. ppb
silver...........	<10.	50. ppb
chromium.........	<10.	50. ppb

mg/l - miligrams per liter* Iron and manganese combined should not exceed 0.5 mg/l.
+ Moderately restricted sodium diet should not exceed 270 mg/l. Severely resticted sodium diet should not exceed 20 mg/l.
# If lead exceeds the 15 ppb Action Level, remedial actions are recommended.

	Result	
chlorodifluoromethane....	<0.5	
vinyl chloride	<0.5	(2)
methylene chloride	<0.5	
1,1 dichloroethane	<0.5	
trans 1,2 dichloroethene	<0.5	
chloroform	<0.5	100)
1,2 dichloroethane	<0.5	
1,1,1 trichloroethane ..	<0.5	
carbon tetrachloride ...	<0.5	
1 bromo 2 chloroethane .	<0.5	
1,2 dichloropropane	<0.5	
trichloroethene	0.9	
chlorodibromomethane ...	<0.5	(100)
1,2 dibromoethane	<0.02	(0.05)
2 bromo 1 chloropropane	<0.5	
bromoform	<0.5	(100)
tetrachloroethene	<0.5	
cis dichloroethene	<0.5	
freon 113	<0.5	
dibromomethane	<0.5	
1,1 dichloroethene	<0.5	
bromodichloromethane ...	<0.5	(100)
2,3 dichloropropene	<0.5	
cis dichloropropene	<0.5	
trans dichloropropene ..	<0.5	
1,1,2 trichloroethane ..	<0.5	
1,1,1,2 tetrachlo'ethane	<0.5	
s-tetrachloroethane	<0.5	
1,2,3 trichloropropane .	<0.5	
2,2 dichloropropane	<0.5	
1,3 dichloropropane	<0.5	
2-butanone..............	<10.0	

	Result	
dichlorodifluoromethane.......	<0.5	
benzene	<0.5	
toluene	<0.5	
chlorobenzene	<0.5	
ethylbenzene	<0.5	
o-xylene....................	<0.5	
m-xylene	<0.5	
p-xylene	<0.5	
total xylene	-	
o-chlorotoluene	<0.5	
m-chlorotoluene	<0.5	
p-chlorotoluene	<0.5	
total chlorotoluene	-	
1,3,5 trimethylbenzene	<0.5	
1,2,4 trimethylbenzene	<0.5	
m,p-dichlorobenzene	<0.5	
o-dichlorobenzene	<0.5	
p-diethylbenzene	<0.5	
1,2,4,5 tetramethylbenzene ..	<0.5	
1,2,4 trichlorobenzene	<0.5	
1,2,3 trichlorobenzene	<0.5	
ethenylbenzene (styrene)	<0.5	
1 methylethylbenzene (cumene)	<0.5	
n-propylbenzene	<0.5	
tert-butylbenzene	<0.5	
sec-butylbenzene	<0.5	
isopropyltoluene (p-cymene) .	<0.5	
n-butylbenzene	<0.5	
hexachlorobutadiene	<0.5	
1,2 dibromo 3-chloropropane .	<0.02	
methyl tertiary butyl ether .	<0.5	(50)
tetrahydrofuran..............	<10.0	

NOTE: < symbol means "less than" indicating no detection

APPENDIX D

ENGINEERING REPORT

FOR THE

REACTIVATION OF THE LONG ISLAND DEVELOPMENTAL CENTER SEWAGE TREATMENT PLANT

MELVILLE, TOWN OF HUNTINGTON
SUFFOLK COUNTY, NEW YORK

August 12, 1999

N&P JOB NO. 99174

NELSON & POPE, LLP
ENGINEERS • DESIGNERS • SURVEYORS

572 WALT WHITMAN ROAD, MELVILLE, NY 11747-2188 • (516) 427-5665 FAX (516) 427-5620

ENGINEERING REPORT

FOR THE

REACTIVATION OF THE LONG ISLAND DEVELOPMENTAL CENTER SEWAGE TREATMENT PLANT

MELVILLE, TOWN OF HUNTINGTON
SUFFOLK COUNTY, NEW YORK

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Table of Contents

Introduction

Currently, the New York State Department of Mental Retardation and Development Disabilities is in contract to sell a major portion of the Long Island Developmental Center (LIDC) facility to SBJ Associates, LLC for its redevelopment. As part of the sale, SBJ Associates, LLC. will be purchasing the existing Sewage Treatment Plant (STP) which services the LIDC property.

The current redevelopment plan calls for the construction of several different types of residential structures. No industrial, commercial or manufacturing facilities will be constructed as part of the redevelopment of the property.

SBJ Associates, LLC. is proposing to incorporate the existing wastewater treatment plant into its design and as a result all wastewater generated by the new residential structures will be transmitted to the plant for treatment. Under this type of plan, the LIDC-STP will be dedicated to the Suffolk County Department of Public Works, so that they can ensure proper operation and maintenance of the plant.

The purpose of this report is to identify process related issues at the LIDC-STP which need to be improved, repaired or replaced, so that the treatment plant can treat its permitted capacity flow rate of 330,000 gpd. The work, which will need to be performed, must be done prior to the Suffolk County Department of Public Works taking over the daily operations of the facility.

Facility Description

Wastewater currently generated on the LIDC property is conveyed to the sewage treatment plant via a series of pump stations, force mains and gravity sewers. Wastewater entering the facility is under gravity flow. A current process flow chart is provided in Appendix A showing how the facility currently operates.

Photo 1 – General Arrangement of Main Treatment Area

Wastewater upon entering the treatment plant is directed into the screening area, which allows for the remove rags, sticks, branches and other large objects, which if not removed could hinder downstream operations. The flow can be diverted into one of two concrete channels, under normal operations, it will pass through a mechanical bar screen. During maintenance of the mechanical screen or during emergency situation, wastewater is directed through a manual bar screen.

Immediately after leaving the screening area, the wastewater passes through a Parshall Flume, which contains an overhead ultrasonic flow level system. Real time data obtained at this point is transferred to a circular chart recorder, which is located in the office area of the building.

After discharging from the Parshall Flume, the wastewater is then conveyed into the primary settling tanks (Photo 2). While in the primary settling tanks, the velocity of the wastewater is low enough that inorganic solids settle and floatable material rises up. Through the use of chain driven collectors, sludge is collected in a depressed area of the tank, while the floatable material is pushed toward a rotating skimmer. Under current operations, sludge which is collected by the chain driven collectors is pumped daily from the primary settling tanks to the to the sludge holding tank. Any floatable material that is collected is also pumped to the sludge storage tank, this operation is currently done on an as-needed basis. As the plant reaches its permitted flow capacity, both sludge wasting and scum removal will be required on a more frequent basis.

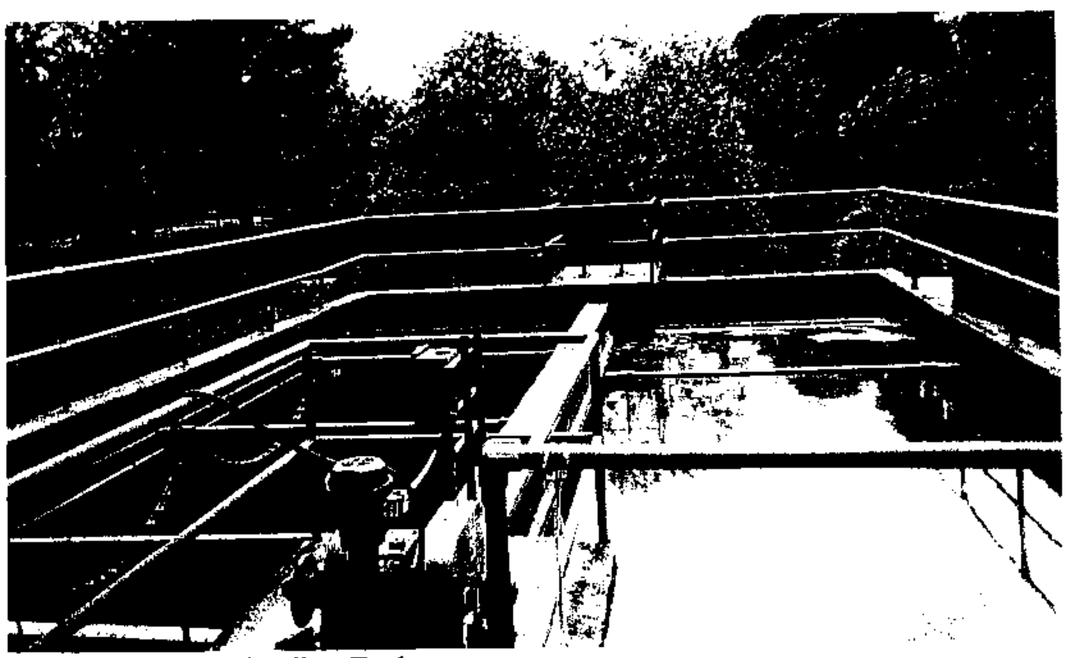


Photo 2 – Primary Settling Tank

After overflowing the weir of the primary settling tanks, the wastewater is mixed with unsettled secondary wastewater and is sent to the recirculation wet well which is located in the basement area of the main building, under the screening room. The mixed liquor is then pumped to an aeration tank, which is located at the crest of the hill. Pumping is currently performed using a duplex configuration of recirculation pumps, which are located in the basement of the main building, under the office area.

Upon entering the aeration tank (Photo 3), the wastewater is aerated using a submerged aerator system. After overflowing the weir of the aeration tank, the wastewater enters the secondary treatment portion of the plant. Secondary treatment is obtained by first passing the wastewater through a trickling filter system (Photo 4). This trickling filter system consists of a concrete tank with a rotating arm assembly, which distributes the wastewater over the filter media. Wastewater flowing over the filter media is then collected in an underdrain system. From the underdrain system of the trickling filter, the wastewater is conveyed to a distribution box, which splits the flow between the Rotating Biological Contractor (RBC) system (Photo 5) and a return line to the recirculation wet well (as discussed above). The RBC system contains round plastic filter media (Photo 6), which rotate on a shaft driven by an electrical motor. As the shaft rotates, the filter media becomes partially submerged in the wastewater, which is contained inside a concrete tank. The submerged media becomes saturated with wastewater. As the shaft continues to rotate, the previously submerged media is aerated due to it being exposed to the open air. This process allows for the remove of additional BOD_5 material from the wastewater.

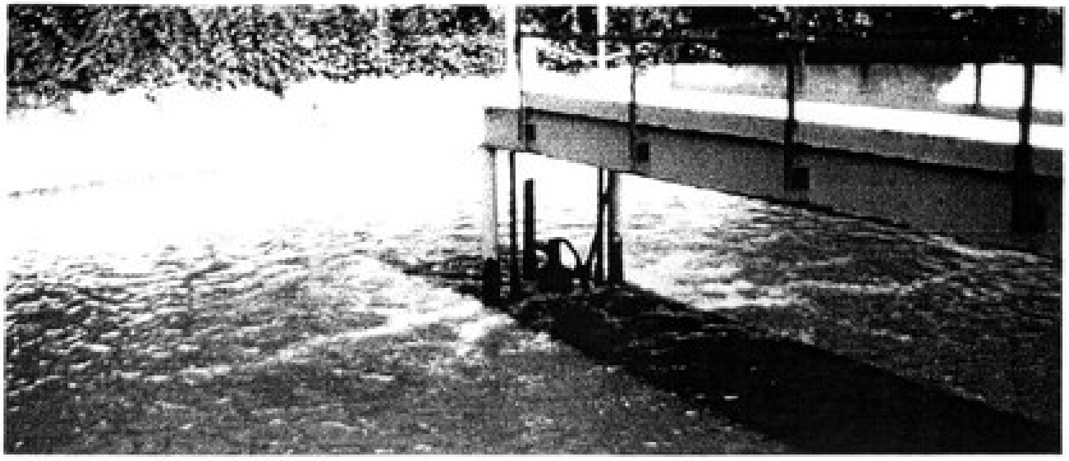


Photo 3 – Aeration Tank

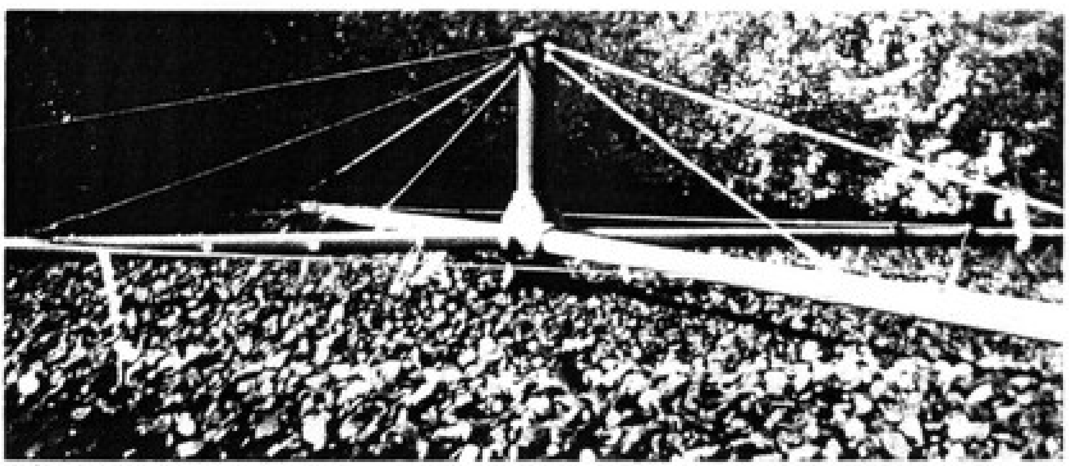


Photo 4 – Trickling Filter

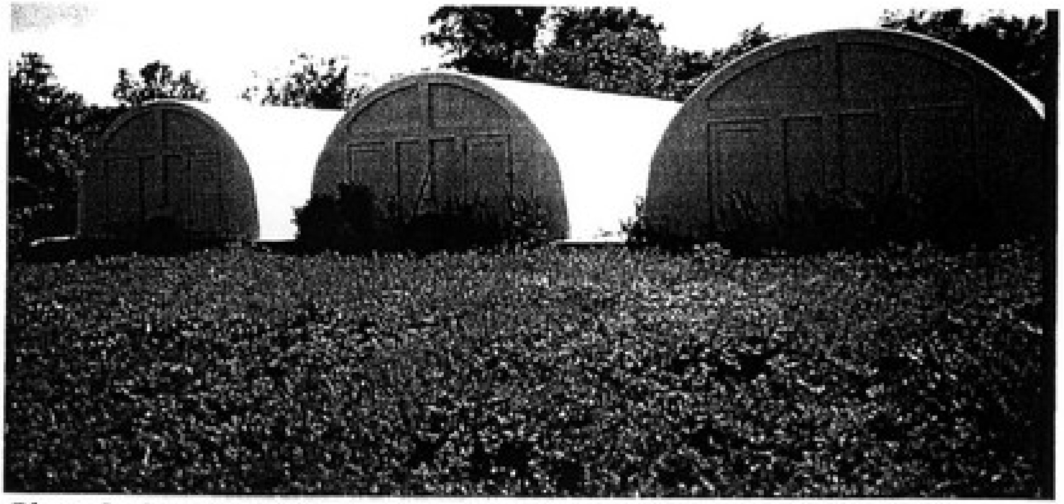


Photo 5 – Rotating Biological Contractor Enclosures

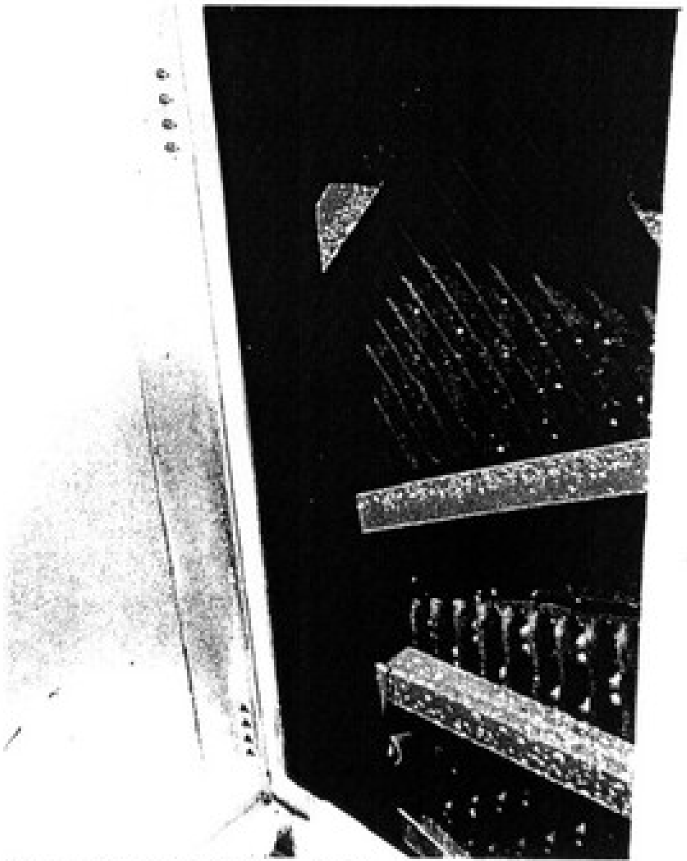


Photo 6 – RBC Filter Media

After being treated by the RBC's the wastewater is then conveyed to the secondary settling tanks (Photo 7). The secondary settling tanks allow for the removal of growth material, which has sloughed off the filter media of the trickling filter and the rotating biological contractor. As in the primary settling tanks, the velocity of the wastewater is low enough to allow for the settling of the sludge material. Once again, a chain collector system is used to direct the sludge towards one common area of the tank for removal to the sludge holding tank

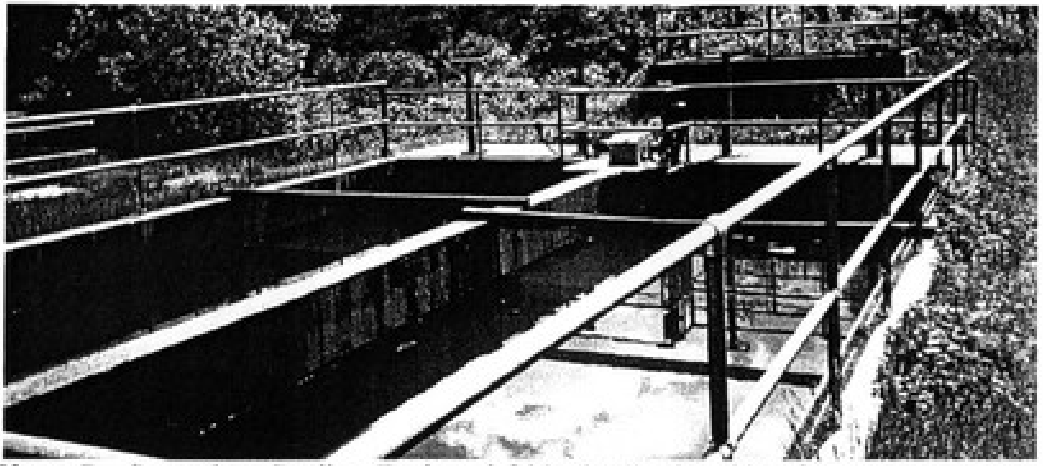


Photo 7 – Secondary Settling Tank and Old Distribution Chamber

After overflowing the weir of the secondary settling tanks, the wastewater enters the tertiary portion of the treatment plant. The LIDC-STP uses a LYCO, Inc. denitrification system (Photo 8). In this type of system, methanol (C_2H_5OH) is mixed with the incoming wastewater to oxidize the organic matter. The mixture is then passed down through a filter consisting of anthrafilt and sand. The filtered wastewater is then collected in an underdrain system that directs it into clearwell for holding. An underground methanol storage tank is located near the main building in the underground chemical storage area (See Photo 10).

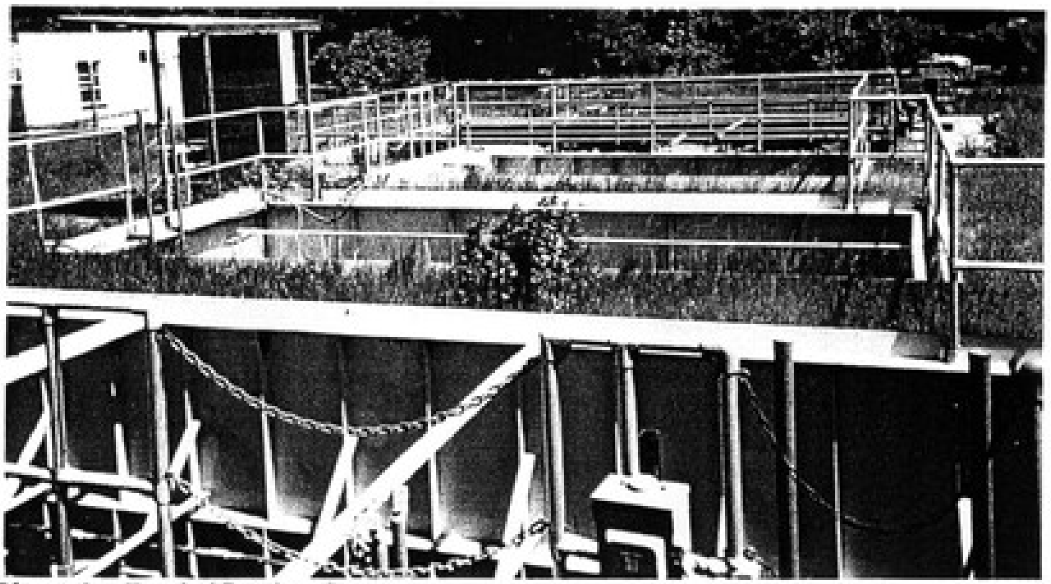


Photo 8 – Denitrification System

When needed, the denitrification filters automatically backwash themselves when an excessive loss of head through a filter occurs or based on an automatic timer system. When a backwash cycle is initiated, the influent flow is diverted to another cell. Upon isolation of the dirty bed, the backwash pumps turn on and pump previously filtered water from the clearwell to fluidize and clean the dirty filter bed. At the same time an air blower unit provides compressed air which drives off any nitrogen into the atmosphere and assists the backwash pump with fluidizing the bed to allow scouring of the filtering material. Any material, which leaves the fluidized bed, is collected in a backwash trough, which directs the collected liquid into the mudwell (Photo 9). Periodically, the mudwell is pumped to the sludge storage tank for processing.

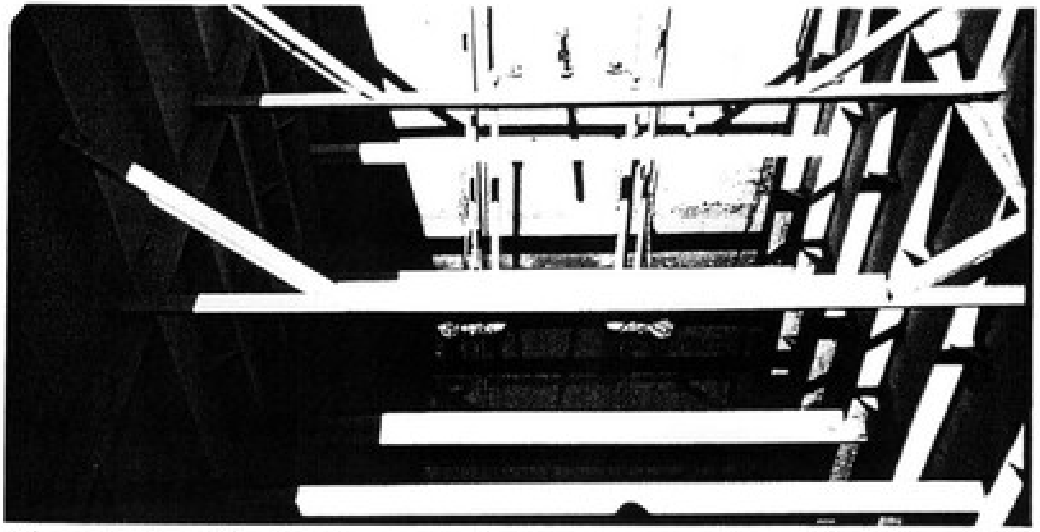


Photo 9 – Dentrification System Mudwell

To "reseed" the cleaned (backwashed) filter bed with active, denitrifying organisms, the LYCO system has a reseed box which retains a portion of the bacterial solids backwashed from the cell. After backwashing of the cell is complete, the stored solids are then automatically reapplied to the filter bed upon return of the cell to service.

Excessive filtered wastewater, which is not need for backwashing is collected in the clearwell of the denitrification system. Using a duplex pumping system, the excess treated wastewater is then conveyed to sand beds for disposal.

Located further west of the trickling filter on the treatment plant property are five sand beds that were constructed for the disposal of the wastewater. Currently one bed is in use, while the other four are on stand-by use. In 1990, three of the beds were reconstructed, while two addition beds were constructed.

pH adjustment, if needed is accomplished using Caustic Soda (NaOH), which is introduced between the screening process and the Parshall Flume. Currently, pH adjustment is not used, but is readily available at the site. NaOH is stored in an underground tank located near the main building (Photo 10).

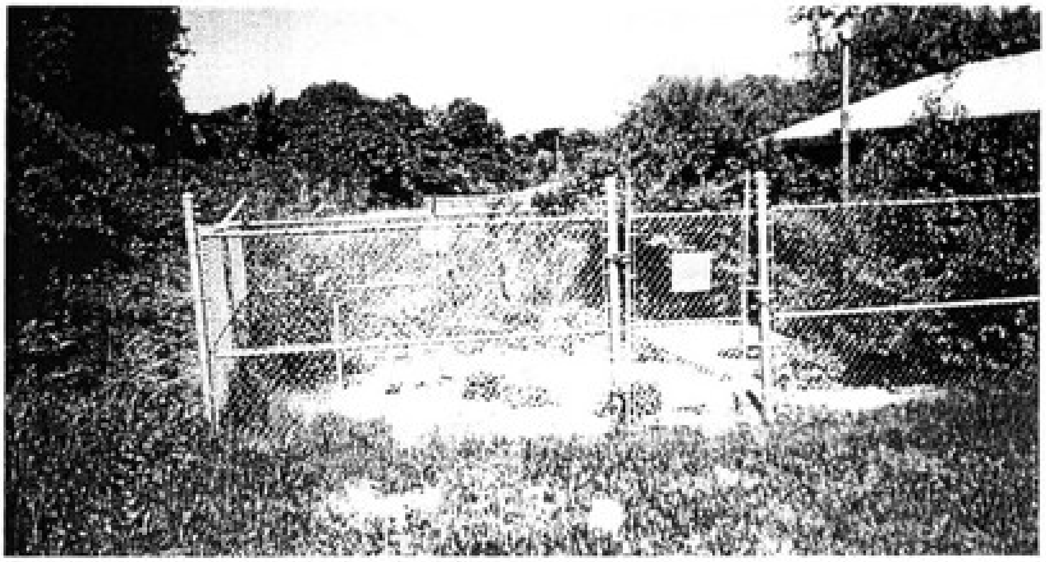


Photo 10 – Underground Chemical Storage Area

Normal operating and emergency power used at the STP are received via a connection to the LIDC power grid, located on the main LIDC property.

Potable water is received via a connection with the South Huntington Water District.

Current Operation

Over the past decade the Long Island Developmental Center has been in the process of shutting down/relocating it operations at the Melville, New York facility. As a direct result, the quantity of wastewater being processed at the sewage treatment plant is also decreasing. Using the weekly flow charts for the weeks of 6/27,7/4, 7/12 and 7/20 1999, we have determined that the average daily flow rate to the LIDC-STP to be approximately 80,794 GPD. See Appendix B for additional information and a copy of the weekly flow charts. Under their current NYS Department of Environmental Conservation State Pollution Discharge Elimination System (NYSDEC SPDES) the treatment plant is permitted to discharge a maximum of 330,00 gallons of treated effluent daily.

The flow that the treatment plant is currently receiving from the LIDC property will be the maximum flow that can be expected from the buildings that are to remaining on the site after redevelopment occurs.

Proposed Development

As stated above SBJ Associates, LLC. is proposing to redevelop the property into various residential structures. Presented below are the current types of structures to be built. All of the units listed are Planned Retirement Community units with the exception of the single family homes and congregate care facility.

Type of Structure	Approximate Number	Approximate Square Footage
Condominium Type	392 units	1,100 Sq. Ft.
Townhouse Type	352 units	1,250 – 2,500 Sq. Ft.
Villa Type	290 units	2,500 – 3,500 Sq. Ft.
Single Family Homes	75 homes	3,750 – 5,250 Sq. Ft.
Assisted Living Units	150 Bed facility	N/A
Community Buildings	2 Bldgs.	1 @ 20,000 Sq. Ft. 1 @ 5,000 Sq. Ft.

Using Suffolk County Department of Health Services (SCDHS) typical wastewater generation rates, the quantity of wastewater, which would be generated by the redevelopment of the property, can be obtained.

Proposed Type of Building	Number of Units/Sq. Ft.	Generation Rate	Flow (GPD)
Condominium Type	392	150 GPD/Unit	58,800
Townhouse Type	352	150 GPD/Unit	52,800
Villa Type	290	225 GPD/Unit	65,250
Single Family Homes	75	300 GPD/Home	22,500
Assisted Living Units	150	110 GPD/Bed	16,500
Community Building 1	20,000 Sq. Feet	0.3 GPD/SF	6,000
Community Building 2	5,000 Sq. feet	0.3 GPD/SF	1,500
Proposed Flow from Redevelopment			**223,350**

Based on the values obtained above, an estimate of what the reserve capacity will be after the redevelopment of the LIDC property occurs.

Existing S.T.P. Capacity (GPD)	330,000 GPD
Proposed Flow (GPD)	- 223,350 GPD
Existing Flow (GPD)	- 80,794 GPD
Capacity Remaining After Redevelopment (GPD)	**25,856 GPD**

Facility Inspection

The LIDC-STP was inspected by Nelson & Pope, LLP personnel to identify items in the plant which need to be repaired, replaced or abandoned to ensure that the plant can operate at its allowable flow rate of 330,000 GPD.

During the inspection of the LIDC-STP, key personnel of the plant, as well as the two operators were questioned about the daily operation of the plant and to identify any issues of concern, which should be addressed during the repair of the facility. They are listed below in flow operations order.

Screening Room

The screening room was in good structural condition. The mechanical bar screen was also in good condition and appeared to be maintained in accordance with the manufacturers recommendation. No broken parts were observed and no abnormal sounds were heard. The mechanical bar screen should have a 25-30 years of life expectance if proper preventive maintenance procedures are observed.

The manual bar screen was also in good condition, due to the fact that it is used only in emergency situations. The concrete floor where material from the manual screen would be placed did show signs of spalling, but no re-bar or other abnormalities were observed.

Flow Meter

The ultrasonic flow meter appeared to be in good condition, except for the mounting bracket which was being held in proper alignment with a brick. Except for the mounting condition, the useful life of the flow meter should be 25-30 years provided that proper preventative maintenance occurs regularly on the system.

Primary Settling Tanks

Spalling of the concrete was noted, but no large structural deficiencies were observed. One of the primary settling tanks is currently out of service, due to a broken chain on the sludge collector system. Beside the broken chain, no other problems with the collector system were noted. The scum troughs were inoperable due to frozen gears. The overflow weir of the tank was in poor condition due to separation of the metal (Photo 11).

Photo 11 – Weir to be replaced

Recirculation pumps

The pumps currently being used are the original pumps, which were installed at the facility. Approximately, seven years ago, the pumps were completely overhauled. During our inspection, we noted seal water leaking from one of the pumps which usually indicates worn packings.

Aeration Tank

When the facility was revised several years ago, one of the two original trickling filters was converted into an aeration tank. No structural deficiencies in the tank were observed, however it did appear that the aerator was undersized due to lack of water surface movement along the wall of the tank.

Trickling Filter

The trickling filter observed is the original system installed at the plant. Some of the heads were clogged with material, which rendered them inoperable . Wastewater was observed flowing out from the base of the unit. There was a sufficient quantity of filter media in the system that appeared to be in good condition.

Rotating Biological Contractor

The RBC's are housed under a protective cover, which was in good structural condition. The motors that rotate the shaft also appeared to be in good condition due to the preventive maintenance, which is being done to them on a regular basis. The filter media of the RBC was in good condition and no broken media was observed. With continued proper preventative maintenance the useful life of the RBC system should be 25-30 years.

Secondary Settling Tanks

The secondary settling tanks appeared to be in good structural condition. The chain drive assembly is the original 3 point system, which was installed in the plant. This system does not have any provisions for the removal of floatable material. A screened fence has been installed inside the tank to achieve this (See Photo 12). The overflow weir of the tank was in poor condition and needs to be replaced.

Photo 12 – Secondary Settling Tank (Fence material used to collect floating material)

Denitrification System

The denitrification system is new to the facility. The system consists of three buried steel tanks, which showed some signs of rusting. No provisions for bypassing this system have been installed, thus preventing it from shutting down for maintenance. All other visible components of the system appeared to be in good condition and appeared to be serviced regularly. With continued proper maintenance, the useful life of the denitrification system should be 25-30 years.

Sand Disposal Beds

The sand disposal beds were in excellent condition. As stated above, the beds were complete overhauled in 1990, with only one bed being currently being used as a final effluent disposal point. With proper maintenance the useful life of the sand disposal beds should be in excess of 25 years.

Sludge Holding Tanks

All sludge produced at this facility is processed in a hold and haul method. One of the two old anaerobic digesters, which were previously used by the facility, was converted into a sludge holding tank with an aerator. Currently, the aerator is inoperable due to a possible electrical problem with the system. Sludge removal is accomplished via a 4" tanker truck connection inside the sludge processing building. No structural defects in the tanks were observed.

Distribution Boxes

There are a total of 3 concrete distribution boxes constructed at the plant, however, only one of them is currently part of the process system. The distribution box, which currently is in use, splits the flow from the trickling filter between the RBC's and the wet well located in the basement of the main building. All the boxes have adjustable metal weirs, which allow for operator control/adjustment of the systems. The box, which is currently being used, is in good condition both operationally and structurally. With proper preventative maintenance the life expectancy of the distribution boxes should be 25-30 years.

Proposed Upgrades

The following is a list of proposed upgrades that SBJ Associates LLC. will perform to ensure that the plant will operate at its' permitted capacity prior to the Suffolk County Department of Public Works taking over the facility. A proposed process flow chart is provided in Appendix C that shows the how the proposed facility will operate.

Manual & Mechanical Bar Screens

No work to be performed

Flow Meter

The flow meter will be re-installed on a new mounting bracket to ensure proper operation per the manufacturers installation instructions. After it has been re-installed it will be re-calibrated to ensure proper operation. After this repair is performed, the flow meter system should be operational for 25-30 years provide the proper preventative maintenance occurs regularly on the system.

Pumps (Recirculating, Sludge, Chemical Feed)

All pumps will be inspected and serviced to ensure proper operation. Servicing to be performed will include, but not be limited to, re-packing and impeller repair (if necessary). After the pumps have been serviced, their useful life should be 25-30 years as long as regular preventative maintenance occurs.

Primary Settling Tanks

The overflow weir of the tank will be remove and replaced with a new weir. This new weir will either be plastic or metal coated to ensure a long term life.

The broken chain on the collector system will be repaired to allow the tank to return to operation. At the time of the repair, the system will be further inspected to determine if any additional work is necessary.

The existing scum trough will be cleaned and greased to allow it to operate freely. If easy operation cannot be achieved replacement of the gear assembly will occur.

After these items have been repaired or replaced, the primary settling tank should have a useful life of 25-30 years, if proper preventative maintenance occurs regularly.

Aeration Tank

The existing aerator system will be removed and replaced with a system, which will provide a large degree of aeration. No other work will be performed on this system. After replacement of the aerator, the useful life of the aeration tank should be 25 to 30 years, provide that proper preventative maintenance occurs regularly.

Trickling Filter

The tricking filter assembly will be completely re-worked to stop the discharge of wastewater from under the hood of the unit. All clogged heads will be cleaned and if any broken heads are encountered they will be repaired. After the assembly has been re-worked the useful life of the tricking filter should be 25 to 30 years, provide that proper preventative maintenance occurs regularly.

Rotating Biological Contractor

No work is needed

Secondary Settling Tank

The existing weir of the secondary settling tank will be replaced with either a plastic or covered metal weir. The chain collector system will be replaced with a new 4 point system to allow for the collection/removal of floatable material. A new scum trough system will be installed to collect any floating material, which is collected by the new collector system. After the new items have been installed, the primary settling tank should have a life span of 25-30 years, provide that proper preventative maintenance occurs regularly.

Denitrification System

A by-pass assembly will be installed to allow the system to be taken off-line for maintenance without shutting down the rest of the facility. After the by-pass assembly has been installed, the denitrification system will be taken off-line, so that repairs to the rusted areas can occur. While off-line the individual components of the system will be inspected to ensure that no defects or other problems are visible.

Fall protection systems will be installed on all ladders, which are used to enter the different tanks of the denitrification system. The system shall have a positive stop and lock, which will ensure that the system will lock in all weather conditions. After all the work on this system has been completed, the life of the denitrification system should be 25-30 years, provided that proper preventative maintenance occurs regularly.

Sludge Holding Facility

With the proposed increase in wastewater flow, a higher volume of sludge will be produced. The existing aerobic system will be overhauled and the existing aerator repaired or replaced.

The second anaerobic digester will be converted into an aerobic sludge storage tank to allow for the storage of the added volume of sludge. All old anaerobic equipment will be removed and any voids in the concrete will be repaired. A new aerator will be installed, it will be the same model as the one installed in the existing tank.

A decanter system will be installed inside both tanks to allow for the removal of supernatant liquid that has risen to the top of the sludge mass. The removal of this liquid will reduce the amount of sludge, which will need to be hauled by either an outside contractor or by the County. The liquid removed by the decanter system will be returned back to the headworks of the facility.

A new stairway will be installed to allow easier entry to the top of the sludge holding tanks. Railings will also be installed around the portions of the tanks, which are accessible to plant personnel. These new railings will prevent workers from accidentally slipping and falling into the tanks. The new stairway and railings will be constructed of either Fiberglass Reinforced Plastics (FRP) or galvanized metal to ensure a long life expectancy.

After this work has been performed, the life of the sludge holding facility system should be 25-30 years, provided that proper preventative maintenance occurs regularly.

Sand Disposal Beds

The existing sand disposal beds will be abandoned to allow for the development of that area into soccer fields. All concrete structures shall be removed and all piping cut and capped to be left in place. The abandoned beds shall be restored to grade by the addition of clean fill material. Abandonment of the beds will be in accordance with Suffolk County Dept. of Health Services and NYS Dept. of Environmental Conservation regulations.

A new underground leaching disposal system will be constructed to the northeast side of the main treatment building. This will allow for a smaller footprint of the treatment plant. The new rings shall have a 4-foot effective depth with 8 feet between each row of rings per current SCDPW design requirements. A preliminary layout can be found on the site plan in Appendix A. After installation of the leaching rings a new fence will be installed around the area. Immediately outside the fence line, White Pines with a maximum trunk diameter of 2" will be installed 5-ft on-center to provide an effective screen. New plantings will be installed in areas where screen plantings are currently inadequate.

After the new infiltration rings have been installed, the final disposal system will have a life expectancy of over 25 years provided that proper preventative maintenance of the system occurs regularly.

Distribution Boxes

No work is proposed.

Electrical System

The Long Island Power Authority (LIPA) will be bringing a new 3 phase electrical service to the facility. This new service will allow the treatment plant to be taken off of the LIDC power grid.

To provide a secondary source of power in the event of a loss of primary power, a new generator system will be installed. Due to the size of the proposed generator, it will be powered by diesel fuel. The generator will be of sufficient size to operate all pumps, aerators, motors, the flow meter and any safety lighting within the facility. The system will be located outdoors within a weatherproof enclosure. The generator system will have ample noise pollution control equipment due to the fact that the facility is located adjacent to a residential area. A new underground double wall diesel fuel storage tank will also be installed to provide fuel to the generator. The proposed tank will meet all federal, state, county and local requirements for an underground storage tank.

Potable Water System

The existing potable water supply system is of sufficient capacity for the plant, thus no repair or replacement will occur. However, the existing RPZ device will be tested to ensure that it is operating as designed. All hose bibs will be inspected to ensure that they have a vacuum breaker installed. If one is not present, one will be installed.

General Work

The grounds of the treatment plant will be put back into working order. The grass shall be cut and any excess growth removed. The main processing building and the two support buildings will be painted.

A new fence will be installed around the proposed leaching pool area. This new fence shall be tied into the existing fences , which encompasses the main treatment area. This will allow for site control to any of the buildings, tankage, or disposal areas. Any holes in any of the existing fences will be repaired.

Adequate provisions will be made to effectively protect plant personnel and visitors from hazards. The following shall be provided:

- Sign designed to discourage the entrance of unauthorized person to be located on the fences surrounding the facility
- Appropriately placed warning signs for slippery areas, non-potable water fixtures, low head clearance areas, open service manholes, hazardous chemical storage areas, flammable fuel storage areas, etc.,
- Provisions for local lockout on stop motor controls,
- "No Smoking" signs in hazardous areas,
- First aid equipment.

Dedication

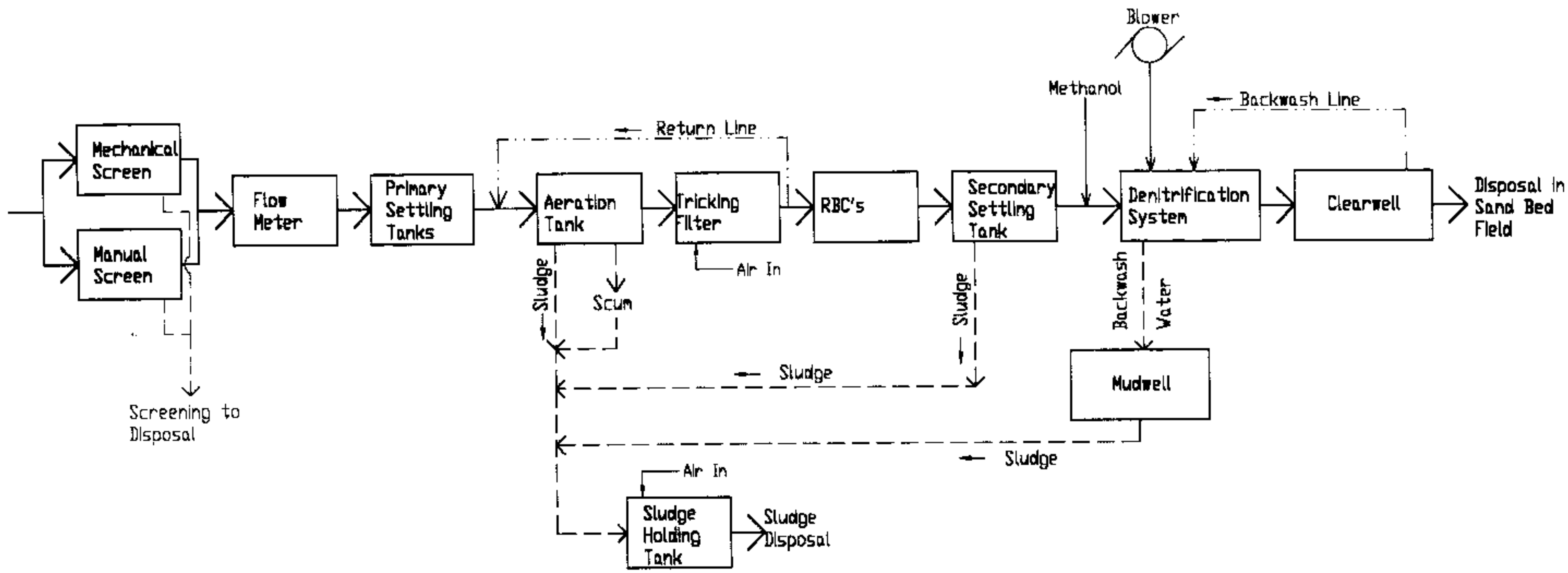
Upon completion of the work proposed above, the treatment facility and the property will be dedicated to the Suffolk County Department of Public Works. The property, which will be dedicated, will be of sufficient size to ensure that the facility is in compliance with any setback requirement at the time of dedication. The setbacks provided shall meet the requirement of the NYS Dept. of Environmental Conservation, the Suffolk County Dept. of Health Services, and the Suffolk County Dept. of Public Works. See site plan in Appendix D.

SUMMARY

The redevelopment of the Long Island Developmental Center into residential housing will require the upgrade/repair to the existing sewage treatment plant which will service the proposed redevelopment area. The repair/upgrades, which will occur, allow the plant to return to its permitted capacity of 330,000 gallons per day. After all the proposed work has been performed the treatment plant will be operate in a cost efficient manner for 25+ years, provided that regularly scheduled maintenance occurs.

APPENDIX A

CURRENT PROCESS FLOW CHART



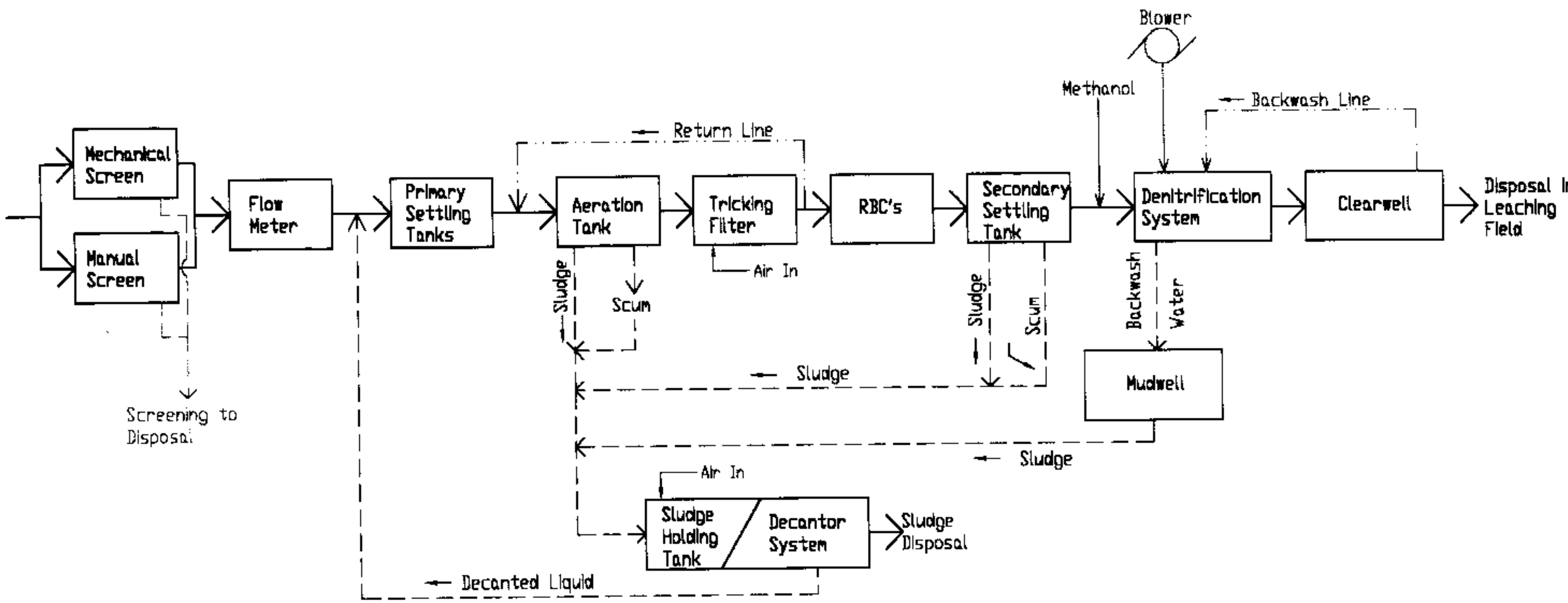
Long Island Developmental Center Current Process Flow Chart

APPENDIX B

WEEKLY FLOW CHARTS FOR THE PERIOD 1/1/99 TO 7/27/99

APPENDIX C

PROPOSED PROCESS FLOW CHART



Long Island Developmental Center Proposed Process Flow Chart

ESTIMATE OF THE CURRENT FLOW RECEIVED BY THE LONG ISLAND DEVELOPMENTAL CENTER SEWAGE TREATMENT PLANT

Date/Day of the Week/Time	27-Jun-99 Sunday	28-Jun-99 Monday	29-Jun-99 Tuesday	30-Jun-99 Wednesday	01-Jul-99 Thursday	02-Jul-99 Friday
Midnight	Bad Data	0.08	0.08	0.085	0.085	0.08
1:00	Bad Data	0.08	0.07	0.075	0.085	0.08
2:00	Bad Data	0.08	0.06	0.065	0.08	0.075
3:00	Bad Data	0.068	0.055	0.06	0.07	0.065
4:00	Bad Data	0.055	0.055	0.055	0.06	0.065
5:00	Bad Data	0.055	0.05	0.055	0.065	0.065
6:00	Bad Data	0.055	0.055	0.055	0.065	0.065
7:00	Bad Data	0.09	0.075	0.07	0.08	0.09
8:00	Bad Data	0.095	0.135	0.09	0.08	0.115
9:00	Bad Data	0.1	0.115	0.13	0.1	0.1
10:00	Bad Data	0.12	0.075	0.13	0.12	0.12
11:00	Bad Data	0.095	0.07	0.12	0.12	0.09
12:00	Bad Data	0.08	0.09	0.11	0.08	0.07
13:00	Bad Data	0.07	0.075	0.07	0.07	0.06
14:00	0.11	0.05	0.07	0.055	0.065	0.065
15:00	0.1	0.05	0.08	0.05	0.065	0.05
16:00	0.065	0.05	0.07	0.06	0.075	0.055
17:00	0.075	0.06	0.065	0.055	0.09	0.055
18:00	0.07	0.08	0.07	0.06	0.105	0.075
19:00	0.07	0.105	0.13	0.1	0.12	0.1
20:00	0.07	0.11	0.13	0.12	0.1	0.1
21:00	0.11	0.12	0.12	0.12	0.12	0.12
22:00	0.125	0.12	0.115	0.11	0.11	0.09
23:00	0.1	0.09	0.085	0.085	0.08	0.075
Cumulative Flow GPD	895000	1958000	1995000	1985000	2090000	1925000
Average Flow GPD	**89500.00**	**81583.33**	**83125.00**	**82708.33**	**87083.33**	**80208.33**

Average Daily Flow in GPD between 6/27/99 and 7/20/99	80793.26

Notes

Bad data occurred when 2 different days of flow where recorded on the same area of the flow chart.
This occurs when the operator did not replace the old chart with a new chart before overlapping began.

ESTIMATE OF THE CURRENT FLOW RECEIVED BY THE LONG ISLAND DEVELOPMENTAL CENTER SEWAGE TREATMENT PLANT

03-Jul-99	04-Jul-99	05-Jul-99	06-Jul-99	07-Jul-99	08-Jul-99	09-Jul-99	10-Jul-99	1[illegible]-99
Saturday	**Sunday**	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**Sunday**
0.075	0.07	Bad Data	0.1	0.06	0.06	0.06	0.065	0.06
0.085	0.07	Bad Data	0.055	0.06	0.06	0.06	0.065	0.055
0.07	0.075	Bad Data	0.06	0.06	0.075	0.06	0.13	0.055
0.055	0.07	Bad Data	0.05	0.06	0.095	0.06	0.055	0.05
0.055	0.07	Bad Data	0.05	0.095	0.06	0.055	0.055	0.045
0.055	0.055	Bad Data	0.06	0.055	0.055	0.055	0.055	0.06
0.055	0.055	Bad Data	0.06	0.055	0.055	0.12	0.055	0.065
0.07	0.065	Bad Data	0.06	0.06	0.075	0.125	0.085	0.1
0.17	0.075	Bad Data	0.09	0.075	0.09	0.075	0.15	0.15
0.105	0.14	Bad Data	0.17	0.16	0.175	0.07	0.11	0.16
0.115	0.125	Bad Data	0.12	0.1	0.09	0.12	0.075	0.15
0.09	0.1	Bad Data	0.08	0.065	0.065	0.06	0.075	Bad Data
0.07	Bad Data	0.06	0.055	0.05	0.055	0.05	0.13	Bad Data
0.055	Bad Data	0.05	0.055	0.05	0.05	0.045	0.065	Bad Data
0.055	Bad Data	0.05	0.06	0.095	0.055	0.045	0.0656	Bad Data
0.045	Bad Data	0.04	0.088	0.045	0.08	0.00005	0.055	Bad Data
0.06	Bad Data	0.03	0.055	0.035	0.05	0.06	0.115	Bad Data
0.08	Bad Data	0.055	0.055	0.055	0.05	0.09	0.06	Bad Data
0.055	Bad Data	0.1	0.055	0.045	0.06	0.09	0.06	Bad Data
0.07	Bad Data	0.04	0.1	0.05	0.07	0.055	0.13	Bad Data
0.1	Bad Data	0.05	0.1	0.12	0.17	0.12	0.17	Bad Data
0.11	Bad Data	0.1	0.08	0.1	0.09	0.17	0.07	[illegible] Data
0.07	Bad Data	0.06	0.15	0.15	0.14	0.13	0.06	Bad Data
0.075	Bad Data	0.06	0.1	0.065	0.1	0.065	0.09	Bad Data
1845000	970000	695000	1908000	1765000	1925000	1840050	2045600	950000
76875.00	**80833.33**	**57916.67**	**79500.00**	**73541.67**	**80208.33**	**76668.75**	**85233.33**	**86363.64**

ESTIMATE OF THE CURRENT FLOW RECEIVED BY THE LONG ISLAND DEVELOPMENTAL CENTER SEWAGE TREATMENT PLANT

12-Jul-99	13-Jul-99	14-Jul-99	15-Jul-99	16-Jul-99	17-Jul-99	18-Jul-99	19-Jul-99
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**Sunday**	**Monday**
Bad Data	Bad Data	0.08	0.06	0.1	0.06	0.06	0.0065
Bad Data	Bad Data	0.09	0.06	0.07	0.06	0.06	0.065
Bad Data	Bad Data	0.08	0.065	0.065	0.06	0.06	0.06
Bad Data	Bad Data	0.0665	0.055	0.065	0.055	0.055	0.06
Bad Data	Bad Data	0.065	0.06	0.065	0.08	0.055	0.055
Bad Data	Bad Data	0.065	0.08	0.065	0.07	0.075	0.05
Bad Data	Bad Data	0.065	0.075	0.065	0.055	0.065	0.05
Bad Data	Bad Data	0.09	0.09	0.135	0.09	0.085	0.12
Bad Data	Bad Data	0.19	0.12	0.16	0.09	0.08	0.15
Bad Data	Bad Data	0.13	0.13	0.13	0.135	0.125	Bad Data
Bad Data	Bad Data	0.11	0.11	0.12	0.12	0.12	Bad Data
Bad Data	0.085	0.09	0.105	0.09	0.11	0.1	Bad Data
Bad Data	0.07	0.06	0.06	0.08	0.05	0.08	Bad Data
Bad Data	0.06	0.05	0.045	0.045	0.055	0.05	Bad Data
Bad Data	0.055	0.05	0.05	0.045	0.05	0.05	Bad Data
Bad Data	0.05	0.06	0.05	0.05	0.07	0.05	Bad Data
Bad Data	0.06	0.065	0.05	0.055	0.08	0.06	Bad Data
Bad Data	0.11	0.065	0.09	0.06	0.075	0.06	Bad Data
Bad Data	0.12	0.135	0.09	0.08	0.07	0.065	Bad Data
Bad Data	0.09	0.09	0.06	0.11	0.075	0.08	Bad Data
Bad Data	0.1	0.09	0.075	0.13	0.13	0.125	Bad Data
Bad Data	0.12	0.09	0.1	0.12	0.135	0.14	Bad Data
Bad Data	0.1	0.14	0.13	0.1	0.12	0.09	Bad Data
Bad Data	0.09	0.1	0.11	0.06	0.085	0.07	Bad Data
NOT USED	1110000	2116500	1920000	2065000	1980000	1860000	616500
NOT USED	**85384.62**	**88187.50**	**80000.00**	**86041.67**	**82500.00**	**77500.00**	**68500.00**

ESTIMATE OF THE CURRENT FLOW RECEIVED BY THE LONG ISLAND DEVELOPMENTAL CENTER SEWAGE TREATMENT PLANT

20-Jul-99	21-Jul-99	22-Jul-99	23-Jul-99	24-Jul-99	25-Jul-99	26-Jul-99	27-Jul-99
Tuesday	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**Sunday**	**Monday**	**Tuesday**
Bad Data	Bad Data	0.07	0.075	0.075	0.055	0.065	0.07
Bad Data	Bad Data	0.06	0.08	0.07	0.06	0.07	0.06
Bad Data	Bad Data	0.06	0.075	0.065	0.05	0.065	0.055
Bad Data	Bad Data	0.06	0.075	0.06	0.055	0.055	0.055
Bad Data	Bad Data	0.055	0.07	0.06	0.05	0.05	0.06
Bad Data	Bad Data	0.06	0.065	0.06	0.05	0.045	0.06
Bad Data	Bad Data	0.09	0.1	0.11	0.07	0.12	0.07
Bad Data	Bad Data	0.1	0.15	0.135	0.14	0.16	0.115
Bad Data	Bad Data	0.15	0.135	0.13	0.14	0.165	0.13
Bad Data	0.09	0.11	0.075	0.12	0.1	0.14	0.13
Bad Data	0.07	0.105	0.07	0.07	0.06	0.07	Bad Data
Bad Data	0.06	0.07	0.06	0.06	0.06	0.055	Bad Data
Bad Data	0.06	0.08	0.06	0.06	0.07	0.05	Bad Data
Bad Data	0.06	0.07	0.06	0.09	0.065	0.045	Bad Data
Bad Data	0.06	0.08	0.06	0.055	0.06	0.05	Bad Data
Bad Data	0.06	0.09	0.08	0.07	0.06	0.04	Bad Data
Bad Data	0.07	0.13	0.075	0.07	0.06	0.05	Bad Data
Bad Data	0.06	0.1	0.08	0.06	0.06	0.055	Bad Data
Bad Data	0.08	0.11	0.1	0.06	0.07	0.06	Bad Data
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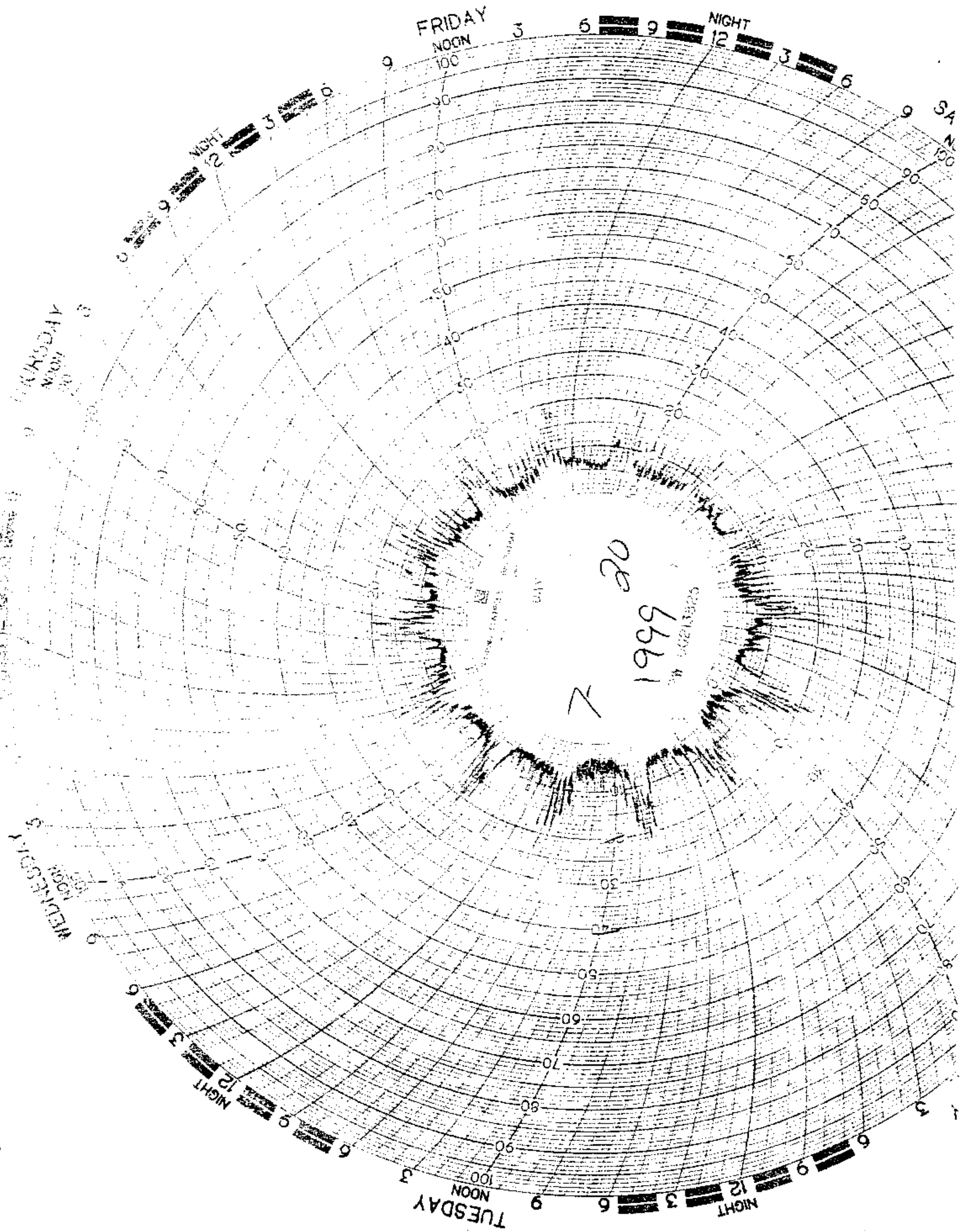
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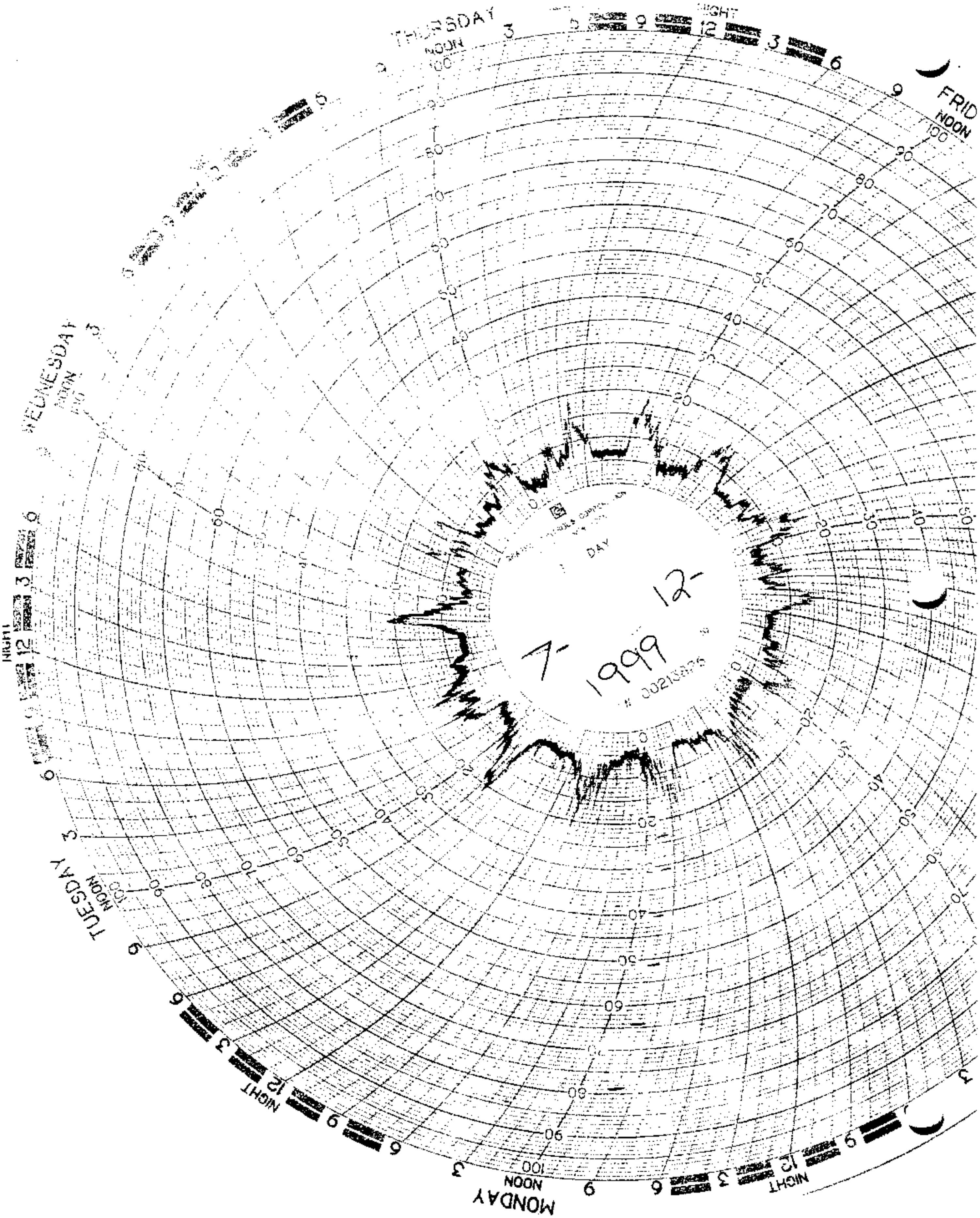

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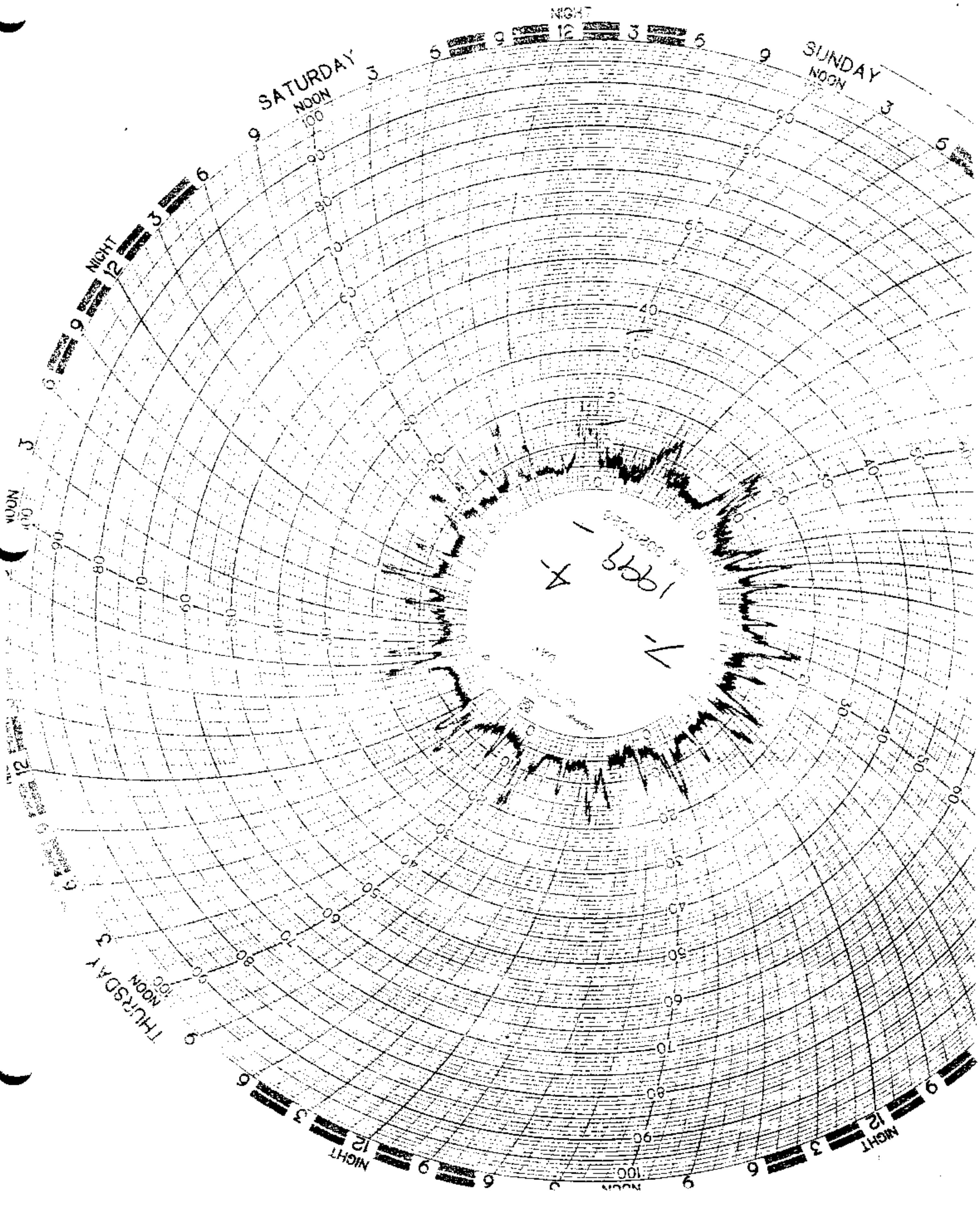
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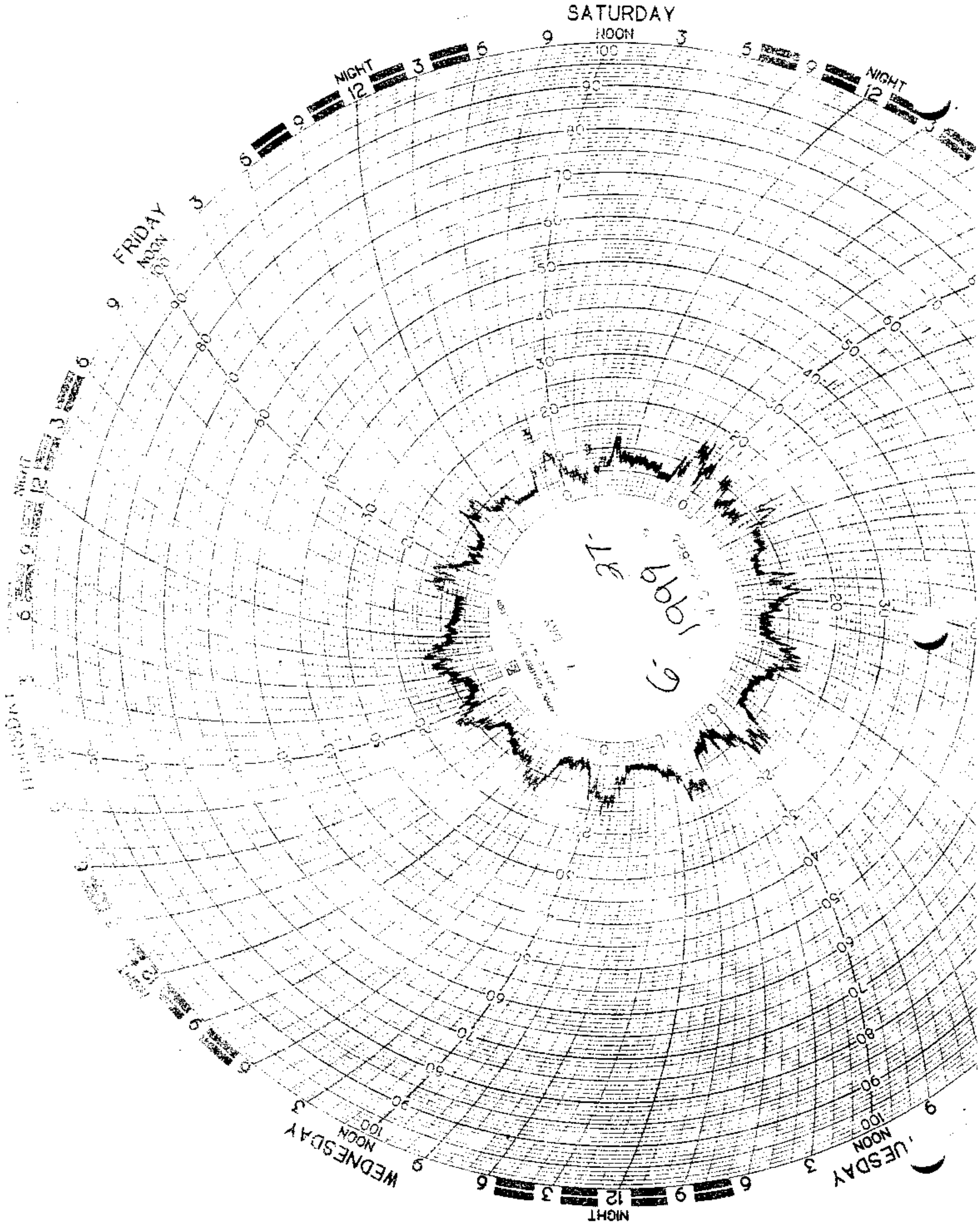

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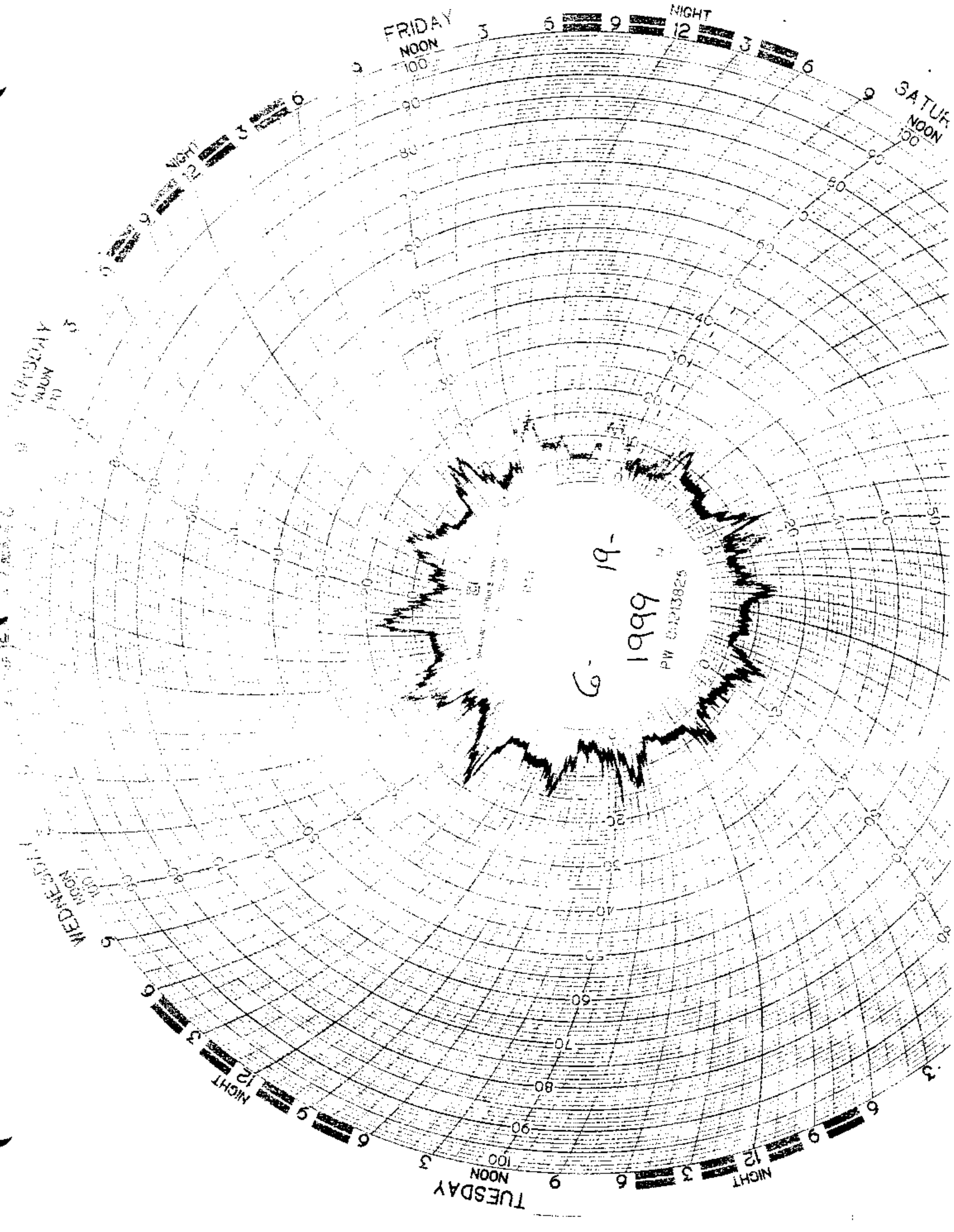
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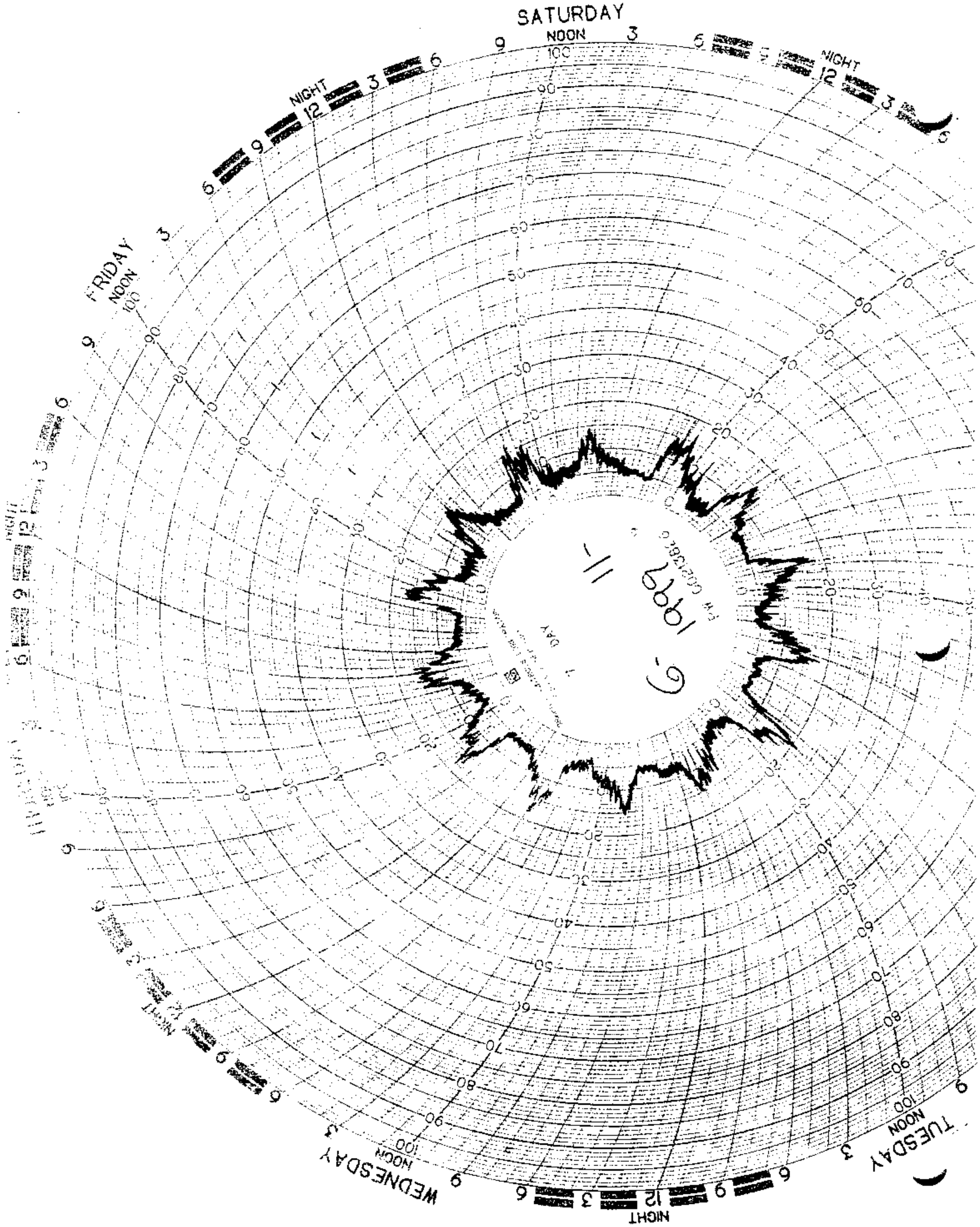
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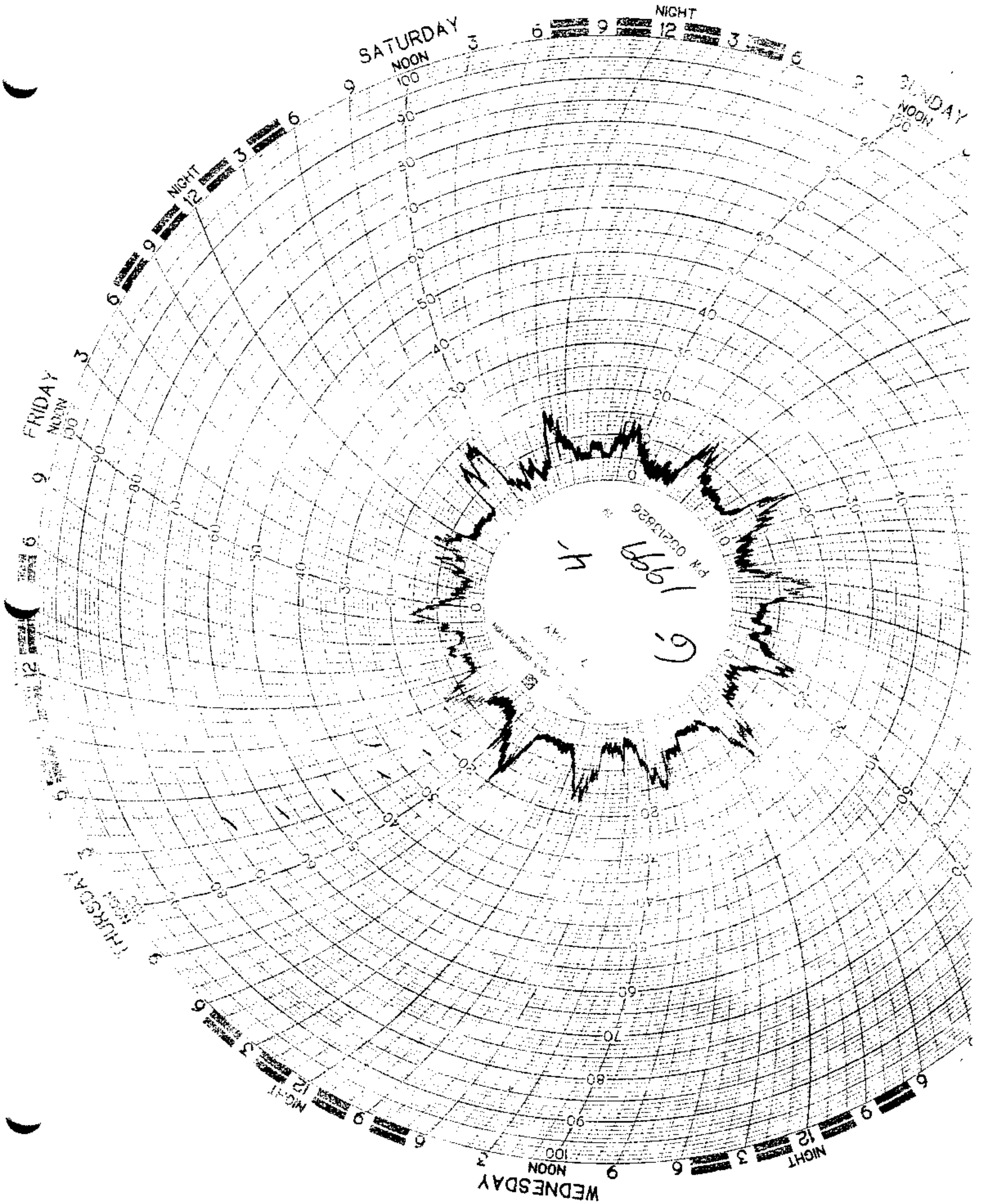
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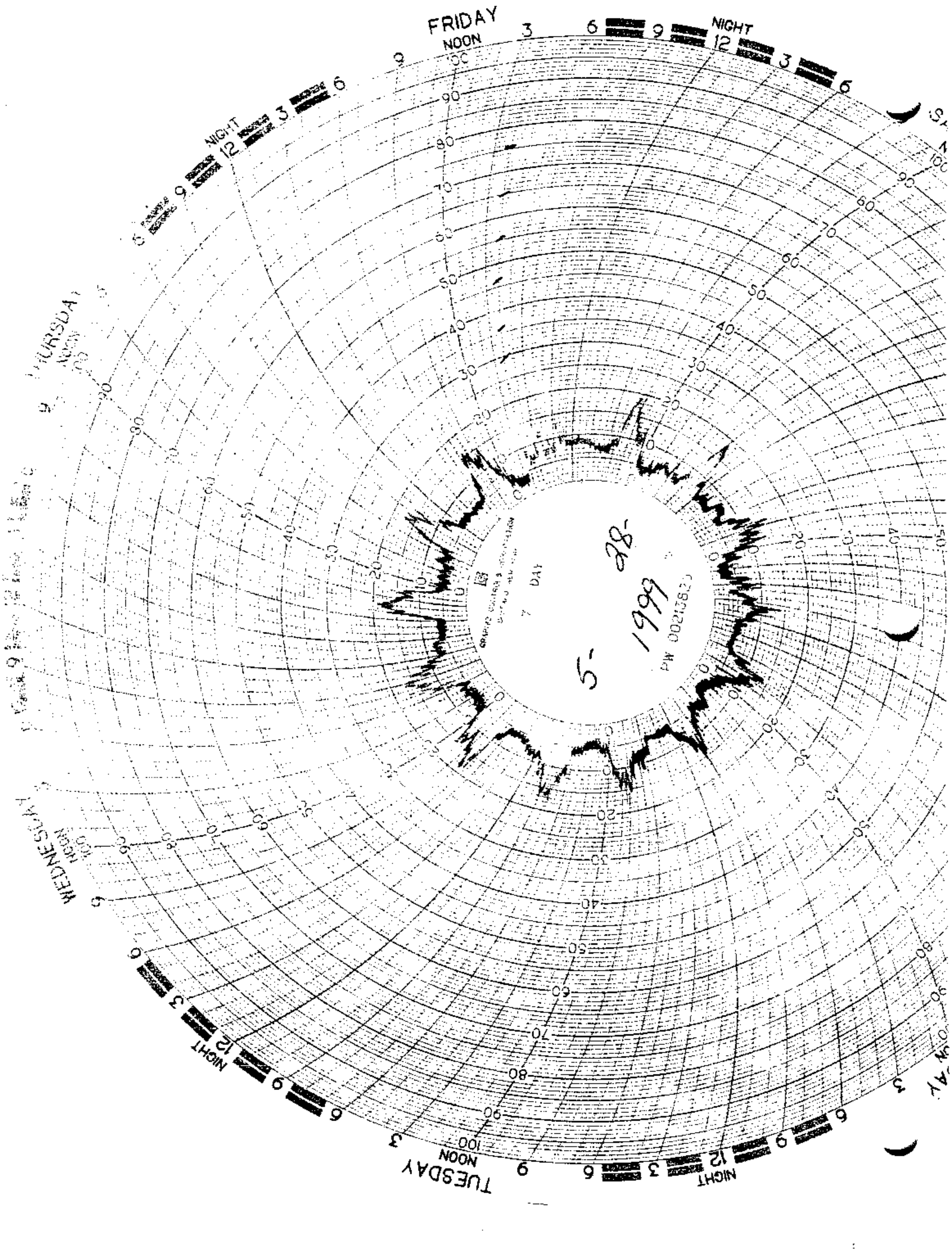
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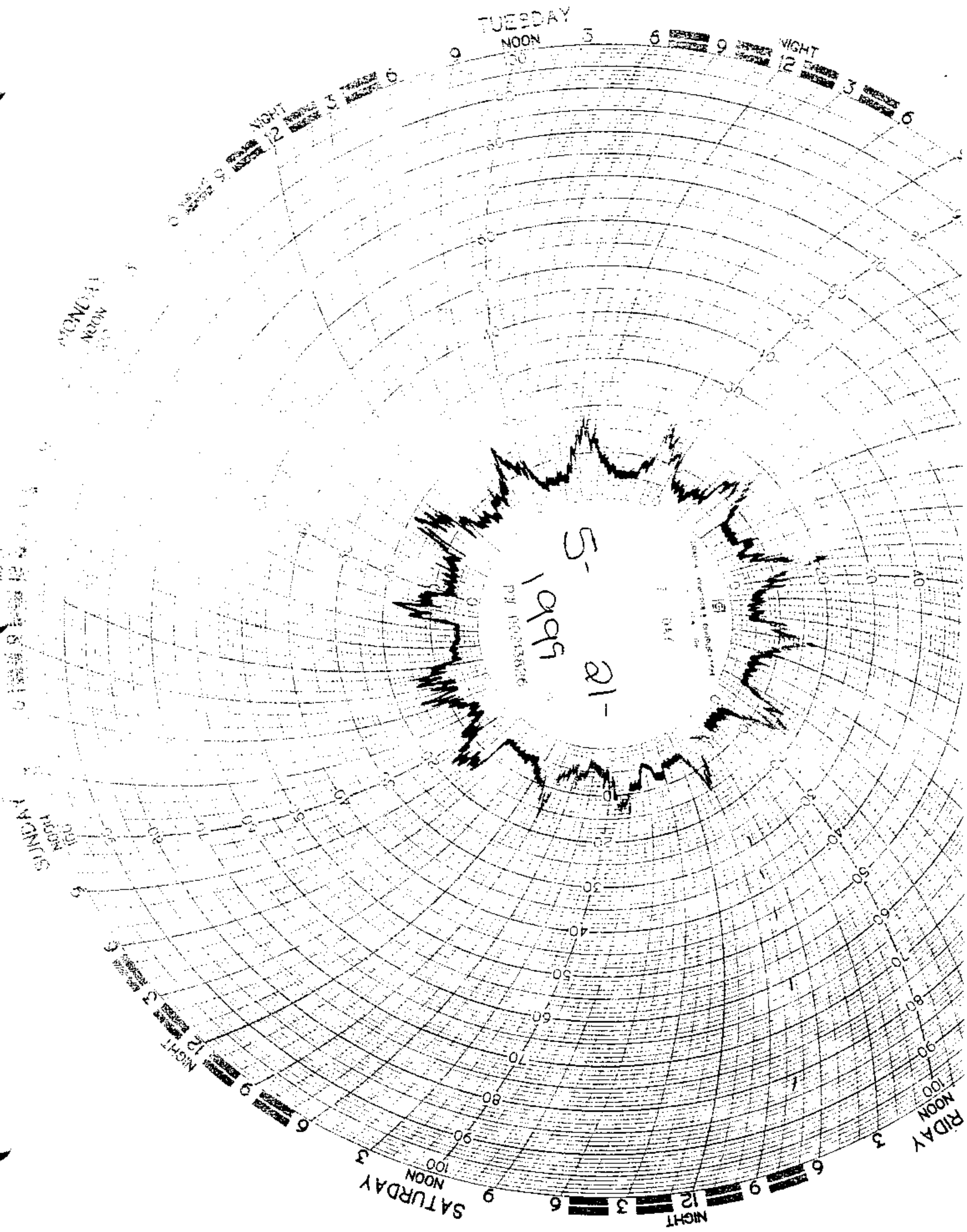
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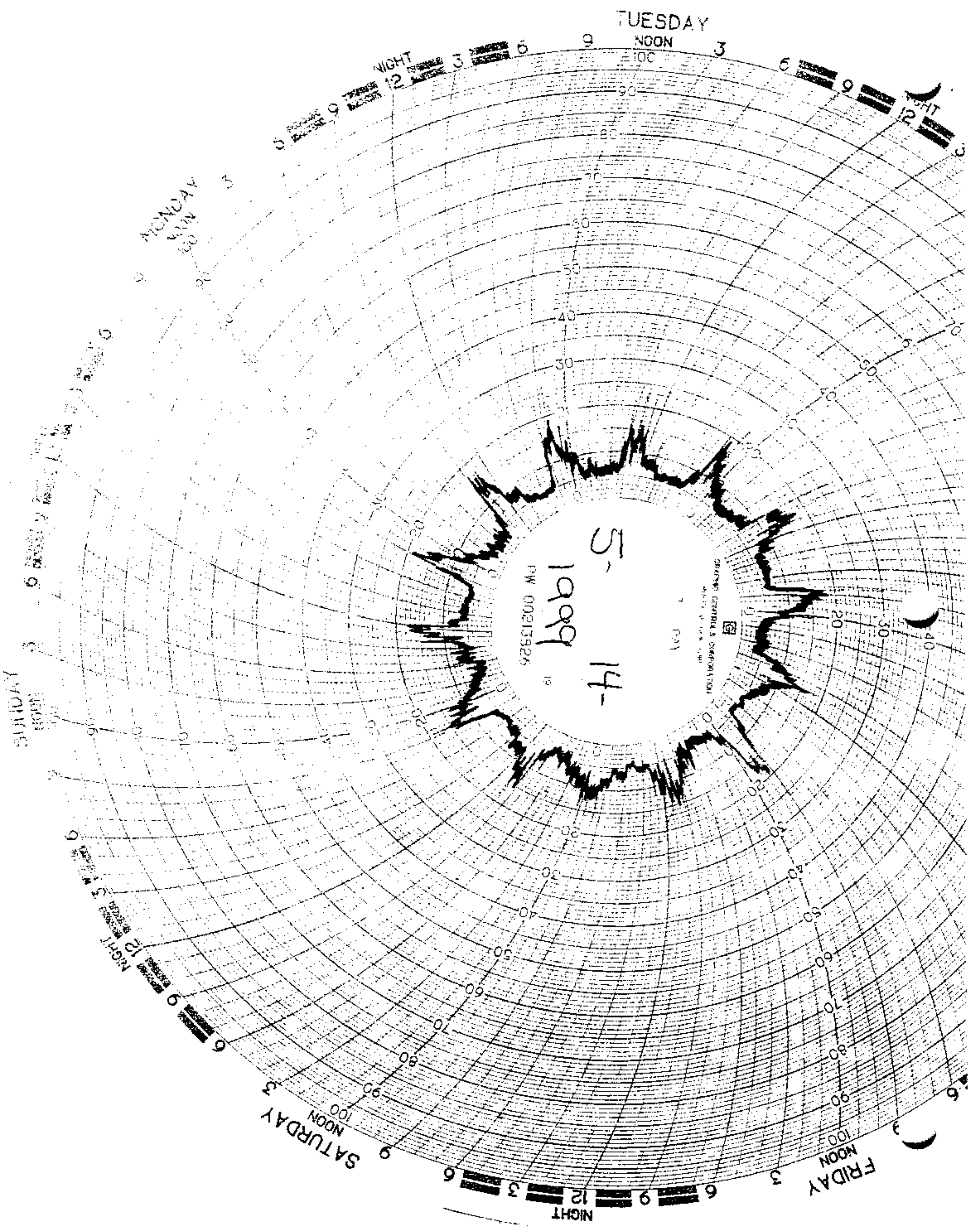
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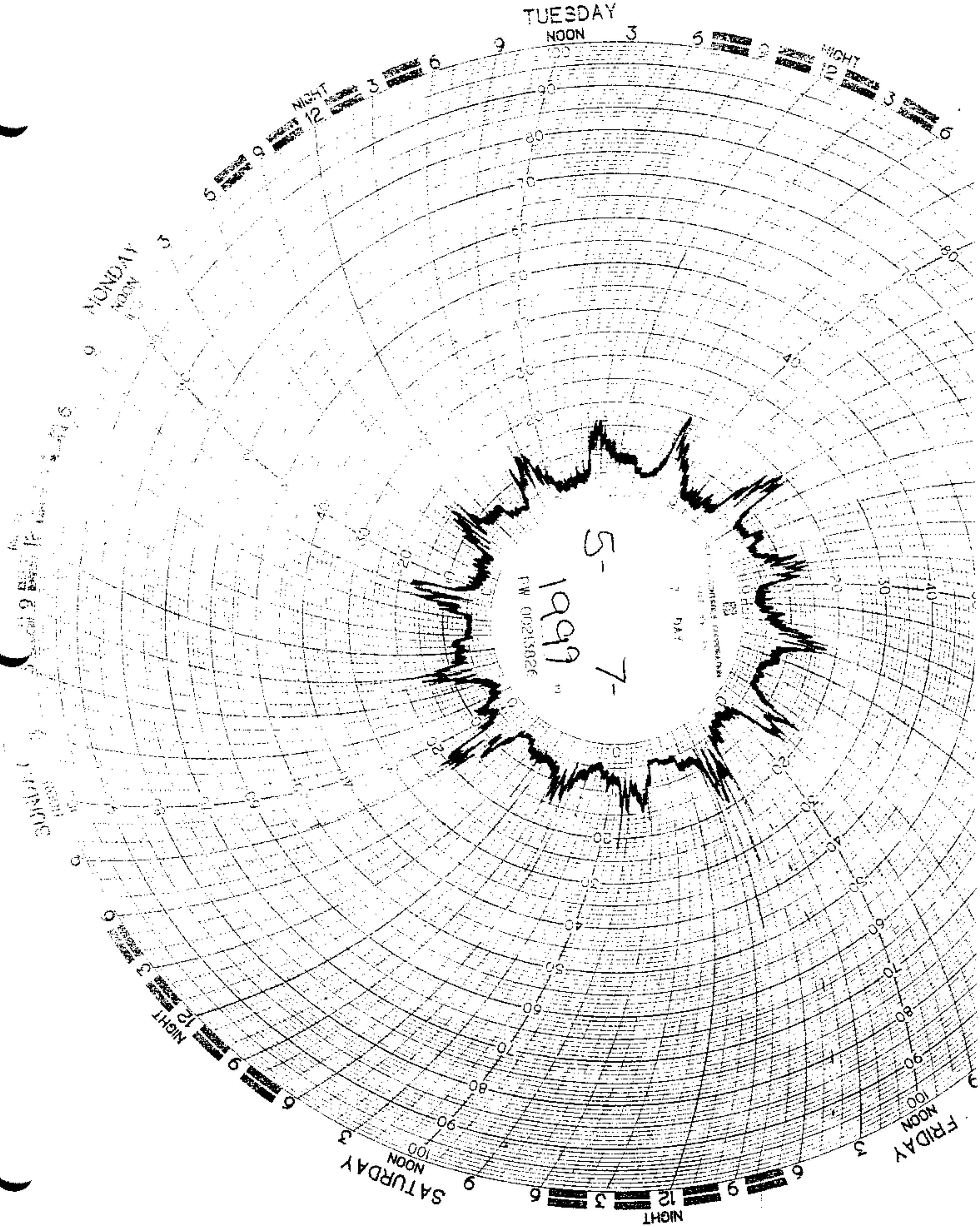
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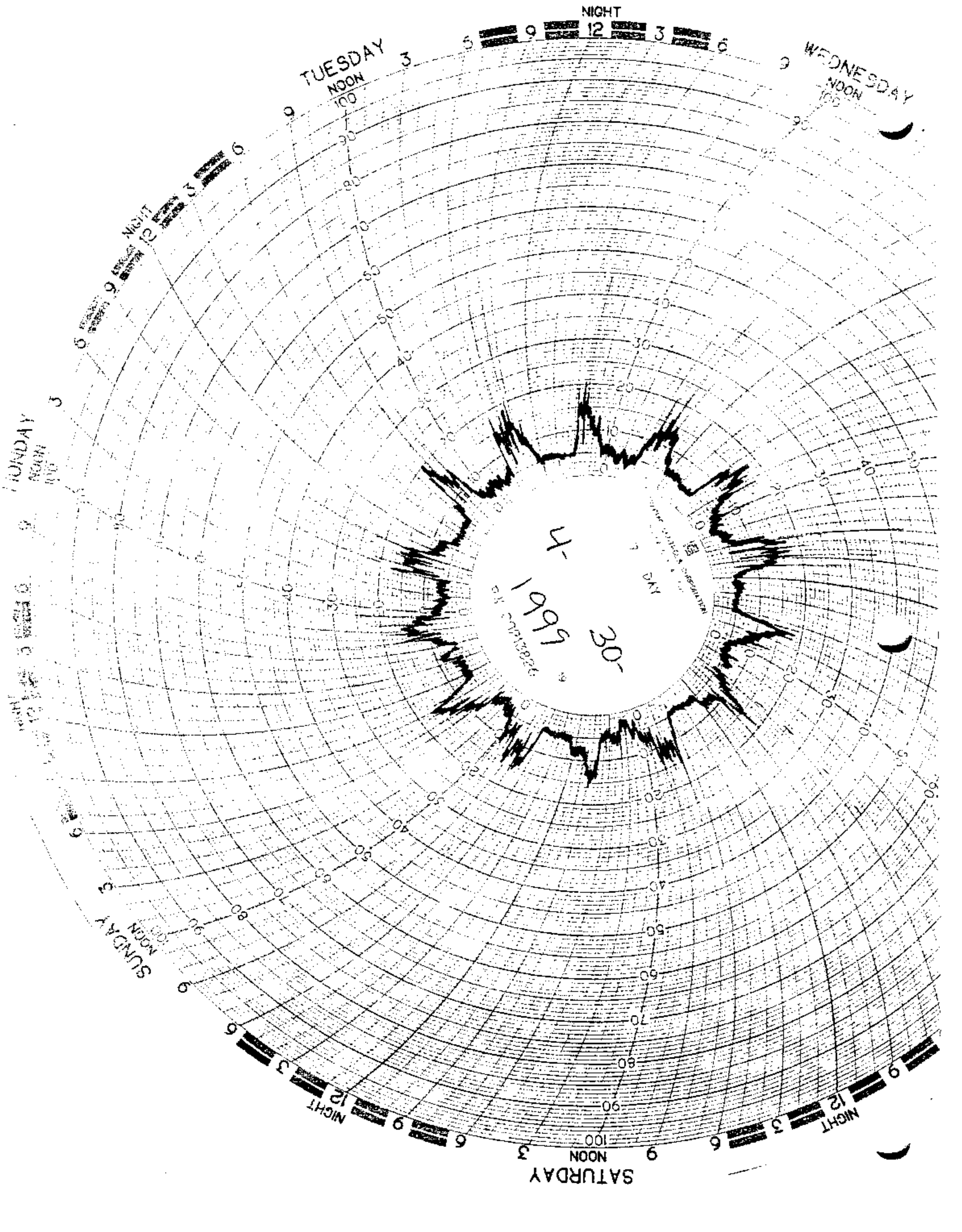

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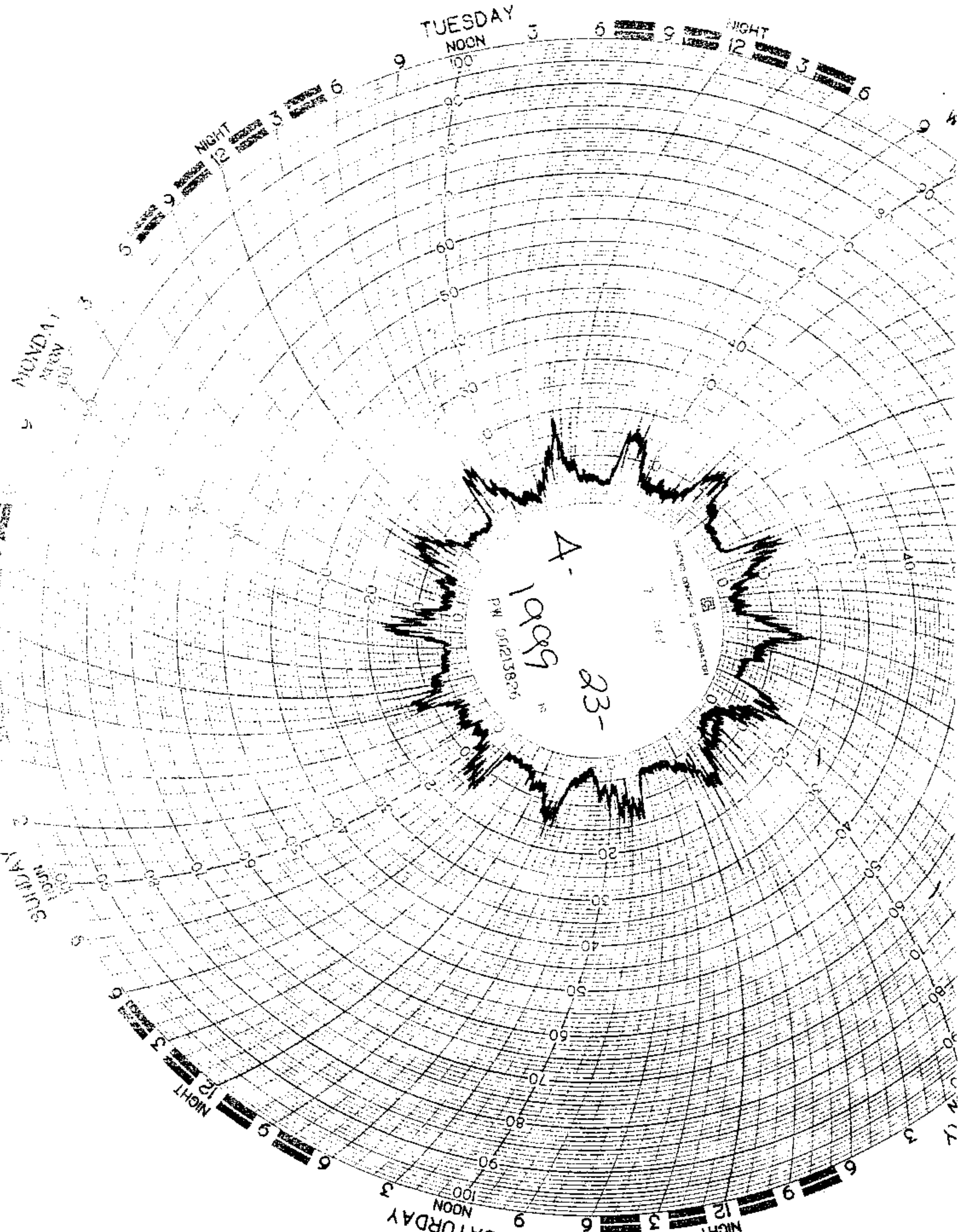
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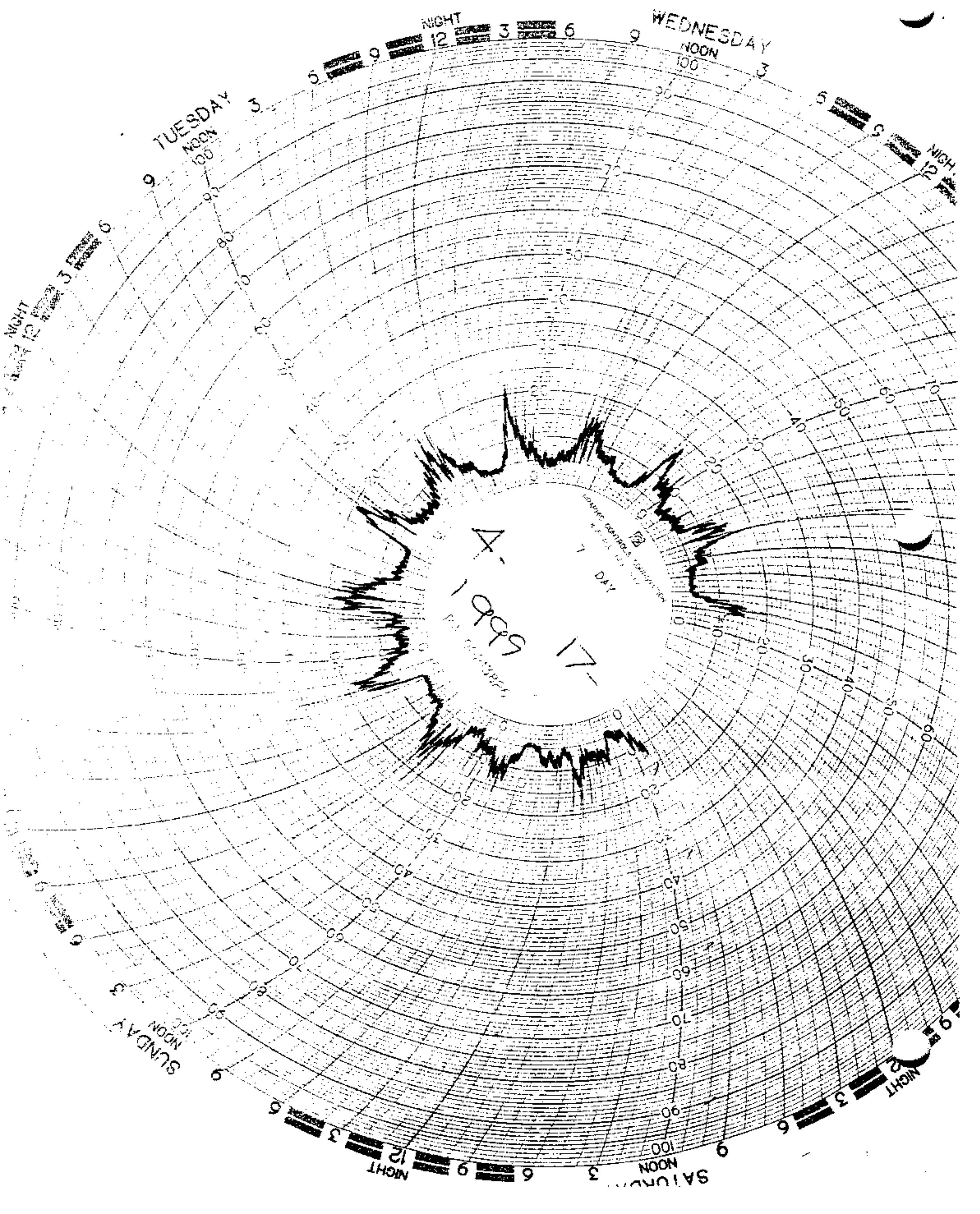

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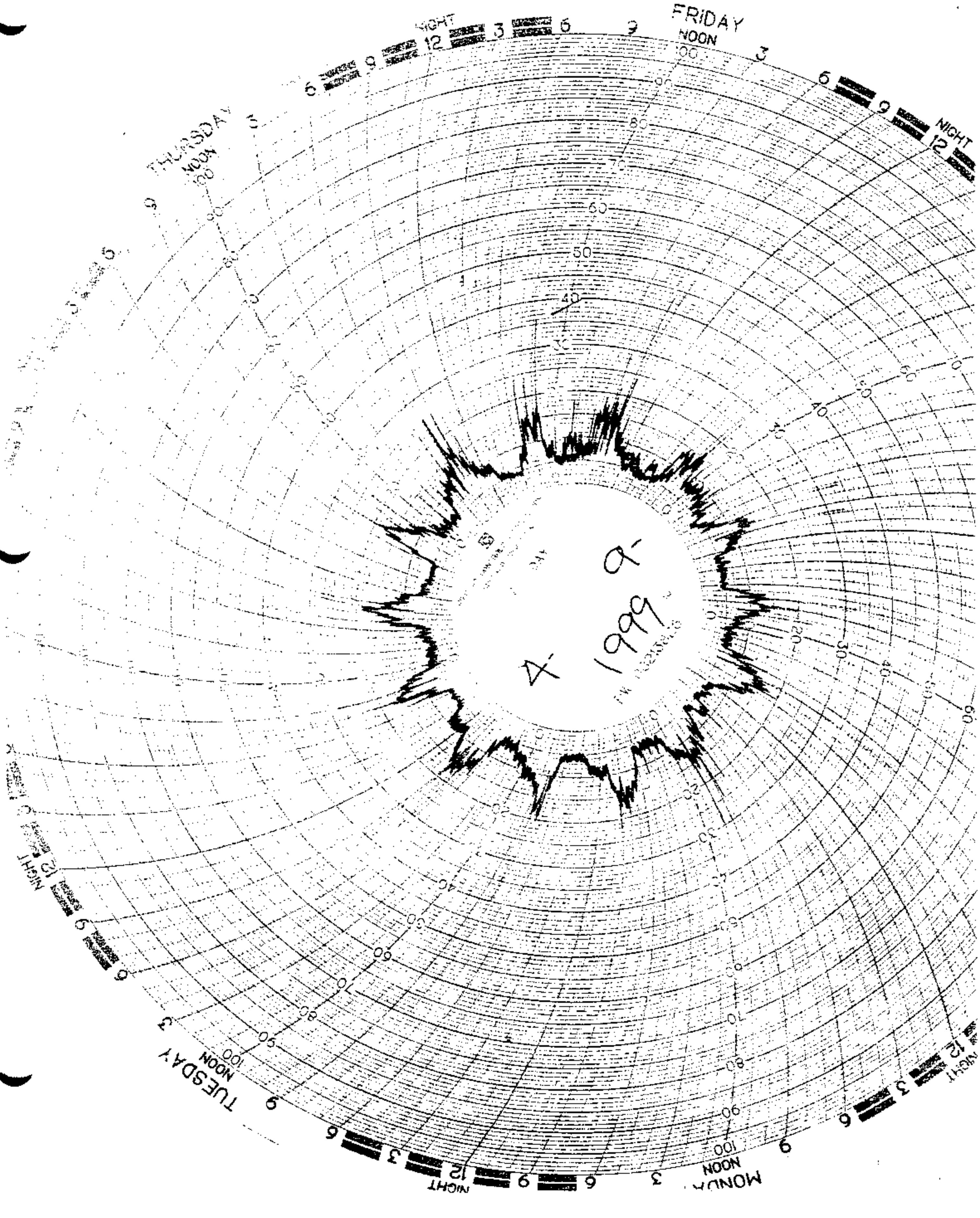
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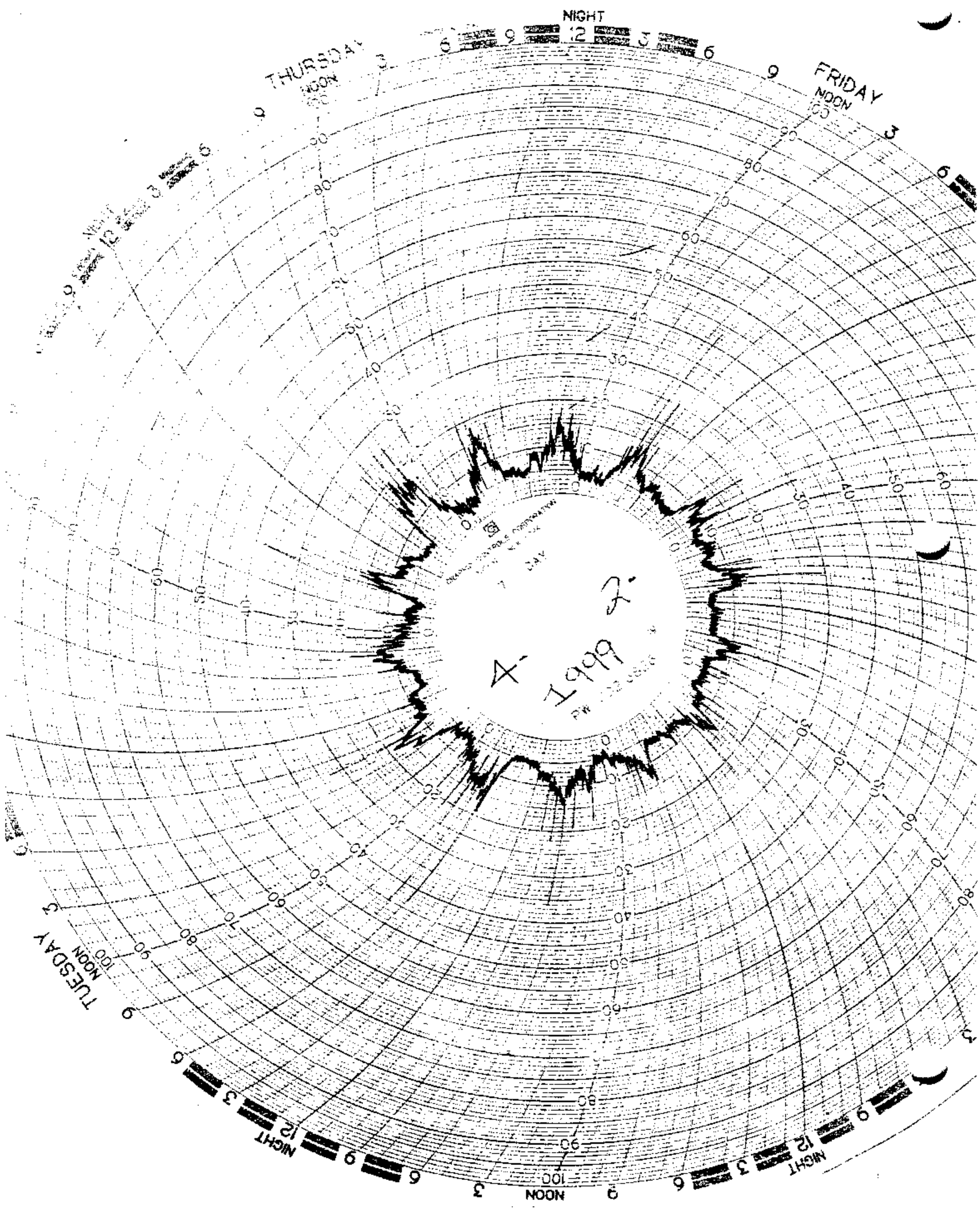
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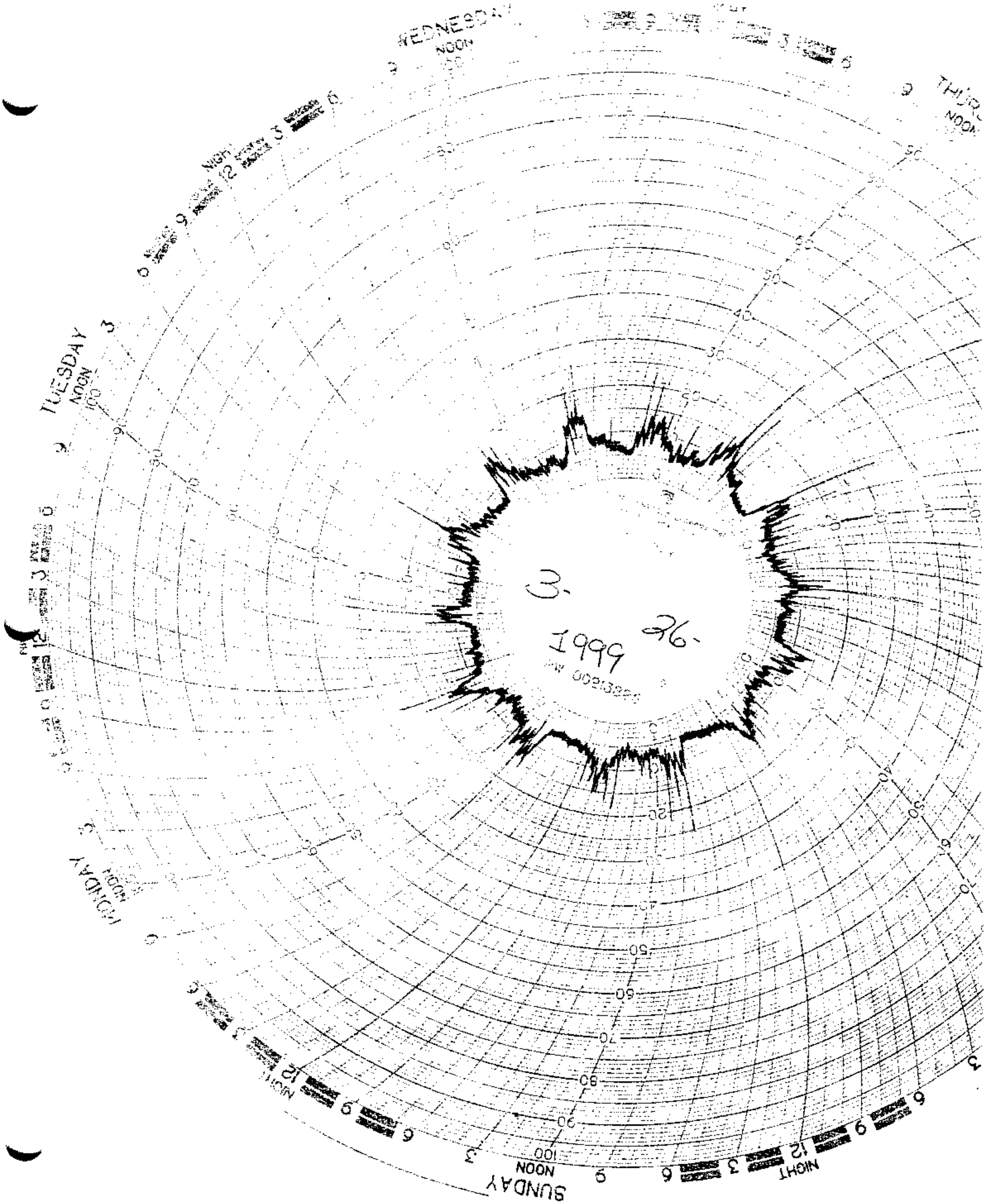
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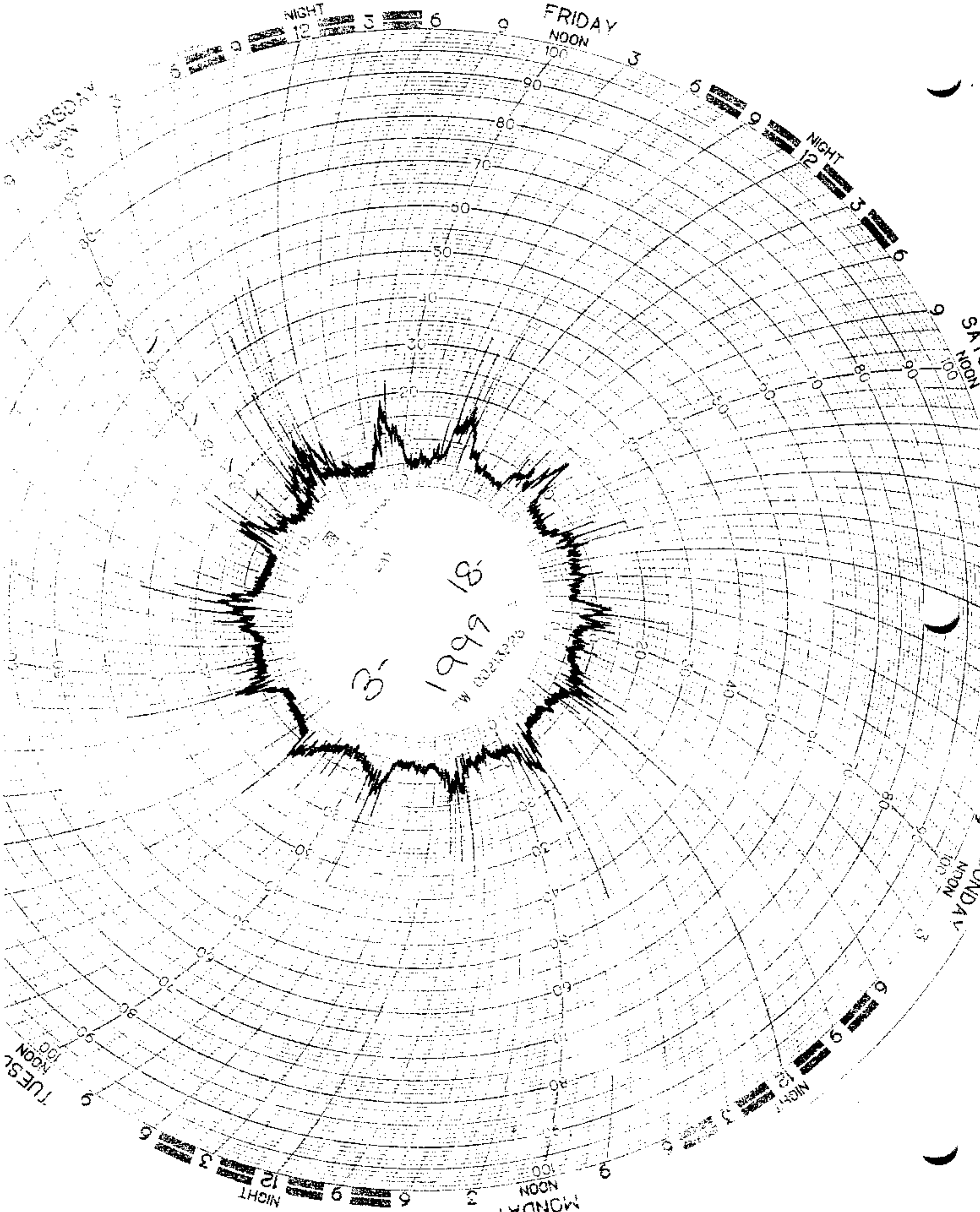

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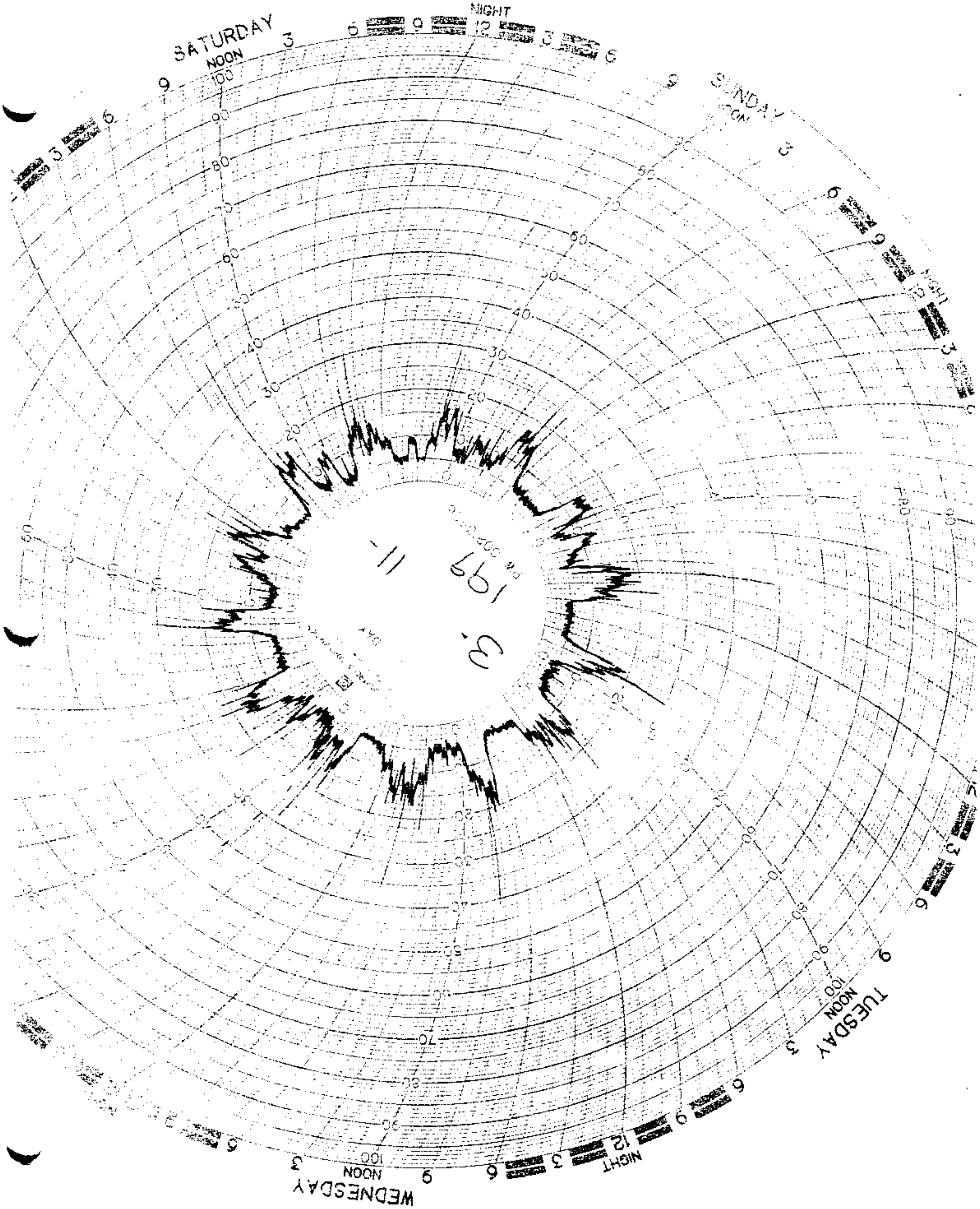
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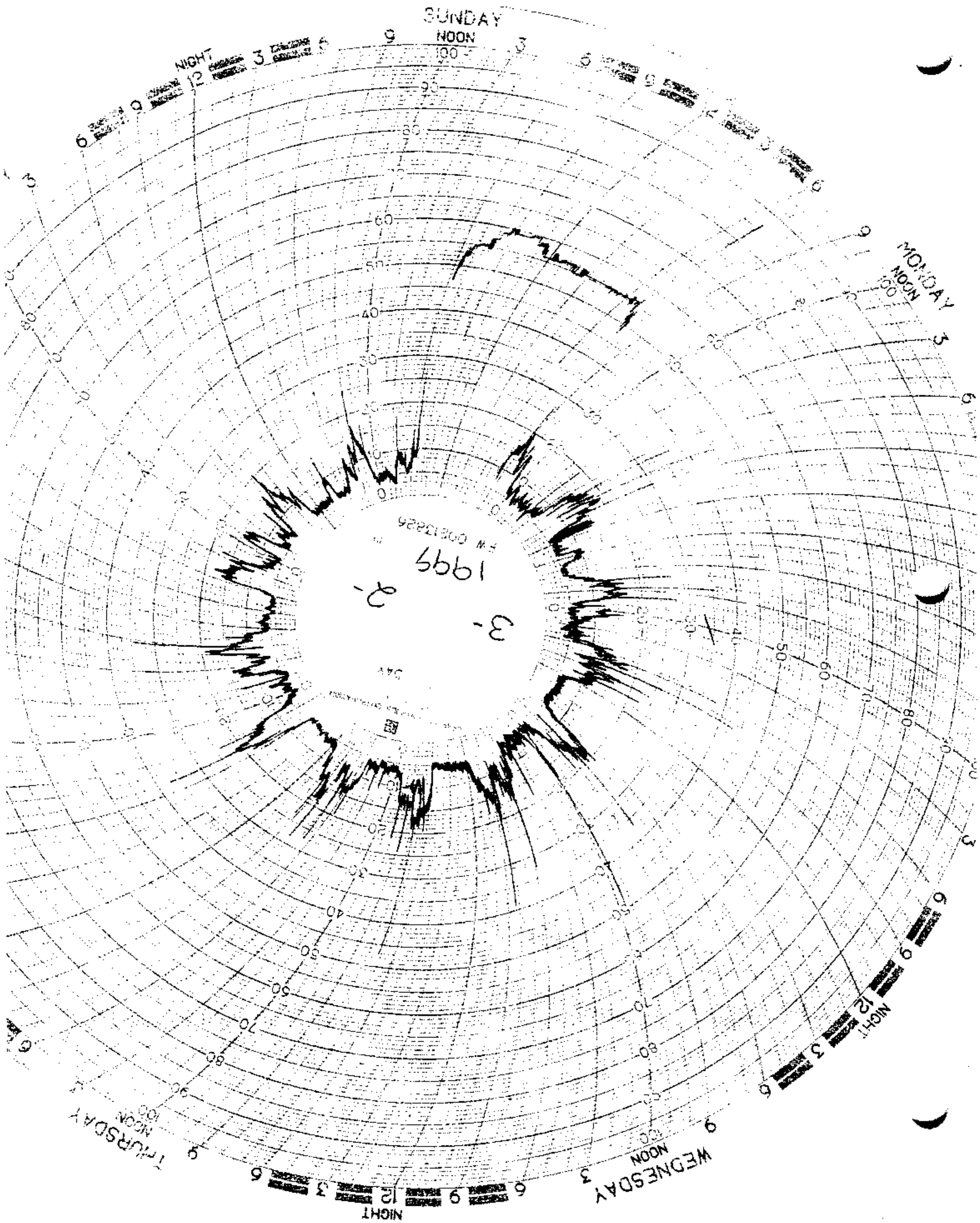

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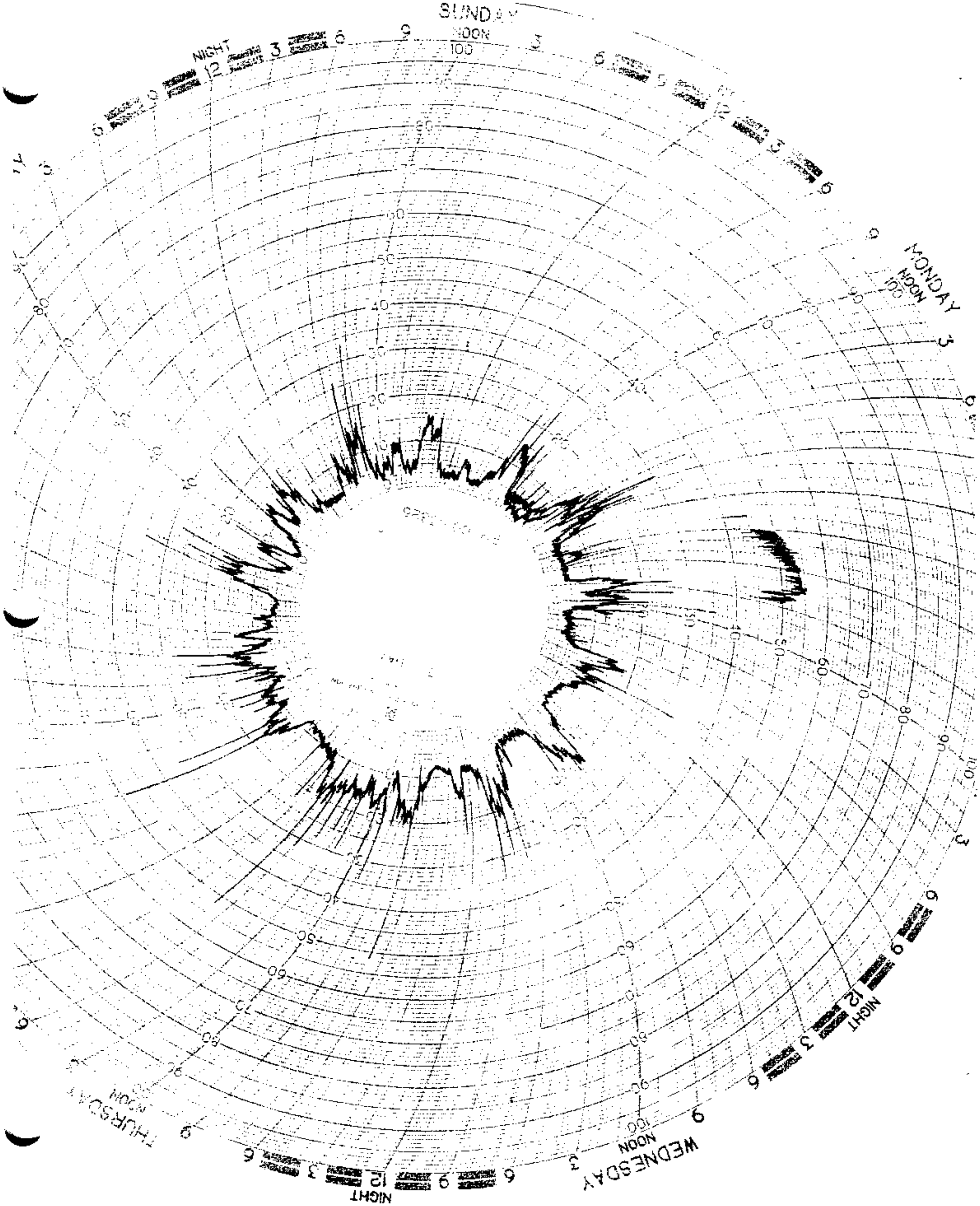
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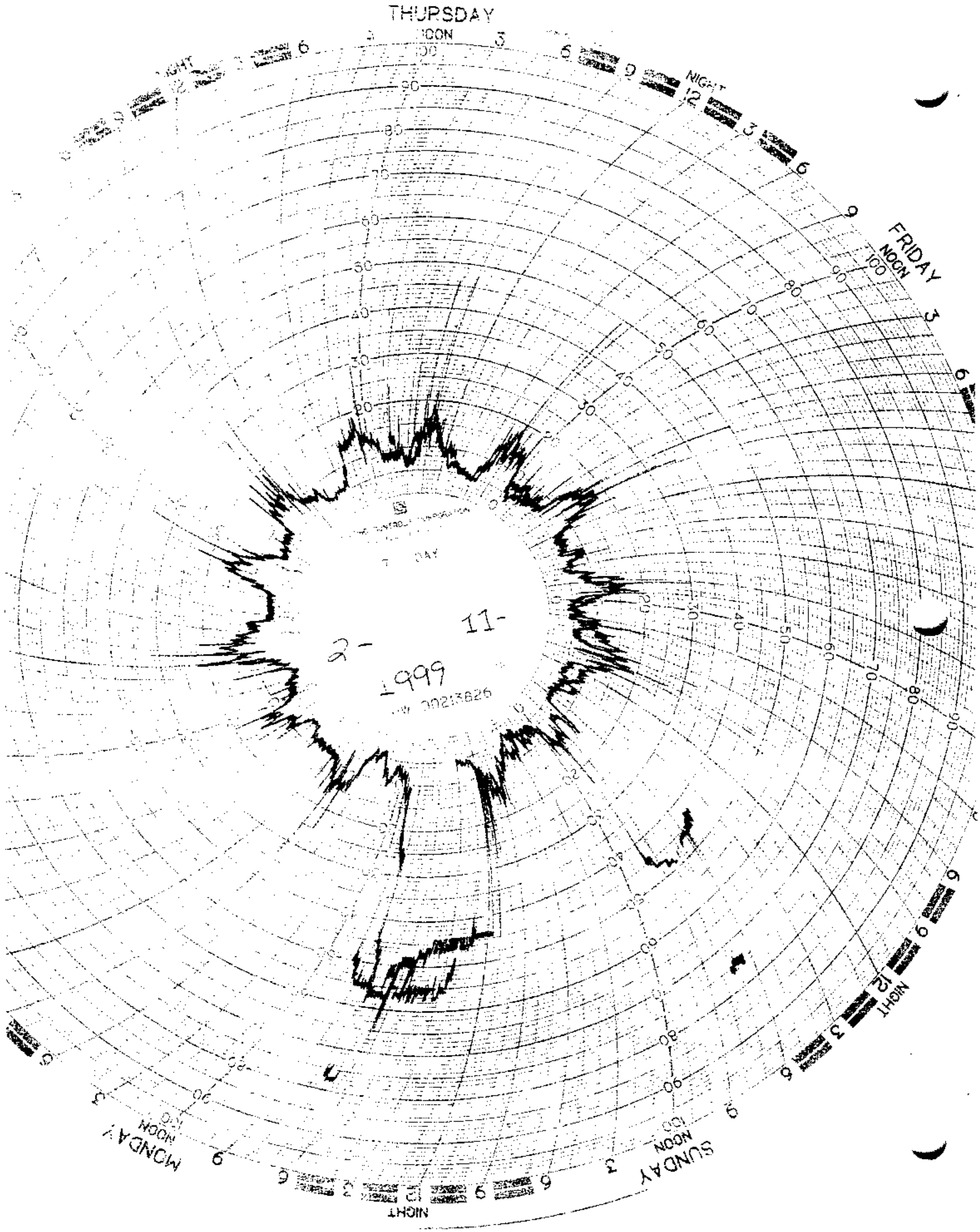
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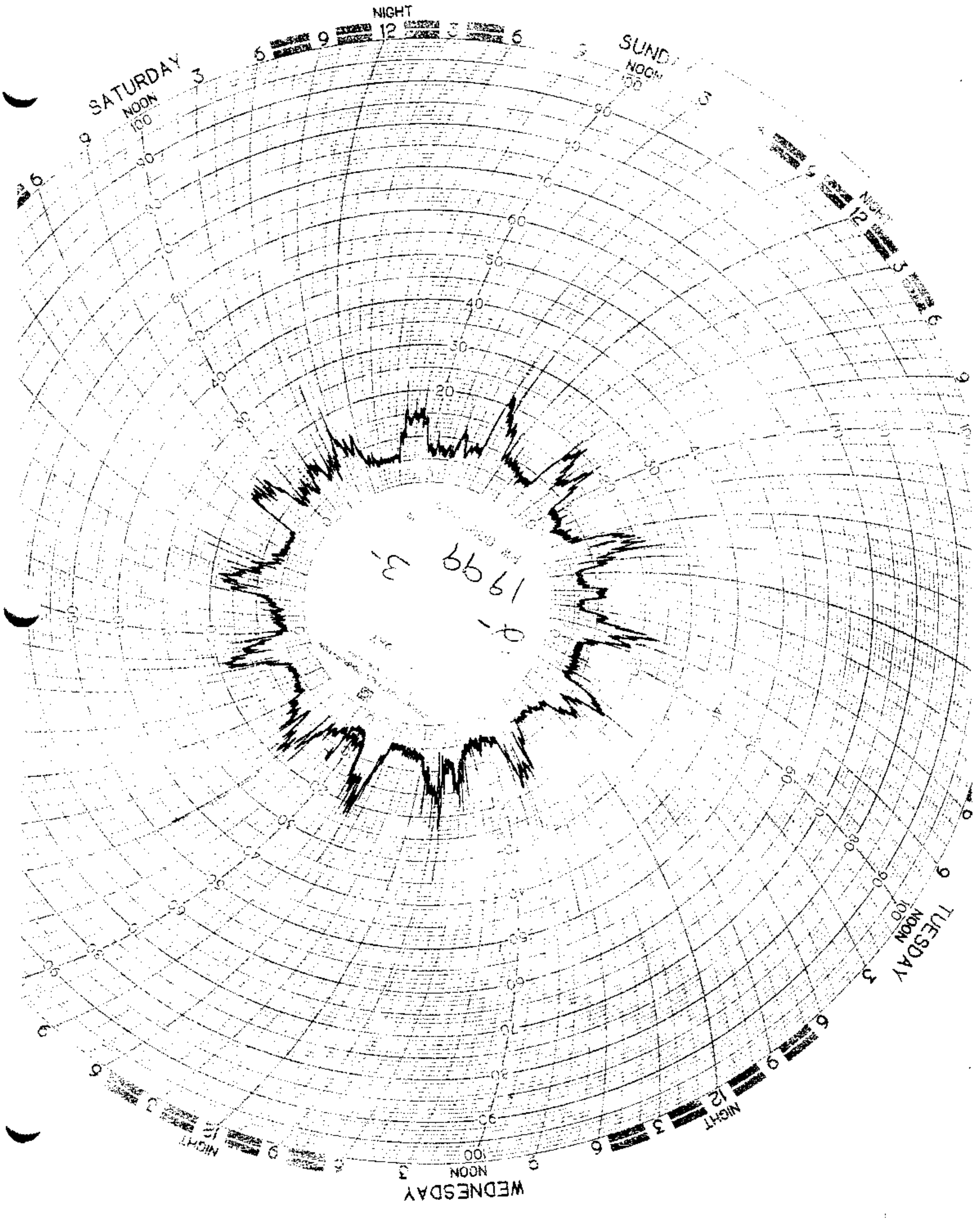
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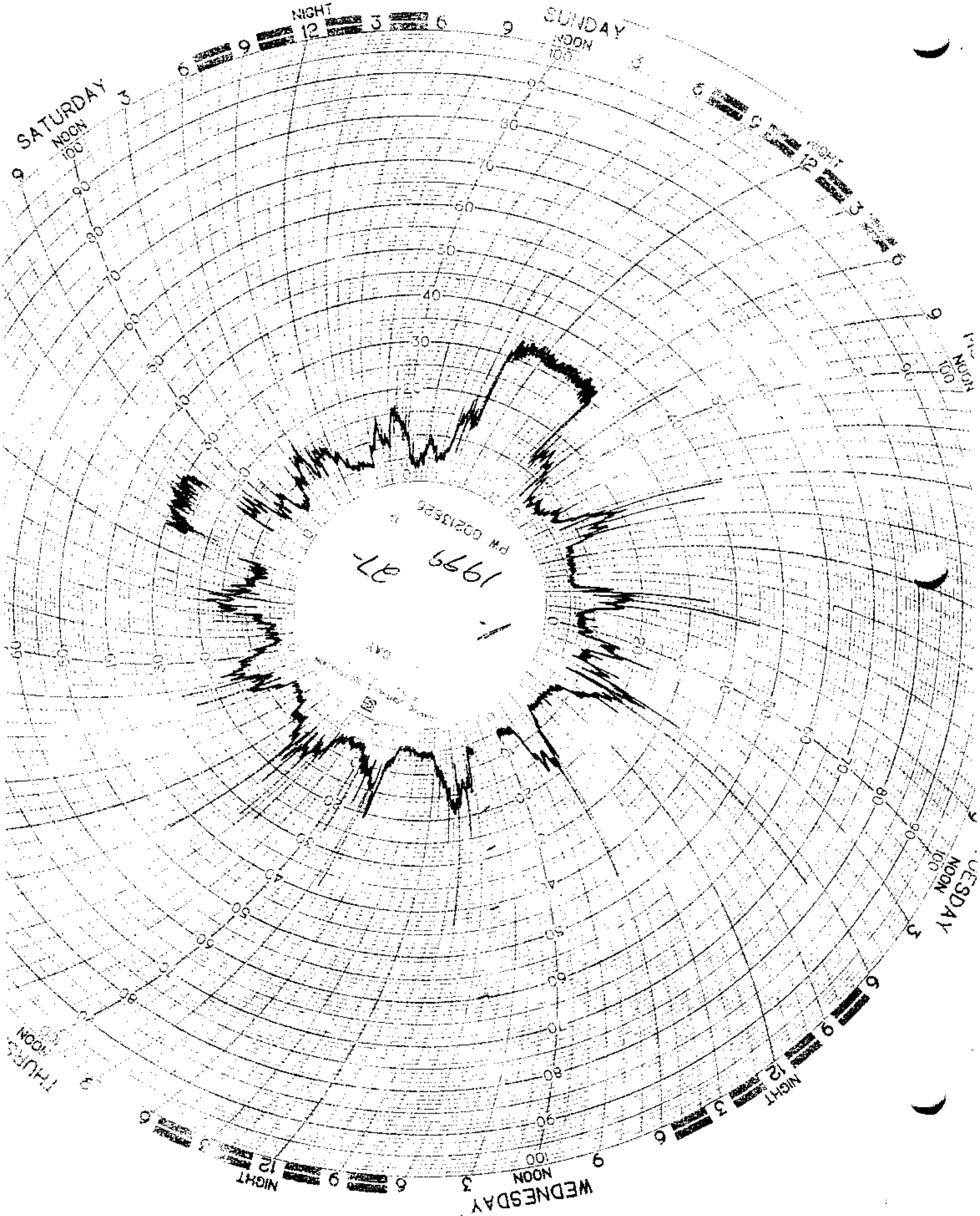
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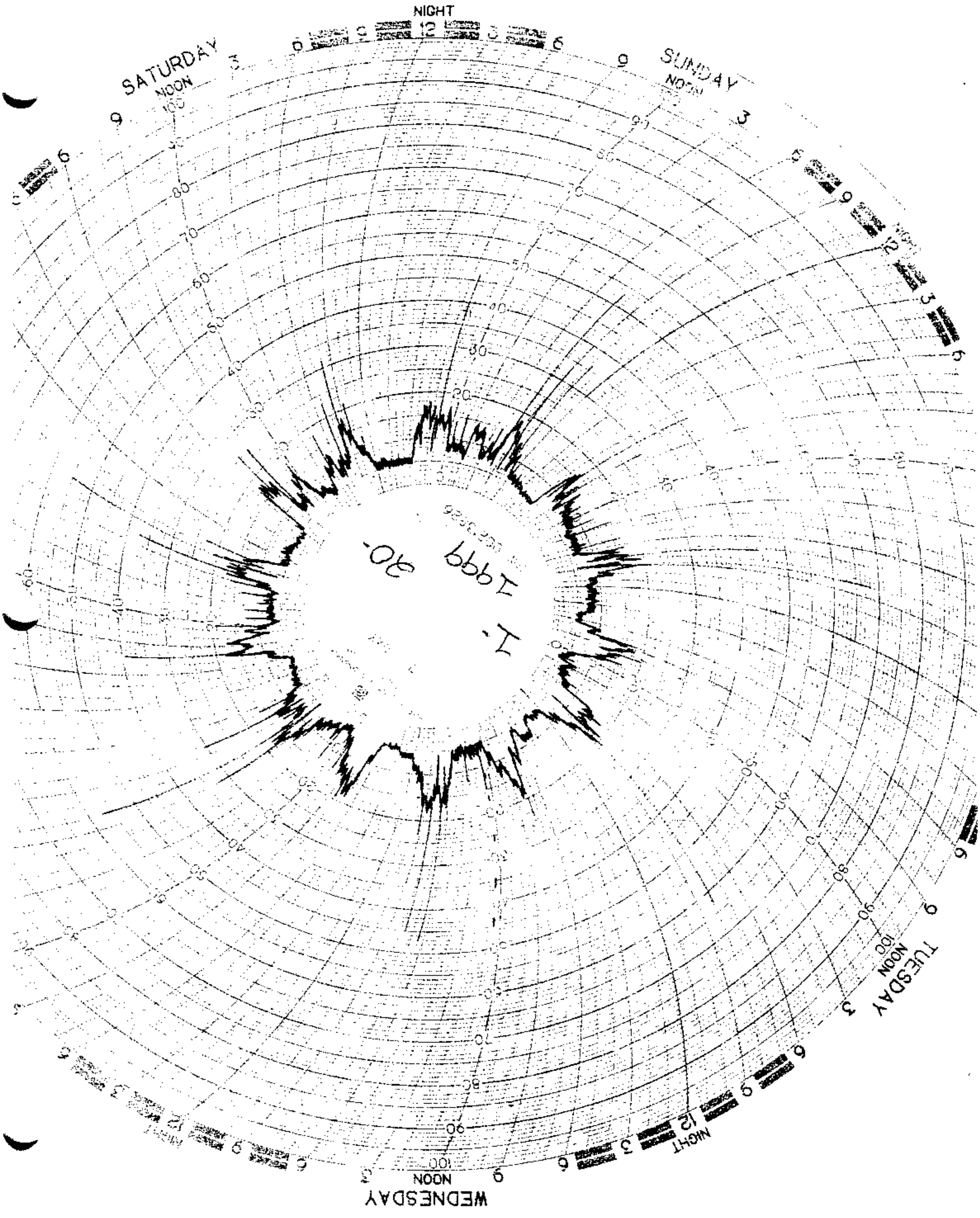
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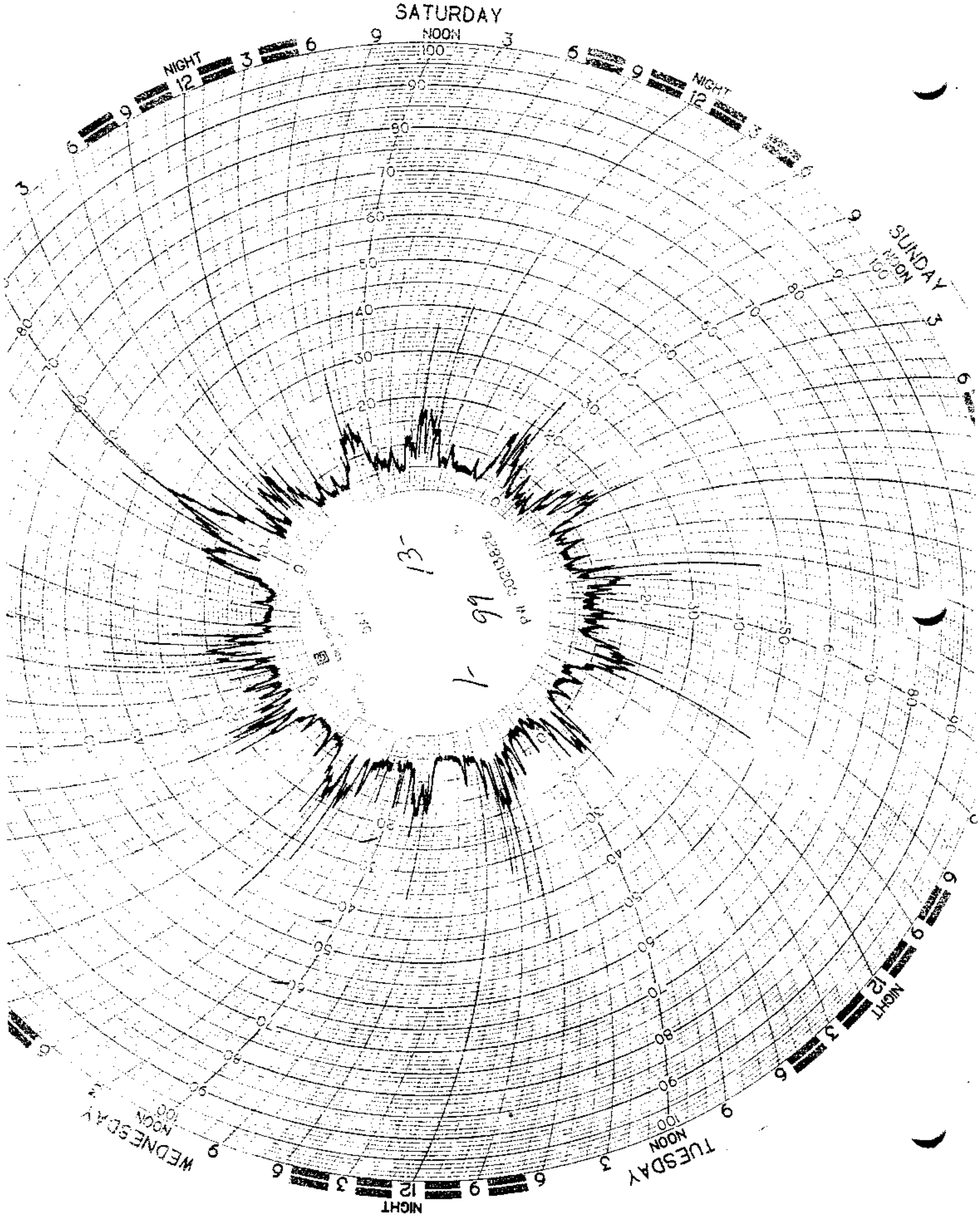
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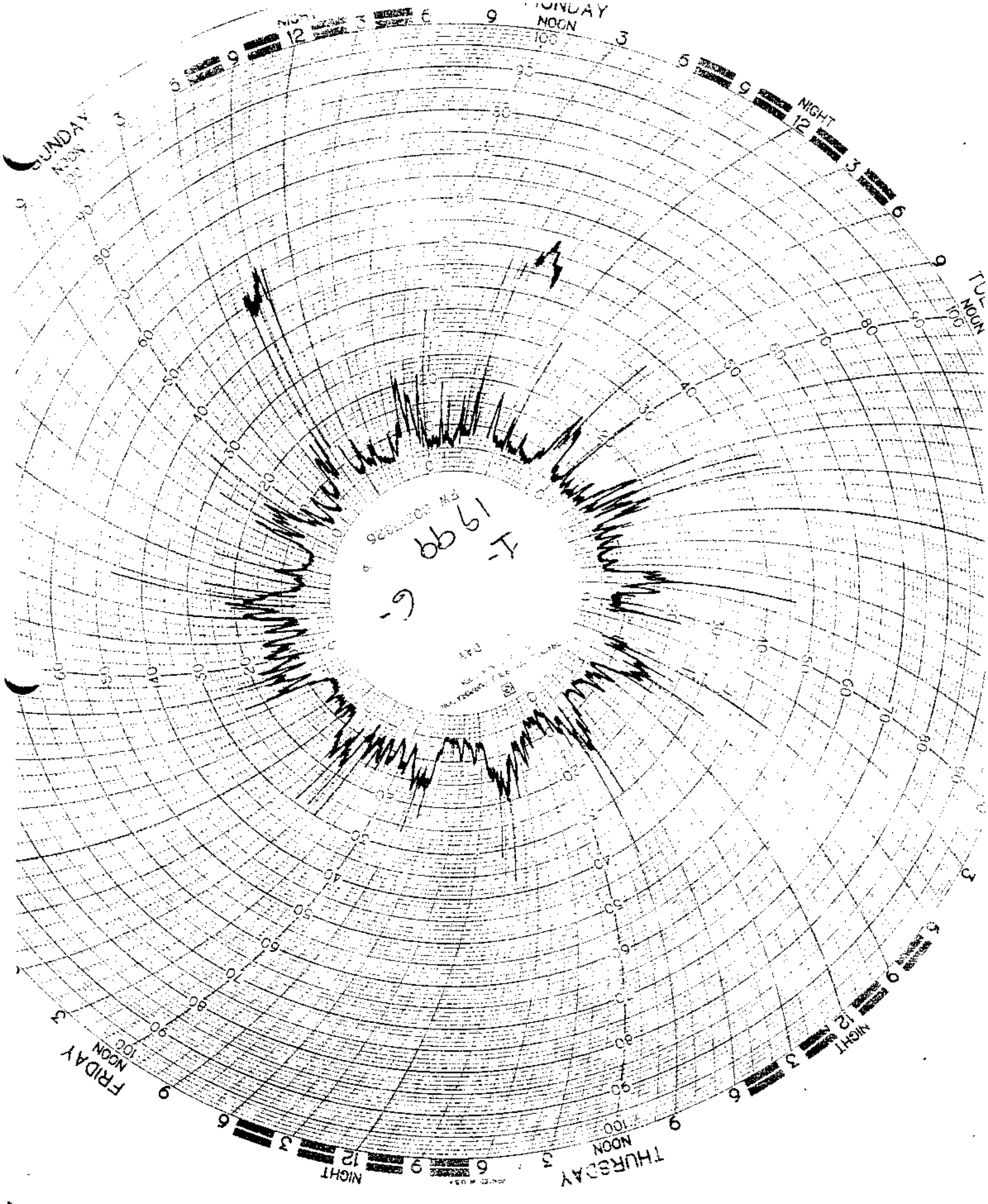

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APPENDIX D

SITE PLAN SHOWING THE LOCATION OF THE NEW DISPOSAL SYSTEM

NOTE: See DGEIS Exhibit 70, Proposed Sewage Treatment Plant

APPENDIX E

JO-ANN MC LEAN, INC.
ARCHAEOLOGICAL CONSULTANTS

REPORT
ARCHAEOLOGICAL SURVEY
STAGE IA
LONG ISLAND DEVELOPMENTAL CENTER
MELVILLE
TOWN OF HUNTINGTON
SUFFOLK COUNTY, NEW YORK

PREPARED FOR: **SBJ ASSOCIATES, LLC**

PREPARED BY: **Jo-Ann McLean, R.P.A.**
Principal Investigator

AUGUST 1999

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MANAGEMENT SUMMARY

A Stage IA Documentary Study was conducted by Jo-Ann McLean Inc., Archaeological Consultant at the Long Island Developmental Center property in Melville, Town of Huntington, Suffolk County, Long Island New York at the request of SBJ Associates, LLC, in July and August 1999.

The project site totaling 400 acres lies on a broad valley in the northwest corner of the town of Melville and the southwest corner of the Town of Huntington. In 1964 New York State purchased 515 acres, including the project site to develop as a facility for the mentally challenged. In creating the building complex on the site, the State disturbed approximately 80% of the land surface; another 10% was impacted in 1988.

Numerous prehistoric archaeological sites are known from the immediate area and some potential for historic features is present. Testing by Pickman (1988) on 40 acres on LIDC property adjacent to the project site produced no prehistoric materials. A foundation associated with an early historic dwelling was identified.

Six presumably undisturbed sections totaling approximately 70 acres have been identified for Stage IB testing.

REPORT
STAGE IA - ARCHAEOLOGICAL SURVEY
LONG ISLAND DEVELOPMENTAL CENTER
MELVILLE, TOWN OF HEMPSTEAD, L.I. NEW YORK

I. INTRODUCTION

1.1 INTRODUCTION

Archaeological survey is the primary means by which sub-surface cultural resources are identified and their eligibility for inclusion in the National or State Registers evaluated. Such surveys are usually conducted in three consecutive stages (Stages I, II, III). Reports produced after the completion of each stage of investigation detailing methodology, results, conclusions and recommendations, are reviewed by the State Historic Preservation Officer (SHPO) and/or officials from other relevant Local, State and/or Federal agencies. It is these officials who agree (sometimes with modifications) or disagree with the conclusions and recommendations included in submitted reports.

Stage I survey is composed of two avenues of research (Stage IA and Stage IB), that may or may not be conducted simultaneously. A Stage IA survey includes researching relevant maps, references, and other information sources pertaining to a project area to determine whether or not prehistoric and/or historic cultural resources are potentially present. Such a level of investigation would also provide data on documented ground disturbance, if any, that may have destroyed such resources.

A Stage IB survey primarily involves systematic sub-surface testing of a project area in order to determine whether or not cultural deposits or artifact scatters are present and their general location. Such deposits or scatters constitute all or part of an archaeological site. Pertinent information acquired during the Stage IA survey should contribute to the development of the Stage IB field testing strategy.

Sub-surface testing carried out during a Stage IB survey usually consists of "shovel tests". Shovel tests are small excavations covering approximately 1.5 square feet of surface area extending to the depth necessary to reach sterile sub-soil. All soils removed from each test are passed through a 1/4 inch mesh screen to detect the presence of artifacts. All artifacts are bagged in the field, with each bag labeled according to provenience, and returned to the laboratory for analysis and tabulation.

If a Stage I survey indicates that possibly National or State Register eligible archaeological deposits are present, the next stage of investigation usually involves a more intensive investigation of the identified site area or areas. A Stage II investigation will provide the SHPO and other relevant officials with further information necessary to make a determination of National Register eligibility. A Stage II investigation typically involves the excavation of a number of larger and more carefully excavated test squares or trenches as well as additional shovel tests within the site area.

If, based on the Stage II survey, a determination of National Register eligibility is made by the appropriate authorities two mitigation options, avoidance and further data recovery (e.g. area excavation) are available to adequately address the significant cultural resources identified. Modifications of the construction plan could exclude development and other forms of ground disturbance from areas where significant cultural resources are known to exist. Legal and other safeguards may also be necessary to perpetually preserve the site area. If avoidance of the cultural resource is not feasible then further data recovery would be required. Such a Stage III investigation may include the excavation of larger test squares or trenches, or other appropriate procedures, in order to recover all or a representative sample of the data contained within the site.

An archaeological survey, Stage IA was conducted at the request of SBJ Associates, LLC for the Long Island Developmental Center (LIDC) property located in Melville, Town of Huntington Long Island (see Figure 1) by Jo-Ann McLean Archaeological Consultants. The documentary research, included a review of the New York State Site Files for identification of prehistoric and historic sites and the State and National Register listings for the Town of Huntington as of 7/20/99. Other manuscripts, maps, atlases and historical documents available at the Huntington Historical Society were also reviewed. An assessment of the limited Stage IA research, *Stage IA Archaeological/Historical Sensitivity Evaluation of Planned Construction at the Long Island Developmental Center Melville, Suffolk County*, (Roberts, 1988) and the limited Stage IB, research *Stage IB Archaeological Survey Small Residential Units Project Long Island Developmental Center, Melville Suffolk County, New York*, (Pickman, 1988) was undertaken. Also reviewed were *Preliminary Comprehensive Plan for Long Island Developmental Center Melville, New York* (Rubano et al, 1986), and the *Draft Environmental Impact Statement;Long Island Developmental Center Small Residential Units, Melville, New York* (Buckhurst et al, 1987). Research included a drive over and evaluation of the site.

The project site lies in the northwest corner of the town of Melville and the southwest corner of the Town of Huntington. It is a parcel totaling 400 acres, bounded on the north by Northern State Parkway, on the east by Carman Road, on the south by Half Hollow Road and on the west by Half Hollow Road, Old South Path and Old East Neck Road. Old South Path crosses the southwest corner of the site and Echo Lane extends north from Old South Path into the parcel's northwest quadrant. Please see Appendix A, Plates 1-14 for keyed photographs.

The purpose of this research is to determine the potential for undisturbed sub-surface cultural resources, both historic and prehistoric within the parcel bounds.

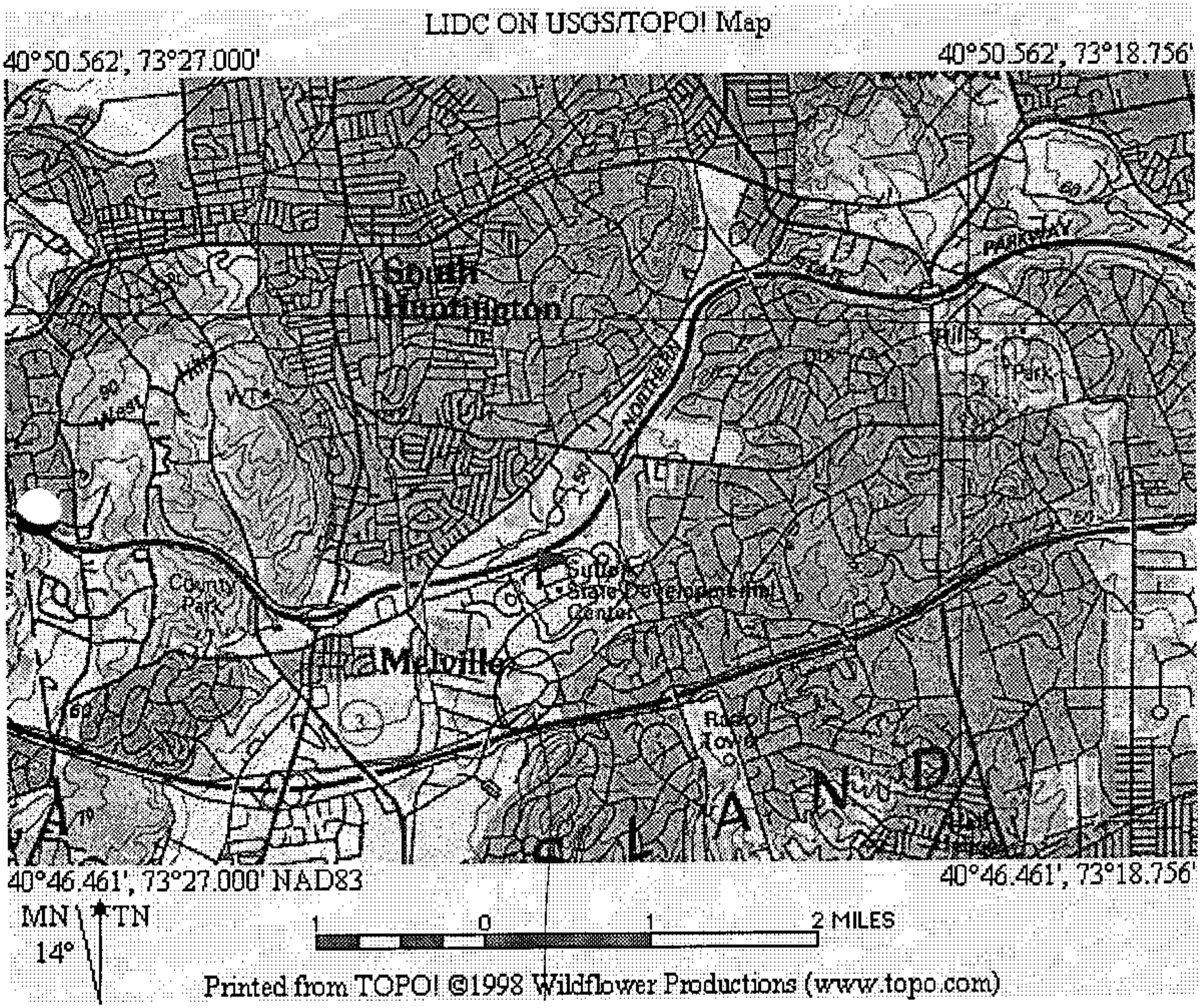
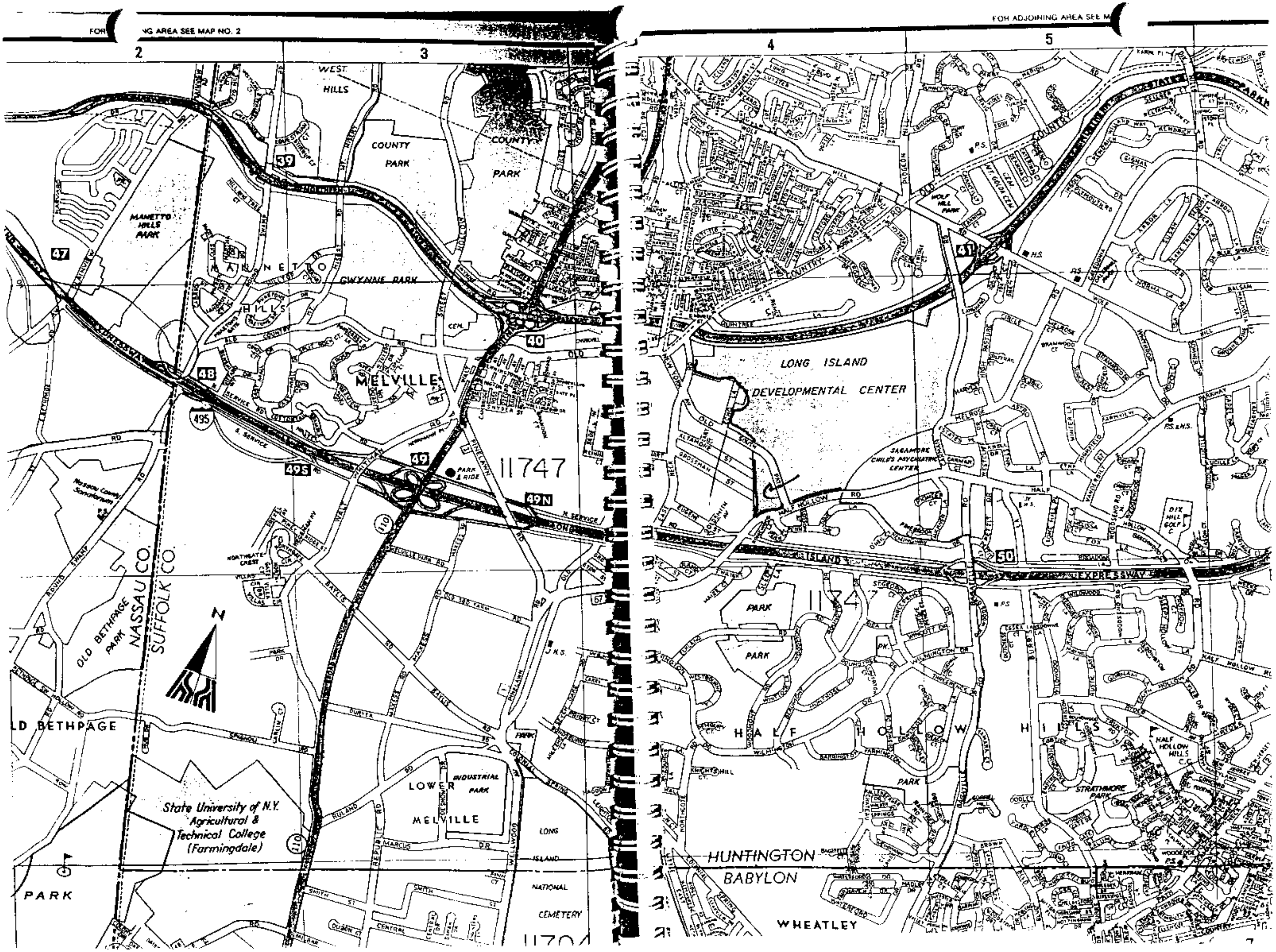


FIGURE 1 – SITE LOCATION - U.S.G.S./TOPO MAP



FOR ADJOINING AREA SEE MAP NO. 2
FOR ADJOINING AREA SEE M
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COUNTY PARK
MANETTO HILLS PARK
MANETTO HILLS
GWYNNE PARK
MELVILLE
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LONG ISLAND DEVELOPMENTAL CENTER
SAGAMORE CHILD'S PSYCHIATRIC CENTER
WOLF HILL PARK
DIX HILLS GOLF C.
HALF HOLLOW HILLS
HALF HOLLOW HILLS C.C.
STRATHMORE PARK
LOWER MELVILLE
INDUSTRIAL PARK
LONG ISLAND NATIONAL CEMETERY
NASSAU CO.
SUFFOLK CO.
OLD BETHPAGE PARK
OLD BETHPAGE
Nassau County Sanatorium
State University of N.Y. Agricultural & Technical College (Farmingdale)
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BABYLON
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1.2 ENVIRONMENTAL CONTEXT

The project site sits at the northern end of a broad, shallow, north south valley that lies roughly between Walt Whitman Road on the west and Half Hollow Road on the east. (Figures 1 and 2).

> "The LIDC campus site is located on the northernmost plain of the Ronkonkoma moraine. According to the United States Geological Survey (USGS) topographic survey for the Huntington quad dated 1967, the LIDC campus site slopes upwards at its southern boundary. In general, most of the site is moderately sloping with slopes that range from 0-15%...
> The portion of Suffolk County where the LIDC campus is located is underlain by approximately 1,400 feet of unconsolidated deposits resting on smooth easterly sloping bedrock. The uppermost portion or the Upper Glacial Formation is approximately 140 feet thick and composed of gravel and sand deposits locally inter-bedded with clay. Underlying the Upper Glacial Formation in descending order are the Magothy Formation, which is approximately 200 feet thick, and the Lloyd Sand Member of the Raritan Formation, which is approximately 300 feet thick. The Magothy Formation is composed of gray and white fine to coarse sand, interstitial-clay and silt and layers of clay. Gravelly zones are common near the bottom of this formation, but are rare in the upper parts. The Raritan Clay Formation consists of gray, black and multi-colored clay, silt and fine sand. The Lloyd Sand Formation consists of white and gray fine-to coarse sand and gravel with some clay beds.. (Buckhurst et al 1986:3-10)

The dominant soil types were clearly described by Rubano,

> "The Suffolk County Soil Survey prepared by the USDA Soil conservation Service in 1975 shows 11 distinct soil types present at the LIDC site. Dominant soil types are RhB and HaA, soils which pose only slight erosion potential and are well-suited for development for housing (per Suffolk County Soil Survey). The other soil types are more limited in their potential to support new housing and are found in the site's areas of steeper slope and drainage channels" (Rubano 1986;Addendum) The brief chart below shows approximated percentages of the soils as part of the entire site:

TYPE	DESCRIPTION	%OF SITE
CpE	Carver & Plymouth sands, 15-35% slope	1.0
CuB	Cut & Fill land, gently sloping	2.0
HaA	Haven loam, 0-2%0-8% slopes	14.0
HaC	Haven loam, 6-12% slopes	1.0
He	Haven loam, thick surface layer	2.5
Rc	Recharge basin	4.5
Rda	Riverhead sandy loam,	1.0
RdB	Riverhead sandy loam, 3-8% slopes	1.0
RdC	Riverhead & Haven soils, graded0-8% slopes	70.0
SdA	Sico silt loam, sand sub stratum, 0-2% slopes	.5

(See Rubano 1986: Addendum)

> "The LIDC is located in a deep aquifer recharge area [a] deep flow recharge area is defined as areas where recharge from precipitation percolates downward to the deeper Magothy and Lloyd aquifers (Bruckhurst 1986: 3-16).

No natural surface water bodies currently exist on the LIDC project site.

However,

> "the mesic woodland vegetation that parallels Upper Half Hollow Road on the north side in the area of He soils are [however] shown on older topographic maps as supporting intermittent streams and are important in carrying drainage water from the adjacent slopes. Typical of such areas red maples dominate the canopy and the understory contains some wetland indicator plants such as jewelweed and helibore." (Rubano 1986: Addendum)

The balance of the property includes a 30+/- year old white pine forest and dry morainal woodlands, including scrub oak-pitch pine, oak chestnut, and blueberry (see Rubano for details).

Prior to development in 1965, the property had been a potato farm (Rubano 1986:3). Historically, the area was farmed in oats, flax and hay and known for its hunting resources of game birds, fox and deer (Roberts, 1988:5).

II. DOCUMENTARY RESEARCH

A documentary survey was conducted to establish a) prehistoric sensitivity and the relationship of the site to other local prehistoric sites and b) historic land use.

2.1 PREHISTORIC OVERVIEW

Prehistory of New York State is generally defined by a four stage cultural/temporal scheme. These stages include the Paleo-Indian Stage, the Archaic Stage, the Transitional Stage and the Woodland Stage some of which are further delimited with phases within each stage.

The Paleo Stage is typically defined as a period up to 12,000 YBP when people moved into the Northeast from warmer areas likely following migrating herds. These groups tended to settle in major river valleys, but are known to have exploited the coasts of Long Island. The climate was temperate and supported diverse habitats and fauna. Identified Paleo Indian sites for New York State are varied, however the recovery of only fourteen fluted point biface blades indicate sparse presence of Paleo Indians on Long Island (Saxon 1973).

The Archaic Stage begins with a warming trend at approximately 7,000-6,000 YBP. Ritchie (1980) defines this Archaic transition as a switch to deciduous forest of oak-chestnut. Larger, more restricted settlement/seasonal/base camp patterns emerge at this time with evidence for utilization of elk, black, bear, turtles, fish, shellfish and white tailed deer. Group population increases and lithic typologies become more specialized.

The Early/Middle Archaic stage occurs ca. 6,000-4,000. Evidence is rare for this site type on Long Island. However, when located they are typically identified by the presence of Bifurcated base and side notched points within the lithic assemblage.

The Late Archaic period is characterized by population increase and enlarged sites. Evidence of economic change is evident in the recovery of netsinkers, groundstone tools and bolas. This period also evidences the inclusion of chipped stone adzes, celts, choppers and grooved axes for woodworking. Evidence of shellfish processing stations indicates an increase in marine exploitation at this time.

The Terminal Archaic ca. 1,300 to 700 illustrates the remains of a hunting/gathering/fishing society. It is the period of the Orient complex on Long Island. Orient Fishtail projectile points typify this complex of burial ceremonialism on Long Island. This unique tradition includes elaborate cremation ceremonies, mass burials, and grave goods in the forms of ochre, broken steatite pottery and projectile points (Richite 1971). These sites are present on the east end of Long Island.

The Woodland Stage exhibits little change from the terminal Archaic with one major exception, the introduction of pottery. The Early Woodland approximately 700 BC to A.D. 0 evidences a continued seasonal exploitation of fish, shellfish and land mammals as well as continued plant gathering. Sites are generally identified near fresh or estuarine water sources and small special purpose campsites are the norm. The Middle Woodland A.D. 0 to A. D. 1000 exhibits little change from the Early Woodland. The Late Woodland period appears to have been a period of change in social systems and settlement patterns. During this time more sedentary subsistence and settlement patterns appear and lithic and ceramic styles change. Site types include that of the village, in addition to seasonal base camps, hunting camps and shellfish processing stations.

2.2 PREHISTORIC SENSITIVITY

Eight recorded sites in Huntington lie within a two mile radius of the project site. Figure 3 illustrates the location of these sites. They are of special interest to this discussion, because they all lie within the broad valley between Half Hollow Hills on the east and the Mannetto Hills on the west. The project site lies at the north eastern end of this valley. This topography may have provided protection for seasonal inland sites, as sites are known from both sides of the drainage area (Please see Appendix B for Prehistoric Site Table).

Site 5521(SCAA#123): West Hills Site was reported by R. Latham in 1954. No information is available regarding this site with the exception that it was collected by Latham 1922 and1927.

Site 7673 Dix Hills Site (NCM #202): No available information

Site A103-04-0963: the Sunquam School Site consisted in a Late Archaic site containing Wading River points, quartz debitage and flakes, steatite sherds and hammerstones.

Site 5484: The Half Hollow Tree Nursery Site reported by Saxon included an unprovenienced collection from the Whitson Farm. It included +/- 100 lithic tools including Brewerton, Wading River, Rossville, Orient Fishtail and Levana points. No pottery and no bone tools were present in the collection, however, it is unknown if this is due to a selective collection strategy, a lack of recognition of these materials or the result of absence of these materials at the site. The site was located in a hill and valley location where purportedly 3 kettle ponds were formerly located "atop the hills at the back of the valley" (Saxon; NCM #191).

Site 5506 (A103-04-0116/NCM26/SCAA122): Sweet Hollow Site is located in a drainage valley west of the Sweet Hollow Church in Melville. It is primarily considered a Mid-Late Archaic Camp/Village and possible winter hunting station. The Suffolk County Cultural Resource Inventory includes 200 projectile points including Vosburg, "Levanna-like", "Wading River-like", "Lamoka-like" points and pipe fragments.

Site 5520 (SCAA 121/NCM 198) Old East Neck Road Site. This site lies in the planting fields of the now or once Woodborne Cultural Nurseries, bounded on the north by Upper Half Hollow Road, on the east by Seven Oake Road and Mile End Lane, on the south by Colonial Springs Road and on the west by Old East Neck Road. The nearest water source was proposed to be a creek flowing south parallel to Old East Neck Road. The site consisted of unprovenienced finds of projectile points and debitage on the surface after plowing. Apparently there were several distinct concentrations producing Wading River points or Levanna points. The collection consists of approximately 200 pieces. "Brewerton-like," Rossville and Poplar Island points are also described for the site (Wyatt:,1976) as well as a single Orient point base and possible Susquehanna Broadpoint. The collection includes a small celt or adz, a flake knife of grey chert, a possible sinewstone, biface preforms and substantial amounts of debitage. Apparently some of the materials came from the hills east of the site (Half Hollow Hills). (Wyatt, 1976)

The presence of these sites clearly indicates a preference for this drainage valley by Native Americans indicating that fresh water sources, unavailable today, were once present. Although all sites have not been typed and none was professionally excavated, four of them are categorized as Archaic/Late Archaic based on lithic typology. This coupled with the area's reputation for game suggests that the area was likely preferred for inland seasonal hunting camps during this period. Unfortunately all the data concerning these camps is from uncontrolled data collection. This leaves a void in our understanding of the site types, cultural and temporal affiliation, site activities and site boundaries.

LIDC HUNTINGTON LOCATION OF PREHISTORIC SITES TO PROJECT SITE

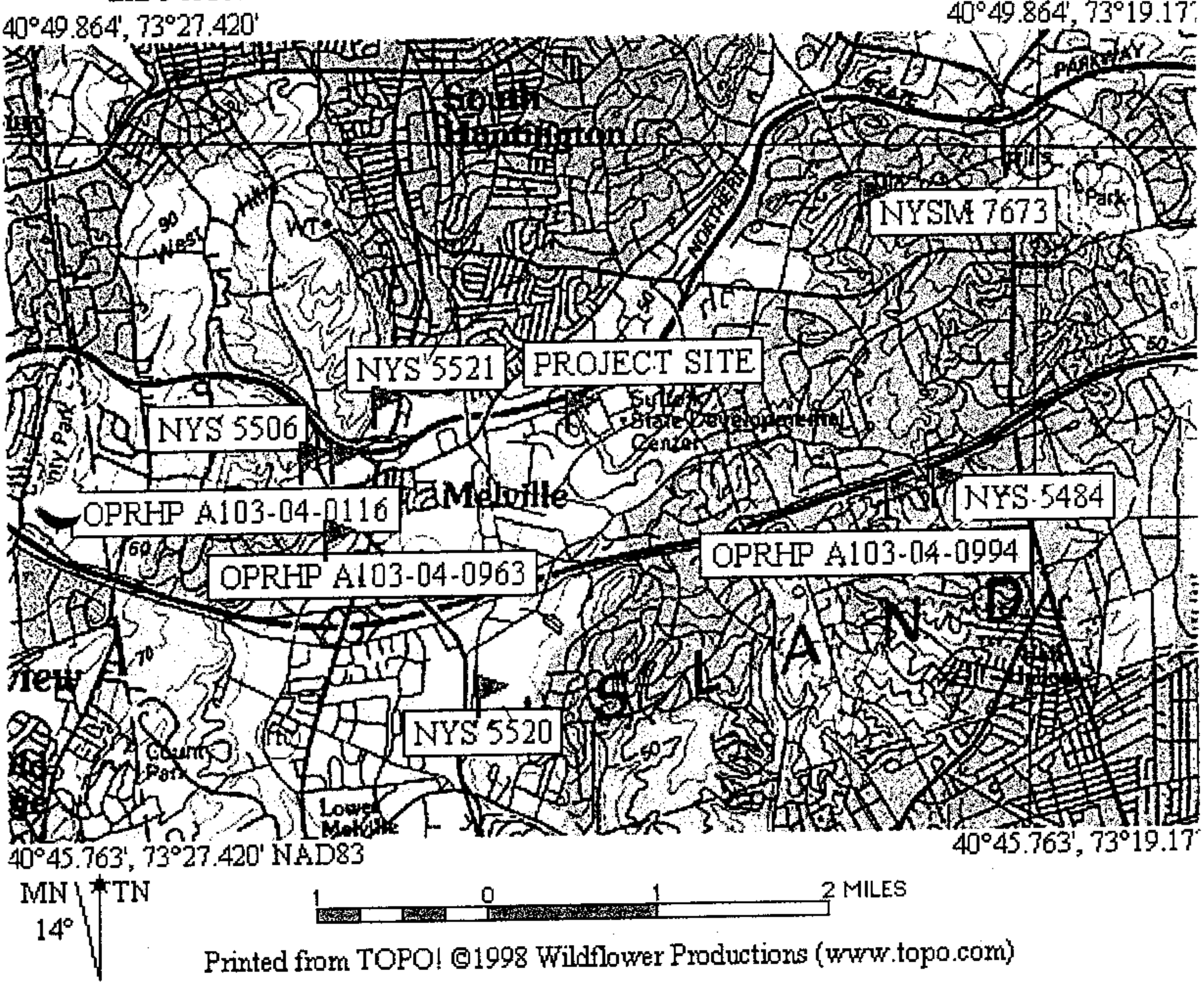

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FIGURE 3 - LOCATION OF PREHISTORIC SITES IN RELATION TO LIDC.

2.2.1 Prehistoric Sensitivity; The Project Site

The project site is situated in the north eastern corner of the drainage valley and is surrounded by the aforementioned sites. During the site evaluation for planned construction of Small Residential Units in 1988 two reports were completed. The first was a limited Stage IA documentary study prepared by William Roberts of Greenhouse Consultants. The second was a limited Stage IB prepared by Arnold Pickman for the two areas to be impacted by construction of the proposed Small Residential Units (Phase I and Phase II:see Figure 4).

Roberts (1986:1-2) suggests the presence of kettle ponds in the area as partial justification for positive prehistoric sensitivity. Although Pickman disagrees with this assessment, he clearly delineates (1988:2) other fresh water sources:

> "Prior to the start of field testing we attempted to identify those portions of the project area which would be most likely to contain indications for prehistoric occupations. To accomplish this we reviewed topographic maps drawn before the large scale land modifications which have occurred in recent years. Detailed topographic maps dating to the 1940's (Army Map Service 1943;1947) show water sources prior to the construction of the Northern State Parkway and the Long Island Expressway and other construction which has changed the drainage patterns in the area. The Phase IA report (Roberts and Myers 1988:5) speculated that glacial kettle ponds may have served as a source of fresh water for prehistoric inhabitants of the area and that the recharge basin within the Phase I parcel may have been constructed by enlarging a natural pond. The above referenced topographic sheets as well as an earlier U.S. Geological Survey topographic map (1903) indicate that there were no kettle ponds within the project area or in the general area of any of the four known prehistoric sites which were cited in the Phase IA report.
>
> These maps also suggest that the recharge basin was completely manmade. The 1940's topographic maps indicate, however, that there was an extensive network of intermittent streams throughout the area [the valley drainage area]. Such streams were present in

the general vicinity of three of the four reported prehistoric sites. The fourth site was located north of the town of Melville, and the historic period development of the town may have blocked off this area from intermittent streams located south of the town. The use of such intermittent streams as sources of fresh water would be in accord with an interpretation of the known prehistoric sites as seasonal hunting camps.

Two of the intermittent steams were located in the vicinity of the Phase II site [See Figure 4]. One of these bordered Half Hollow Road. The other ran to the north of the "plateau" area in the central portion of the Phase II parcel. This latter intermittent stream apparently ran through a swale area, with the land rising again to the north. The rise at the northern boundary of this swale area has apparently been obscured by land modifications associated with the creation of the grassy lawn area in the northern portion of the Phase II site. The most likely areas for prehistoric occupation within the Phase II project area therefore, were considered to be the high ground at the northern and southern boundaries of the central "plateau" which overlooked the intermittent streams and would have been attractive loci for hunting camps...

The topographic maps indicate that intermittent streams were located in the vicinity of the Phase I site in the area now occupied by the recharge basin or slightly to the east. Testing confirmed the visual impression that land modifications associated with the construction of the recharge basin have disturbed the immediately adjacent high ground" (Pickman 1988:2-3).

2.2.2 Previous Sub-Surface Investigations at the Project Site

A Phase IB sub surface archaeological survey was conducted on two sections of the LIDC in 1988 by Arnold Pickman at two sites, totaling +/-40 acres, under consideration for new construction. One hundred and fifty three shovel tests were established within these two "Phases" determined by Pickman to be the most sensitive sections based on the availability of fresh water in the form of possible prehistoric intermittent streams. Sixty-three tests were conducted in the Phase I site and 90 in the Phase II site. These tests were conducted at 100' and 50' intervals. Some of the target construction areas had been previously disturbed, however, portions of the tested areas demonstrated intact plow zone.

No prehistoric occupation horizons were located and no prehistoric cultural materials were located.

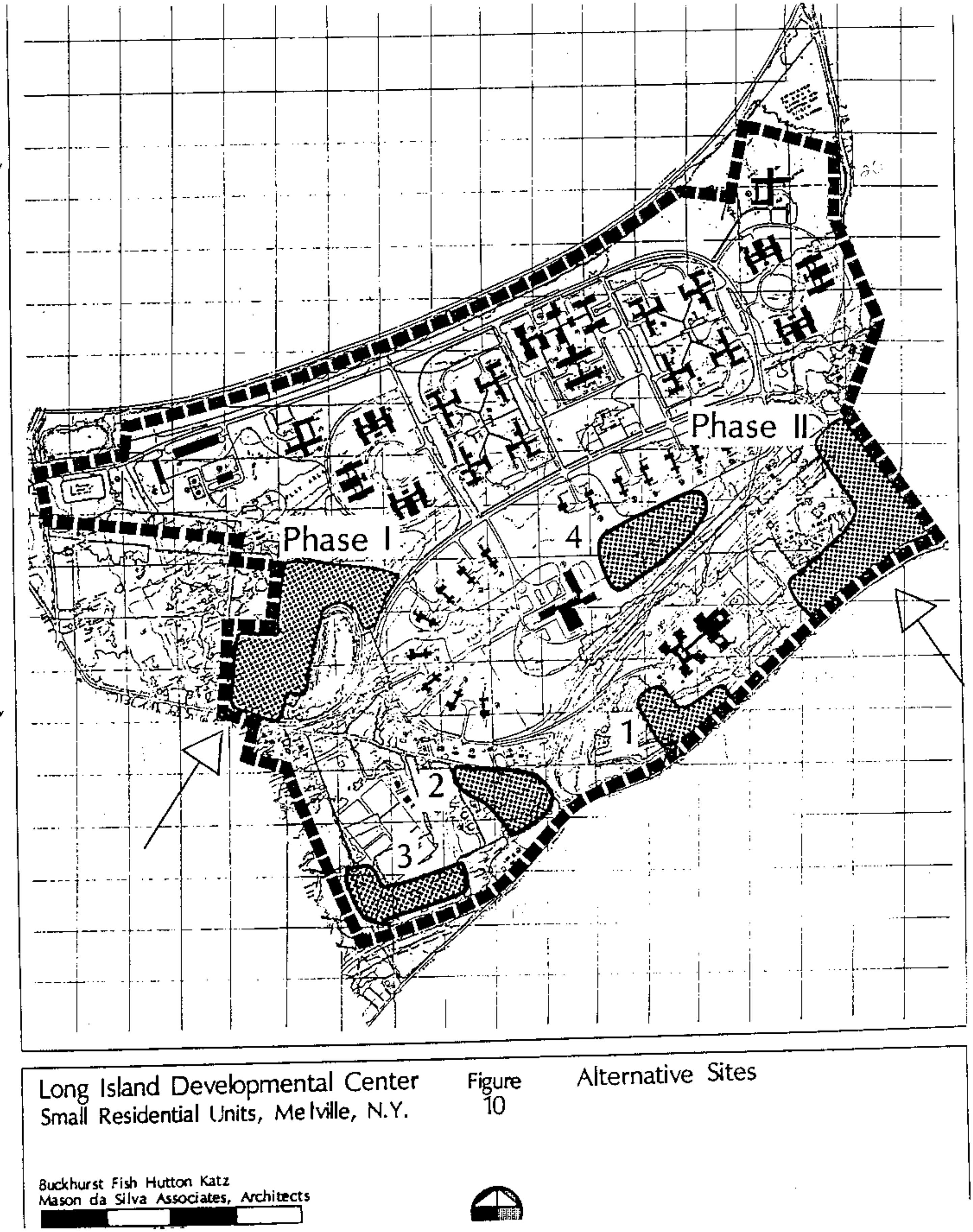

FIGURE 4 – LOCATION OF PHASE I AND PHASE II SITES AT LIDC. TESTED BY PICKMAN 1988 FROM BUCKHURST 1987.

2.3 HISTORIC OVERVIEW

2.3.1 The Town of Huntington

The Town of Huntington is the most westerly town of Suffolk County. It is bordered by Oyster Bay on the west, Smithtown and Islip on the east, Long Island Sound on the north and the Atlantic Ocean on the south. It is a large township consisting of several villages including Cold Spring Harbor, Centerport and Northport (Cow Harbor), Red Hook or Freshpond, Commack, Dix Hills, Long Swamp, West Hills, Half Way Hollow Hills, Babylon, Huntington Station and Melville or Sweet Hollow.

The first Huntington purchase was made by Governor Theophilus Easton of New Haven Connecticut in 1646. Richard Holbrook, Robert Williams and Daniel Whitehead later (1653) purchased a six mile square parcel from Raseokan, Matinecock chief. The land was increased by subsequent purchases in 1666 and 1795. The area was known for its abundance of game, which may or may not have contributed to its name (Platt 1876:14). Apparently, all activity of the Town was centered in the Huntington Village area, however, farming was conducted to the south of the town center in Sweet Hollow (Arrigio n.d.:4).

2.3.2 Sweet Hollow/ Melville

Sweet Hollow/Melville lies approximately four miles south of Huntington. It is nestled at the foot of West Hills in a valley, which meets the plain in the south and Half Way Hollow Hills on the east. North of Half Way Hollow Hills lies Dix Hills. It was known to the Native Americans as Sunsquams, in the seventeenth century as Samuel Ketcham's Valley and later as Sweet Hollow. The name Sweet Hollow was replaced in 1854 by Melville (Arrigio, p3-4). On the outskirts of Huntington, Sweet Hollow functioned as a farming suburb of the Village center of Huntington until 1763 when three houses were built there. It continued to be a farming community, to the south of the main settlement where farmers raised hogs, oats, flax and hay for cows and sheep. (Arrigio, p 2). Although settled early by several well known Long Island family members including Careman, Smith, Woolsey, Nostrand, Conklin, Ketcham, Baylis and Everett no particular historical event providing significance to early Sweet Hollow was uncovered by this research.

On the eastern edge of Sweet Hollow/Melville, in the northeastern corner of the broad valley, south of West Hills, north of Half Way Hollow Hills and southwest of Dix Hills lies the project site.

2.4 HISTORIC SENSITIVITY

A search of the New York State Historic Site files indicated the presence of three historic sites within a two mile radius of the project site (see Figure 5). These sites are:

A103-04-0097	NYS Conservation Department Forest Fire Observatory Site Erected 1916, demolished 1952. Reported by Henry Shea, 1974
A103-04-0900	Mountain Mist Spring House Site. Marble lined well and pipes remaining. Reference: Atlas of Suffolk County, Long Island Shore, and Brooklyn. By E. Belcher Hyde, 1909, archives of state historian. Historical marker at site "Mountain mist spring house. Water was bottled here and sent to Montauk as "cure' for yellow fever for soldiers returning from the Spanish-American War. 1898"
A103-04-0902	Stone Fort Site. Visible until early 20th Century. Reference: Henry C. Pratt in, Old Times in Huntington (1876), describes a stone fort without doors, accessible by

a ladder which was pulled in at night. The Fort was built shortly after the town was settled.

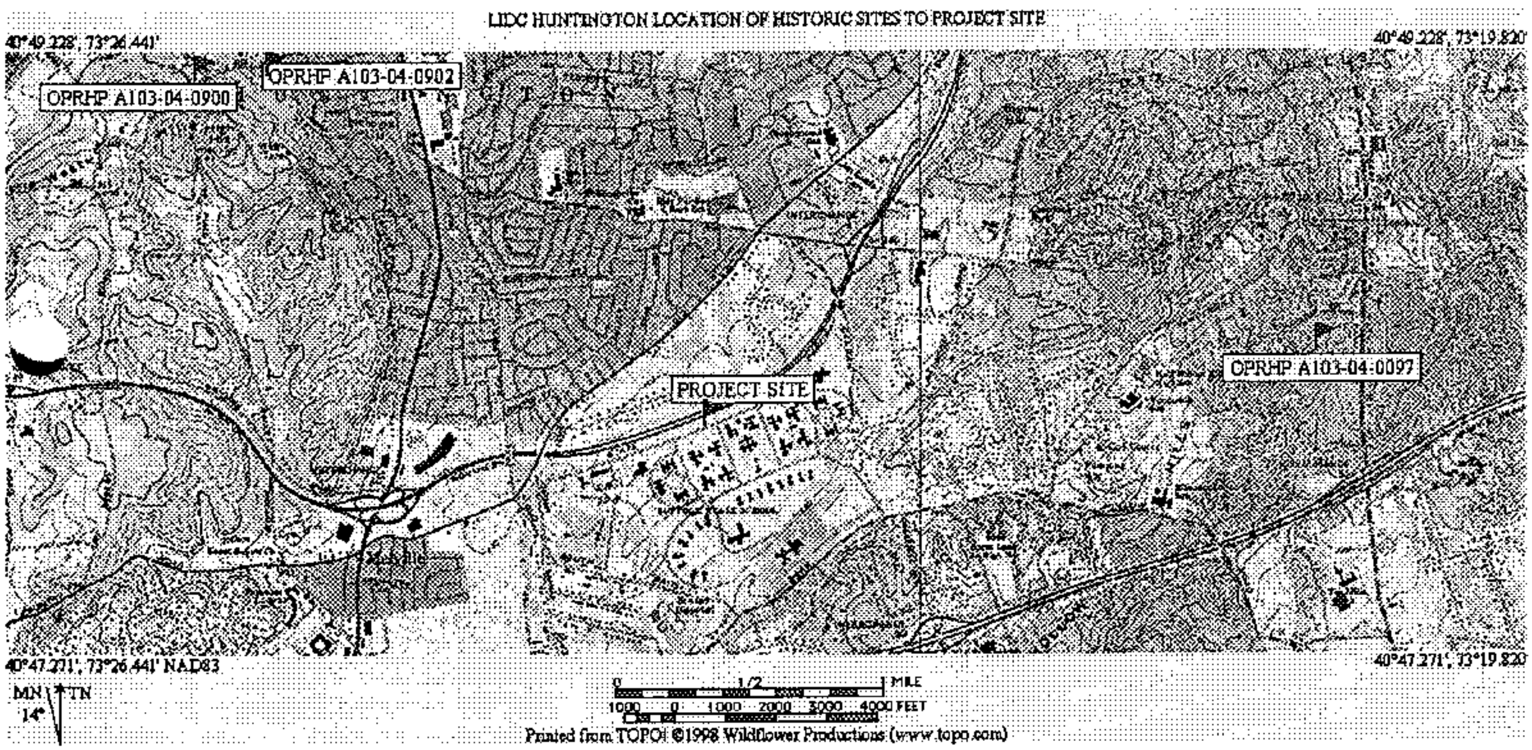

FIGURE 5 – HISTORIC SITES WITHIN 2 MILES OF LIDC.

Some 1,000 properties have been/are being considered for State and National Register listing in the Town of Huntington. Of these 33 are listed for Melville. Of the 33, six residences are listed for Half Hollow Road which skirts the southern edge of the project site. One has been approved for listing, the John Rogers House "Five Gates" at 627 Half Hollow Road. Of the two residences closest to the project site, the Carman-Gustivan-Regan House at 361 Half Hollow Road built prior to 1837 was torn down c. 1994. It's owners are listed as J. Carman 1837; T. Carman 1858; T. Carman 1873; Gustivan 1909 and 1917 and Dr.Herman Baruch 1931. The other, the Ketchum-Baylis-Furst House at 395 Half Hollow Road was built by J. Nostran prior to 1837; owned by E. Ketchum, 1873, Baylis 1909, J. Baylis 1917 and Dr. H. Baruch 1931.

Although, the Carman house was located across the street from the southeast corner of the LIDC property, map research indicated that no known significant historic structures exist on the project site. However, this research did reveal early structures were present on the property.

Figures 6-11 are historic maps illustrating the area of the project site. Little historic development occurred on the site. Figure 6 depicts the 1858 Chace map. Note the G. T. Hammmond structures on the southwest corner of Carman Road. These structures would have been located on LIDC property in the area of the Phase II testing. Pickman mentions identifying stone features in this area. Also note the location of the Carmen, Ketchum, Nostrant and Baylis houses east of Carman's Road on Half Hollow Road. No other structures are present on the LIDC property.

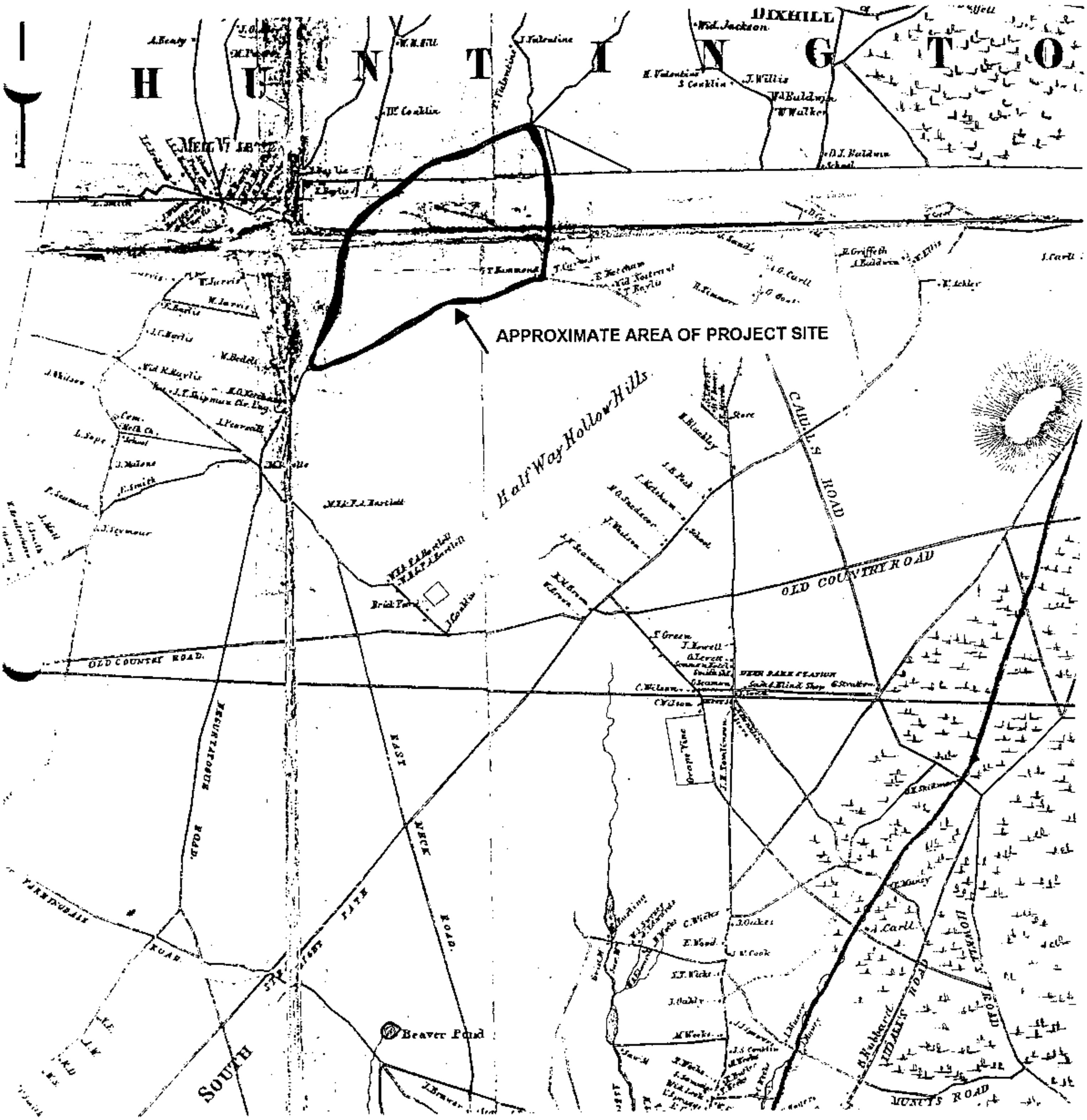

FIGURE 6- CHACE MAP OF SUFFOLK COUNTY, 1858

Figure 7 depicts the 1873 Beers Atlas. On this map we note that the Hammond property is now owned by G & N. Meed and P. O'Brian has built a home to its west. Two other unidentified structures are present on the north side of Half Hollow Hills Road, likely within the LIDC property and the project site.

Figure 8 (Belcher Hyde 1909) indicates that Addie L. Coleman owns 226 acres of the project site and Anna Heck has increased her holdings west of O'Brian. It appears that Mason owns the section west of Old South Road, which is now occupied by the Sewage Treatment facilities. No additional buildings are shown.

Figure 9 illustrates the 1917 Belcher Hyde map. It indicates 3 or 4 structures on the Mason property. Two of these may have the potential to be the unidentified structures noted on the 1873 Beers Atlas. The 1931 Belcher Hyde (Figure 10), 1944 Hagstrom (Figure 11) show continued divisions of the LIDC lands, including a small development called the Oakwood Co. Eastern Hills Development in the western portion.

FIGURE 7 – 1873 BEERS ATLAS

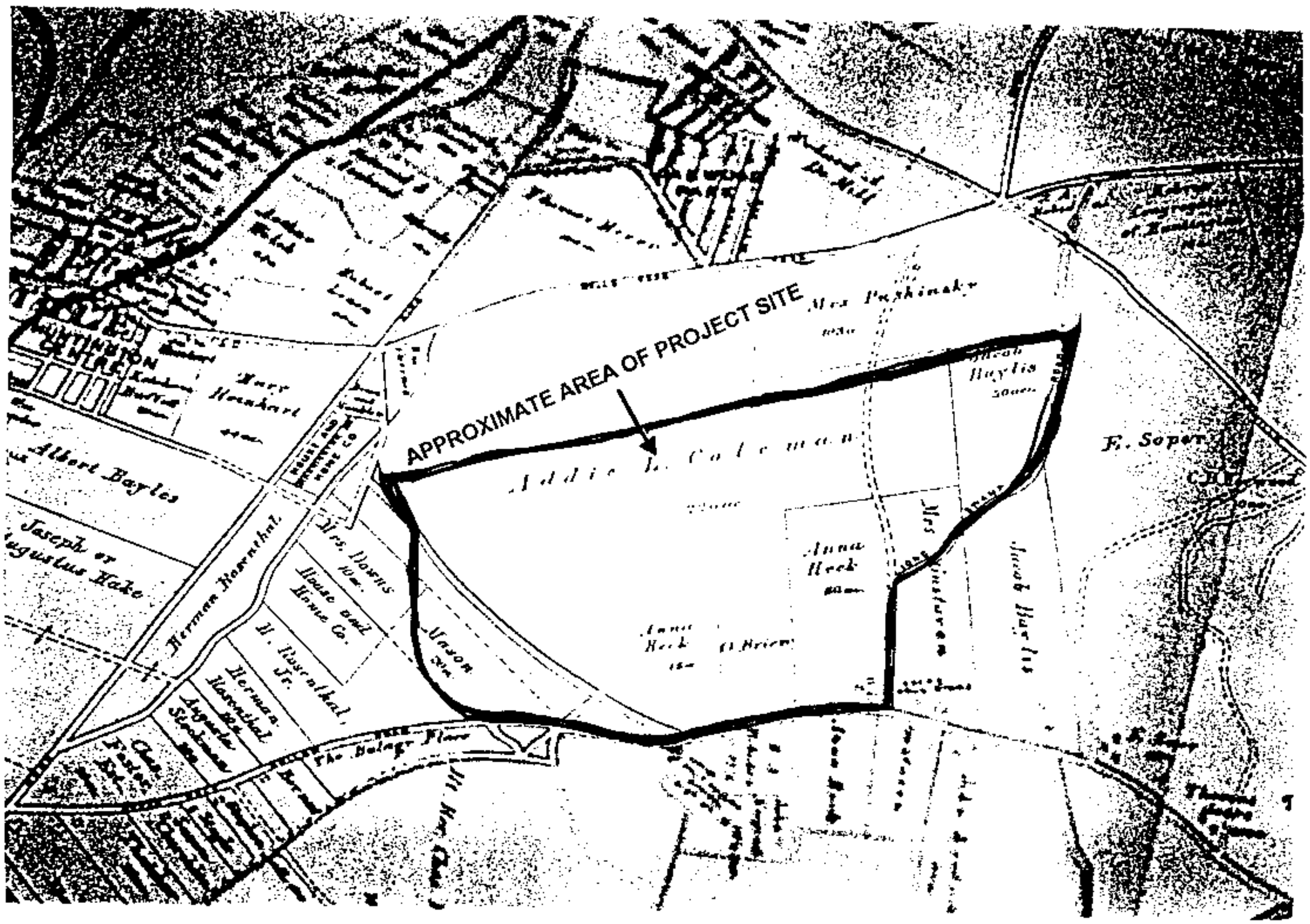

FIGURE 8 – BELCHER HYDE 1909

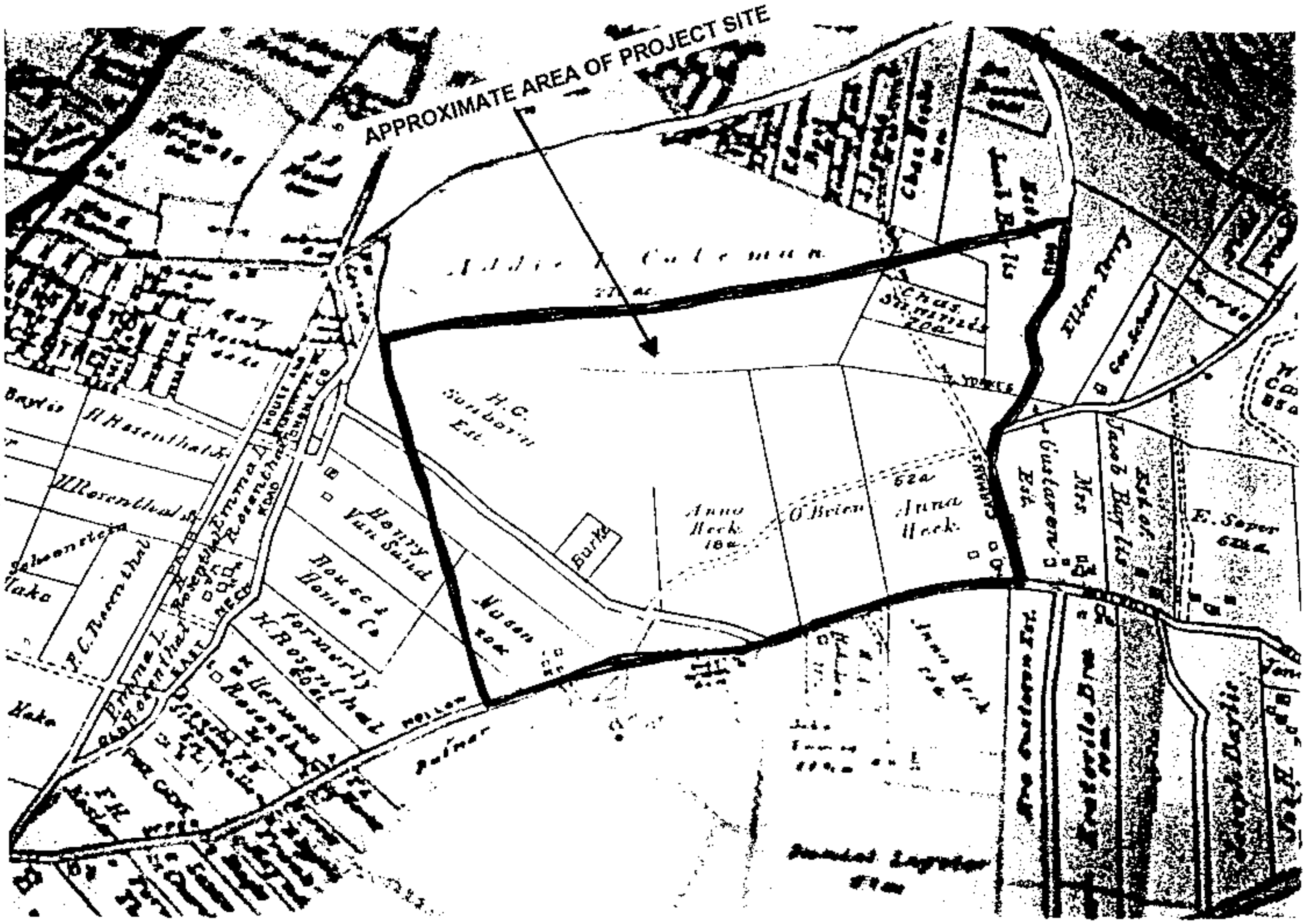

FIGURE 9 – BELCHER HYDE 1917

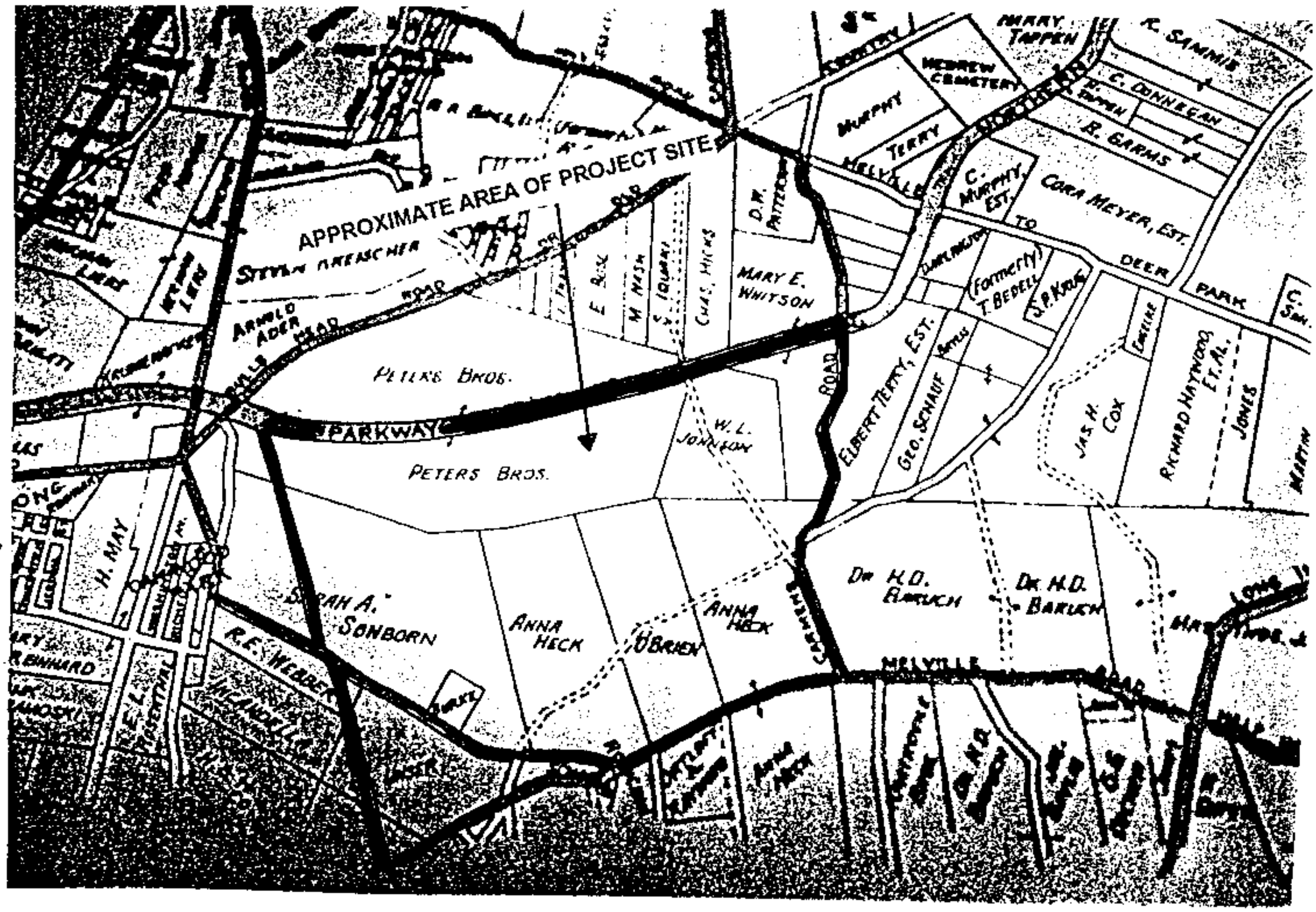

FIGURE 10 - BELCHER HYDE 1931

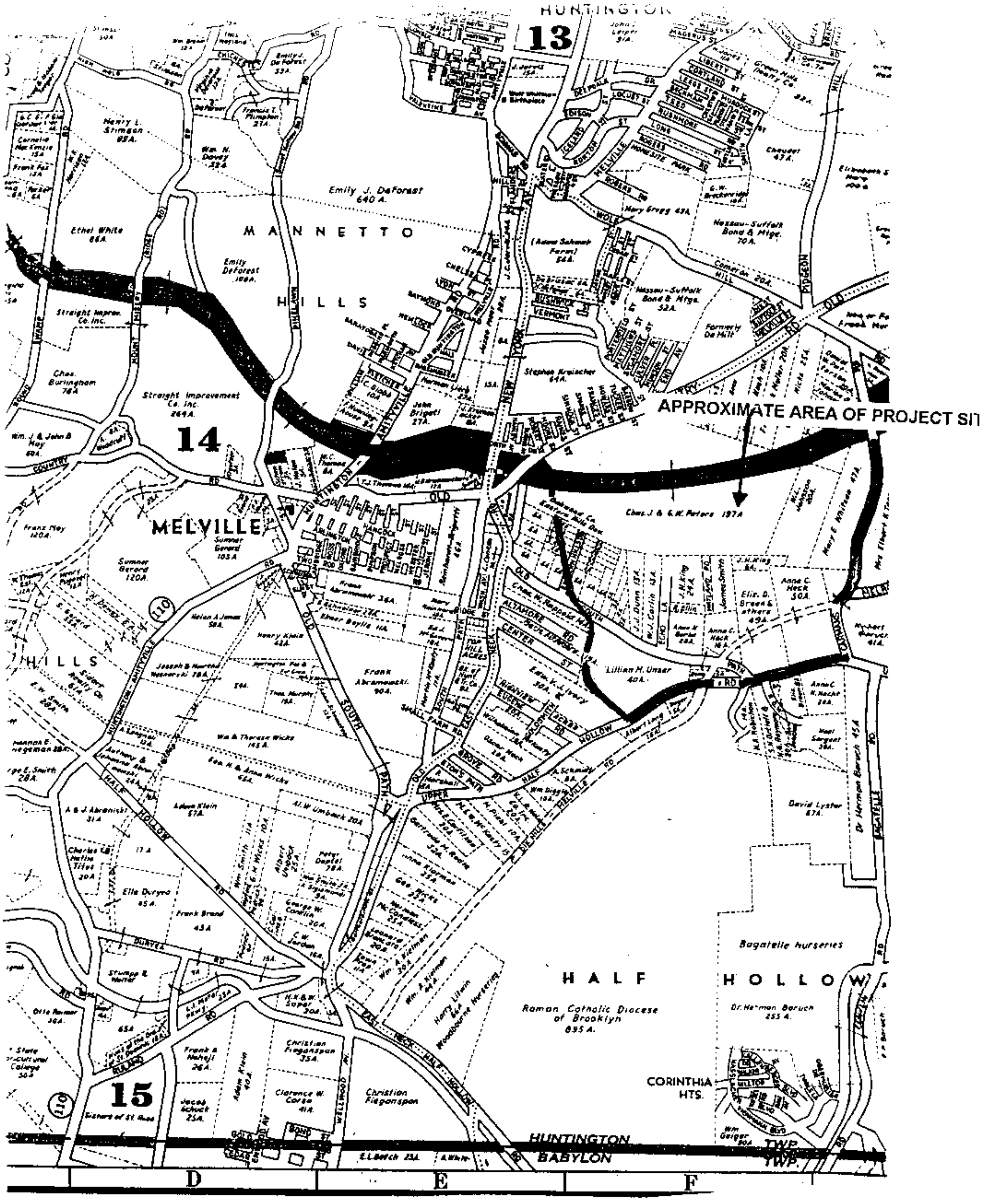

FIGURE 11 – HAGSTROM 1944

2.5 SITE DEVELOPMENT AND DISTURBANCE

In 1965 the State purchased the property to be developed into the Suffolk State School to provide care for "retarded adults" and children. In 1974 the name was changed to the Suffolk Developmental Center, and again in 1984 to the Long Island Developmental Center. In 1986 the site was described as comprising 515.9 acres. One mile of it fronting on Half Hollow Road, 293' on Carman Road and slightly over one mile along the Northern State Parkway (Rubano et al1986:1-5). Entrances existed from Half Hollow Road, Carman Road, Old East Neck Road and Old South Path.

> "Two [main] internal roads serve the site . One, which runs parallel to, and just south of, the Northern State parkway is called the North Road. The North Road is entered from Old East Neck Road. The second internal road is called the South Road; it runs east to west, dividing the property roughly in half. The South Road is entered from both Carman Road (the main entrance and Old South Path). Existing development on the site consists of two major groupings: on the northerly half of the site are two wheel clusters (Bldgs 2-4 and 28-30) and two outer clusters (Bldgs 10-15 and 23-27) at the center is an administrative building (1) and a medical complex (Building 16-19 in addition, there are 2 program buildings 20-21) on the westerly and easterly edges of the buildings clusters. There is a group of service buildings beyond the northerly end of Echo Lane (Bldgs 59-65).
> The southern half of the site is devoted principally to 16 so-called cottages (Bldgs 40-47 and 49-56), a large program building (9) and the Sagamore Children's Center (Bldg.80).
> The segment of the property north of Half Hollow Road and south of Old South Path contains the sewage treatment facility (Bdgs 66 and 69)....Six existing Intermediate Care Facilities in single family houses (Buildings 57, 58, 73, 85, 88, 99)..two additional single family houses (Buildings 90 and 92)..two ICFs located on the site just north of the entrance on Carman's Road and six front on Old South Path...Four staff houses front on Old South Path, another staff house on the north side of Altamore Street, the Directors house on the west side of Echo Lane near its northerly end. There are two other single family dwellings on the site one fronting on

> Old East neck Road the second is occupied by the New York State Facilities Development Corp [no location noted]. A client camp-facility called Camp Rainbow (Bldg 71) is located in the southeast corner of the site." (Rubano 1986:5-6)

In addition

> "Electrical energy is distributed throughout the site by underground cables, storm sewers are piped underground to the impounding basins adjacent to buildings 49 and 80 and sanitary sewers are piped underground to the sanitary treatment plant....Water is supplied to the site by two wells (Buildings 67 and 68) [and underground services distributed to the buildings] Rubano 1986:10-11)

In 1988 two additional portions of the site were developed for Small Residential Units. These are located in the southeast corner of the property and near the mid-eastern edge of the property bordering the South Road on the east, the Recharge basin, and the western edge of the property on the west. It was these two sections that were the subject of the 1988 Stage IA and Stage IB surveys. Subsequent to these tests small residential housing units were built in these two areas. Please see Figure 4.

Figure 4 clearly indicates the density of development of this site. Approximately 100 acres of the project site contain structures (65 acres (Rubano 1988) plus +/-40 for the SRU's) however, with the exception of less than 70 acres, the entire property has been disturbed by construction, grading and landscaping activities, underground sewer, water and/or electric lines. Very little of the site remains undeveloped or undisturbed. Six areas have been identified as undisturbed. These areas are noted in Figure 12 and identified as Sections A, B, C, D, E and F.

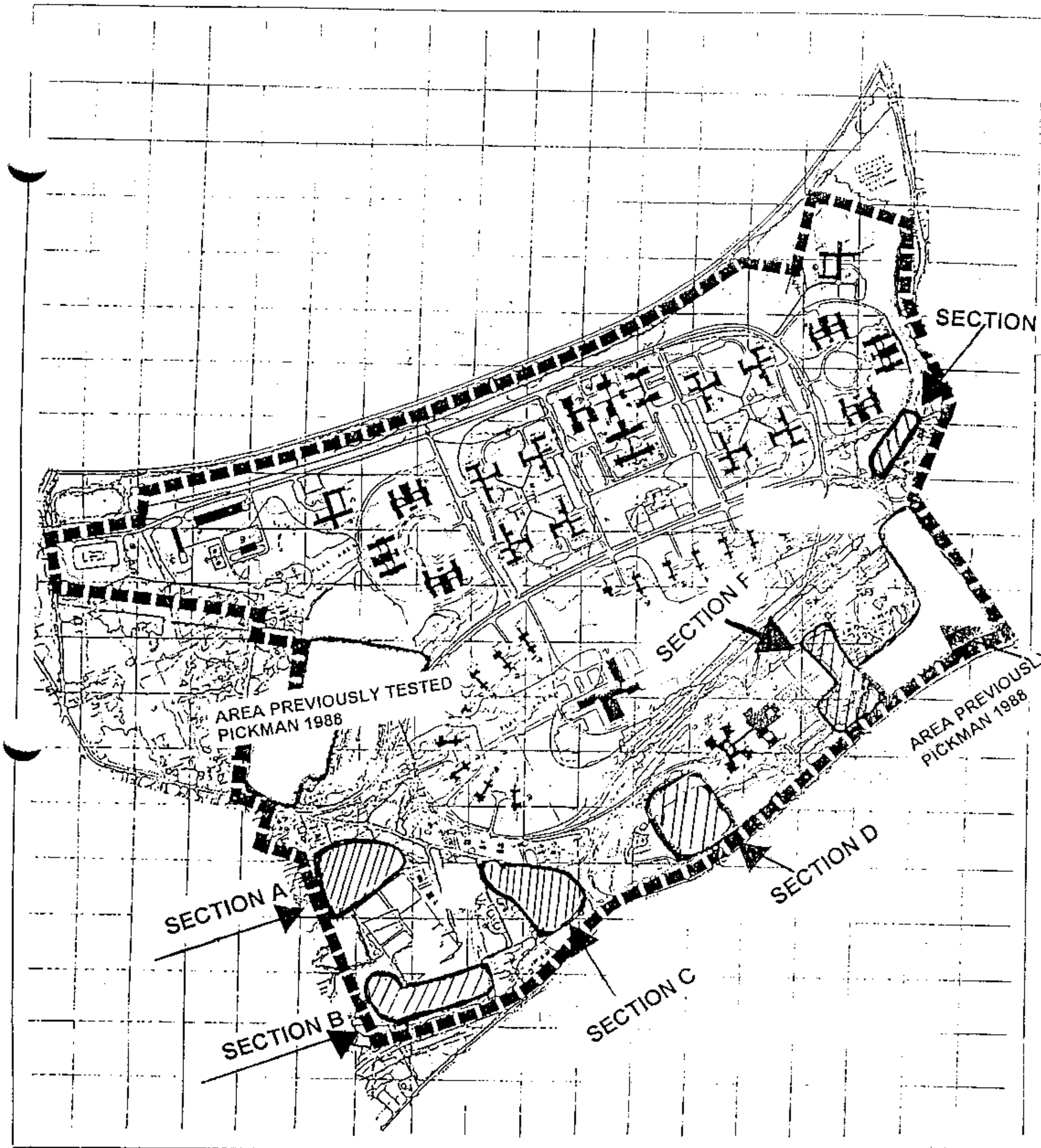

FIGURE 12 – LOCATION OF AREAS OF ARCHAEOLOGICAL SENSITIVITY, SECTIONS A – E.

III. DISCUSSION

3.1 ARCHAEOLOGICAL POTENTIAL

Potential for sub-surface archaeological resources is dependent on several factors including:

1) Reasonable assumptions regarding prehistoric sensitivity for the area.
2) Identification of specific historic indicators
3) Site integrity or documented land disturbance
4) Results of previous archaeological survey

In general the likelihood for undisturbed prehistoric subsurface archaeological resources on the LIDC property is low. Although a number of prehistoric resources have been identified within a two mile radius of the project site, most of the 400 project acres have been disturbed by vast earthmoving episodes, construction and construction related activities. Construction on the majority of the site is obvious. These buildings and landscaping activities have leveled the natural topography, grading it to produce grassy lawns, play areas, playing fields, roads and level ground for construction of the greater than one-hundred structures on the grounds, as well as, the unseen disturbance conveyed in the installation of underground utilities. The entire perimeter of the property appears to have been stripped of natural vegetation and planted with pine trees.

Approximately 40 acres of the grounds were systematically tested in 1988 by Arnold Pickman. The two sections tested were considered to be the most sensitive portion of the LIDC property based on the convergence of intermittent streams in these areas. Although some portions of the two sections tested were disturbed, intact plow zone and sub-soils were encountered. No prehistoric artifacts or features were encountered. In addition, all the local sites were based on surface finds reported by locals or early archaeologists as a result of farming activities. Although farmed for several hundred years no such reports are recorded for this parcel. For these reasons archaeological sensitivity on the majority of the project site is considered to be extremely low.

Some historic buildings were likely to have been located within the bounds of the project site. None are now standing. The likelihood of identifying remains of these homesteads is variable. Pickman identified stone features likely relating to the Hammond/Heck structures. These are located on LIDC in the area of the east side SRU's and therefore, east of the project site. The O'Brian structure has some potential to be located within Area F or on the Sagamore Child's Psychiatric Center grounds, just west of Area F. Possible remains of the two unidentified structures noted on the 1873 Beers Atlas (and perhaps later associated with Mason c 1917) may be located along Half Hollow Road within the Sanitary Disposal Area, therefore, within the project grounds (Area A). These features, if present, may have been impacted during construction of the Sanitary Sewer Area.

3.2 ARCHAEOLOGICAL SENSITIVITY

The following sections of the project site have been assessed to have had little to no construction related impact to the original ground surface. Based on the lack of disturbance and the identification of prehistoric sites within a 2 mile radius they are considered to have archaeological potential. However, their potential is moderated by a lack of recorded surface finds recorded for the site and the Pickman 1988 excavations adjacent to the project site which were sterile of prehistoric resources. They are therefore considered to have low to moderate sensitivity for cultural resources. Section B and Section F may contain historic features related to the Mason (1917 Belcher Hyde map) and O'Brian structures (1873 Beers Atlas) respectively.

Please see Figure 12:

Section A

Section A is located north of the Sanitary Disposal Area. An area of approximately 10 acres, it is covered in woodland. It has low to moderate potential for prehistoric resources. This assessment is based on the appearance of undisturbed topography coupled, however, with the fact that Pickman's survey of a much larger area to the northeast was sterile.

Section B

Section B is a narrow area of approximately 5-7 acres bordering Half Hollow Road. It has potential to hold features associated with the Mason structures discussed above as well as potential for prehistoric resources.

Section C

Section C is an area of natural topography, covered in grassland just east of the Sanitary Disposal Area and west of Old South Path. It is presumably undisturbed, although some portions may contain underground utility/sanitation lines associated with the Sanitary Disposal Area. It has low to moderate potential for prehistoric resources. It is approximately 10 acres.

Section D

Section D is a wooded area on Half Hollow Road, east of the Ponding Basin and west of the Sagamore Child's Psychiatric Center. It contains a low trough which may at one time have been an intermittent stream. Either the low lying land bordering Half Hollow Road or the higher ground to the north have moderate potential for prehistoric resources. The area is approximately 12 acres.

Section E

Section E is a small portion of the perimeter of the project site which borders Carman Road north of the Main Entrance on Carman Road. Although the interior of this section appears to have been graded and landscaped, the topography in this area appears to be natural and is considered to have low to moderate prehistoric potential. This area appears to be no more than 4 acres.

Section F

Section F is an area between 15-17 acres situated between the Sagamore Children's Psychiatric Center and the east side SRU's. This wooded section borders Half Hollow Road on the south where it is road level and contains the low trough also seen in Section C. It rises to the level of the higher plateau of the property and extends north. It is considered to have moderate potential for prehistoric resources. It may contain structural remains associated with the O'Brian house.

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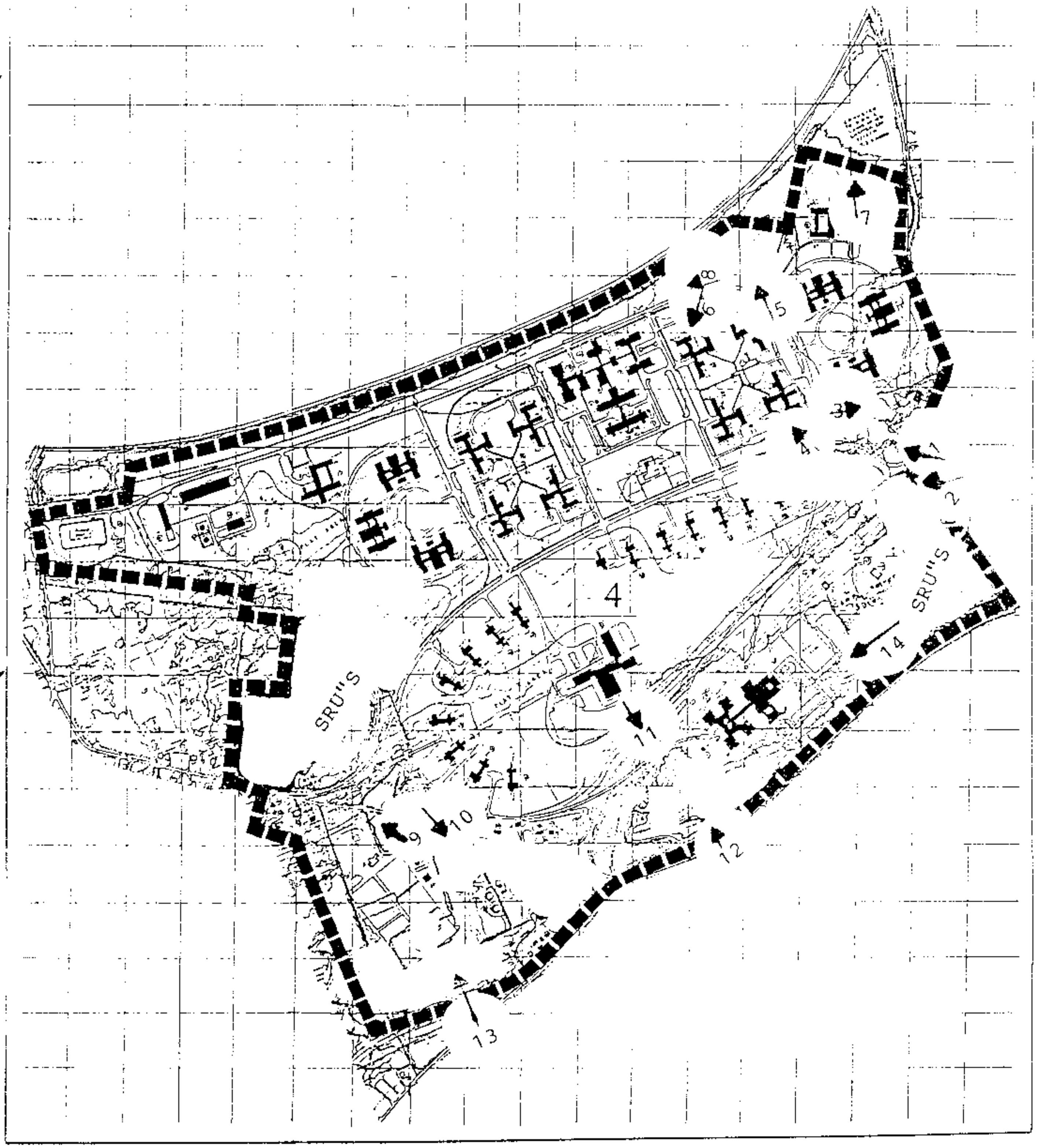
APPENDIX A



Long Island Developmental Center

KEY FOR PHOTOGRAPHS

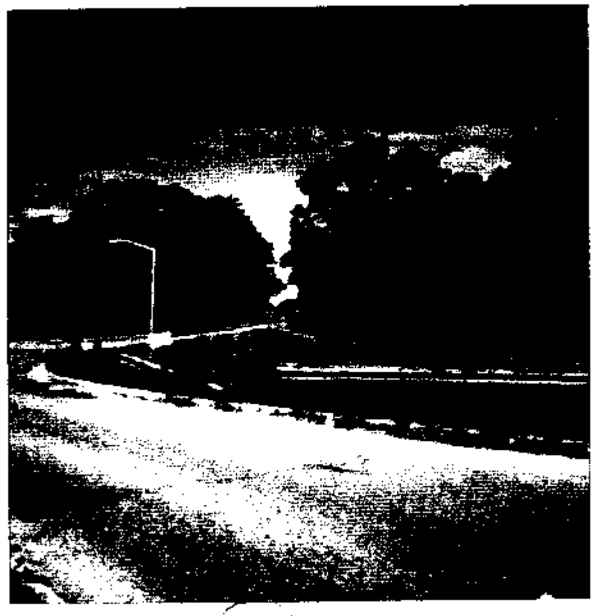


PLATE 1 – LOOKING NORTHWEST FROM THE CARMAN STREET ENTRANCE

PLATE 2 – LOOKING SOUTHWEST FROM THE CARMAN STREET ENTRANCE TOWARD SRU'S

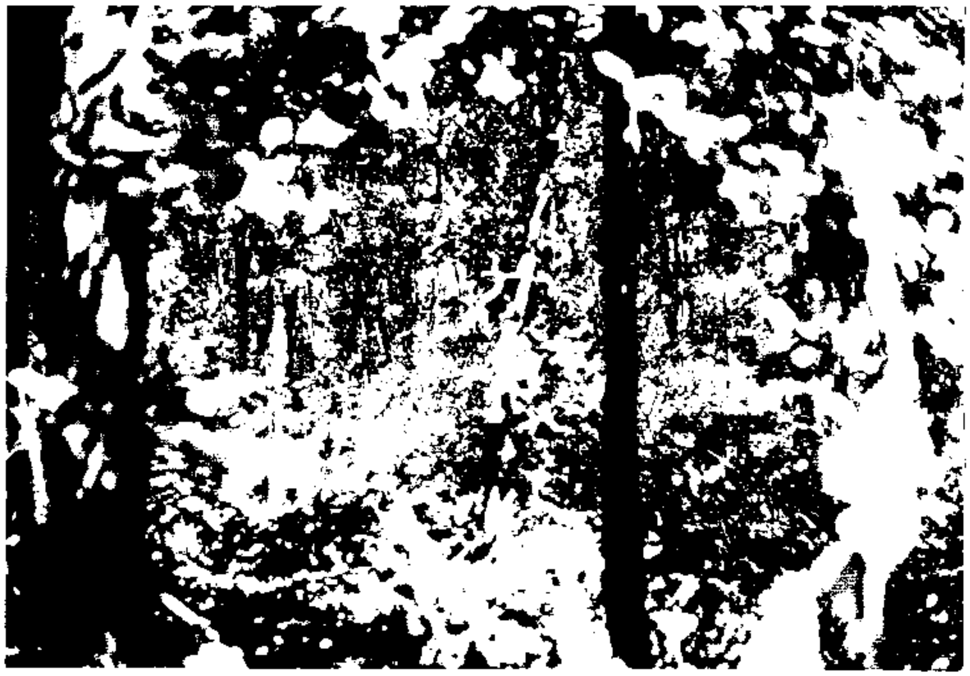


PLATE 3 – LOOKING WEST TOWARD INTERIOR OF SECTION E

PLATE 4 – LOOKING NORTHWEST TOWARD BUILDINGS 22 AND 23

PLATE 5 – LOOKING NORTH TOWARD LANDSCAPED PERIMETER RIMMING NORTHERN STATE PARKWAY

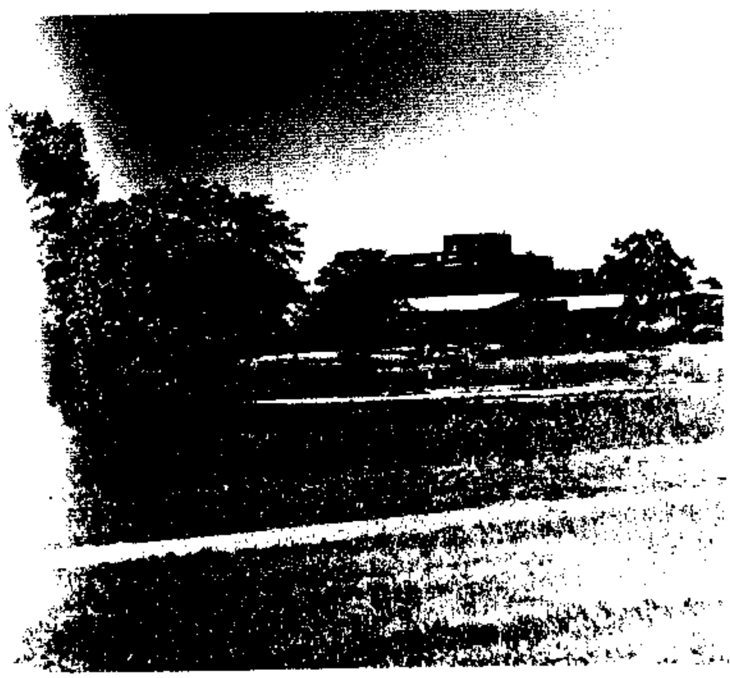


PLATE 6 – LOOKING SOUTHWEST TOWARD BUILDINGS 26 AND 1(IN BACKGROUND)

PLATE 7 - LOOKING NORTH TOWARD BOCES SCHOOL BEYOND PROJECT GROUNDS NORTHEAST CORNER

PLATE 8 – LOOKING WEST ALONG NORTH ROAD

PLATE 9 – LOOKING NORTHWEST INTO AREA A

PLATE 10- LOOKING SOUTHEAST INTO AREA C

PLATE 11 – LOOKING SOUTH INTO AREA D

PLATE 12 – LOOKING NORTH INTO AREA D

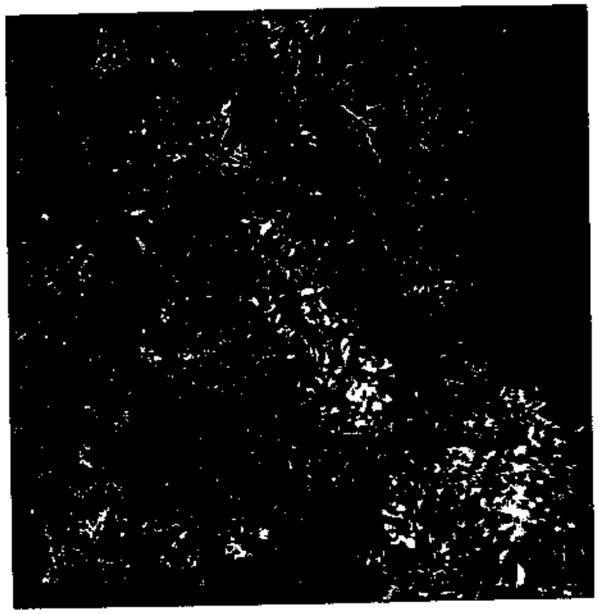


PLATE 13- LOOKING NORTH INTO AREA B

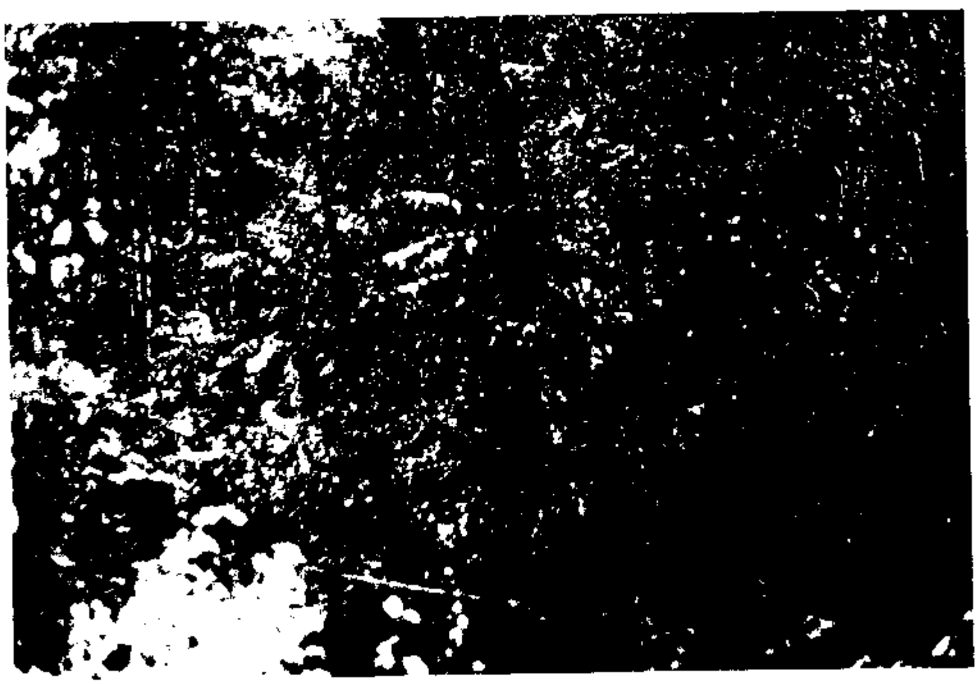


PLATE 14 – LOOKING WEST INTO AREA F

APPENDIX B

Prehistoric Sites

NYSM Sites	OPRHP Sites	Description
5484		Half Hollow Tree Nursery Site. Quartz PP tip, quartz flakes. Reported by Rosalie Robertson PIN 0227.86, pg. 49-52, 55.
5506		SCAA 122, NCM 26. Sweet Hollow Site. Late Archaic. Camp, Village. SCCR site inventory includes 200 PPs, including Vosburg, Levanna-like, Wading River-like pipe (SIC PPs?) frags. Reported by W.B. King. Published in Suffolk County Cultural Resource Inventory.
5520		SCAA 121, NCM 198. Old East Neck Road Site. Late Archaic (Trans? EW?) Mid-late Woodland (Brewerton, Squi, Poplar Island, Rossville, Levanna). Published in Suffolk County Cultural Resource Inventory.
5521		SCAA 123. West Hills Site. Reported by R. Latham/1954. Published in Suffolk County Cultural Resource Inventory.
7673		SCAA No #, NCM 202. Dix Hills Site. Published in Suffolk County Cultural Resource Inventory.
	A103-04-0116	Sweet Hollow Site. Camp, village, possible winter hunting station. Mid-late archaic. King family has collected over 200 PPs some Lamoka-like, Vosburg, Levanna-like, 50 Wading River-like pipe frags (Kaplan). Source: Nassau County Museum #26 King Collection.
	A103-04-0963	Sunquam School Site. Unpublished note from Ronald Wyatt (Nassau County Museum) to B. Fullem. Late Archaic. Wading River PPs, quartz debitage, and flakes, steatite sherd, hammerstones.
	A103-04-0994	Missing.

Historic Sites

NYSM Sites	OPRHP Sites	Description
	A103-04-0097	NYS Conservation Department Forest Fire Observatory Site. Erected 1916, demolished 1952. Reported by Henry Shea, 1974.
	A103-04-0900	Mountain Mist Spring House Site. Marble lined well and pipes remaining. Reference: *Atlas of Suffolk County, Long Island Shore, and Brooklyn.* By E. Belcher Hyde, 1909, archives of state historian. Historic marker at site "Mountain mist spring house. Water was bottled here and sent to Montuak as 'cure' for yellow fever for soldiers returning from the Spanish-American War. 1898."
	A103-04-0902	Stone Fort Site. Visible until early 20th Century. Reference: Henry C Pratt in, *Old Times in Huntington* (1876), describes a stone fort without doors, accessible by a ladder which was pulled in at night. The Fort was built shortly after the town was settled.

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REPORT ARCHAEOLOGICAL SURVEY STAGE IB – LONG ISLAND DEVELOPMENTAL CENTER HUNTINGTON, L.I. NEW YORK

PREPARED FOR: SBJ ASSOCIATES LLC
PREPARED BY: Jo-Ann McLean
Principal Investigator

DECEMBER 1999

JO-ANN MCLEAN
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LYNBROOK, NY 11563

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MANAGEMENT SUMMARY

An archaeological survey, Stage IB was conducted for SBJ Associates, LLC at The Long Island Developmental Center property in Melville, Town of Huntington, Suffolk County, New York (see Figure 1) by Jo-Ann McLean Archaeological Consultants. The work was performed based on the Stage IA (*Report Archaeological Survey Stage IA Long Island Developmental Center Melville Town of Huntington, Suffolk County, NY*, 1999) prepared by Jo-Ann McLean, R.P.A., Principal Investigator.

The LIDC property is approximately 400 acres. The Stage IA eliminated all but approximately 50 acres from testing due to extreme disturbance of the property by extensive development and construction related episodes. Six sections of the L.I. D.C. grounds were identified for testing. These sections were all located along the perimeter of the property and were believed to have been spared disturbance.

Barrett, Bonacci, & Van Weele, P.C. Civil Engineers, Surveyors, and Planners were employed to establish the grids for testing each of the six areas. Stakes were placed at fifty-foot intervals across each area and area specific site surveys were created. Shovel tests were conducted at each transect unless prevented by field conditions. A total of 725 shovel tests were established across a total of approximately 50 acres. Few cultural materials were located, none significant. No significant clusters were identified. No above or below ground features were encountered. No further work is recommended for this site.

The Principal Investigator for the project was Jo-Ann McLean. Crew included Jessica Roneree, Paul Wolff, Iris Levin, Peter Johnson, Michael McLean, Sean McLean, Christian McLean, Corina Calise, Christian Gould, John McInerney. The work was conducted between, November 6 and December 10, 1999.

REPORT
STAGE IB ARCHAEOLOGICAL SURVEY
LONG ISLAND DEVELOPMENTAL CENTER PROPERTY
TOWN OF HUNTINGTON, SUFFOLK COUNTY, NEW YORK

I. INTRODUCTION

Archaeological survey is the primary means by which sub-surface cultural resources are identified and their eligibility for inclusion in the National or State Registers evaluated. Such surveys are usually conducted in three consecutive stages (Stages I, II, III). Reports produced after the completion of each stage of investigation detailing methodology, results, conclusions and recommendations, are reviewed by the State Historic Preservation Officer (SHPO) and/or officials from other relevant Local, State and/or Federal agencies. It is these officials who agree (sometimes with modifications) or disagree with the conclusions and recommendations included in submitted reports.

Stage I survey is composed of two avenues of research (Stage IA and Stage IB), that may or may not be conducted simultaneously. A Stage IA survey includes researching relevant maps, references, and other information sources pertaining to a project area to determine whether or not prehistoric and/or historic cultural resources are potentially present. Such a level of investigation would also provide data on documented ground disturbance, if any, that may have destroyed such resources.

A Stage IB survey primarily involves systematic sub-surface testing of a project area in order to determine whether or not cultural deposits or artifact scatters are present and their general location. Such deposits or scatters constitute all or part of an archaeological site. Pertinent information acquired during the Stage IA survey should contribute to the development of the Stage IB field testing strategy.

Sub-surface testing carried out during a Stage IB survey usually consists of "shovel tests". Shovel tests are small excavations covering approximately 1.5 square feet of surface area extending to the depth necessary to reach sterile sub-soil. All soils removed from each test are passed through a 1/4 inch mesh screen to detect the presence of artifacts. All artifacts are bagged in the field, with each bag labeled according to provenience, and returned to the laboratory for analysis and tabulation.

If a Stage I survey indicates that possibly National or State Register eligible archaeological deposits are present, the next stage of investigation usually involves a more intensive investigation of the identified site area or areas. A Stage II investigation will provide the SHPO and other relevant officials with further information necessary to make a determination of National Register eligibility. A Stage II investigation typically involves the excavation of a number of larger and more carefully excavated test squares or trenches as well as additional shovel tests within the site area.

If, based on the Stage II survey, a determination of National Register eligibility is made by the appropriate authorities two mitigation options, avoidance and further data recovery (e.g. area excavation) are available to adequately address the significant cultural resources identified. Modifications of the construction plan could exclude development and other forms of ground disturbance from areas where significant cultural resources are known to exist. Legal and other safeguards may also be necessary to perpetually preserve the site area. If avoidance of the cultural resource is not feasible then further data recovery would be required. Such a Stage III investigation may include the excavation of larger test squares or trenches, or other appropriate procedures, in order to recover all or a representative sample of the data contained within the site.

An archaeological survey, Stage IB was conducted for SBJ Associates, LLC at The Long Island Developmental Center property in Melville, Town of Huntington, Suffolk County, New York (see Figure 1) by Jo-Ann McLean Archaeological Consultants. The work was performed based on the Stage IA (*Report Archaeological Survey Stage IA Long Island Developmental Center Melville Town of Huntington, Suffolk County, NY*, 1999) prepared by Jo-Ann McLean, R.P.A., Principal Investigator.

The LIDC property is approximately 400 acres. The Stage IA eliminated all but approximately 50 acres from testing due to extreme disturbance of the property by extensive development and construction related episodes. Six sections of the L.I. D.C. grounds were identified for testing. These sections were all located along the perimeter of the property and were believed to have been spared disturbance. Please see Figure 2 and Appendix C for the locations of these areas. Plates are located in Appendix A; each is keyed to individual Area survey.

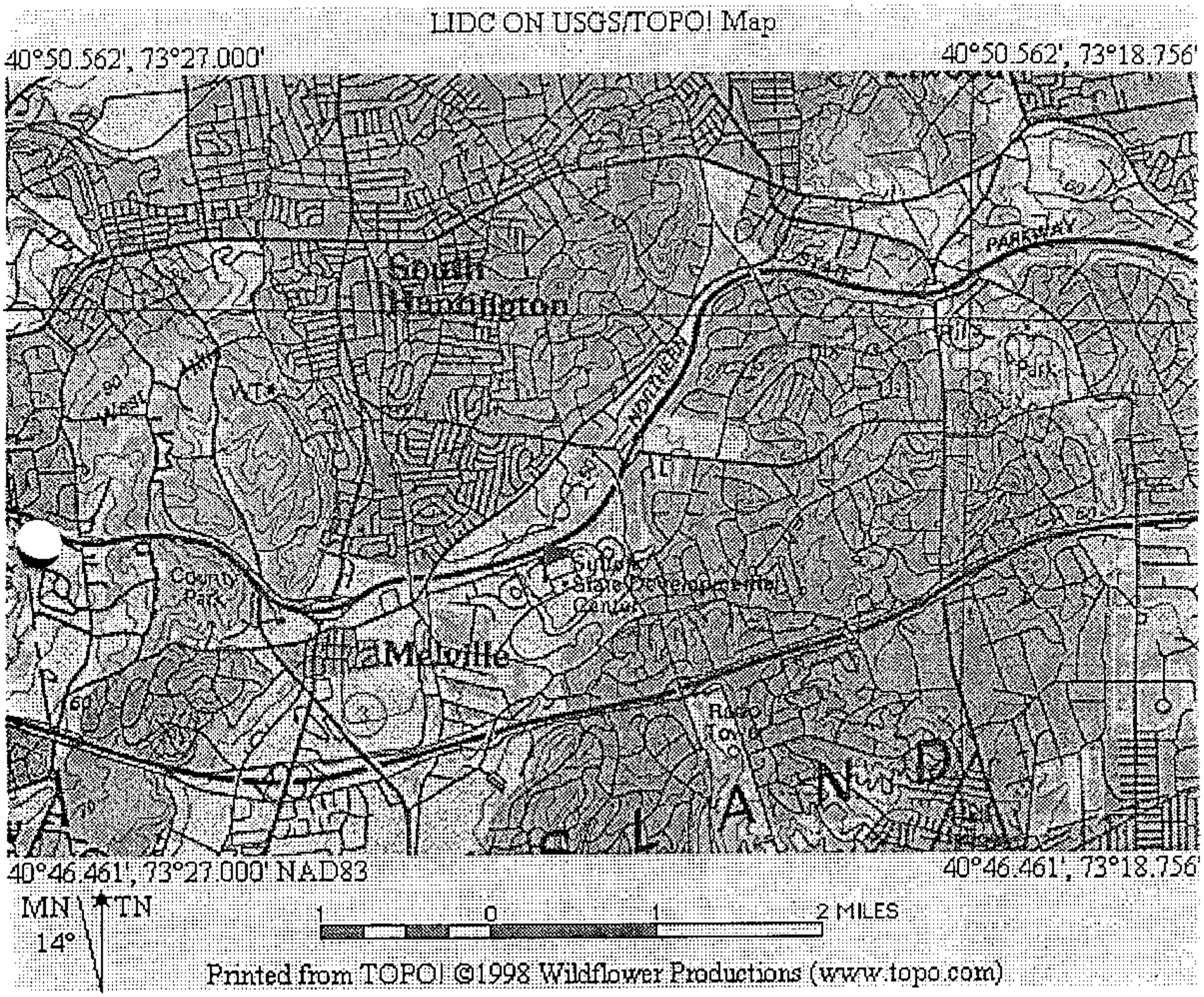

FIGURE 1 – SITE LOCATION - U.S.G.S./TOPO MAP

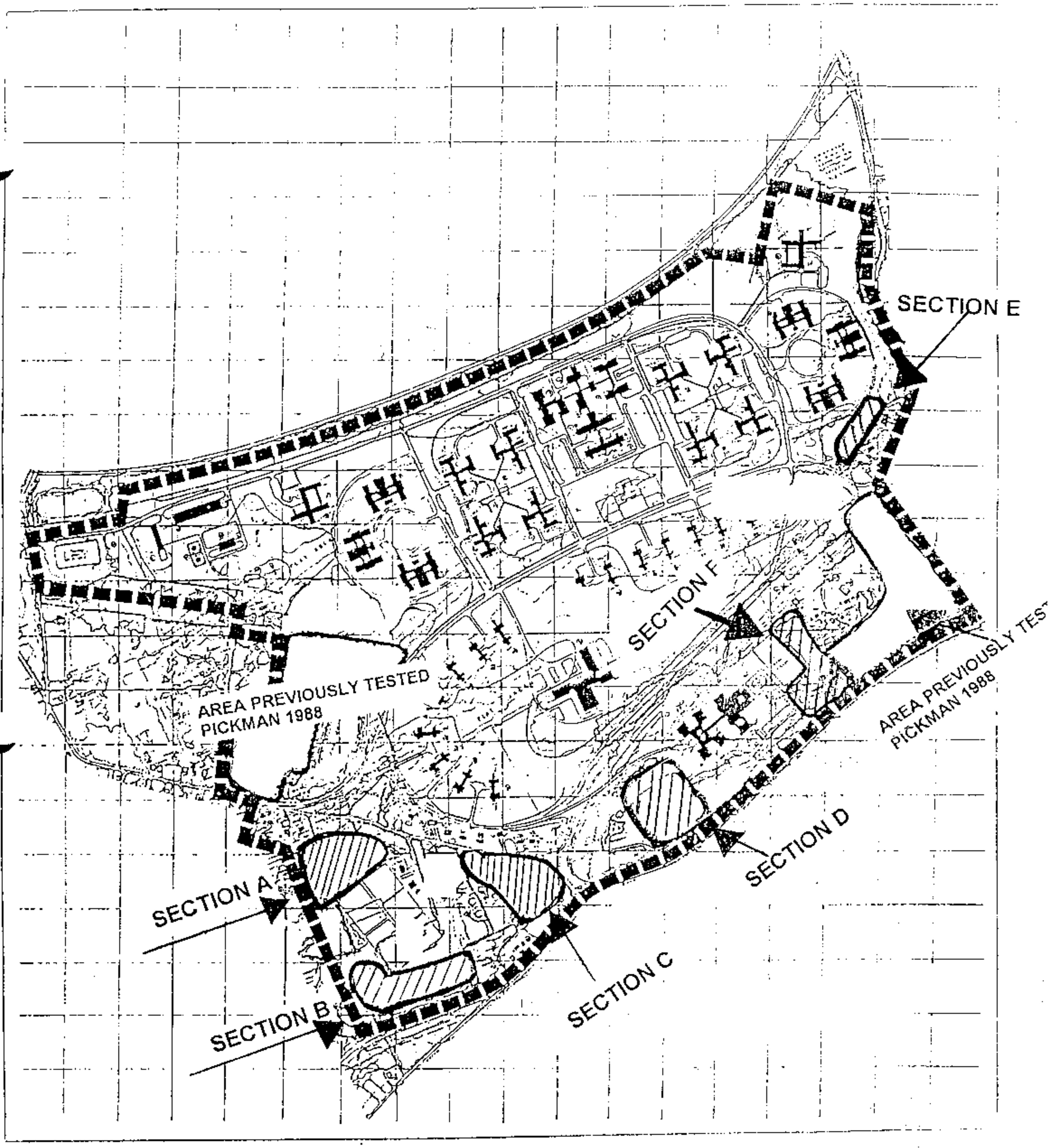

FIGURE 2 – AREAS IDENTIFIED AS SENSITIVE BY STAGE IA

II. STAGE IB ARCHAEOLOGICAL SURVEY

II.1 SUB-SURFACE TESTING METHODOLOGY

All removed soils were screened with a ¼" mesh screen. Recovered materials were bagged in the field and returned to the laboratory for identification. Standardized recording sheets were employed in record keeping. No soil samples were taken.

Shovel testing was conducted at fifty-foot intervals as required by New York State Standards. Barrett, Bonacci, & Van Weele, P.C. Civil Engineers, Surveyors, and Planners were employed to establish the grids for testing each of the six areas. The Datum (*Point of Beginning* on Site Map Appendix C) was placed centrally on the site map. Individual Datum (*Point of Beginning*) were established for each area specific survey. Stakes were placed at fifty-foot intervals across each area and area specific surveys were created (Figures 3-8). Shovel tests were conducted at each transect unless prevented by field conditions. A total of 725 shovel tests were performed across a total of 50 acres. Please see Plates 1-6. All plates are located in Appendix A and keyed to each individual area survey.

Please see each individual area survey, included in the text, and the Site Survey (Appendix C) for specific locations of shovel tests. Appendix B details each shovel test by stratum and materials recovered. Due to thick vegetation in the project area STPs were not always established or numbered consecutively. Shovel tests are numbered by the field points established by the surveyors, i.e. 5121. 5122. etc. Each test is listed in Appendix B by its Area designation (A,B,C,D,E,F), STP # (field point #) and from left to right on the appropriate north/south transect, for example:

Area A	Area D
N-0	**N50**
5121	5529
5122	5528
	5456

The location of each test is clearly indicated on each area specific survey.

II.2 FIELD SURVEY AND RESULTS

Field survey conducted by Jo-Ann McLean Inc. consisted in shovel testing. A total of 725 shovel tests were performed across the six designated areas. These areas were designated as Area A, Area B, Area C, Area D, Area E, and Area F totaled +/- 50 acres. Each is discussed separately below.

Area A

Area A consists of a approximately 5.5 acres. It is a mostly wooded area. The southeast half runs along the sewage disposal leaching fields. A total of 117 tests were examined in this area. Please see Figure 3;Plate 1. In general these tests contained three strata, Dark brown Loam, Brown sandy loam, and either Orange sand or orange sandy clay. The only artifacts recovered were three plastic fragments. These were discarded in the field.

Area B

Area B consists in mostly undisturbed soils in a wooded area of approximately 8 acres. A total of 150 tests were conducted. Please see Figure 4;Plate 2. The soils consisted mostly of a Humus first stratum, a Brown or red/brown loam second stratum and a third stratum of Tan/ orange sand. This area appears to be largely undisturbed, the stratigraphy clearly intact, but sterile. The easternmost fifteen tests of this section were placed in a section overrun by an ongoing adjacent construction of this section were placed in a section overrun by an ongoing adjacent construction site. These tests were therefore not excavated. No significant materials were recovered.

Area C

Area C consists in an open hilly area of approximately 8 acres bordered by Old South Path and Upper Half Hollow Road. A total of 111 shovel tests were placed here. Please see Figure 5;Plate 3. The tests along Half Hollow Road were placed to test for remains of historic structures identified in the Stage IA survey. Although cultural materials consisting of asphalt, rubber, glass and metal were recovered in some tests close to Half Hollow Road, no tests contained historic remains. No clusters of artifacts were identified and no above ground or sub surface features indicating historic occupation were encountered.

Area D

Area D is an area of approximately 10.5 acres located to the east of the recharge basin and west of the Sagamore Child's Psychiatric Hospital on Half Hollow Road. A total of 146 tests were established here. Please see Figure 6;Plate 4. Portions of a cement path were identified in the N150 line (STPs 5531, 5526, 5524) but no artifacts associated with this 20th century path. Shovel tests 5582 and 5576 along the fence line were unexcavated due to the presence of solid asphalt. Other tests along the N600 line (STP 5580, 5567); N650 (STP 5578) and N700 (5563, 5564) were unexcavated due to the ground-slope. This area had apparently been disturbed by path construction and fence installation and as a result of excavation for the recharge basin. One burned wood fragment was recovered and discarded.

GRID LAYOUT AREA "A"

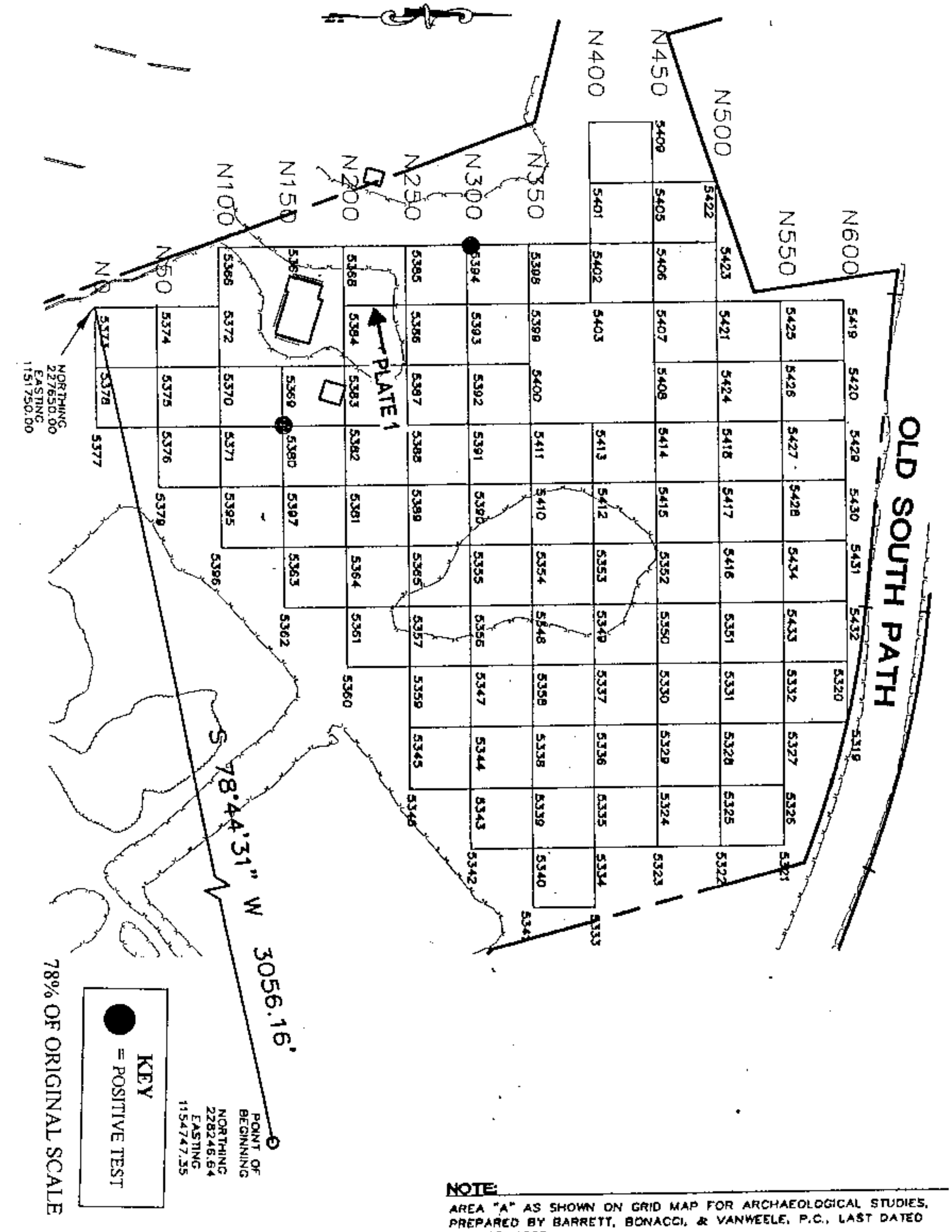

FIGURE 3 – AREA A SITE MAP

NOTE:
AREA "A" AS SHOWN ON GRID MAP FOR ARCHAEOLOGICAL STUDIES, PREPARED BY BARRETT, BONACCI, & VANWEELE, P.C., LAST DATED DEC. 16, 1999.

LM: SMALL-GRID
VIEW: AREA-A

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REVISIONS:

JOB NO.: 990032

DATE: DEC.16, 1999

DR. JMF CH. SCALE: 1" = 100' DIST. 400 SEC. 260 BLK. 1 LOT 2 & P/O 1.5

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GRID LAYOUT AREA "B"

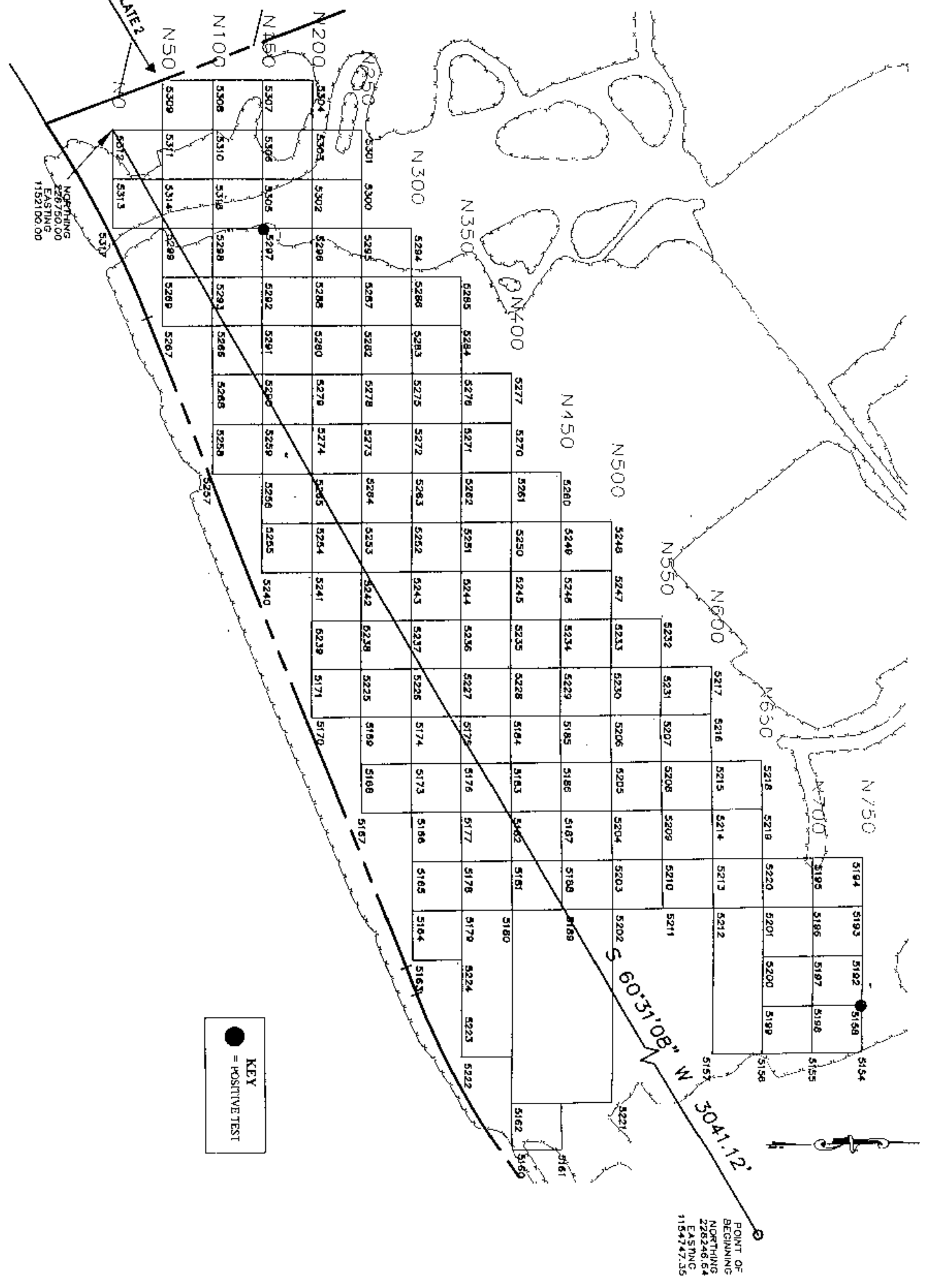

FIGURE 4 - AREA B - SITE MAP

NOTE:
AREA "B" AS SHOWN ON GRID MAP FOR ARCHAEOLOGICAL STUDIES, PREPARED BY BARRETT, BONACCI, & VANWEELE, P.C., LAST DATED DEC. 16, 1999.

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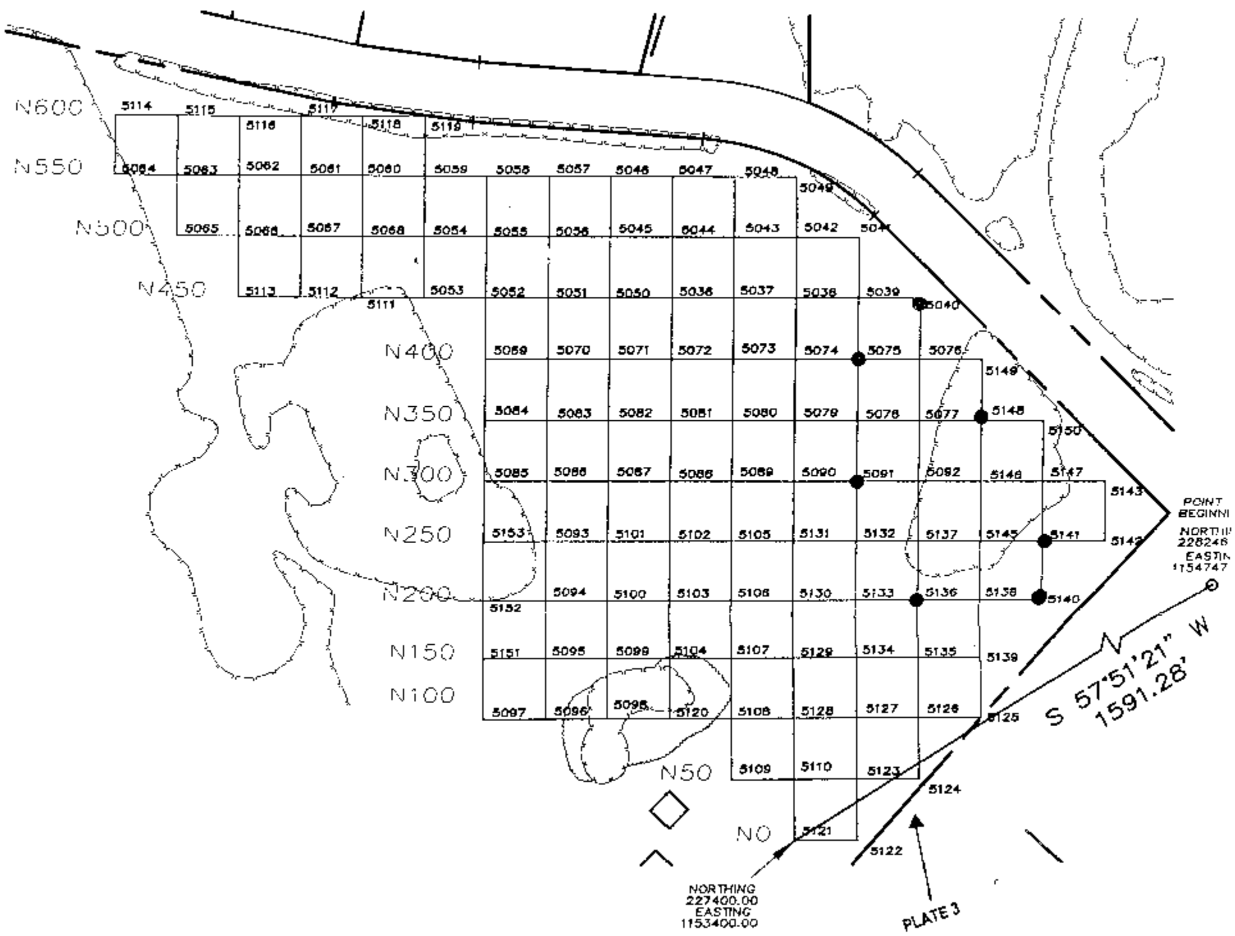
JOB NO. 990032
DATE Dec. 16, 1999

LM: SMALL-GRID
VIEW: AREA-B

DR. JMF CH. SCALE: 1" = 100' DIST. 400 SEC. 260 BLK. 1 LOT 2 & P/

GRID LAYOUT AREA "C"



KEY
● = POSITIVE TEST

NOTE:
AREA "C" AS SHOWN ON GRID MAP FOR ARCHAEOLOGICAL STUDIES. PREPARED BY BARRETT, BONACCI, & VANWEELE, P.C., LAST DATED DEC. 16, 1999.

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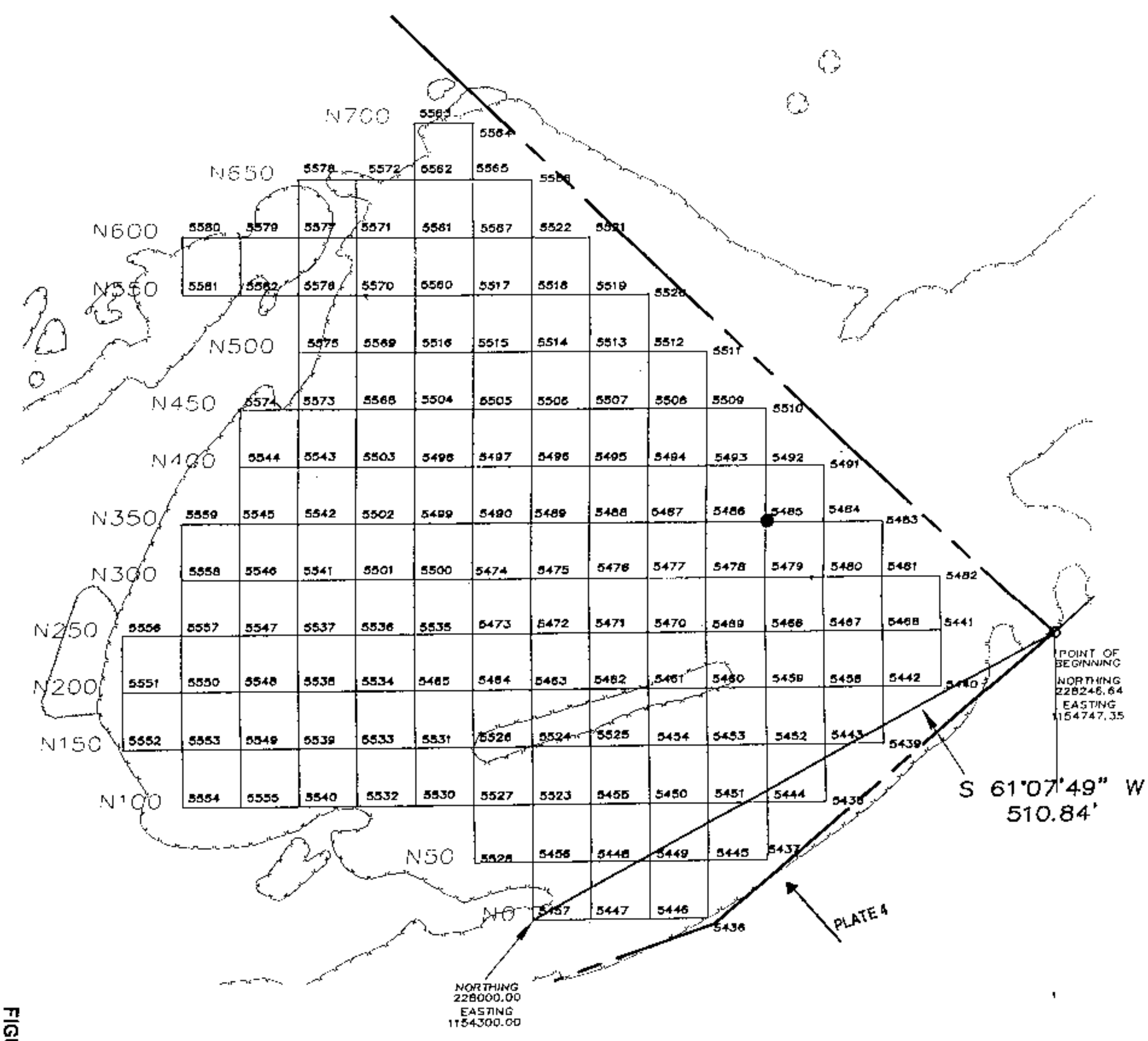
LM: SMALL-GRID
VIEW: AREA-C

DR. JMF CH. SCALE: 1" = 100' DIST. 400 SEC. 260 BLK. 1 LOT 2 & P

FIGURE 5 - AREA C SITE MAP

GRID LAYOUT AREA "D"



KEY
● = POSITIVE TEST

NOTE:
AREA "D" AS SHOWN ON GRID MAP FOR ARCHAEOLOGICAL STUDIES, PREPARED BY BARRETT, BONACCI, & VANWEELE, P.C., LAST DATED DEC. 16, 1999.

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DR JMF CH. SCALE: 1" = 100' DIST. 400 SEC. 260 BLK. 1 LOT 2 & P

FIGURE 6 – AREA D SITE MAP

Area E

Area E is an area of approximately 3 acres just north of the Carmen Road entrance to the property. It is a wooded area. Forty-six shovel tests were conducted in this area. Please see Figure 7;Plate 5. All tests were all sterile with the exception of STP 5627 which contained an oxidized rebar fragment.

Area F

Area F was the largest area tested. It is located just east of the Sagamore Child's Psychiatric Hospital and consists of approximately thirteen acres. A total of 155 tests were established here. Please see Figure 8;Plate 6. This area borders Half Hollow Road on the south where it is level with the road and contains a low trough. It rises to the north. Potential was presumed based on the possibility of an intermittent prehistoric stream and recorded historic structures. No materials associated with historic occupation were recovered and no features were encountered. No prehistoric materials were recovered. A small mammal bone with no other associations was recovered from Stratum III of STP 5674.

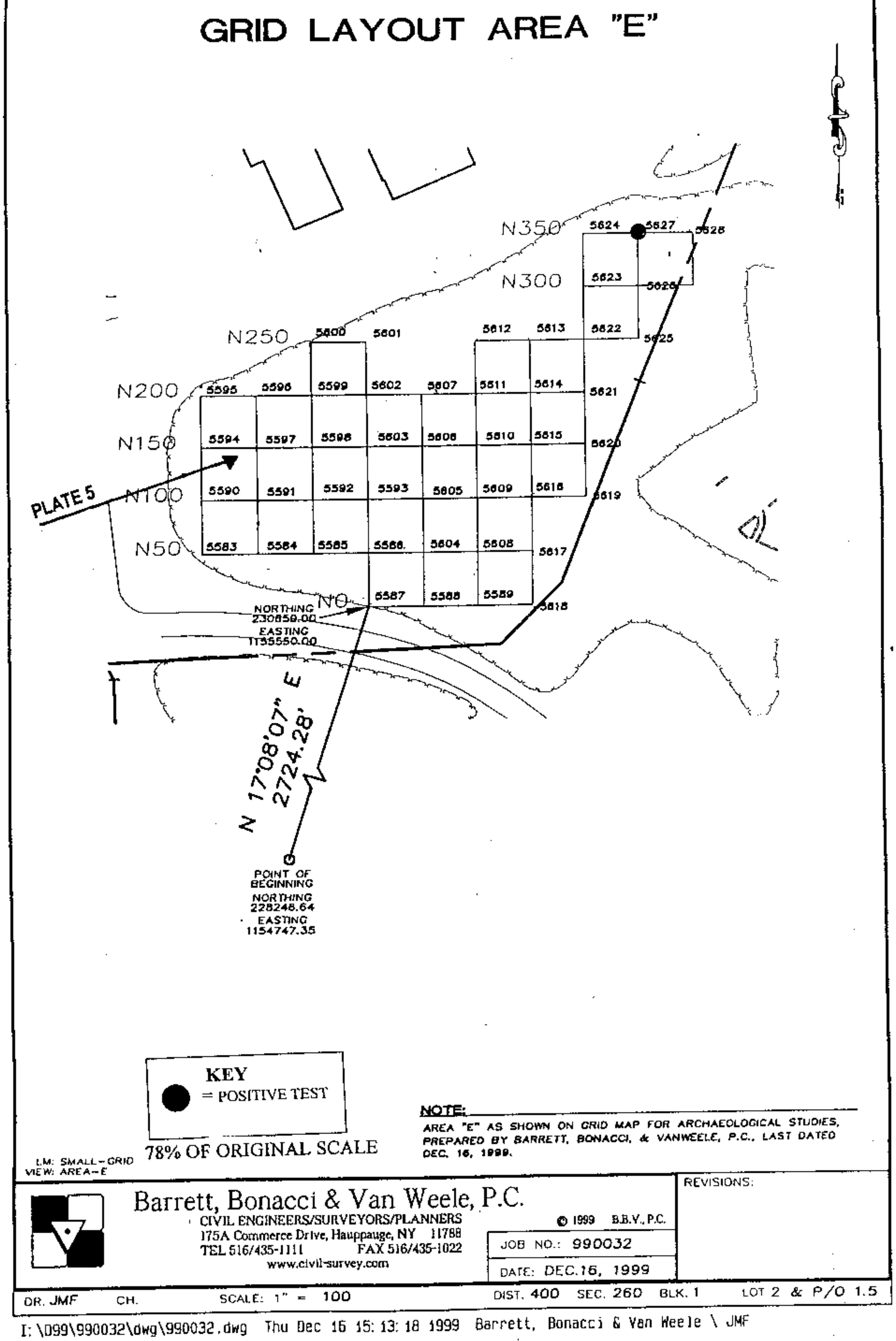

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FIGURE 7 – AREA E SITE MAP

GRID LAYOUT AREA "F"

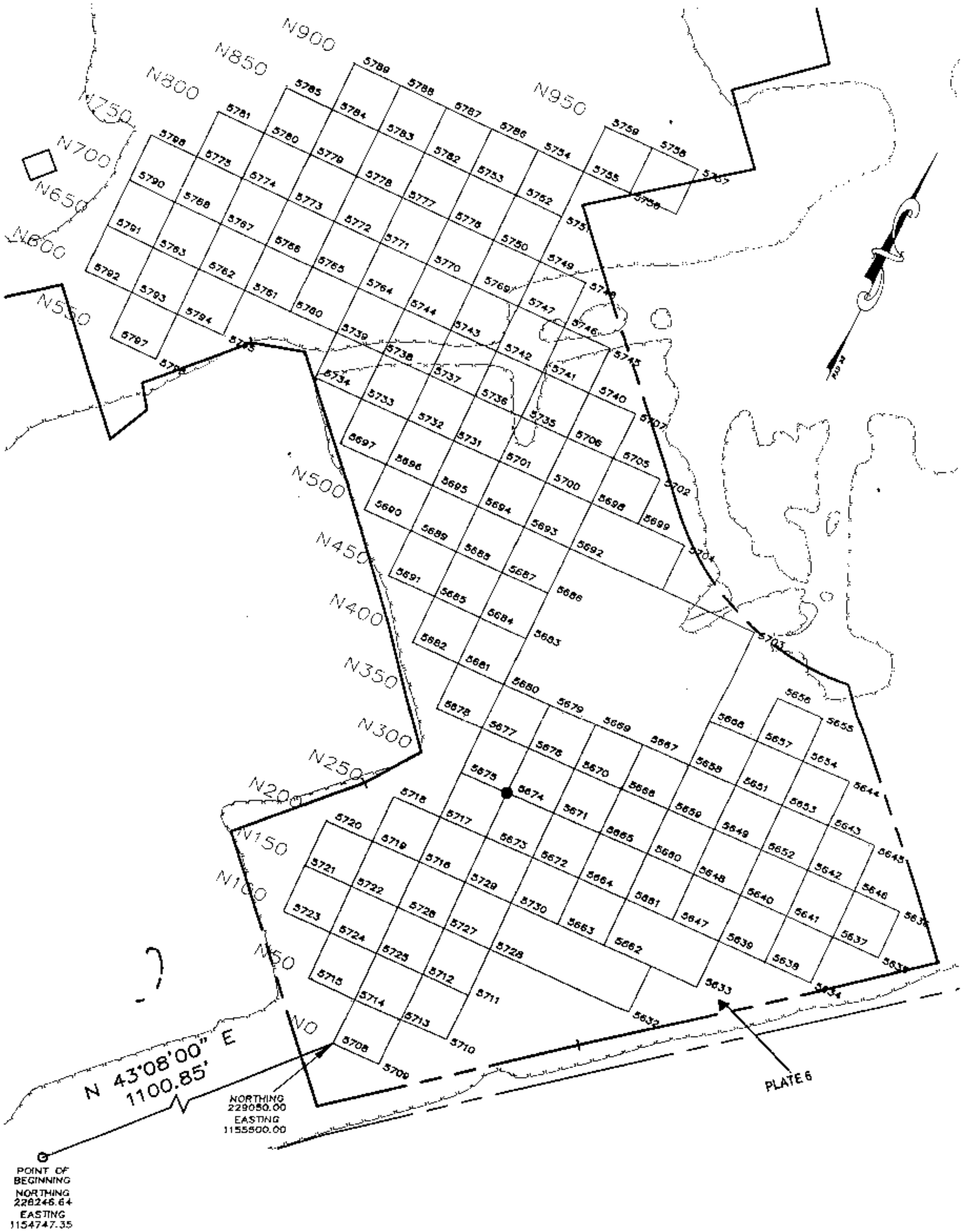

FIGURE 8 – AREA F SITE MAP

KEY

● = POSITIVE TEST

NOTE:

AREA "F" AS SHOWN ON GRID MAP FOR ARCHAEOLOGICAL STUDIES, PREPARED BY BARRETT, BONACCI, & VANWEELE, P.C., LAST DATED DEC. 16, 1999.

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III. DISCUSSION AND RECOMMENDATIONS

3.1 DISCUSSION OF FIELD SURVEY RESULTS

Overall the six sections tested for historic and prehistoric sub-surface cultural materials at the L.I.D.C. property were sterile of artifacts. Areas believed to be largely undisturbed proved to contain some forms of disturbance: Portions of Area A appear to have experienced some disturbance in relation to the construction of the sewer treatment facility. Area D showed disturbance in the form of twentieth century walkways and fence construction and some additional disturbance in the area of the recharge basin. Area C showed disturbance near Half Hollow Road where historic features were expected to be encountered. This disturbance was likely associated with road construction, construction of the sewer treatment facility and perhaps removal of the features themselves. Area B, Area E, and Area F though largely undisturbed were virtually sterile. Area F exhibited no remnants of historic occupation.

The absence of archaeological deposits has been clearly established by Stage IB testing at the L.I.D.C. property. No further archaeological survey is recommended.

APPENDIX A

PLATE 1 – AREA A LOOKING WEST TOWARD TEST #5384

PLATE 2 – AREA B LOOKING NORTHEAST TOWARD TEST #5309

PLATE 3 – AREA C LOOKING NORTH

PLATE 4 – AREA D LOOKING NORTHWEST TOWARD TEST 5437

PLATE 5 – AREA E LOOKING NORTHEAST TOWARD TEST #5597

PLATE 6 - AREA F LOOKING LOOKING WEST TOWARD TEST 5633

APPENDIX B

AREA A

Shovel Test	Depth in Inches	Soil Descrip. Color/Texture	Cultural Materials	Quantity	Notes
N0					
5373	0-2	Dark Brown loam			
	2-4	Brown sandy loam			
	4-18	Orange sand			
5378	0-3	Dark Brown loam			
	3-10	Brown Sandy loam			
	10-26	Orange sand			
5377	0-2	Dark Brown loam			
	2-4	Brown sandy loam			
	4-22	Orange sand			
N50					
5374	0-2	Dark Brown loam			
	2-5	Brown sand loam			
	5-18	Orange sand			
5375	0-2	Humus			
	2-4	Brown Sandy loam			
	4-18	Orange Sand			
5376	0-2	Dark Brown loam			
	2-4	Brown Sandy loam			
	4-18	Orange Sand			
5379	0-4	Humus			
	4-6	Brown sandy loam			
	6-22	Orange sand			
N100					
5365	0-6	Humus			
	6-10	Brown sandy loam			
	10-22	Light orange sandy clay			
5372	0-12	Brown sandy loam			
	12-20	Light orange sandy clay			
5370	0-12	Brown sandy loam			
	12-18	Light orange sandy clay			
5371	0-2	Humus			
	2-6	Brown sandy loam			
	6-18	Light orange sandy clay			
5395	0-2	Humus			
	2-6	Brown sandy loam			
	6-16	Light orange sandy clay			
5366	0-2	Humus			
	2-6	Brown sandy loam			
	6-12	Light orange sandy clay			
N150					
5367	0-2	Humus			
	2-28	Tan sand			
5366	0-2	Humus			
	2-28	Tan sand			
5369	0-12	Light brown or sandy loam			
	12-22	Yellow/Brown or sandy clay			
5380	0-4	Humus	Plastic, green frag.	1	discarded
	4-8	Orange/Brown sandy loam	Plastic,	1	discarded

			green frag	
	8-18	Yellow/bn sandy clay		
5397	0-3	Humus		
	3-8	Brown sandy loam		
	8-16	Orange sand		
5363	0-3	Humus		
	3-8	Brown sandy loam		
	8-22	Orange sand		
5362	0-5	Humus		
	5-9	Brown sandy loam		
	9-26	Orange sand		
N200				
5368		unexcavated		Deep thicket
5384		unexcavated		Deep thicket
5383		unexcavated		In Backyard garden
5382		unexcavated		In backyard garden
5381		unexcavated		In backyard garden
5364		unexcavated		In backyard garden
5361		unexcavated		In backyard garden
5360		unexcavated		In backyard garden
N250				
5346	0-16	Brown sandy loam		
	16-22	Tan sandy clay		
5345	0-16	Brown sandy loam		
	16-20	Tan sandy clay		
5357	0-15	Brown sandy loam		
	15-18	Tan sandy clay		
5365	0-30	Tan Sandy clay w/pebbles		
5389	0-22	Tan sandy clay w/pebbles		
5388	0-16	Tan sandy clay w/pebbles		

5587	0-13	Brown sandy loam			
	13-21	Tan sandy clay			
5386	0-18	Tan sandy clay			
5385	0-21	Tan sandy clay w/pebbles			
N300					
5394	0-20	Brown sandy loam	Plastic, frag. green	1	discarded
	20-28	Tan Sandy clay			
5393	0-16	Brown sandy loam w/pebbles			
	16-22	Tan clay			
5392	0-8	Light tan sand w/pebbles			
	8-16	Light Tan clay			
5391	0-9	Light tan sand w/pebbles			
	9-15	Brown loamy sand w/pebbles			
5390	0-8	Light tan sand			
	8-18	Light tan sand with pebbles			
5355	0-2	Humus			
	2-12	Brown sandy loam			
	12-20	Tan/yellow sand			
5356	0-2	Humus			
	2-11	Dark Brown sandy loam			
	11-21	Yellow brown sand			
5347	0-3	Humus			
	3-10	Dark Brown sandy loam			
	10-24	Orange/brown sand			
5344	0-2	Humus			
	2-9	Dark Brown sandy loam			
	9-24	Orange/Brown sand			
5343	0-3	Humus			
	3-8	Dark Brown sandy loam			
	8-24	Orange Brown sand			
5342	0-3	Humus			
	3-16	yellow Brown sandy loam			
	16-24	orange sand			
N350					
5398	0-16	Orange/Brown sandy loam			
	16-22	Tan clay			
5399	0-4	Humus			
	4-22	Orange sand			
5400	0-3	Humus			
	3-20	Brown loam			
	20-26	Orange sand			
5411		Unexcavated			Deep thicket
5410		unexcavated			Deep thicket
5354		unexcavated			Deep thicket
5348	0-3	Humus			
	3-14	Yellow/Brown sandy loam			
	14-24	Orange sand			
5358	0-3	Humus			
	3-15	Yellow/ Brown sandy loam			

	15-24	Orange sand	
5338	0-3	Humus	
	3-16	Yellow/ Brown sandy loam	
	16-24	Orange sand	
5339	0-3	Humus	
	3-13	Brown sandy loam	
	13-24	Orange sand and rocks	
5340	0-3	Humus	
	3-14	Brown sandy loam	
	14-24	Orange sand	
5341		unexcavated	In fence line
N400			
5401	0-2	Humus	
	2-18	Brown loam	
	18-31	Orange sand	
5402	0-22	Tan rocky sand/fill	
5403	0-20	Tan rocky sand/fill	
5413	0-25	Tan rocky sand/fill	
5312	0-32	Tan rocky sand/fill	
5313	0-2	Humus	
	2-24	Orange rocky sand	
5349	0-3	Humus	
	3-14	Dark Brown sandy loam	
	14-24	Orange sandy loam	
5337	0-3	Humus	
	3-10	Brown sandy loam	
	10-24	Orange/ Tan rocky sand	
5336	0-3	Humus	
	3-16	Red Brown sandy loam	
	16-24	Orange sandy loam	
5335	0-3	Humus	
	3-15	Brown sandy loam	
	15-24	Orange sand	
5334	0-3	Humus	
	3-16	Brown sandy loam	
	16-22	Orange sand	
5333		unexcavated	On fence line
N450			
5409	0-12	Dark Brown loam	
	12-28	Orange loamy sand	
5405	0-12	Dark Brown loam	
	12-24	Orange loamy sand	
5406	0-3	Humus	
	3-16	Dark Brown sandy loam	
	16-24	Orange sand	
5407	0-3	Humus	
	3-13	Brown sandy loam	
	13-24	Orange loam sand	
5408	0-3	Humus	
	3-15	Dark Brown loam	
	15-24	Orange loamy sand	

5414	0-3	Humus
	3-14	Brown sandy loam
	14-24	Orange sand
5415	0-3	Humus
	3-13	Brown sandy loam
	13-24	Orange sand
5352	0-2	Humus
	2-12	Brown sandy loam
	12-24	Orange rocky sand
5350	0-3	Humus
	3-12	Light Brown sandy loam
	12-24	Orange rocky sand
5330		
5329	0-3	Humus
	3-12	Brown sandy loam
	12-24	Orange sandy loam
5324	0-3	Humus
	3-7	Brown sandy loam
	7-24	Orange sandy loam
	24-	Tan clay
5323	0-3	Humus
	3-6	Grey/Brown sandy loam
	6-22	Orange sandy loam
	22-24	Tanish clay
N500		
5422	0-3	Humus
	3-15	Brown sandy loam
	15-24	Orange sand
5423	0-3	Humus
	3-17	Brown sandy loam
	17-24	Orange sand
5421	0-3	Humus
	3-16	Brown sandy loam
	16-24	Tan/ Orange sand
5424	0-3	Humus
	3-15	Brown sandy loam
	15-24	Tan orange sand
5417	0-3	Humus
	3-18	Brown sandy loam
	18-24	Orange and tan sand
5416	0-3	Humus
	3-16	Brown sandy loam
	16-24	Tan/ Orange sand
5351	0-3	Humus
	3-17	Brown sandy loam
	17-24	Tan/ Orange sand
5331	0-3	Humus
	3-16	Brown sandy loam
	16-24	Tan rocky sand
5328	0-3	Humus
	3-6	Grey/ Brown sandy loam
	6-24	Orange/ Brown clay
5325	0-3	Humus
	3-6	Grey/ Brown loam
	6-24	Orange loamy clay

5322	0-3	Humus
	3-6	Grey/ Brown sandy loam
	6-24	Orange loamy clay
N550		
5425		unexcavated
5426	0-3	
		Humus
	3-7	Grey/ Brown sandy loam
	7-24	Orange clayish loam
5427	0-3	Humus
	3-5	Grey/Brown sandy loam
	5-24	Orange clayish loam
5428	0-3	Humus
	3-6	Grey/ Brown sandy loam
	6-24	Orange clayish loam
5434	0-3	Humus
	3-17	Brown sandy loam
	17-24	Tan/ Orange sand
5433	0-3	Humus
	3-18	Brown sandy loam
	18-24	Orange/ Tan sand
5332	0-3	Humus
	3-17	Brown loam
	17-24	Tan/ Orange sand
5327	0-3	Humus
	3-17	Brown sandy loam
	17-24	Orange/Tan sand
5328	0-3	Humus
	3-17	Brown sandy loam
	17-29	Orange sand
5321	0-3	Humus
	3-15	Brown sandy loam
	15-22	Orange sand
N600		
5419	0-3	Humus
	3-9	Black sandy loam
	9-15	Orange sandy loam
	15-24	Orange/ Tan sand w/ rocks
5420	0-3	Humus
	3-9	Black/grey sandy loam
	9-15	Orange sandy loam
	15-19	Orange sand
5429	0-3	Humus
	3-10	Orange sandy loam
	10-24	Orange sand
5430	0-3	Humus
	3-14	Orange sandy loam
	14-18	Orange sand
5431	0-3	Humus
	3-12	Orange sandy loam
	12-22	Orange sand

5432	0-3	Humus	
	3-14	Orange sandy loam	
	14-21	Orange sand	
5320	0-3	Humus	
	3-15	Orange sandy loam	
	15-22	Orange sand	
5319		Unexcavated	On roadbed

Area B

Shovel Test	Depth in inches	soil desctiption/ color texture	Cultural materials	Quantitiy	Notes
N 0					
5312		unexcavated			All in ongoing construction site
5313					
5317					
N 50					
5309		unexcavated			
5311					
5314					All in ongoing construction site
5299					
5269	0-2	Humus			
	2-20	brown sandy loam	Concrete, blocky fragments		on top of mound- covered in concrete
5267	0-2	Humus			
	2-20	brown sandy loam			
	20-25	orange sandy loam			
N 100					
5308		unexcavated			In ongoing construction site
5310					
5318					
5298	0-2	Humus			
	2-6	brown sandy loam			
	6-24	tan/ orange sand			
5293	0-2	Humus			
	2-5	brown sandy loam			
	5-25	tan/ orange sand			
5266	0-2	Humus			
	2-24	tan/ white sand w/ mixed rocks			
5268		unexcavated			
5258		unexcavated			directly under a pile of bricks
5257	0-3	Humus			
	3-16	dark brown loam			
	16-24	yellow brown sandy loam			

N 150					All located in construction site
5307		unexcavated			
5306					
5305					
5297	0-2	Humus	plastic spoon, white	1 spoon	Discarded
			metal unident oxidized	1	Discarded
			plastic bottle, undent	1	discarded
	2-5	brown sandy loam			
	5-24	tan / orange sand			
5292	0-2	Humus			
	2-4	yellow/ brown sandy loam			
	4-24	tan/ orange sand			
5291	0-3	Humus			
	3-24	tan sand w/ rocks			encountered sand at very shallow depths
5290	0-2	Humus			
	2-4	brown loam			
	4-24	yellow brown wet sand			encountered sand at very shallow depths
5259		unexcavated			Deep thicket
5256		unexcavated			Deep thicket
5255	0-4	Humus			
	4-7	dark brown loam			
	7-26	red/ brown clayey loam			
5240	0-4	Humus			
	4-7	Dark brown loam			
	7-24	red/ brown clayey loam			
	24-30	orange/brown clayey sand			
N 200					
5307		unexcavated			In disturbed construction site
5303					
5302					
5296		unexcavated			Stake found in

			middle of dirtbike track
5288	0-3	Humus	
	3-5	dark brown loam	
	5-20	yellow/ brown sand	
5280	0-3	Humus	
	3-6	brown loam	
	6-24	yellow/brown loam mixed with tan sand & rocks	
5279	0-3	Humus	
	3-6	brown loam	
	6-24	red brown sandy loam	test at top of small hill
5374		unexcavated	
5265	0-3	humus	
	3-6	brown loam	
	6-25	red brown clayey sand	cluster of cable and brick 5ft. from test site
5254	0-3	Humus	
	3-6	dark brown loam	
	6-26	red/ brown clayey loam	
5241	0-4	Humus	
	4-7	dark brown loam	
	7-26	red/brown clayey loam	
	26-36	orange sandy loam	
5239	0-4	Humus	
	4-24	red/ brown clayey loam	
	24-30	orange sand	
5171	0-4	Humus	
	4-23	red/brown clay	
5170	0-3	Humus w/ roots	
	3-23	red/brown clayey loam	
	23-28	red/brown lighter clayey loam	

N 250

5295		unexcavated	Stake found in middle of dirtbike track
5287	0-2	Humus	
	2-3	brown sandy	

		loam	
	3-24	tan/ orange sand	
5282	0-6	brown loam	old motorcycle found next to site
	6-24	yellow/brown/ white sand	encountered sand at very shallow depths
5278	0-3	Humus	
	3-6	dark brown loam	
	6-24	yellow/brown clayey loam	
5273	0-3	Humus	
	3-6	Dark brown	
5264		loam	
	6-22	Red/brown	
	0-3	clayey loam	
		Humus	
	3-6	dark brown loam	
	6-26	red/brown clay/loam	
5253	0-3	Humus	
	3-6	dark brown loam	
	6-24	red/brown clayey loam	
	24-	orange clay	
5242	0-4	Humus	
	4-8	dark brown loam	
	8-26	yellow/brown sandy loam	
	26-36	tan sand	Test appears to be in the middle of intermittent stream
5238	0-4	Humus	
	4-6	dark brown loam	
	6-22	red/brown clayey loam	
	22-30	orange clay	
5225	0-4	Humus	
	4-24	red/brown loamy clay	
	24-30	orange sandy loam	
5169	0-2	Humus	
	2-23	red/brown clayey loam w/ bits of charcoal	
5168	0-5	Humus	
	5-23	red/brown clay	
5167	0-4	brown loam	

	4-17	orange/brown loamy clay	
	17-28	red/brown loamy clay	
N 300			
5294		unexcavated	Found near edge of dirt bike track
5286	0-2	Humus	
	2-6	Brown sandy loam	
	6-24	tan sand mixed with brown sandy loam	
5283	0-2	Humus	
	2-4	brown loam	
	4-24	yellow/brown clayey loam	site about 50 ft. from dirt bike track, surrounded by garbage
5275	0-3	Humus	
	3-5	brown loam	
	5-24	yellow brown clayey loam	
5272	0-3	Humus	
	3-6	brown loam	
	6-24	red/brown clayey loam	
5263	0-3	Humus	
	3-7	dark brown loam	
	7-25	red/brown clayey loam	
5252	0-3	Humus	
	3-23	red/brown clayey loam	
	23-24	orange clay	
5243	0-4	Humus	
	4-7	dark brown loam	
	7-22	red brown clayey loam	
	22-30	orange clay	
5237	0-4	Humus	
	4-21	red/brown clay/loam	
	21-29	orange clayey loam	
5226	0-3	Humus	
	3-19	red/brown clayey loam	
	19-24	orange clayey loam	
5174	0-2	Humus	
	2-24	red/tan clay	

5173	0-2	Humus	
	2-20	red/brown clay	
5166	0-1	Humus	
	1-23	red/brown clay	
5165	0-3	Humus	
	3-18	brown/orange loamy clay	
	18-27	orange/brown loamy clay	
5164	0-3	Humus	
	3-10	orange/brown clay	hit roots-stopped
5165	0-3	Humus	
	3-15	Orange brown clay	
N 350			
5285	0-2	Humus	
	2-5	brown sandy loam	
	5-24	tan/white sand mixed w/ brown sandy loam	
5284		unexcavated	slope
5276		unexcavated	Dense thicket
5271	0-3	Humus	
	3-7	brown loam	
	7-24	red/brown clayey loam	
5262	0-4	Humus	
	4-6	dark brown loam	
	6-24	red/brown clayey loam	
5251	0-3	Humus	
	3-6	dark brown loam	
	6-26	red/brown clayey loam	
	26-	orange clayey loam	
5244	0-4	Humus	
	4-8	dark brown loam	
	8-23	red/brown clayey loam	
	23-30	orange clay	
5236	0-4	Humus	
	4-19	red/brown clayey loam	
	19-24	orange clay	
5227	0-4	Humus	
	4-20	red/brown clayey loam	
	20-24	orange clayey sand	
5175	0-2	Humus	

	2-21	red/brown clayey loam
5176	0-2	Humus
	2-22	red/brown clayey loam
5177	0-2	Humus
	2-20	red/brown clayey loam
5178	0-3	Humus
	3-23	red/brown clayey loam
5179	0-4	Humus
	4-14	brown loam
	14-28	hard tan clay w/ pebbles
N 400		
5277	0-3	Humus
	3-12	dark brown loam
	12-30	red/brown clayey loam
5270	0-2	Humus
	2-6	dark brown sandy loam
	6-22	red/brown clayey loam
	22-25	orange sandy loam
5261	0-3	Humus
	3-6	dark brown loam
	6-23	yellow brown clayey loam
	23-28	orange clayey loam
5250	0-3	Humus
	3-7	dark brown loam
	7-24	red brown clayey loam
5245	0-4	Humus
	4-7	dark brown loam
	7-22	yellow/brown clayey loam
	22-30	orange clay
5235	0-3	Humus
	3-18	red/brown clayey loam
	18-24	orange clayey sand
5228	0-4	Humus
	4-21	red/brown clayey loam
	21-24	orange clay
5184	0-2	Humus

	2-21	red/brown clayey loam w/ charcoal
5183	0-2	Humus
	2-21	red/brown clayey loam
5182	0-2	Humus
	2-2 ½	grey/brown loam
	2 ½-21	red/brown clayey loam
5181	0-3	Humus
	3-23	red/brown clayey loam
5180	0-2	Humus
	2-13	dark brown loam
	13-28	orange/brown loamy clay
N 450		
5260	0-3	Humus
	3-6	dark brown loam
	6-24	yellow brown clayey loam
5249	0-4	Humus
	4-6	dark brown loam
	6-24	red/brown clayey loam
5246	0-3	Humus
	3-7	dark brown loam
	7-24	yellow brown clayey loam
	24-30	orange clay
5234	0-4	Humus
	4-22	red/brown clayey loam
	22-34	orange clayey sand
5229	0-4	Humus
	4-7	dark brown sandy loam
	7-20	red/brown clayey loam
	20-24	orange clay
5185	0-2	Humus
	2-21	red/brown clayey loam
5186	0-2	Humus
	2-21	red/brown clayey loam
5187	0-3	Humus
	3-23	clayey loam w/ pebbles

5188	0-3	Humus
	3-5	clayey loam w/ pebbles
	5-23	clay
5189	0-3	Humus
	3-13	dark brown loam
	13-29	orange loamy clay
N 500		
5248	0-3	Humus
	3-7	dark brown loam
	7-24	red clayey loam
5247	0-3	Humus
	3-6	dark brown loam
	6-24	yellow/brown clayey loam
5233	0-4	Humus
	4-23	red/brown clayey loam
	23-30	orange clay
5230	0-4	Humus
	3-20	red/brown clayey loam
	20-24	orange clayey loam
5206	0-6	Humus
	6-21	red/brown clayey loam
5205	0-3	Humus
	3-15	red/brown clayey loam
	15-23	red/brown clay
5204	0-3	Humus
	3-8	brown loam
	8-18	red/brown loamy clay
5203	0-4	dark brown loam
	4-28	orange/brown loamy clay
5202	0-14	dark brown loam
	14-22	orange loamy clay
N 550		
5232	0-4	Humus
	4-19	red/brown clayey loam
	19-24	orange clay
5231	0-5	Humus
	5-21	red/brown sandy loam

	21-24	orange clay
5207	0-2	Humus
	2-21	red/brown clayey loam
5208	0-3	Humus
	3-15	red/brown clayey loam
	15-21	red/brown clay
5209	0-6	Humus
	6-21	red/brown clayey loam
5210	0-3	Humus
	3-13	brown loam
	13-28	orange loamy clay
	28-32	light orange sandy clay
5211	0-3	Humus
	3-13	brown loam
	13-28	orange loamy clay
	28-32	light orange sandy clay

N 600

5217	0-3	Humus w/ sand and pebbles
	3-5	medium brown clayey loam w/ sand and pebbles
	5-12	hard brown clay
5216	0-3	Humus
	3-15	red/brown clayey loam
	15-24	red/brown clay
5215	0-2	Humus
	2-21	red/brown clayey loam
5214	0-2	Humus
	2-2 ½	grey/black sand
	2 ½- 12	sand mixed w/ clay & pebbles
5213	0-3	Humus
	3-15	dark brown loam
	15-25	orange sandy clay
5212	0-3	Humus
	3-15	dark brown loam
	15-25	orange sandy clay
5157	0-1	Humus
	1-14	brown/orange

		clayey loam
	14-21	orange clayey loam
	21-24	orange loamy clay
N 650		
5218	0-3	Humus
	3-12	orange/brown clayey loam
	12-22	orange brown clay
5219	0-3	Humus
	3-12	orange/brown clayey loam
	12-22	orange brown clay
5220		unexcavated
5201	0-3	Humus
	3-6	brown loam
	6-22	orange sandy clay
5200	0-3	Humus
	3-6	brown loam
	6-22	orange sandy clay
5199	0-2	Humus
	2-16	dark brown loam
	16-24	brown sandy loam
5156	0-2	Humus
	2-16	brown clayey loam
	16-23	orange clayey loam
N 700		
5195	0-2	Humus
	2-26	orange sandy clay
5196	0-2	Humus
	2-18	orange sandy clay
5197	0-3	Humus
	3-18	orange clay
5198	0-4	Humus
	4-28	orange/brown loamy clay
5155	0-2	Humus
	2-13	dark brown loam
	13-22	tan sandy clay
N 750		
5194	0-2	Humus
	2-15	red/brown sandy clay
	15-22	orange sandy

		clay			
5193	0-2	Humus			
	2-10	orange sandy clay			Roots at 10"- next to tree
5192	0-3	Humus			
	3-8	red/brown loamy clay			roots at 8" -- next to tree
5158	0-2	Humus	Cement, blocky fragments	1	discarded in field
			Wire, copper	1	
	2-6	brown/orange loam			
	6-12	red/brown loamy clay			
	12-15	orange sandy clay			
5154	0-1	grass w/ brown loam			
	1-8	dark brown loam			
	8-22	tan sand w/ lots of pebbles			

AREA C

ST #	Depth	Stratum	Soil Description	Specimens
N-0				
5121	0-2	I	Grass/Humus	
	2-15	II	Dark Brown Loam	
	15-18	III	Brown Sandy Loam w/pebbles	
5122	0-2	I	Grass/Humus	
	2-17	II	Dark Brown Loam	
	17-20	III	Dark Brown Sandy Loam w/pebbles	
N-50				
5109	0-3	I	Grass	
	3-8	II	Brown Loam	
	8-15	III	Light Brown Sandy Loam w/pebbles	
5110	0-3	I	Grass w/pebbles	
	3-13	II	Brown Loam	
	13-18	III	Brown Sandy Loam w/pebbles	
5123	0-2	I	Grass/Humus	
	2-12	II	Brown Pebbly loam	
	12-18	III	Red Clay w/brown Loam	
5124	0-2	I	Grass/Humus	
	2-12	II	Dark Brown Pebbly Loam	
	12-18	III	Orange Clay w/dark brown pebbly loam	
N-100				
5097	0-3	I	Grass/Humus	
	3-13	II	Dark Brown Loam	
	13-20	III	Orange Clay	
5095			unexcavated	
5096		I	Grass/Humus	
	1-9	II	Dark Loam w/pebbles	
	9-24	III	Light Brown Orange Sandy Loam	
5098			unexcavated	
5120			unexcavated	
5108	0-3	I	Grass/Humus	
	3-7	II	Brown Rocky Loam	
	7-17	III	Light Brown Rocky Loam	
5128	0-3	I	Grass/Humus	
	3-11	II	Light Brown sandy Loam w/pebbles	
5127	0-3	I	Grass/Humus	
	3-15	II	Orange Sand w/pebbles	
5126	0-2	I	Grass/Humus	
	2-11	II	Brown Loam w/pebbles	
	11-24	III	Brown Sandy Loam w/pebbles	
5125	0-2	I	Grass/Humus	
	2-9	II	Dark Brown Loam	
	9-18	III	Orange Red Clay w/pebbles	
N-150				
5095	0-2	I	Grass/Humus	
	2-6	II	Dark Brown Sandy Loam	
	6-11	III	Light Broan Loam	
	11-23	IV	Light Brown Sand w/pebbles	
5099	0-2	I	Grass/Humus	
	2-8	II	Dark Brown Loam w/sand	

	8-22	III	Brown Sand w/pebbles		
5104	0-3	I	Grass/Humus		
	3-17	II	Brown Loam		
	17-20	III	Sand w/Brown Loam		
5107			Manhole		
5129	0-3	I	Grass/Humus		
	3-11	II	Dark Brown w/rocks		
	11-18	III	Sand w/pebbles		
5134	0-3	I	Grass/Humus		
	3-7	II	Dark Brown Loam w/pebbles		
	7-12	III	Brown Clay		
5135	0-3	I	Grass/Humus		
	3-10	II	Orange Brown Loam		
	10-15	III	Rocky Orange Sand		
5139	0-2	I	Grass/Humus		
	2-11	II	Brown Pebbly Loam		
	11-18	III	Red Brown Pebbly Clay		
N-200					
5094	0-2	I	Grass/Humus		
	2-13	II	Brown Loamy Sand		
	13-21	III	Orange Brown Sand		
5100	0-2	I	Grass/Humus		
	2-13	II	Brown Loamy Sand		
	13-21	III	Orange Brown Sand		
5103	0-4	I	Grass/Humus		
	4-9	II	Dark Brown Loam		
	9-24	III	Light Brown Loam		
	24-26	IV	Brown Sand		
5106	0-3	I	Grass/Humus		
	3-12	II	Dark Brown Loam		
	12-17	III	Red Brown Clay		
5130	0-3	I	Grass/Humus		
	3-12	II	Dark Brown Loam w/roots		
	12-19	III	Dark Brown Loam		
	19-22	IV	Red Clay		
5133	0-3	I	Grass/Humus		
	3-8	II	Brown Clay		
5136	0-3	I	Grass/Humus		
	3-5	II	Dark Brown Loam		
	5-15	III	Dark Brown Clayey Loam	Rubber, hose, frag.	1
				Asphalt, fragments	3
				Glass, frags, clear, bottle	4
				Metal, unident fragments	2
	15-20	IV	Brown Clay		
5138	04	I	Dark Brown Loam w/roots		
	4-13	II	Dark Brown Loam		
	13-22	III	Brown Loam w/orange sand		
	22-28	IV	Orange Sand		
5140	0-2	I	Grass/Humus		
	2-16	II	Brown Loam w/pebbles		
	16-24	III	Light Brow Loam w/pebbles	Glass, frags, clear, bottle	5
				Asphalt, frags.	2
	24-26	IV	Red Brown Loam		
N-250					
5093	0-2	I	Grass/Humus		
	2-12	II	Brown Loam		

	12-20	III	Orange Brown Clay		
5101	0-2	I	Grass/Humus		
	2-14	II	Medium Brown Pebbles		
	14-21	III	Brown Orange Clay		
5102	0-5	I	Grass/Humus		
	5-14	II	Brown Loam w/pebbles		
	14-19	III	Loamy Clay		
5105	0-8	I	Grass/Humus		
	8-17	II	Brown Loam		
	17-24	III	Yellow Sand		
5131	0-3	I	Grass/Humus		
	3-8	II	Dark Brown Loam		
	8-17	III	Brown Loam		
	17-24	IV	Red Clay		
5132	0-3	I	Grass/Humus		
	3-10	II	Dark Brown Loam		
	10-15	III	Brown Loam		
	15-20	IV	Brown Sandy Clay		
5137	0-3	I	Grass/Humus		
	3-10	II	Dark Brown Loam		
	10-15	III	Brown Loam		
	15-20	IV	Brown Sandy Clay		
5145	0-5	I	Humus		
	5-12	II	Brown Loam		
	12-17	III	Light Brown Loam		
5141	0-3	I	Grass/Humus	Asphalt, fragments	4
				Glass, frags. Clear, bottle	2
				Charcoal, fragment	1
				Leather, shoe fragment	1
	3-7	II	Dark Brown Loam	Asphalt, fragments	2
				Glass, frags. Clear bottle	2
	7-14	III	Brown Loam	Glass, clear, flat	2
				Tile, floor black/white	1
	14-22	IV	Brown Sandy Loam		
5142	0-5	I	Humus		
	5-12	II	Brown Loam		
	12-17	III	Light Brown Loam		
N-300					
5085			Unexcavated, in thicket		
5086	0-2	I	Grass/Humus		
	2-12	II	Dark Brown Loam w/clay		
	12-16	III	Orange Brown Clay		
5087	0-2	I	Grass/Humus		
	2-5	II	Brown Loamy Sand		
	5-20	III	Brown Clay w/sand		
5088	1-10	I	Grass/Humus		
	10-20	II	Dark Brown Loam		
	20-24	III	Brown Clay		
5089	0-4	I	Grass/Humus		
	4-11	II	Dark Brown Loam		
	11-17	III	Yellow Sand		
5090	0-4	I	Grass/Humus		
	4-8	II	Dark Brown Loam		
	8-16	III	Brown Loam		
	16-20	IV	Red Clay		

5091	0-2	I	Grass/Humus		
	2-18	II	Dark Brown Loam	Glass, flat, clear	6
	18-22	III	Dark Tan Sand		
5092	0-2	I	Grass/Humus		
	2-14	II	Dark Brown Loam		
	14-18	III	Red Orange Clay		
5146	0-3	I	Humus		
	3-5	II	Dark Brown Loamy Clay		
	5-10	III	Brown Clay		
5147	0-5	I	Humus		
	5-10	II	Dark Brown Loam		
	10-15	III	Brown Clay		
N350					
5084	0-3	I	Grass/Humus		
	3-10	II	Dark Brown Loam		
	10-15	III	Brown Orange Loam		
	15-28	IV	Orange Sand		
5083	0-2	I	Grass/Humus		
	2-10	II	Dark Brown Loam w/Clay		
	10-17	III	Orange Brown Clay		
5082	0-5	I	Grass/Humus		
	5-7	II	Dark Brown Loam		
	7-14	III	Orange Clayey Loam		
	14-20	IV	Orange Brown Clay		
5081	0-7	I	Grass/Humus		
	7-14	II	Brown Loam		
	14-20	III	Clay		
5080	0-3	I	Grass/Humus		
	3-12	II	Dark Brown Loam with Clay		
	12-21	III	Light Sand w/pebbles		
5079	0-8	I	Humus		
	8-21	II	Brown Loam w/pebbles		
	21-22	III	Black Brown Loam		
5078	0-2	I	Grass/Humus		
	2-19	II	Dark Brown Loam		
	19-24	III	Red Orange Clay		
5077	0-2	I	Grass/Humus		
	2-18	II	Dark Brown Loam		
	18-20	III	Red Orange Clay		
5148	0-3	I	Dark Humus		
	3-10	II	Brown loam	Glass, flat, clear	3
				Asphalt, fragments	2
				Glass, flat, clear	11
	10-15	III	Orange clay		
N-400					
5069	0-2	I	Grass/Humus		
	2-11	II	Brown Loam w/clay		
	11-17	III	Light Brown/Red Clay		
5070	0-2	I	Grass/Humus		
	2-11	II	Brown Loam w/clay		
	11-17	III	Light Brown/Red Clay		
5071	0-5	I	Grass/Humus		
	5-11	II	Brown Loam w/clay		
	11-22	III	Light Brown/Red Clay		
5072	0-5	I	Grass/Humus		

	5-17	II	Brown Loam		
	17-20	III	Clayey Loam		
	20-24	IV	Brown Clay		
5073	0-3	I	Grass/Humus		
	3-8	II	Dark Brown Loamy Clay		
	8-21	III	Orange Brown Clay		
5074	0-8	I	Humus		
	8-20	II	Brown Loam w/pebbles		
5075	0-2	I	Grass/Humus		
	2-18	II	Dark Brown Loam	Glass, flat, clear	1
	18-22	III	Red Orange Clay		
5076	0-2	I	Grass/Humus		
	2-16	II	Dark Brown Loam w/pebbles		
	16-18	III	Light Tan Sand		
N-450					
5113	1-4	I	Grass/Humus		
	4-10	II	Brown Loam		
	10-15	III	Brown Clay		
5112	1-4	I	Grass/Humus		
	4-10	II	Brown Loam		
	10-17	III	Brown Clay		
5111	1-4	I	Grass/Humus		
	4-10	II	Light Brown Loam w/rocks		
	10-15	III	Rocky Sand		
5053	1-3	I	Grass/Humus		
	3-8	II	Dark Brown Loam		
	8-15	III	Rocky Sand		
5052	1-3	I	Grass/Humus		
	3-8	II	Dark Brown Loam		
	8-15	III	Rocky Sand		
5051	0-4	I	Grass/Humus		
	4-10	II	Brown Loam w/Clay		
	10-15	III	Brown Clay w/Loam		
	15-19	IV	Brown Clay		
5050	0-7	I	Grass/Humus		
	7-14	II	Brown Loam		
	14-26	III	Orange Brown Clay		
5036	0-6	I	Grass/Humus		
	6-15	II	Dark Brown Loam		
	15-20	III	Brown Clay		
5037	0-5	I	Grass/Humus		
	50-16	II	Orange Brown Clay		
5038	0-4	I	Grass/Humus		
	4-8	II	Dark Brown Loam		
	8-19	III	Light Brown Clay w/rocks		
5039	0-2	I	Grass/Humus		
	2-13	II	Dark Brown Loam		
	13-28	III	Red Clay		
5040	0-2	I	Grass/Humus		
	2-7	II	Dark Brown Loam		
	7-23	III	Brown Loam w/pebbles	Glass, flat clear	1
N-500					
5065			unexcavated		
5066	1-3	I	Grass/Humus		
	3-8	II	Dark Brown Loam		
	8-20	III	Light Brown Clay		

5067	1-5	I	Grass/Humus	
	5-8	II	Dark Brown Loam	
	8-16	III	Light Brown Clay	
5068	0-4	I	Grass/Humus	
	4-7	II	Light Brown Sandy Loam w/rocks	
	7-16	III	Dark Brown loam	
	16-20	IV	Brown Clay	
5054	0-5	I	Grass/Humus	
	5-10	II	Dark Brown Loam	
	10-16	III	Brown Clay	
5055	0-5	I	Grass/Humus	
	5-10	II	Dark Brown Loam	
	10-16	III	Brown Clay	
5056	0-2	I	Grass/Humus	
	2-8	II	Brown Loam	
	8-20	III	Brown Loam w/sand	
	20-31	IV	Tan Sand	
5045	0-3	I	Grass/Humus	
	3-8	II	Brown Loam	
	3-16	III	Brown Clay	
5044	0-3	I	Grass/Humus	
	3-8	II	Brown Loam	
	3-16	III	Brown Clay	
5043	0-6	I	Grass/Humus	
	6-17	II	Orange Brown Clay	
5042	0-8	I	Grass/Humus	
	8-15	II	Red Brown Loam w/rocks	many rocks
5041	0-2	I	Grass/Humus	
	2-8	II	Brown Loam	
	8-16	III	Red Orange Clay	
N-550				
5064	1-5	I	Grass/Humus	
	5-7	II	Dark Brown Loam	
	7-15	III	Brown Loamy Clay	
5063	1-5	I	Grass/Humus	
	5-7	II	Dark Brown Loam	
	7-15	III	Brown Loamy Clay	
5062	1-6	I	Grass/Humus	
	6-13	II	Brown Claycy Loam	
	13-20	III	Light Brown Clay	
5061	1-5	I	Grass/Humus	
	5-9	II	Dark Brown Loam	
	9-16	III	Light Brown Clay	
5060	1-5	I	Grass/Humus	
	5-9	II	Brown Loam w/clay	
	9-18	III	Brown Clay	
5059	1-4	I	Grass/Humus	
	4-15	II	Brown Loam	
	15-19	III	Red Clay	
5058	1-5	I	Grass/Humus	
	5-13	II	Brown Loam	
	13-18	III	Red Brown Clay	
5057	0-2	I	Grass/Humus	
	2-14	II	Dark Brown Loam	
	14-25	III	Light Brown Loam w/pebbles	
	25-31	IV	Light Brown Loam w/clay	

5046	0-4	I	Grass/Humus
	4-12	II	Orange Brown Clay
5047	0-3	I	Grass/Humus
	3-11	II	Brown Loam
	11-17	III	Red Brown Clay
5048	0-5	I	Grass/Humus
	5-15	II	Orange Brown Clay
5049	0-6	I	Grass/Humus
	6-10	II	Brown Clay w/pebbles
N-600			
5114	0-5	I	Grass/Humus
	5-12	II	Dark Brown Loam
	12-17	III	Brown Loamy Clay
5115	0-5	I	Grass/Humus
	5-12	II	Dark Brown Loam
	12-17	III	Brown Loamy Clay
5116	1-5	I	Grass/Humus
	5-12	II	Dark Brown Loam
	12-17	III	Brown Clay w/loam
5117	1-5	I	Grass/Humus
	5-12	II	Dark Brown Loam
	12-18	III	Light Brown Loamy Clay
5118	1-5	I	Grass/Humus
	5-12	II	Dark Brown Loam
	12-18	III	Light Brown Loamy Clay
5119	1-5	I	Grass/Humus
	5-12	II	Dark Brown Loam
	12-18	III	Light Brown Loamy Clay

Area D

Shovel test	depth in inches	soil description color texture	Cultural materials	Quantitiy	Notes
N 0					
5457	0-2	Humus			
	2-7	grey/brown sandy loam			
	7-24	orange sand w/ rocks			
5447	0-3	Humus			
	3-17	yellow/brown clayey loam			
	17-24	orange clayey sand			
5446	0-3	Humus			
	3-6	grey sandy loam			
	6-24	orange/ black sandy loam			
N 50					
5529	unexcavated-	Debris pile			
5528	unexcavated-	Debris pile			
5456	unexcavated-	Debris pile			
5448	0-3	Humus			
	3-18	yellow/brown sandy loam			
	18-24	orange sand			
5449	0-3	Humus			
	3-17	yellow/brown clayey loam			
	17-24	orange sand			
5445	0-2	Humus			
	2-18	yellow brown sandy loam			
	18-24	orange sand			
5437	0-3	Humus			
	3-9	grey/brown sandy loam			
	9-24	orange sand			
N 100					
5554	unexcavated-	slope			
5555	0- ½	Humus			
	½-10	grey/brown loam			
	10-25	orange sandy loam			
5540	unexcavated-	slope			
5532	unexcavated-	slope			
5530	unexcavated-	slope			
5527	0-2	Humus			
	2-16	brown sandy loam			
	16-24	orange sand			
5523	0-3	Humus			
	3-15	grey/brown sandy loam			

	15-24	orange sandy loam	
5455	0-4	Humus	
	4-8	brown/grey loam	
	8-24	orange sandy loam	
5450	0-3	Humus	
	3-17	yellow/brown sandy loam	
	17-24	orange sand	
5451	0-2	Humus	
	2-17	yellow/brown clayey loam	
	17-24	tan sand	
5444	0-2	Humus	
	2-20	yellow/brown clayey loam	
	20-24	orange clay	
5438	0-10	yellow/brown clayey loam	
	10-17	grey/brown clayey loam	
	17-24	orange clay	

N 150

5552	0-3	Humus	
	3-19	orange/brown sand	
	19-28	tan sand	
5553	0-3	Humus	
	3-20	orange/brown sand	
	20-26	tan/orange sand	
5549	0-2	Humus	
	2-20	orange/brown sand	
	20-28	tan/orange sand	
5539	0-3	Humus	
	3-14	brown sandy loam	
	14-24	orange/brown sandy loam	
5533	0-4	Humus	
	4-9	grey/brown sandy loam	
	9-24	orange/brown sandy loam	
5531	unexcavated-	in the	cement path
5526	unexcavated-	in the	cement path
5524	unexcavated-	in the	cement path
5525	0-3	Humus	
	3-9	grey/brown sandy loam	

	9-25	orange sandy loam	
5454	0-4	Humus	
	4-7	grey/brown sandy loam	
	7-24	orange sandy loam	
5453	0-3	Humus	
	3-8	grey/brown sandy loam	
	8-24	orange sand	
5452	0-3	Humus	
	3-18	brown sandy loam	
	18-24	orange sand	
5443	0-10	yellow/brown clayey loam	
	10-19	orange/tan sand	
	19-	Blacktop/asphalt	disturbed
5439	0-10	yellow/brown clayey loam	
	10-18	orange/tan sand	
	18-	Blacktop/asphalt	disturbed
N 200			
5551	0- ½	light grey sandy loam	
	½-8	brown sandy loam	
	8-24	yellow/tan sand w/ pebbles	
5550	0-2	Humus	
	2-6	grey/brown sandy loam	
	6-25	yellow/tan sand w/ pebbles & cobbles	
5548	0-3	Humus	
	3-6	grey/brown sandy loam	
	6-17	orange sandy loam	
	17-24	tan/orange sand w/pebbles	
5538	0-3	Humus	
	3-5	grey/.brown sandy loam	
	5-20	orange brown sandy loam	
	20-28	tan/orange sand	
5534	0-3	Humus	
	3-7	grey/.brown sandy loam	
	7-19	orange brown sandy loam	
	19-26	tan sand w/ pebbles	

5465	0-3	Humus	
	3-6	grey/.brown sandy loam	
	6-24	orange brown sandy loam	
5464	0-3	Humus	
	3-9	grey/brown sandy loam	
	9-17	orange sand w/ rocks	
	17-24	tan sand w/ rocks	
5463	0-3	Humus	
	3-8	grey/.brown sandy loam	
	8-26	orange sandy loam	
5462	unexcavated	Debris pile	
5461	unexcavated-	Debris pile	
5460	unexcavated-	Debris pile	
5459	0-2	Humus	
	2-8	grey/.brown sandy loam	
	8-20	orange brown sandy loam	
5458	0-5	Humus	
	5-12	grey/.brown sandy loam w/ pebbles	
	12-28	hard packed orange/brown sandy loam w/ pebbles	
5442	0-7	brown/orange sandy loam	
	7-	Blacktop/asphalt	disturbed
5440	0-3	Humus	
	3-13	grey/brown clayey loam	
	13-	Blacktop/asphalt	disturbed
N 250			
5556	0-1	Humus	
	1-7	brown sandy loam	
	7-25	yellow/tan sand w/pebbles	
5557	0-2	Humus	
	2-6	grey/brown sandy loam	
	6-24	brown/orange sandy loam w/ pebbles	
5547	0-3	Humus	
	3-7	grey/brown sandy loam	
	7-24	orange sandy loam w/ pebbles	

5537	0-3	Humus
	3-6	grey/brown sandy loam
	6-25	orange.brown sandy loam
5536	unexcavated-	fenceline
5535	0-5	Humus
	3-7	grey/brown sandy loam
	7-22	orange sandy loam
5473	0-3	Humus
	3-7	grey/brown sandy loam
	7-25	orange sandy loam
5472	0-3½	Humus
	3½-7	grey/brown sandy loam
	7-28	orange sandy loam
5471	0-3	Humus
	3-6	grey/.brown sandy loam
	6-24	orange brown sandy loam
5470	0-3	Humus
	3-19	brown loam
	19-25	tan/brown loam
5469	0-2	Humus
	2-18	dark.brown sandy loam
	18-24	tan/brown sandy loam
5466	0-2	Humus
	2-18	brown loam
	18-24	tan/brown clayey loam w/ pebbles
5467	0-2	Humus
	2-26	orange/brown loam w/pebbles
5468	0-2	Humus
	2-19	orange/brown loam
	19-25	tan/brown clayey loam
5441	0-3	Humus
	3-15	brown sandy loam
	15-24	orange sandy loam
N 300		
5558	0- ½	Humus
	½-8	dark brown loam
	8-21	light brown loam
	21-24	light brown/

		orange loam
5546	0-1	Humus
	1-3	grey/.brown sand
	3-10	orange sand w/ pebbles
	10-24	yellow/tan sand w/ pebbles
5541	0-3	Humus
	3-6	grey/.brown sandy loam
	6-23	orange brown sandy loam
	23-29	tan/orange sand
5501	0-3	Humus
	3-7	grey/.brown sandy loam
	7-25	orange clayey loam
5500	0-3	Humus
	3-6	grey/.brown sandy loam
	6-23	orange sandy loam
5474	0-3	Humus
	3-6	grey/.brown sandy loam
	6-25	orange sandy loam
5475	0-3	Humus
	3-6	grey/.brown sandy loam
	6-24	orange sandy loam
5476	0-3	Humus
	3-8	grey/brown sandy loam
	8-24	orange sand
5477	0-2	Humus
	2-18	orange/.brown loam
	18-27	tan/brown clayey loam
5478	0-2	Humus
	2-20	orange/brown loam
	20-24	tan/brown clayey loam
5479	0-2	Humus
	2-20	orange/.brown loam
	20-30	tan/brown loam
5480	0-2	Humus
	2-24	brown loam
	24-30	tan/brown clayey loam
5481	0-2	Humus

	2-20	orange/brown loam
	20-25	tan/brown clayey loam
5482	0-2	Humus
	2-19	orange/brown clayey loam w/ pebbles
	19-30	tan/brown clayey loam
N350		
5559	unexcavated-	slope
5545	0- ½	Humus
	½-7	dark brown loam
	7-24	orange/brown loam w/ pebbles
5542	0-4	Humus
	4-11	grey/brown sandy loam
	11-24	orange/brown sandy loam
	24-36	tan sand w/ pebbles
5502	0-3	Humus
	3-6	grey/brown sandy loam
	6-24	orange/brown sandy loam
5499	0-3	Humus
	3-7	grey/brown sandy loam
	7-23	orange/brown sandy loam
5490	0-3	Humus
	3-7	grey/brown sandy loam
	7-25	orange/brown sandy loam
5989	0-3	Humus
	3-8	grey/brown sandy loam
	8-24	orange sandy loam
5488	0-3	Humus
	3-6	grey/brown sandy loam
	6-24	orange/brown sandy loam
5487	0-2	Humus
	2-18	grey/brown loam
	18-25	tan/brown clayey

		loam			
5486	0-3	Humus			
	3-18	grey/brown sandy loam			
	18-28	tan/brown sandy loam			
5485	0-2	Humus			
	2-20	orange/brown sandy loam	Burned wood,frag	1	discarded in field
	20-28	tan loam			
5484	0-2	Humus			
	2-18	brown/tan loam w/ pebbles			
	18-28	tan clayey loam			
5483	0-2	Humus			
	2-18	brown loam w/ pebbles			
	18-24	tan/brown clayey loam w/ pebbles			
N 400					
5544	0-1	Humus			
	1-12	dark brown loam			
	12-24	orange/ light brown sandy loam			
5543	0-3	Humus			
	3-7	grey/brown sandy loam			
	7-24	orange/brown sandy loam			
5503	0-3	Humus			
	3-8	grey/brown sandy loam			
	8-21	yellow/brown sandy loam w/ rocks			
	21-27	orange/tan sand w/ rocks			
5498	0-3	Humus			
	3-7	grey/brown sandy loam			
	7-25	orange sandy loam			
5497	0-3	Humus			
	3-7	grey/brown sandy loam			
	7-24	orange sandy loam			
5496	0-3	Humus			
	3-7	grey/brown sandy loam			
	7-22	orange/brown sandy loam			
	22-30	orange clayey loam			

5495	0-3	Humus		
	3-6	grey/brown sandy loam		
	6-24	orange/brown sandy loam		
5494	0-2	Humus		
	2-18	orange/brown loam w/ pebbles		
	18-26	tan/brown clayey loam		
5493	0-3	Humus		
	3-24	brown loam		
5492	0-2	Humus		
	2-20	orange/brown sandy loam		
	20-28	tan/brown clayey loam		
5491	0-2	Humus		
	2-18	orange/brown sandy loam		
	18-28	tan/brown clayey loam		
N 450				
5574	unexcavated-	bottom of a	slope in	sand pit
5573	0-3	Humus		
	3-17	dark brown loam		
	17-24	tan/orange sand w/ pebbles		
5568	0-3	Humus		
	3-7	grey/brown sandy loam		
	7-25	orange clayey loam		
5504	0-3	Humus		
	3-6	grey/brown sandy loam		
	6-24	orange clayey loam		
5505	0-3	Humus		
	3-8	grey/brown sandy loam		
	8-25	orange/brown sandy loam		
5506	0-4	Humus		
	4-9	grey/brown sandy loam		
	9-26	orange sandy loam		
5507	0-3	Humus		
	3-8	grey/brown sandy loam		
	8-25	orange/brown sandy loam		
5508	0-2	Humus		
	2-18	orange/brown		

		sandy loam w/ pebbles
	18-24	tan/brown sandy loam
5509	0-2	Humus
	2-5	grey/brown sandy loam
	5-18	brown/orange loam w/clay
	18-24	orange/brown loam w/clay
5510	0-2	Humus
	2-20	orange/brown sandy loam
	20-20	tan/brown clayey loam
N 500		
5575	0-2	Humus
	2-5	brown loam
	5-25	tan sand w/ rocks
5569	0-3	Humus
	3-5	brown loam
	5-24	orange/brown sandy loam w/ pebbles
5516	0-2	Humus
	2-5	brown loam w/pebbles
	5-18	orange/brown loam w/ pebbles
	18-25	tan/brown sandy loam w/ pebbles
5515	0-3½	Humus
	3½-7	grey/brown sandy loam
	7-25	orange sandy loam
5514	0-3	Humus
	3-7	grey/brown sandy loam
	7-24	orange sandy loam
5513	0-5	Humus
	5-8	grey/brown sandy loam
	8-26	orange/brown sandy loam
5512	0-2	Humus
	2-4	grey/brown loam
	4-20	orange/brown loam
5511	0-3	Humus
	3-5	grey/brown loam w/ cslay pockets

	5-24	brown/orange loam		
N 550				
5581	0-2	Humus		
	2-8	brown loam		
	8-24	tan/brown loam		
5582	unexcavated-	slope,	fenceline, and	asphalt
5576	unexcavated-	slope,	fenceline, and	asphalt
5570	0-3	Humus		
	3-8	brown sandy loam		
	8-25	tan sandy loam w/ pebbles		
5560	0-3	Humus		
	3-8	brown loam		
	8-23	tan/brown sandy loam w/ pebbles		ash between strat. I & II
5517	0-3	Humus		
	3-8	grey/brown sandy loam		
	8-26	orange/brown sandy loam		
5518	0-2	Humus		
	2-5	grey/brown sandy loam		
	5-26	orange/brown clayey loam		
5519	0-3	Humus		
	3-7	grey/brown sandy loam		
	7-26	orange/brown loam		
5520	0-4	Humus		
	4-6	grey/brown sandy loam		
	6-10	orange sandy loam		
	10-24	orange clay w/ sand		
N600				
5580	unexcavated	slope		
5579	0-9	dark brown loam		
	9-23	tan sand w/ pebbles		
5577	0-6	dark brown loam		
	6-8	light brown loam		
	8-25	tan sand w/ pebbles		
5571	0-7	dark brown loam w/ pebbles		
	7-23	tan sand w/ pebbles		
5561	0-3	Humus		
	3-6	grey/brown sandy loam		
	6-24	orange/brown		

		sandy loam
5567	unexcavated-	slope
5522	0-4	Humus
	4-10	grey/brown sandy loam
	10-24	orange/brown sandy loam
	24-32	tan/orange sand
5521	0-4	Humus
	4-11	grey/brown sandy loam
	11-18	brown sandy loam
	18-24	orange sand
N 650		
5578	unexcavated-	slope
5572	0-7	dark brown loam w/ pebbles
	7-23	tan sand w/ pebbles
5562	0-1	Humus
	1-9	dark brown loam w/ pebbles and cobbles
	9-25	sand w/ pebbles
5565	0-4	Humus
	4-5	dark brown loam
	5-12	light brown loam
	12-21	light brown/ orange loamy sand
5566	0-3	Humus
	3-4 ½	grey/brown loam
	4 ½-24	orange/brown loamy sand
N 700		
5563	unexcavated-	slope
5564	unexcavated-	slope

AREA E

Shovel Test	Depth in Inches	Soil Descrip. Color/Texture	Cultural Materials	Quantity	Notes
N0					
5587	0-2	Humus			
	2-8	brown loam			
	8-24	tan/brown sandy loam w/ pebbles			
5588	0-3	Humus			
	3-10	brown loam			
	10-23	tan/brown clayey loam			
5589	0-2	Humus			
	2-8	brown loam			
	8-24	tan/brown clayey loam			
5618	0-2	Humus			
	2-8	brown loam			
	8-25	tan/brown clayey loam			
N50					
5583	0-2	Humus			
	2-18	brown loam			
	18-24	tan/brown clayey loam			
5584	0-2	Humus			
	2-18	brown loam			
	18-24	tan/brown clayey loam			
5585	0-2	Humus			
	2-18	brown loam			
	18-25	tan/brown clayey loam			
5586	0-2	Humus			
	2-18	brown pebbly loam			
	18-24	tan sandy/pebbly loam			
5604	0-2	Humus			
	2-10	brown loam			
	10-24	tan/brown clayey loam			
5608	0-2	Humus			
	2-8	brown loam			
	8-24	tan/brown clayey loam			
5617	0-2	Humus			
	2-8	brown loam			
	8-25	tan/brown clayey loam			
N100					
5590	0-4	Humus			
	4-7	grey/brown loam			
	7-24	orange/brown sandy loam			
5591	0-3	Humus			
	3-5	grey/brown loam			
	5-8	orange/brown loam			
	8-24	clay			
5592	0-3	Humus			
	3-8	grey/brown loam			
	8-24	orange/brown loamy sand			
5593	0-4	Humus			
	4-9½	grey/brown loam			
	9½-24	orange/brown loamy sand			
5605	0-4	Humus			

	4-9	grey/brown loam w/clay pocket	
	9-24	orange/brown loamy sand	
5609	0-2	Humus	
	2-14	grey/brown loam	
	14-26	light brown loamy sand	
5616	0-1	Humus	
	1-14	dark brown loam	
	14-24	brown/orange loamy sand	
5619	0-1	Humus	
	1-4	dark brown loam	
	4-18	orange brown loamy sand	
N150			
5594	0-2	Humus	
	2-4	grey/brown loam	
	4-24	orange/brown loam	
5597	0-4	Humus	
	4-9	grey/brown loam	
	9-24	light brown/orange loamy sand	
5598	0-2	Humus	
	2-4	grey/brown loam	
	4-17	light brown/orange loamy sand	
	17-24	tan sand w/ pebbles	
5603	0-1	Humus	
	1-5	grey/brown loam	
	5-24	orange/brown loamy sand	
5606	0-2½	Humus	
	2½-7	grey/brown loam	
	7-24	light brown/orange loamy sand	
5610	0-1	Humus	
	1-17	Dark brown loam	
	17-24	orange/brown loamy sand	
5615	0-2	Humus	
	2-9	grey/brown loam	large rock found between strat. II & III
	9-24	light brown loamy sand	
5620	0-3	Humus	
	3-5	grey/brown loam	
	5-24	orange/brown loamy sand	
N200			
5595	0-1	Humus	
	1-4	grey/brown loam	
	4-24	brown loamy sand	
5596	0-3	Humus	
	3-18	brown pebbly loam	
	18-24	tan sandy loam	
5599	0-3	Humus	
	3-12	brown loam	
	12-24	tan/brown clay	
5602	0-2	Humus	
	2-12	brown pebbly loam	
	12-24	tan/brown clay	

5607	0-2	Humus		
	2-8	brown loam		
	8-24	tan/brown loamy clay		
5611	0-2	Humus		
	2-12	brown loam		
	12-25	tan/brown clay		
5814	0-2	Humus		
	2-8	brown loam		
	8-25	tan/brown loamy clay		
5621	0-2	Humus		
	2-8	brown loam		
	8-24	tan/brown loamy clay		
N250				
5600	0-3	Humus		
	3-18	brown loam		
	18-25	tan/brown clay		
5601	0-3	Humus		
	3-10	brown loam		
	10-24	tan/brown clay		
5612	0-2	Humus		
	2-8	brown loam		
	8-23	tan/brown loamy clay		
5613	0-3	Humus		
	3-15	brown loam		
	15-24	tan/brown loamy clay		
5622	0-3	Humus		
	3-12	brown loam		
	12-24	tan/brown loamy clay		
5625	0-2	Humus		
	2-12	brown loam		
	12-25	tan/brown clay		
N300				
5623	0-2	Humus		
	2-17	brown loam		
	17-24	light brown loamy sand		
5626	0-1½	Humus		
	1½-5	grey/brown loam		
	5-24	brown loamy sand		
N350				
5624	0-18	dark brown loam		
	18-24	light brown loam		
5627	0-16	Dark brown loam	Rebar, metal oyidized	1
	16-24	light brown loamy sand		
5628	0-2	Humus		
	2-7	grey/brown loam		
	7-16	brown loam w/ clay		
	16-24	clay		

AREA F

Shovel Test	Depth in Inches	Soil Descip. Color/ Texture	Cultural Artifacts	Quantity	Notes
N0					
5708	0-3	Humus			
	3-15	brown loam			
	15-24	orange/brown clayey loam			
5709	0-2	Humus			
	2-5	tan/brown loam			
	5-15	brown loam			
	15-22	orange/brown clayey loam			
N50					
5715	0-2	Humus			
	2-9	brown sandy loam			
	9-24	orange/brown loamy sand			
5714	0-2	Humus			
	2-10	medium brown sandy loam			
	10-24	orange/brown loamy sand w/pebbles			
5713	0-2	Humus			
	2-12	brown loam			
	12-24	orange/brown clayey loam			
5710	0-2	Humus			
	2-5	tan/brown loam			
	5-13	brown loam			
	13-21	orange/brown clayey loam			
N100					
5723	0-2	Humus			
	2-12	tan/brown loam			
	12-20	orange/brown clayey loam			
5724		unexcavated- slope			slope
5725	0-2	Humus			
	2-10	tan/brown loam			
	10-20	orange/brown clayey loam			
5712	0-2	Humus			
	2-9	medium brown sandy loam w/pebbles			
	9-24	light brown sandy loam/ compacted soil w/pebbles			
5711	0-2	Humus			
	2-12	medium brown loam			
	12-24	orange/brown clayey loam w/pebbles			
N150					
5721	0-2	Humus			
	2-12	tan/brown loam			
	12-20	orange/brown clayey loam			
5722	0-2	Humus			
	2-11	tan/brown loam			
	11-24	orange/brown clayey loam w/ pebbles			
5726	0-2½	Humus			

	2½-7	medium brown sandy loam w/pebbles
	7-24	orange/brown sandy loam w/ many pebbles
5727	0-2	Humus
	2-8	medium brown sandy loam
	8-24	orange/brown sandy loam w/pebbles
5728	0-2½	Humus
	2½-9	medium brown sandy loam
	9-24	light brown sandy loam w/ pebbles
5632	0-2	Humus
	2-18	Brown loam
	18-28	Tan/ Brown clayey loam
N200		
5720	0-2	Humus
	2-12	orange/brown pebbly loam
	12-20	orange/brown sandy loam
5719	0-2	Humus
	2-12	tan/brown loam
	12-20	orange/brown clayey loam
5716	0-2	Humus
	2-12	tan/brown loam
	12-21	orange/brown clayey loam
5729	0-2	Humus
	2-8	medium brown loam
	8-20	orange/brown clayey loam w/ pebbles
	20-30	light tan sand
5730	0-2	Humus
	2-8	medium brown sandy loam
	8-24	orange/brown sandy loam w/ pebbles
5663	0-2	Humus
	2-10	Brown loam
	10-	Tan/ Brown clayey loam
5662	0-1	Humus
	1-3	Grey/ Brown loam
	3-24	Light Brown loam
5633	0-1	Humus
	1-13	Dark Brown loam
	13-24	Light Brown clayey loam
N250		
5718	0-2	Humus
	2-12	brown loamy pebbles
	12-20	orange/brown clayey loam
5717	0-2	Humus
	2-12	tan/brown sandy/pebbly loam
	12-20	orange/brown clayey/pebbly loam
5673	0-3	Humus
	3-15	Brown loam
	15-26	Tan/ Brown clayey loam
5672	0-3	Humus
	3-10	Brown pebbly loam
	10-28	Tan/ Sandy pebbly loam

5664		unexcavated			Slope
5661	0-2	Humus			
	2-18	Brown loam			
	18-24	Orange/ Brown clayey loam			
5747	0-2	Humus			
	2-5	Light Brown loam			
	5-18	Brown clayey loam			
5639	0-2	Humus			
	2-12	Brown loam			
	12-22	Orange/ Brown clayey loam			
5638	0-2	Humus			
	2-12	Tan/ Brown loam			
	12-23	Brown clayey loam			
5634	0-2	Humus			
	2-18	Brown loam			
	18-28	Tan/ Brown clayey loam			
N300					
5675	0-3	Humus			
	3-9	Grey/ Brown loam			
	9-24	Orange/ Brown loamy sand			
5674	0-3	Humus			
	3-7	Grey/ Brown loam			
	7-17	Brown loam	Bone,small, mammal	1	
	17-24	Light Brown loamy sand			
5671	0-2	Humus			
	2-7	Grey/ Brown loam			
	7-25	Orange sandy loam w/ pebbles			
5665		unexcavated			Slope
5660		unexcavated			Slope
5648	0-1	Humus			
	1-5	Grey/ Brown loam			
	5-21	Brown loam			
	21-24	Light Brown loamy sand			
5640	0-1	Humus			
	1-3	Grey/ Brown loam			
	3-15	Dark Brown loam			
	15-24	Brown loamy sand			
5641	0-1	Humus			
	1-17	Grey clayish loam			
	17-24	Orange/ Brown loamy sand			
5637	0-1	Humus			
	1-4	Grey/ Brown loam			
	4-14	Light Brown loam			
	14-24	Dark Brown loamy sand			
5635	0-1	Grey/ Black loam			
	1-16	Tan/ Grey loam			
	16-24	Tan loamy sand			
N350					
5678	0-2	Humus			

	2-10	Tan/ Brown loam	
	10-20	Brown clay	
5677	0-2	Humus	
	2-15	Brown loam	
	15-28	Orange/ Brown clay loam	
5676	0-2	Humus	
	2-12	Brown loam	
	12-22	Orange/ Brown clay loam	
5670		unexcavated	Slope
5666		unexcavated	Slope
5659	0-2	Humus	
	2-12	Brown loam	
	12-26	Tan/ Brown clayey loam	
5649	0-2	Humus	
	2-18	Brown pebbly loam	
	18-22	Tan/ sandy pebbly loam	
5652	0-2	Humus	
	2-15	Brown pebbly loam	
	15-21	Tan/ Brown clayey loam	
5642	0-3	Humus	
	3-15	Brown loam	
	15-24	Tan/ Brown clayey loam	
5646	0-3	Humus	
	3-18	Brown loam	
	18-22	Tan/ brown clayey loam	
5635	0-3	Humus	
	3-18	Brown loam	
	18-21	Tan/ brown clayey loam	
N400			
5682		unexcavated	Slope
5681		unexcavated	Slope
5680	0-4	Humus	
	4-12	Dark Brown loam	
	12-24	Light Brown loamy sand	
5679	0-3	Humus	
	3-9	Grey/ brown loam	
	9-15	Dark Brown loam	
	15-24	Light Brown loamy sand	
5669	0-1	Humus	
	1-16	Grey/ Brown loam	
	16-24	Brown/ Tan loamy sand	
5667	0-2	Humus	
	2-12	Dark Brown loam	
	12-24	Light Brown sandy loam w/pebbles	
5658	0-1	Humus	
	1-16	Brown loam	
	16-24	Light Brown loamy sand	
5651	0-15	Brown loam	
	1-25	Light brown loamy sand	
5653	0-1	Humus	
	1-17	Dark Brown loam	

	17-24	Light Brown loamy sand
5643	0-2	Humus
	2-15	Grey/ Brown loam
	15-24	Light Brown loamy sand
5645	0-1	Humus
	1-5	Grey/ Brown loam
	5-22	Brown loam
	22-24	Light Brown /Orange sand

N450

5691	0-4	Humus
	4-6	Grey/ brown loam
	6-7	Brown loam
	7-12	Grey/ Brown loam
	12-24	Light Brown loamy sand
5685	0-4	Humus
	4-12	Grey/ brown loam
	12-24	Orange sandy loam w/ pebbles
5684	0-2	Humus
	2-5	Grey/ brown loam
	5-15	Brown loam
	15-25	Light Brown loamy sand
5683	0-1	Humus
	1-11	Brown loam
	11-24	Orange/ Brown clayey loam
5668	0-2	Humus
	2-10	Brown loam
	10-22	Tan/ brown clayey loam
5657	0-2	Humus
	2-10	Brown loam
	10-21	Tan/ brown clayey loam
5654	0-2	Humus
	2-10	Brown loam
	10-22	Tan/ brown clayey loam
5644	0-3	Humus
	3-13	Brown loam
	13-24	Orange clayey loam

N500

5690	0-3	Humus
	3-12	Brown sandy loam
	12-24	Orange clay
5689	0-3	Humus
	3-11	Brown loam
	11-24	Orange clay
5688	0-3	Humus
	3-13	Grey/ Brown clayey loam
	13-26	Orange clay
5687	0-3	Humus
	3-14	Brown sandy loam
	14-24	Orange clay
5686	0-2	Humus
	2-6	Brown pebbly loam
	6-18	Orange/ Brown clay
5656	0-2	Humus
	2-8	Brown loam

	8-18	Tan/ Brown clay
5655	0-3	Humus
	3-12	Brown clayey loam
	12-24	Orange clay sand
N550		
5697	0-2	Humus
	2-13	Brown sandy loam
	13-27	Orange clay
5696	0-3	Humus
	3-14	Brown sandy loam
	14-27	Orange clay
5695	0-3	Humus
	3-13	Brown sandy loam
	13-25	Orange clay
5694	0-3	Humus
	3-14	Brown sandy loam
	14-24	Orange clay
5693	0-3	Humus
	3-13	Brown sandy loam
	13-26	Orange clay
5692	0-3	Humus
	3-14	Brown sandy loam
	14-16	Orange clay
N600		
5734	0-3	Humus
	3-13	Brown sandy loam
	13-24	Orange clay
5732	0-3	Humus
	3-12	Brown sandy loam
	12-25	Orange clay
5734		
5731	0-3	Humus
	3-7	Brown sandy loam
	7-14	Yellow/ Brown Clayey loam
	14-28	Orange clay
5701	0-2	Humus
	2-14	Brown sandy loam
	14-24	Orange clay
5700	0-3	Humus
	3-17	Brown sandy loam
	17-26	Orange clay
5698	0-3	Humus
	3-14	Brown sandy loam
	14-27	Orange clay
5699	0-3	Humus
	3-12	Brown sandy loam
	12-25	Orange clay
5704	0-2	Humus
	2-13	Brown sandy loam
	13-26	Orange clay

N650		
5763	0-3	Humus
	3-15	brown sandy loam
	15-24	orange sand
5752	0-2	Humus
	2-2½	grey sand
	2½-24	medium brown loam
5761	0-3	Humus
	3-20	light brown clay
5760	0-3	Humus
	3-10	yellow/brown sandy loam
	10-24	orange/tan sand
5739	0-3	Humus
	3-8	Brown sandy loam
	8-20	Yellow/ Brown sandy loam
	20-28	Tan/ Orange sand
5738	0-3	Humus
	3-20	orange/brown clayey loam
5737	0-3	Humus
	3-13	Brown sandy loam
	13-27	Orange clay
5736	0-3	Humus
	3-14	Brown sandy loam
	14-25	Orange sand
5735	0-3	Humus
	3-12	brown loam
	12-24	orange sandy clay
5706	0-3	Humus
	3-13	Brown sandy loam
	13-25	Orange clay
5705	0-2	Humus
	2-12	Brown sandy loam
	12-27	Orange clay
5702	0-3	Humus
	3-14	Light Brown sandy loam
	14-25	Orange clay
N700		
5768	0-3	Humus
	3-13	Brown sandy loam
	13-25	Orange clay
5767	0-3	Humus
	3-12	Brown sandy loam
	12-24	Orange clay
5766	0-2	Humus
	2-13	Grey sandy loam
	13-24	Orange clay
5765	0-2	Humus
	2-16	medium brown loam
	16-24	orange/brown sandy loam w/pebbles
5764	0-2	Humus
	2-15	medium brown loam
	15-24	orange/brown sandy loam
5744	0-2	Humus
	2-15	light brown loam

	15-24	orange/brown sandy loam
5743	0-2	Humus
	2-12	medium brown sandy loam
	12-24	light brown sandy loam
5742	0-3	Humus
	3-12	light brown sandy loam
	12-24	orange sand w/ pebbles
5741	0-2	Humus
	2-2½	grey sand (lens)
	2½-16	brown loam
	16-24	orange brown sand
5740	0-3	Humus
	3-16	brown sandy loam
	16-24	orange fine sand
5707	0-2	Humus
	2-20	dark brown loam
	20-28	orange/brown sandy loam
N750		
5775	0-2½	Humus
	2½-28	medium brown loamy sand, hard packed w/ pebbles
5774	0-3	Humus
	3-25	dark brown sandy loam
	25-30	tan sand w/ rocks
5773	0-3	Humus
	3-14	brown sandy loam
	14-26	orange sand & rocks
5772	0-3	dark brown loam
	3-28	orange brown sandy loam
5771	0-3	Humus
	3-30	orange/brown loamy sand
5770	0-3	Humus
	3-13	brown sandy loam
	13-24	orange sand & rocks
5769	0-3	Humus
	3-14	medium brown sandy loam w/ pebbles
	14-30	orange brown sandy loam w/ pebbles
5747		unexcavated- test on path
5746	0-2	Humus
	2-15	brown sandy loam
	15-28	orange clay
5745	0-14	medium brown sandy loam
	14-24	orange brown clayey loam
N 800		
5781	0-3	Humus
	3-15	brown sandy loam
	15-24	fine orange sand
5780	0-2	humus
	2-24	medium brown sandy loam w/ pebbles
5779	0-3	Humus
	3-15	medium brown sandy loam w/ pebbles. ½ inch charcoal lens at 7"

	15-30	reddish brown sandw/ pebbles	
5778	0-3	Humus	
	3-10	medium brown sand loam w/pebbles	
	10-18	orange brown sandy loam- hard packed w/ pebbles	
5777	0-3	Humus	
	3-11	brown sandy loam	
	11-25	orange/brown sandy loam	
5776	0-3	Humus	
	3-7	brown sandy loam	
	7-26	orange/brown sandy loam	
5750	0-1	Humus	
	1-22	orange/brown sand w/ pebbles	
5749	0-2	Humus	
	2-12	medium brown sandy loam	
	12-24	tan sandy loam	
5748	0-1	grass w/ pebbles	path
	1-12	medium brown sandy loam	
	12-20	orange/brown sandy loam	
	20-30	tan/blonde sandy loam w/ pebbles	
N850			
5753	0-4	Humus	
	4-20	light brown sandy loam	
	20-24	compact pebbly loam	
5752	0-3	Humus	
	3-28	orange/brown sandy loam	
5751	0-2	Humus	
	2-2½	grey sandy loam (lens)	
	2½-9	brown sandy loam	
	9-13	orange/brown sandy loam w/ pebbles	
	13-24	tan sandy loam w/ (lots of) pebbles	
N900			
5754	0-3	Humus	
	3-7	brown sandy loam	
	7-19	orange/brown sandy loam	
	19-28	tan/orange sand	
5755	0-4	Humus	
	4-24	orange/brown sandy loam	
5756	0-2	Humus	
	2-6	medium brown sandy loam w/ pebbles	
	6-9	orange/brown sandy loam	
	9-24	tan sandy loam w/ (lots of) pebbles & cobble	
N950			
5759		unexcavated	
5758	0-1	Humus	
	1-7	medium brown sandy loam w/ pebbles	
	7-16	tan/brown sand w/ pebbles	
	16-24	light tan sand w/ pebbles	
5757	0-3	Humus	
	3-8	brown sandy loam	
	8-16	orange/brown sand w/ rocks	

	16-24	tan sand w/ rocks	
Added shovel tests			
N550			
5797		unexcavated	slope
5796		unexcacvated	slope
N600			
5792	0-2	Humus	
	2-10	medium brown sandy loam	
	10-24	light brown loamy sand	
5793		unexcavated	slope
5794		unexcavated	slope
5795		unexcavated	slope
N650			
5791	0-2	Humus	
	2-17	brown pebbly/sandy loam	
	17-24	orange/brown pebbly/sand	
N700			
5790		unexcavated	slope

APPENDIX C

NOTE: See Figures 2-8.

APPENDIX F

APPENDIX

Turning Movement Counts

ESCHBACHER ENGINEERING, P.C.

TRAFFIC VOLUME SUMMARY Melville, NY

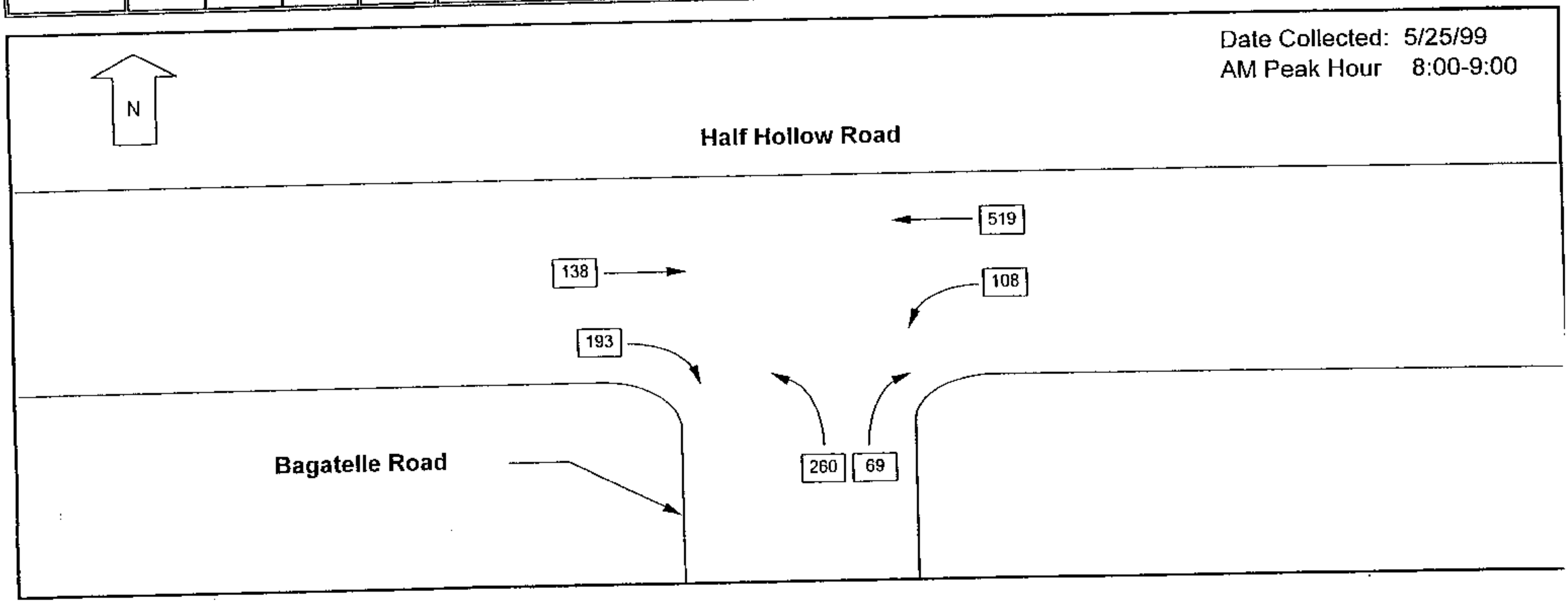
Half Hollow Road
and
Bagatelle Road

Date Collected: 5/25/99 (Tuesday)

Peak Period: Weekday AM Peak Period

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
7:30 AM		36	51	87	32	101		133	25		23	48				0	268	
7:45 AM		36	36	72	25	122		147	58		19	77				0	296	
8:00 AM		44	51	95	25	114		139	65		12	77				0	311	1258
8:15 AM		59	57	116	32	151		183	68		16	84				0	383	1281
8:30 AM		17	26	43	31	141		172	62		14	76				0	291	1287
8:45 AM		18	59	77	20	113		133	65		27	92				0	302	
***AM Peak Hour* 8:00-9:00**	**0**	**138**	**193**	**331**	**108**	**519**	**0**	**627**	**260**	**0**	**69**	**329**	**0**	**0**	**0**	**0**	**1287**	

Date Collected: 5/25/99
AM Peak Hour 8:00-9:00



TRAFFIC VOLUME SUMMARY Melville, NY

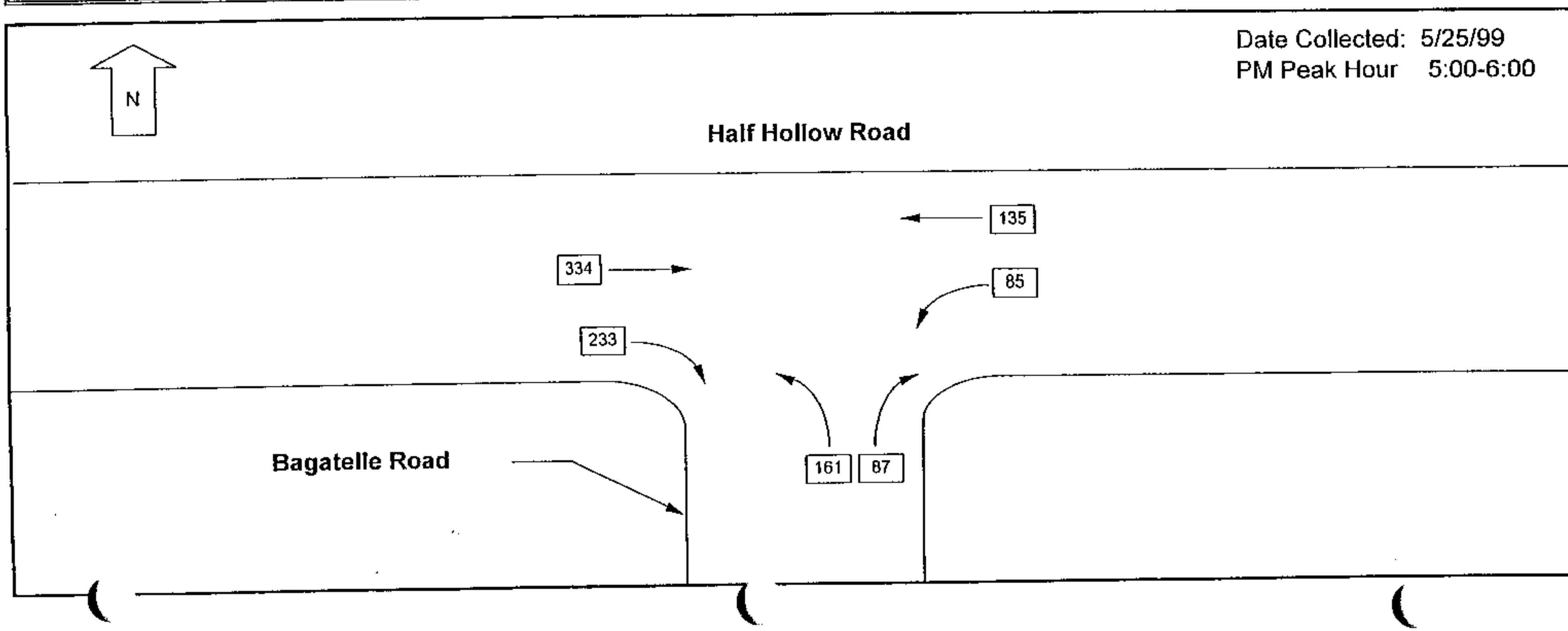
ESCHBACHER ENGINEERING, P.C.

Half Hollow Road
and
Bagatelle Road

Peak Period: Weekday PM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
4:30 PM		45	57	102	26	32		58	41		25	66				0	226	
4:45 PM		43	50	93	18	24		42	37		15	52				0	187	
5:00 PM		66	48	114	19	32		51	36		15	51				0	216	
5:15 PM		88	70	158	20	34		54	45		22	67				0	279	908
5:30 PM		85	53	138	24	40		64	37		27	64				0	266	948
5:45 PM		95	62	157	22	29		51	43		23	66				0	274	1035
PM Peak Hour 5:00-6:00	0	334	233	567	85	135	0	220	161	0	87	248	0	0	0	0	1035	



TRA‹ ‹IC VOLUME SUMMARY Melville, NY

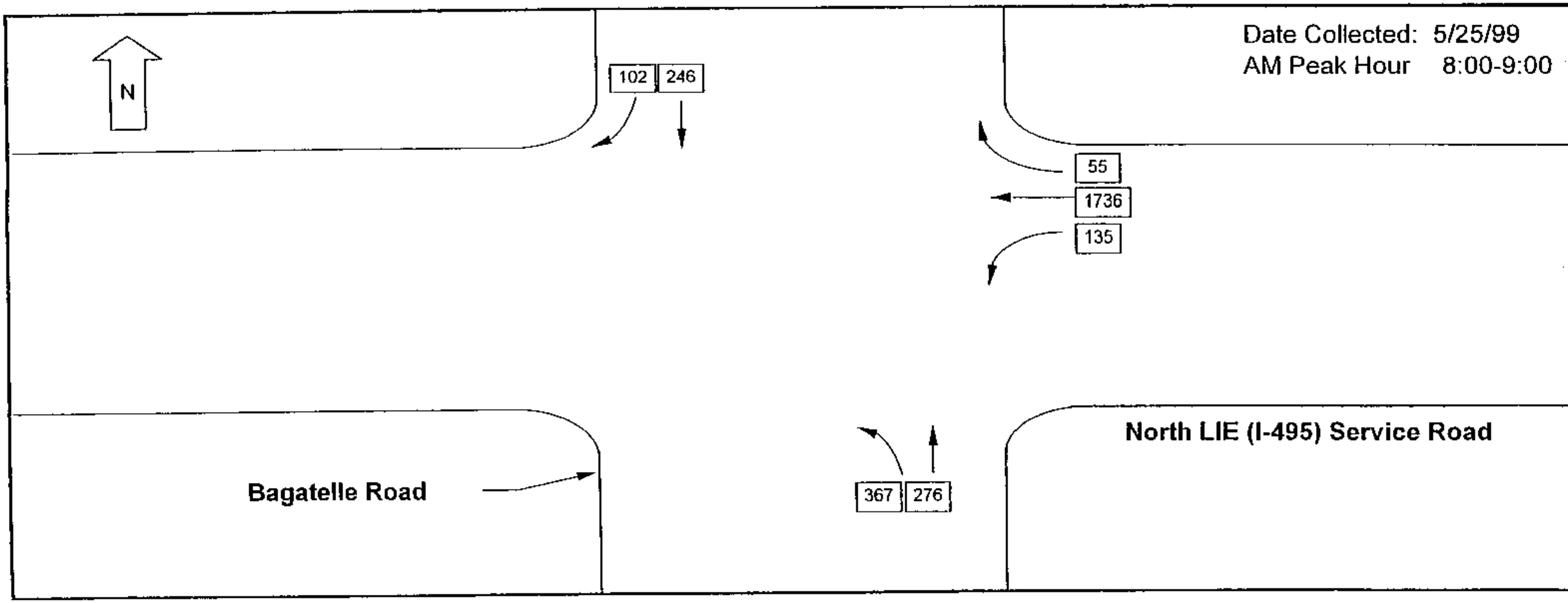
ESCHBACHER ENGIN‹‹‹ING, P.C.

North LIE (I-495) Service Road
and
Bagatelle Road

Peak Period Weekday AM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
7:30 AM				0	22	336	13	371	99	47		146		55	21	76	593	
7:45 AM				0	21	396	16	433	86	67		153		45	29	74	660	
8:00 AM				0	32	456	14	502	104	59		163		70	26	96	761	
8:15 AM				0	31	458	13	502	104	83		187		61	31	92	781	2795
8:30 AM				0	41	401	8	450	90	56		146		42	25	67	663	2865
8:45 AM				0	31	421	20	472	69	78		147		73	20	93	712	2917
AM Peak Hour 8:00-9:00	0	0	0	0	135	1736	55	1926	367	276	0	643	0	246	102	348	2917	



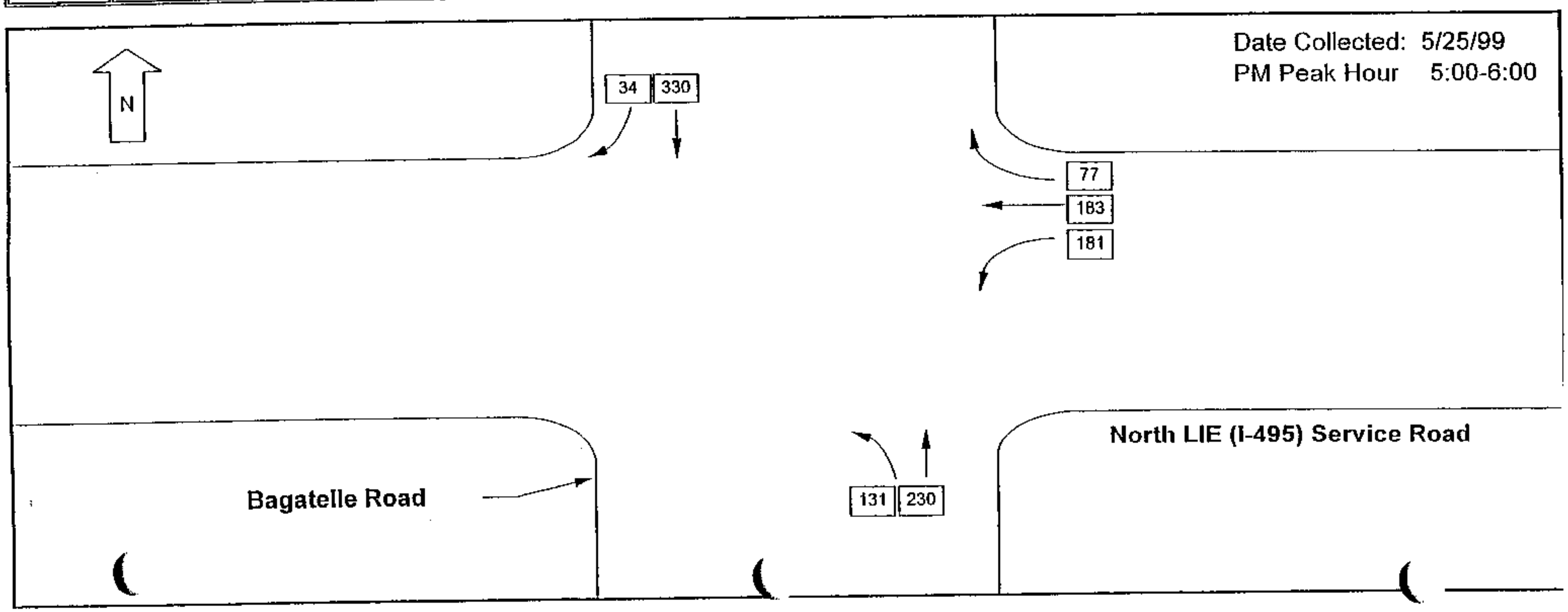
TRAFFIC VOLUME SUMMARY Melville, NY

North LIE (I-495) Service Road and Bagatelle Road

Peak Period Weekday PM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
4:30 PM				0	43	48	19	110	43	50		93		57	13	70	273	
4:45 PM				0	44	52	17	113	32	41		73		62	10	72	258	
5:00 PM				0	40	43	19	102	37	55		92		71	10	81	275	
5:15 PM				0	45	41	20	106	22	55		77		99	7	106	289	1095
5:30 PM				0	48	51	17	116	37	57		94		76	9	85	295	1117
5:45 PM				0	48	48	21	117	35	63		98		84	8	92	307	1166
PM Peak Hour 5:00-6:00	0	0	0	0	181	183	77	441	131	230	0	361	0	330	34	364	1166	



TRAFFIC VOLUME SUMMARY Melville, NY

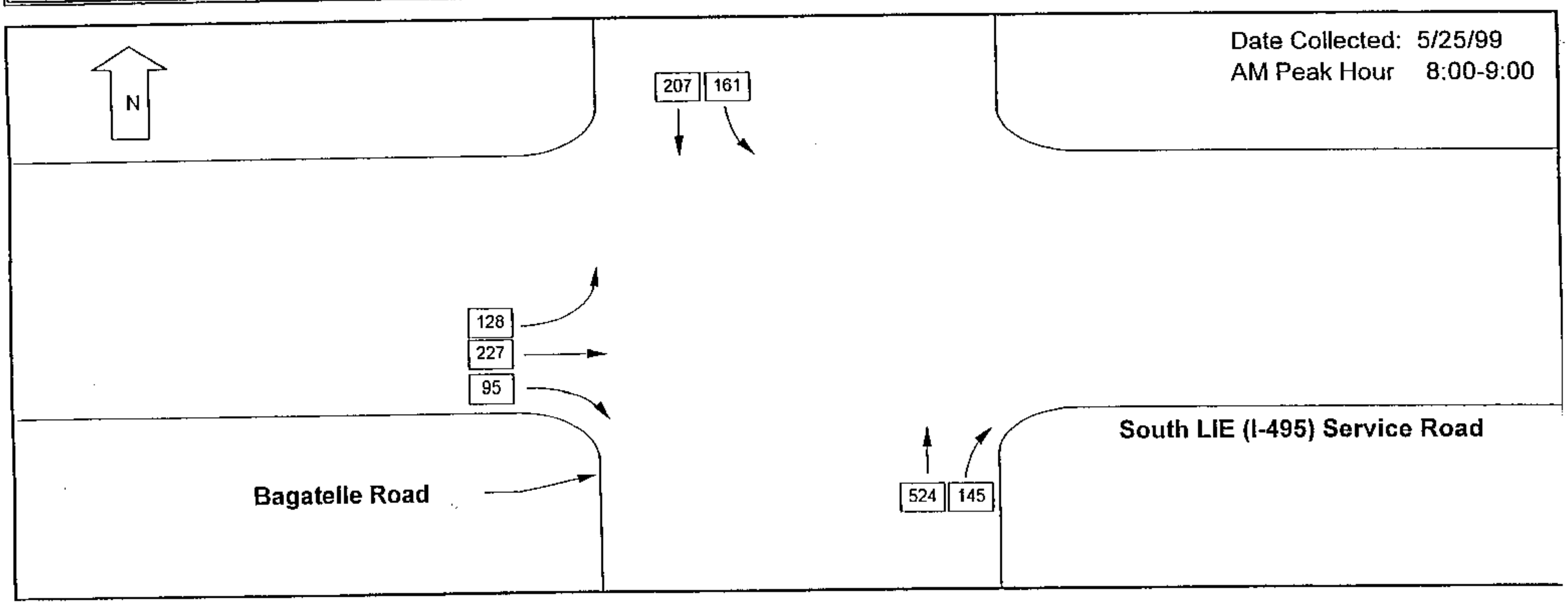
ESCHBACHER ENGINEERING, P.C.

South LIE (I-495) Service Road
and
Bagatelle Road

Peak Period: Weekday AM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
7:30 AM	24	43	12	79				0		116	26	142	29	46		75	296	
7:45 AM	34	49	13	96				0		132	41	173	27	43		70	339	
8:00 AM	25	57	21	103				0		135	37	172	37	49		86	361	
8:15 AM	35	58	23	116				0		133	29	162	42	60		102	380	1376
8:30 AM	33	59	24	116				0		136	43	179	33	43		76	371	1451
8:45 AM	35	53	27	115				0		120	36	156	49	55		104	375	1487
AM Peak Hour 8:00-9:00	128	227	95	450	0	0	0	0	0	524	145	669	161	207	0	368	1487	



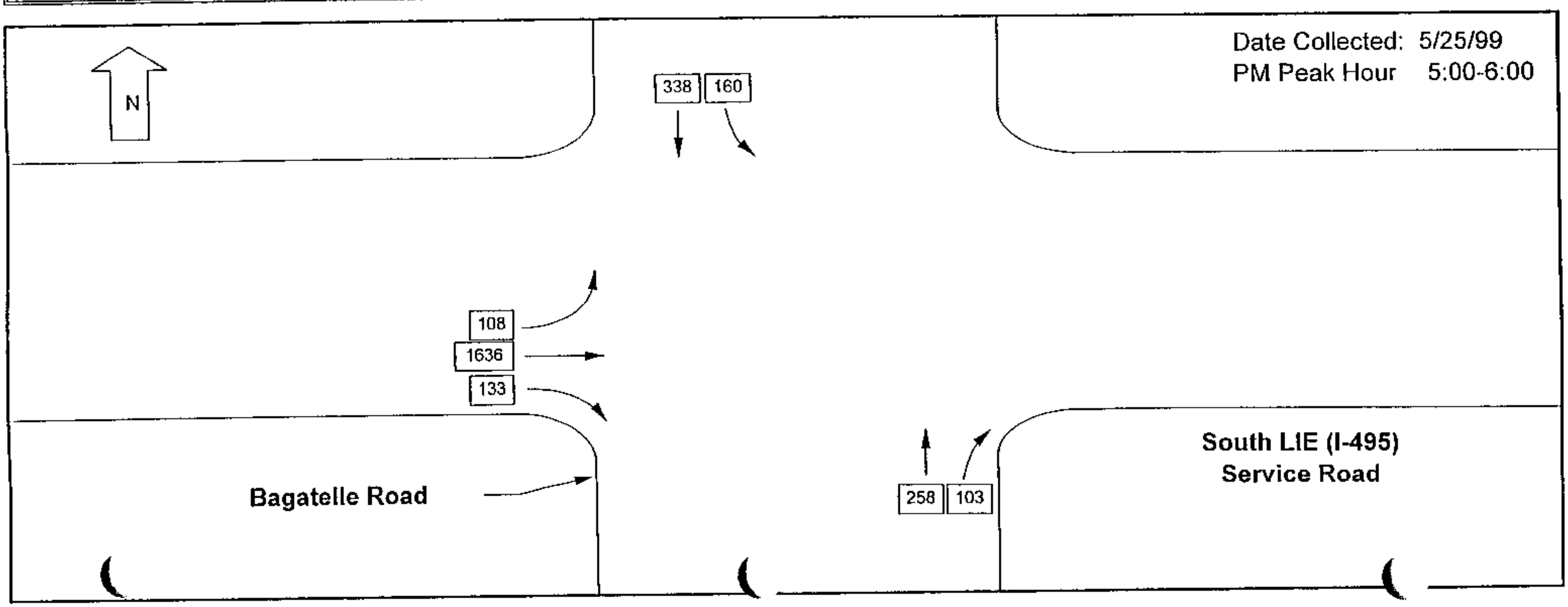
TRAFFIC VOLUME SUMMARY Melville, NY

South LIE (I-495) Service Road
and
Bagatelle Road

Peak Period: Weekday PM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
4:30 PM	55	283	30	368				0		41	11	52	47	78		125	545	
4:45 PM	28	294	38	360				0		46	17	63	28	70		98	521	
5:00 PM	21	360	28	409				0		72	32	104	38	67		105	618	
5:15 PM	27	471	26	524				0		50	15	65	43	78		121	710	2394
5:30 PM	25	388	36	449				0		70	26	96	43	93		136	681	2530
5:45 PM	35	417	43	495				0		66	30	96	36	100		136	727	2736
PM Peak Hour 5:00-6:00	108	1636	133	1877	0	0	0	0	0	258	103	361	160	338	0	498	2736	



TRAFFIC VOLUME SUMMARY Melville, NY

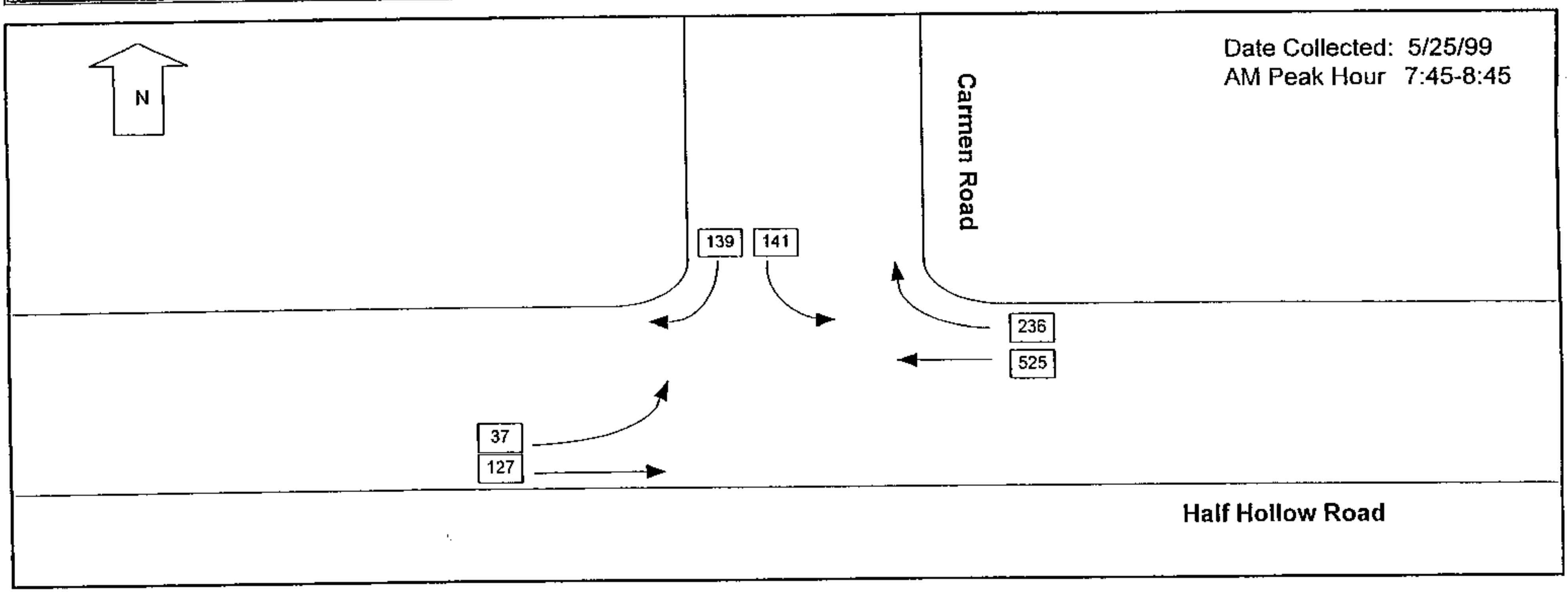
ESCHBACHER ENGINEERING, P.C.

Carmen Road
and
Half Hollow Road

Peak Period: Weekday AM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
7:30 AM	14	27		41		91	25	116				0	31		33	64	221	
7:45 AM	18	28		46		95	50	145				0	33		26	100	291	
8:00 AM	5	30		35		110	61	171				0	41		34	75	281	
8:15 AM	9	40		49		179	66	245				0	30		39	69	363	1156
8:30 AM	5	29		34		141	59	200				0	37		40	77	311	1246
8:45 AM	13	41		54		98	54	152				0	27		28	55	261	1216
AM Peak Hour 7:45-8:45	**37**	**127**	**0**	**164**	**0**	**525**	**236**	**761**	**0**	**0**	**0**	**0**	**141**	**0**	**139**	**321**	**1246**	



ESCHBACHER ENGINEERING, P.C.

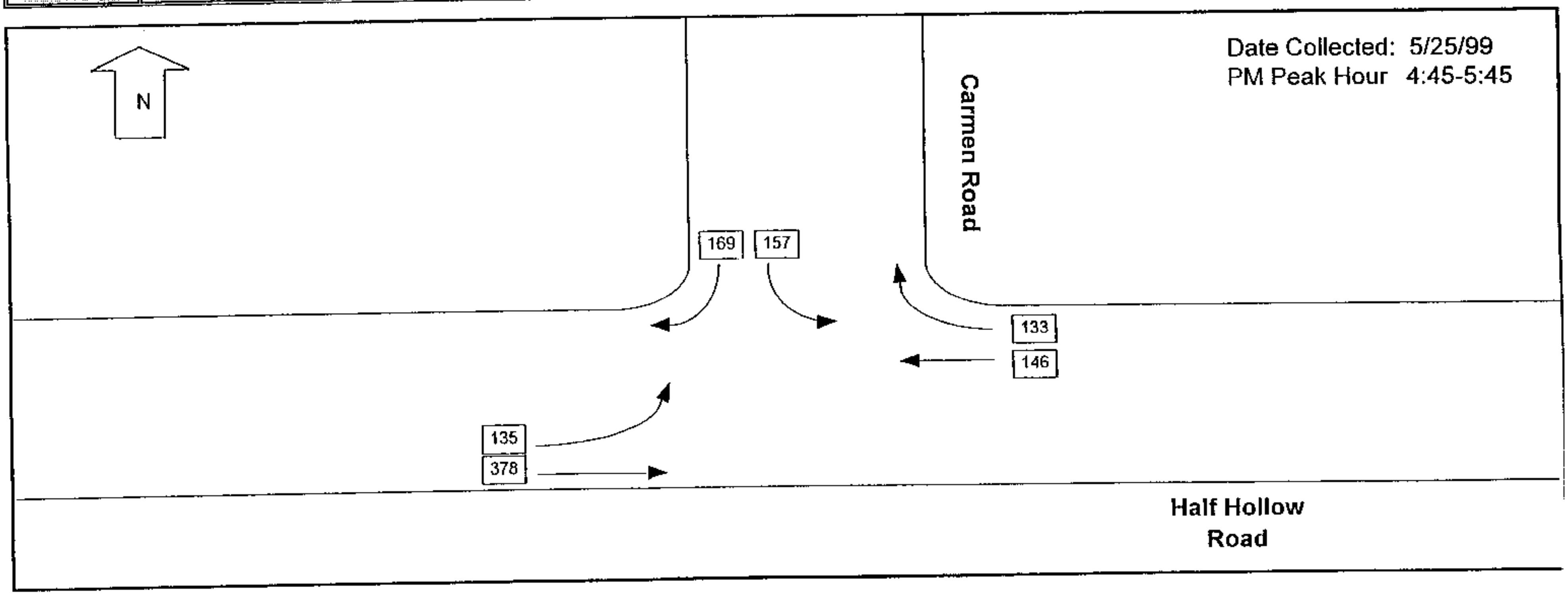
TRAFFIC VOLUME SUMMARY Melville, NY

Carmen Road and Half Hollow Road

Peak Period: Weekday PM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time Begins	Eastbound LT	Eastbound TH	Eastbound RT	Eastbound TOTAL	Westbound LT	Westbound TH	Westbound RT	Westbound TOTAL	Northbound LT	Northbound TH	Northbound RT	Northbound TOTAL	Southbound LT	Southbound TH	Southbound RT	Southbound TOTAL	Total	Cumm. Hourly
4:30 PM	23	58		81		39	25	64				0	23		47	70	215	
4:45 PM	24	69		93		26	28	54				0	36		57	100	247	
5:00 PM	32	97		129		35	35	70				0	31		47	78	277	
5:15 PM	38	105		143		44	34	78				0	47		37	84	305	1044
5:30 PM	41	107		148		41	36	77				0	43		28	71	296	1125
5:45 PM	33	77		110		34	23	57				0	27		24	51	218	1096
PM Peak Hour 4:45-5:45	135	378	0	513	0	146	133	279	0	0	0	0	157	0	169	333	1125	



ESCHBACHER ENGINEERING, P.C.

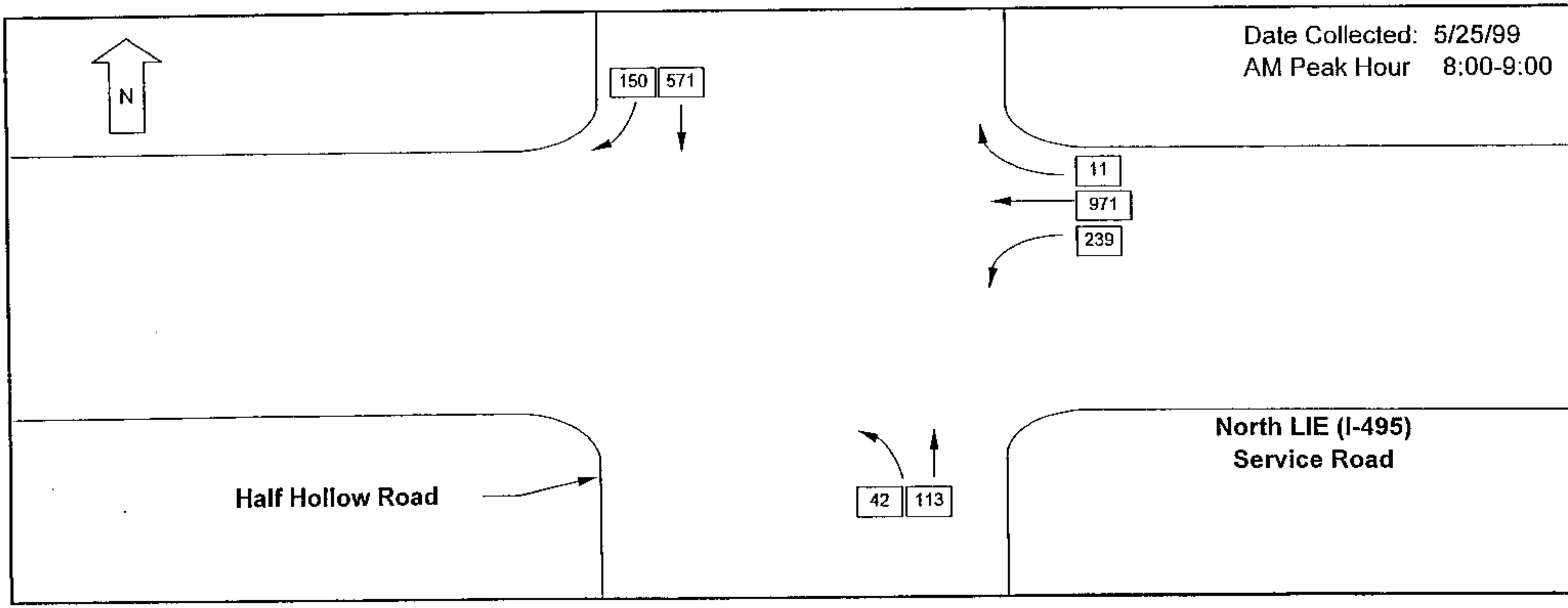
TRAFFIC VOLUME SUMMARY Melville, NY

North LIE (I-495) Service Road
and
Half Hollow Road

Peak Period Weekday AM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
7:30 AM				0	58	188	7	253	10	35		45		97	18	115	413	
7:45 AM				0	67	201	0	268	11	48		59		112	30	142	469	
8:00 AM				0	67	238	6	311	15	19		34		110	36	146	491	
8:15 AM				0	60	255	2	317	10	32		42		162	50	212	571	1944
8:30 AM				0	52	251	1	304	7	26		33		156	34	190	527	2058
8:45 AM				0	60	227	2	289	10	36		46		143	30	173	508	2097
AM Peak Hour 8:00-9:00	0	0	0	0	239	971	11	1221	42	113	0	155	0	571	150	721	2097	



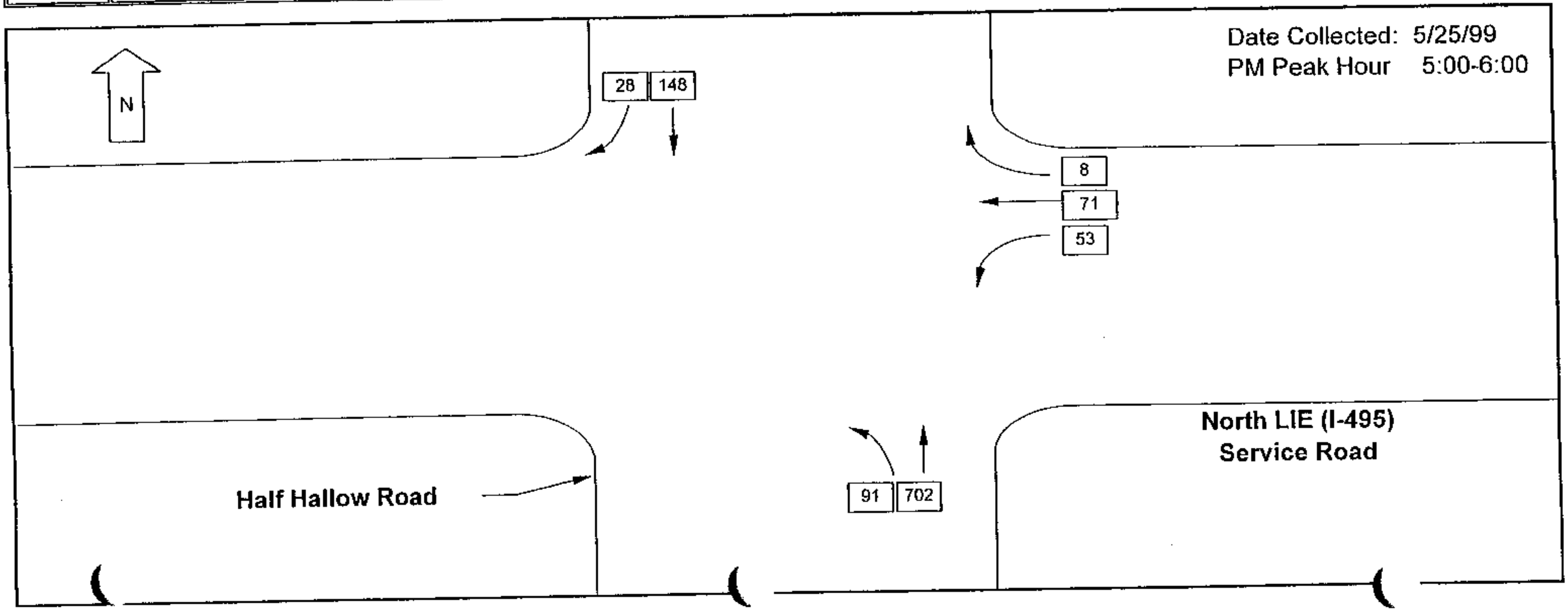
TRAFFIC VOLUME SUMMARY Melville, NY

North LIE (I-495) Service Road
and
Half Hallow Road

Date Collected: 5/25/99 (Tuesday)

Peak Period Weekday PM Peak Period

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
4:30 PM				0	16	14	2	32	18	81		99		40	8	48	179	
4:45 PM				0	11	23	4	38	21	119		140		28	6	34	212	
5:00 PM				0	10	10	4	24	22	181		203		39	6	45	272	
5:15 PM				0	15	10	2	27	26	190		216		34	4	38	281	944
5:30 PM				0	11	26	2	39	24	161		185		32	5	37	261	1026
5:45 PM				0	17	25	0	42	19	170		189		43	13	56	287	1101
***PM Peak Hour* 5:00-6:00**	**0**	**0**	**0**	**0**	**53**	**71**	**8**	**132**	**91**	**702**	**0**	**793**	**0**	**148**	**28**	**176**	**1101**	



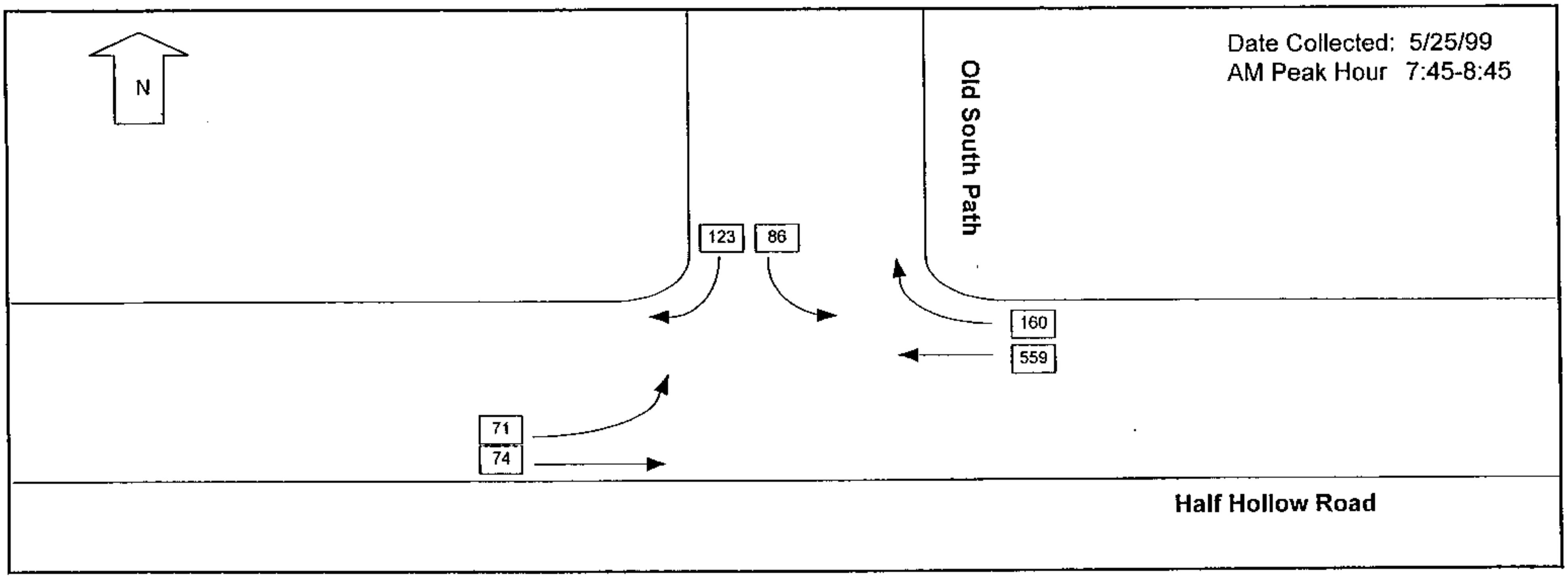
Date Collected: 5/25/99
PM Peak Hour 5:00-6:00

Old South Path
and
Half Hollow Road

Peak Period: Weekday AM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time	Eastbound				Westbound				Northbound				Southbound				Total	Cumm.
Begins	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		Hourly
7:30 AM	13	23		36		96	34	130				0	20		32	52	218	
7:45 AM	24	30		54		127	52	179				0	19		24	100	333	
8:00 AM	12	11		23		115	33	148				0	21		26	47	218	
8:15 AM	21	21		42		194	40	234				0	25		35	60	336	1105
8:30 AM	14	12		26		123	35	158				0	21		38	59	243	1130
8:45 AM	13	18		31		123	39	162				0	32		44	76	269	1066
AM Peak Hour 7:45-8:45	71	74	0	145	0	559	160	719	0	0	0	0	86	0	123	266	1130	



TRAFFIC VOLUME SUMMARY Melville, NY

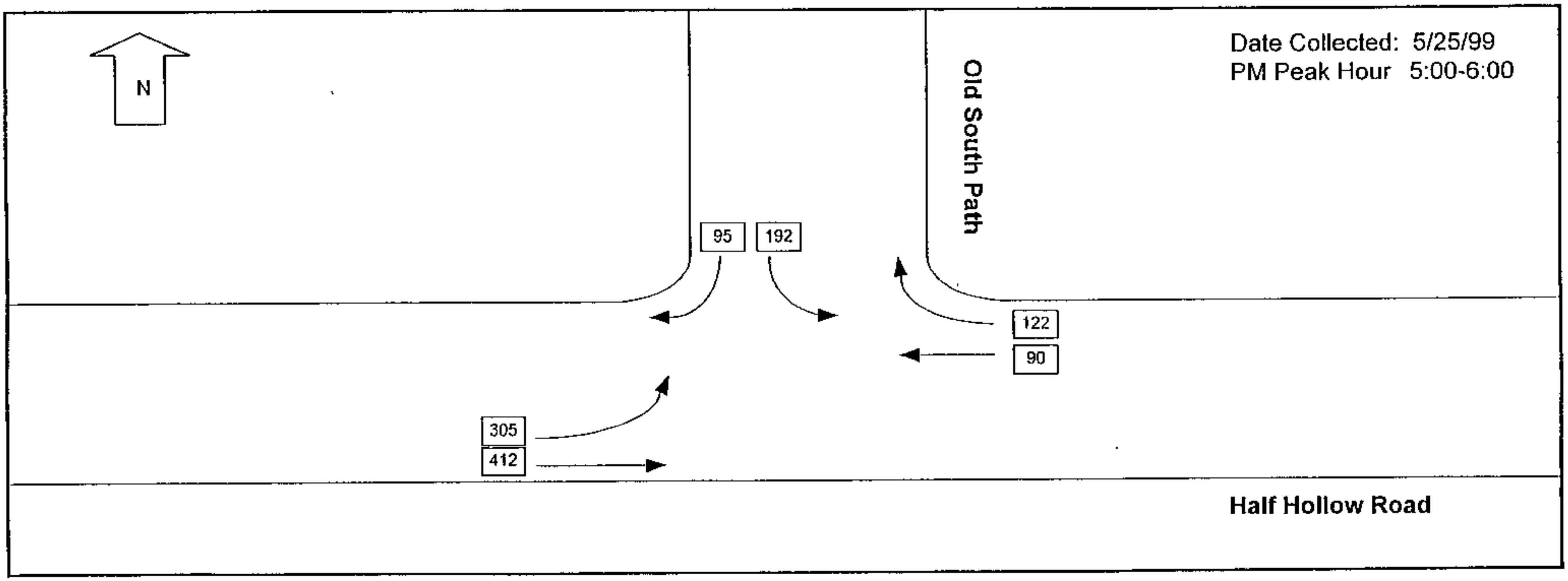
ESCHBACHER ENGINEERING, P.C.

Old South Path
and
Half Hollow Road

Peak Period: Weekday PM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time	Eastbound				Westbound				Northbound				Southbound				Total	Cumm.
Begins	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		Hourly
4:30 PM	41	50		91		21	26	47				0	36		24	60	198	
4:45 PM	62	72		134		10	31	41				0	38		24	100	275	
5:00 PM	88	87		175		14	27	41				0	49		28	77	293	
5:15 PM	92	102		194		17	28	45				0	47		16	63	302	1068
5:30 PM	64	106		170		19	35	54				0	59		24	83	307	1177
5:45 PM	61	117		178		40	32	72				0	37		27	64	314	1216
PM Peak Hour *5:00-6:00*	305	412	0	717	0	90	122	212	0	0	0	0	192	0	95	287	1216	



TRAF VOLUME SUMMARY Melville, NY

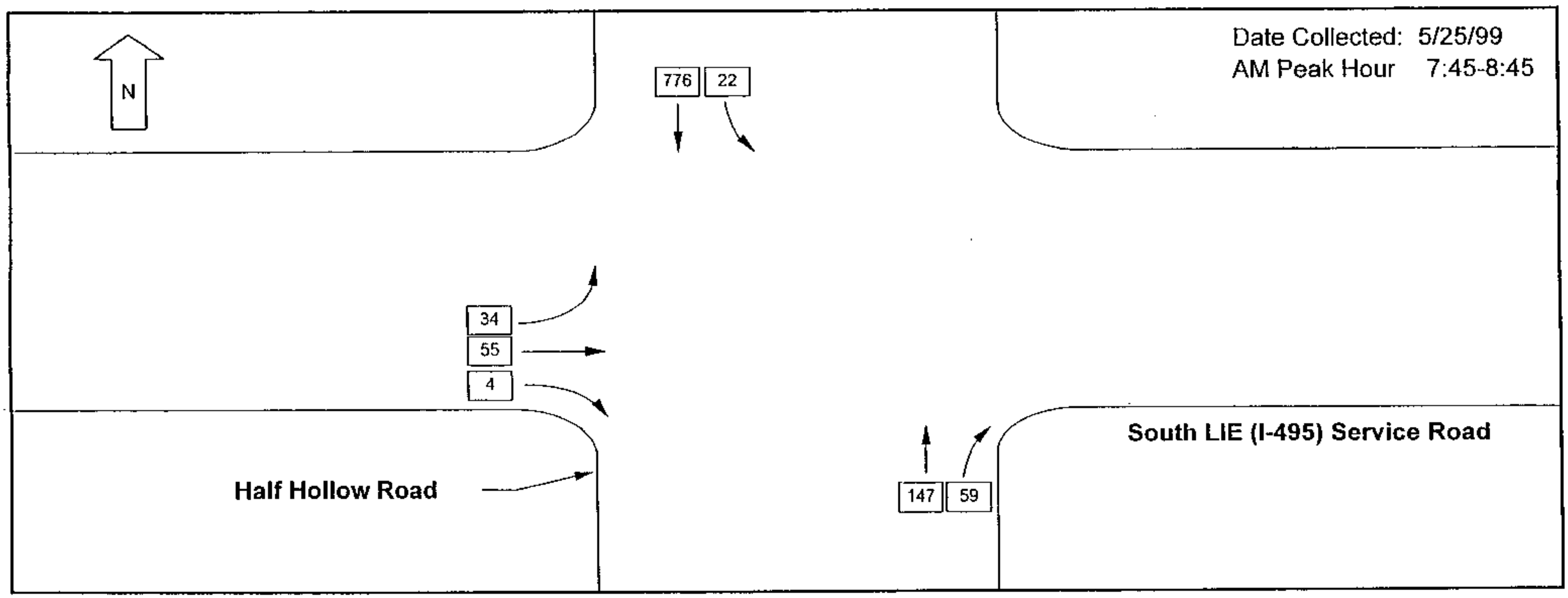
ESCHBACHER ENGINEERI C.

South LIE (I-495) Service Road
and
Half Hollow Road

Peak Period Weekday AM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
7:30 AM	6	12	3	21				0		37	11	48	5	161		166	235	
7:45 AM	7	9	1	17				0		61	20	81	5	178		183	281	
8:00 AM	7	19	0	26				0		28	11	39	9	182		191	256	
8:15 AM	10	6	1	17				0		31	22	53	1	227		228	298	1070
8:30 AM	10	21	2	33				0		27	6	33	7	189		196	262	1097
8:45 AM	7	11	2	20				0		40	10	50	8	193		201	271	1087
AM Peak Hour 7:45-8:45	34	55	4	93	0	0	0	0	0	147	59	206	22	776	0	798	1097	



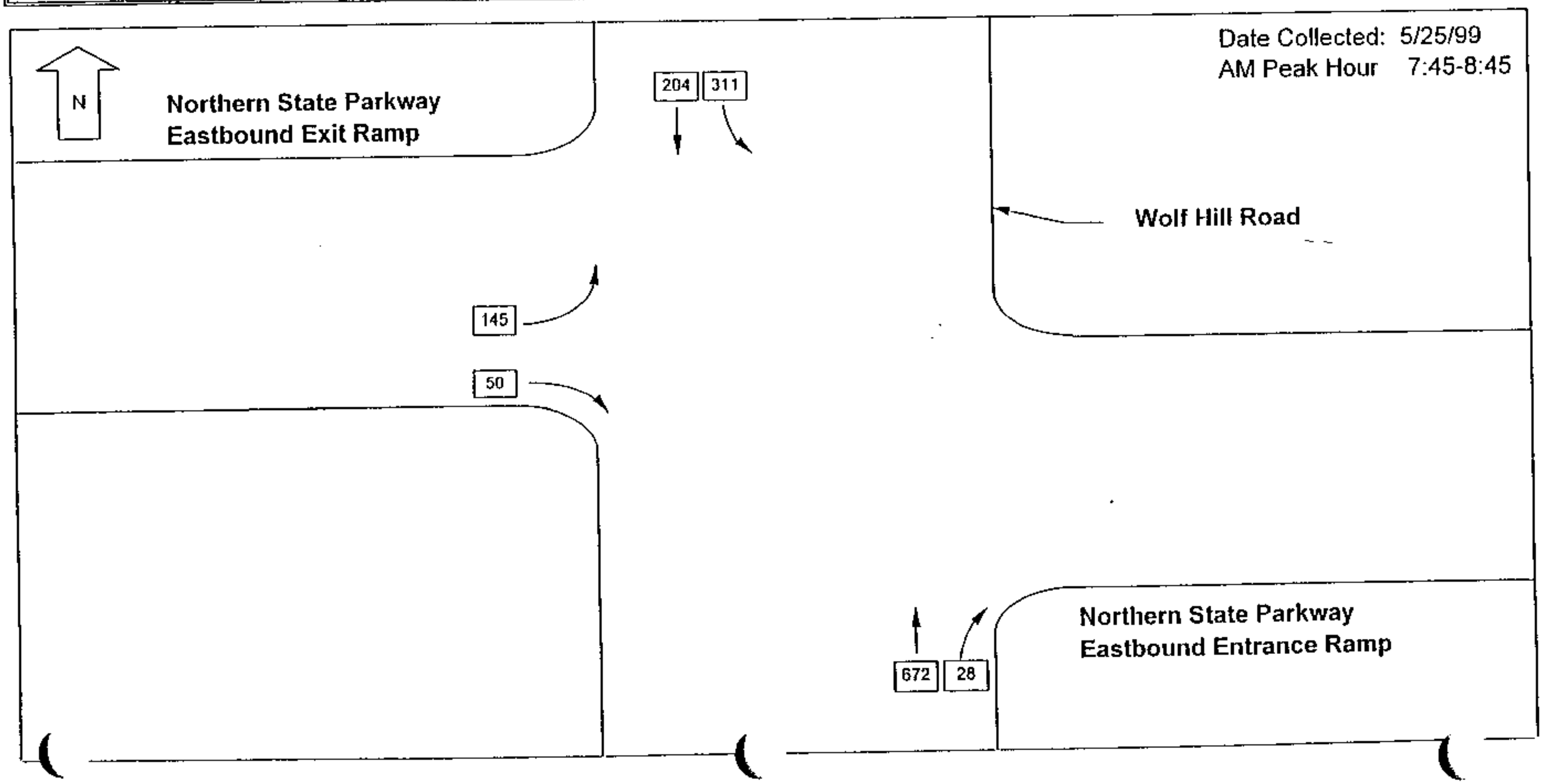
TRAFFIC VOLUME SUMMARY Melville, NY

On/Off Ramps of Eastbound Northern State Parkway
and
Wolf Hill Road

Peak Period: Weekday AM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
7:30 AM	44		11	55				0		105	7	112	75	43		118	285	
7:45 AM	51		7	58				0		161	1	162	82	50		132	352	
8:00 AM	40		10	50				0		158	10	168	67	52		119	337	
8:15 AM	26		19	45				0		171	7	178	93	57		150	373	1347
8:30 AM	28		14	42				0		182	10	192	69	45		114	348	1410
8:45 AM	36		12	48				0		141	5	146	85	69		154	348	1406
AM Peak Hour 7:45-8:45	145	0	50	195	0	0	0	0	0	672	28	700	311	204	0	515	1410	



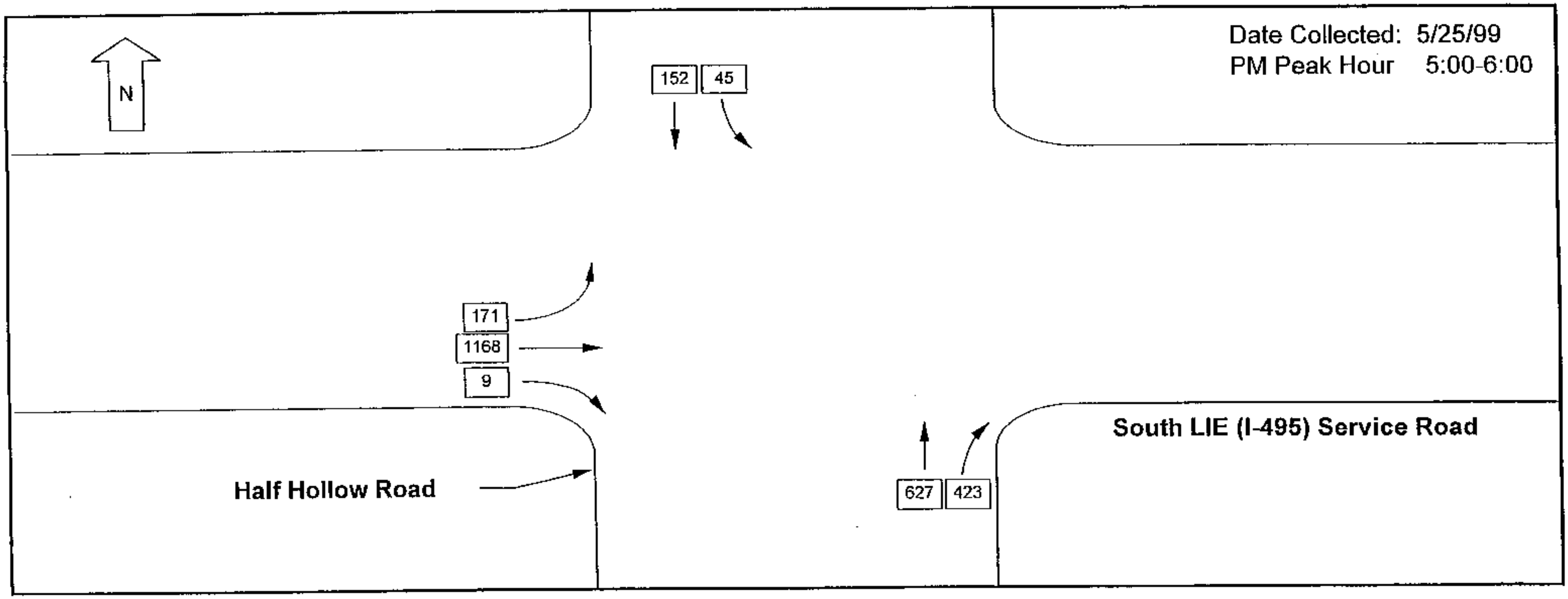
TRAFFIC VOLUME SUMMARY Melville, NY

South LIE (I-495) Service Road and Half Hollow Road

Peak Period Weekday PM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
4:30 PM	25	228	2	255				0		75	78	153	11	43		54	462	
4:45 PM	21	207	4	232				0		118	65	183	12	28		40	455	
5:00 PM	46	241	2	289				0		159	121	280	12	35		47	616	
5:15 PM	41	346	3	390				0		177	123	300	15	33		48	738	2271
5:30 PM	37	293	4	334				0		147	93	240	5	37		42	616	2425
5:45 PM	47	288	0	335				0		144	86	230	13	47		60	625	2595
PM Peak Hour 5:00-6:00	171	1168	9	1348	0	0	0	0	0	627	423	1050	45	162	0	197	2595	



TRAFFIC VOLUME SUMMARY Melville, NY

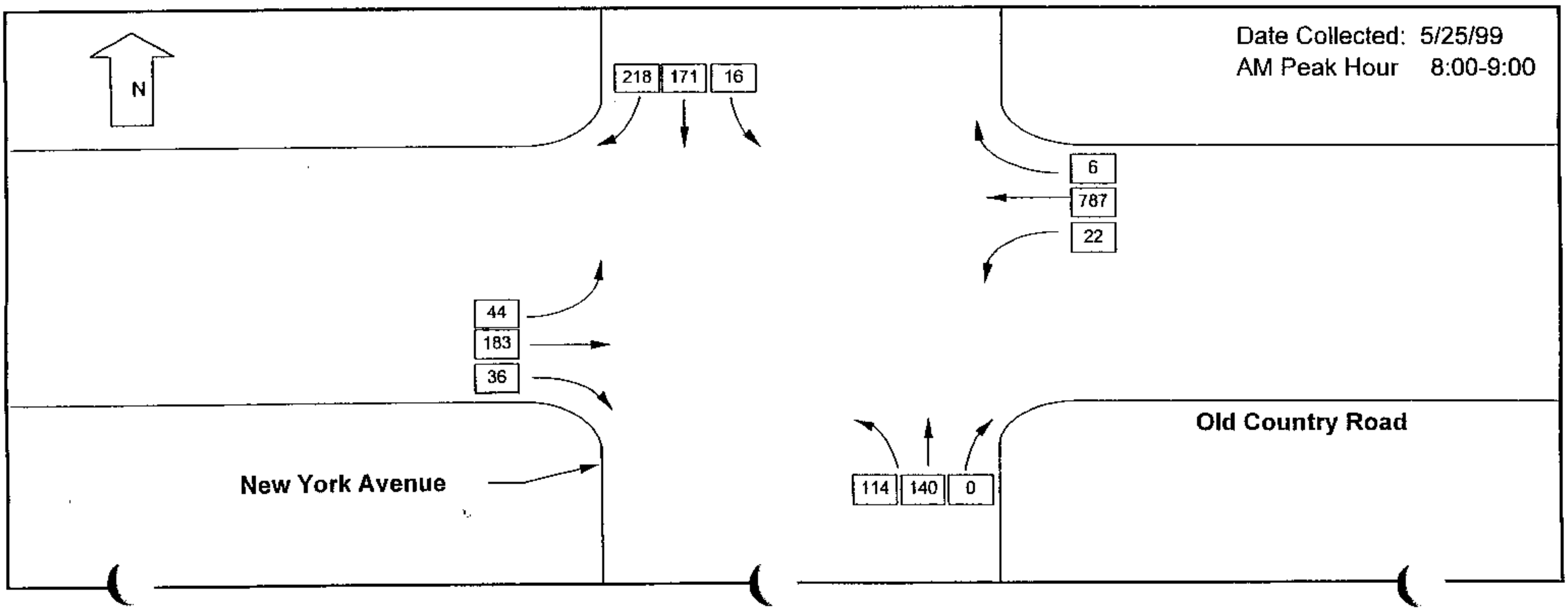
ESCHBACHER ENGINEERING, P.C.

Old Country Road
and
New York Avenue

Peak Period: Weekday AM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time	Eastbound				Westbound				Northbound				Southbound				Total	Cumm.
Begins	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		Hourly
7:30 AM	5	51	8	64	4	195	2	201	14	31	0	45	3	35	34	72	382	
7:45 AM	6	49	10	65	4	201	1	206	13	30	0	43	3	36	37	76	390	
8:00 AM	8	58	11	77	6	199	2	207	15	33	0	48	4	38	38	80	412	
8:15 AM	6	29	9	44	7	212	1	220	33	37	0	70	5	39	56	100	434	1618
8:30 AM	15	47	8	70	4	199	1	204	39	29	0	68	5	39	64	108	450	1686
8:45 AM	15	49	8	72	5	177	2	184	27	41	0	68	2	55	60	117	441	1737
AM Peak Hour 8:00-9:00	44	183	36	263	22	787	6	815	114	140	0	254	16	171	218	405	1737	



ESCHBACHER ENGINEERING, P.C.

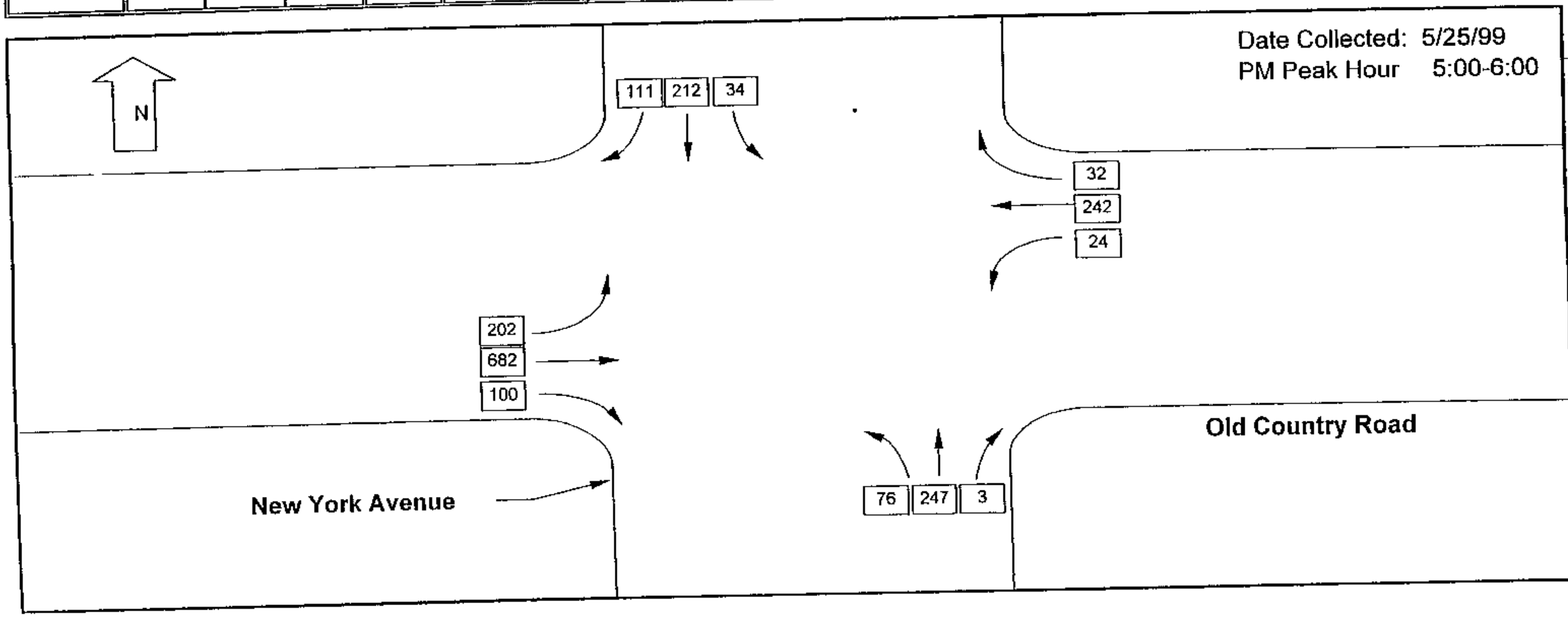
TRAFFIC VOLUME SUMMARY Melville, NY

Old Country Road and New York Avenue

Date Collected: 5/25/99 (Tuesday)

Peak Period: Weekday PM Peak Period

Time Begins	Eastbound LT	Eastbound TH	Eastbound RT	Eastbound TOTAL	Westbound LT	Westbound TH	Westbound RT	Westbound TOTAL	Northbound LT	Northbound TH	Northbound RT	Northbound TOTAL	Southbound LT	Southbound TH	Southbound RT	Southbound TOTAL	Total	Cumm. Hourly
4:30 PM	40	111	19	170	2	69	7	78	12	46	0	58	7	34	24	65	371	
4:45 PM	34	157	30	221	6	54	1	61	23	51	2	76	3	57	28	88	446	
5:00 PM	43	162	26	231	5	61	9	75	18	55	0	73	10	55	18	83	462	
5:15 PM	47	203	16	266	6	64	6	76	25	73	2	100	12	59	29	100	542	1821
5:30 PM	55	155	35	245	3	56	7	66	15	53	1	69	7	49	30	86	466	1916
5:45 PM	57	162	23	242	10	61	10	81	18	66	0	84	5	49	34	88	495	1965
PM Peak Hour 5:00-6:00	202	682	100	984	24	242	32	298	76	247	3	326	34	212	111	357	1965	



TRAFFIC VOLUME SUMMARY Melville, NY

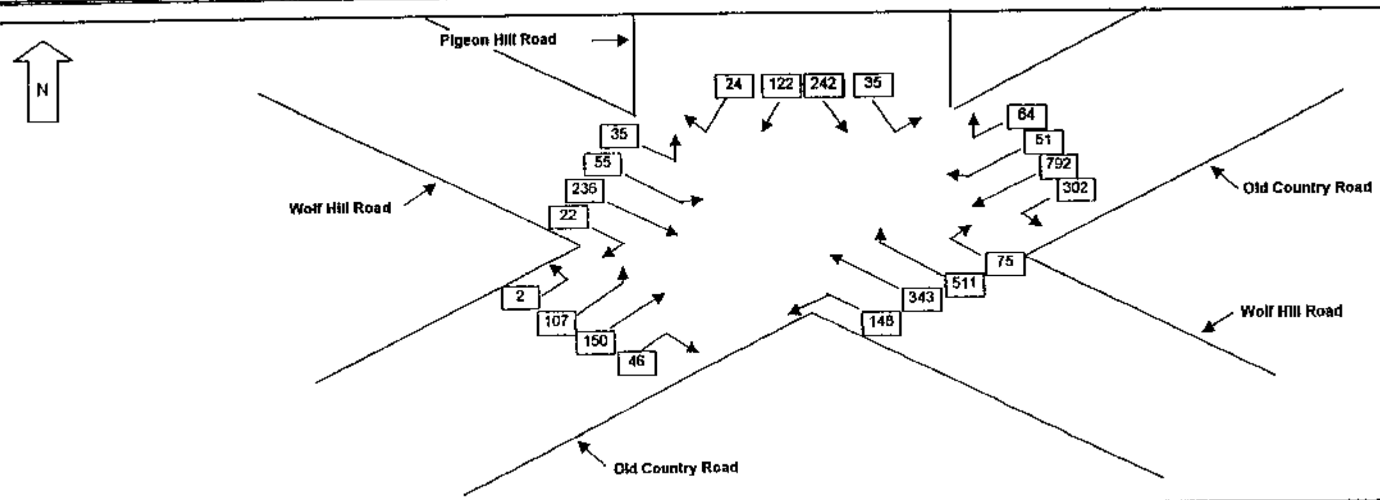
ESCHBACHER ENGINEERING, P.C.

Old Country Road
and
Wolf Hill Road
and
Pigeon Hill Road

Date Collected: 5/25/99 (Tuesday)

Peak Perio Weekday AM Peak Period

Time Begins	Southbound LLT	Southbound LT	Southbound TH	Southbound RT	Southbound TOTAL	Southeastbound LLT	Southeastbound LT	Southeastbound TH	Southeastbound RT	Southeastbound TOTAL	Southwestbound LLT	Southwestbound LT	Southwestbound TH	Southwestbound RT	Southwestbound TOTAL	Northeastbound LLT	Northeastbound LT	Northeastbound TH	Northeastbound RT	Northeastbound TOTAL	Northwestbound LLT	Northwestbound LT	Northwestbound TH	Northwestbound RT	Northwestbound TOTAL	Total	Cumm. Hourly
7:30 AM	2	78	8	23	111	4	12	59	10	85	58	98	7	6	169	2	7	39	18	66	31	56	51	11	149	580	
7:45 AM	3	61	10	31	105	8	25	31	1	65	63	142	6	19	230	0	12	28	5	45	48	74	138	28	288	445	
8:00 AM	25	52	5	11	93	13	19	65	12	109	71	198	9	23	301	0	57	54	11	122	32	67	152	14	265	625	
8:15 AM	2	73	49	3	127	4	9	56	3	72	86	195	7	12	300	1	13	41	14	69	37	78	131	13	259	588	2218
8:30 AM	5	54	33	3	95	8	11	44	4	67	64	206	17	18	305	0	9	26	12	47	34	81	117	12	244	514	2152
8:45 AM	3	63	35	7	108	10	18	71	3	100	81	193	18	11	303	1	28	29	9	67	45	117	111	36	309	578	2285
AM Peak Hour 8:00-9:00	35	242	122	24	423	35	65	236	22	348	302	792	51	64	1209	2	107	150	46	305	148	343	511	75	1077	2288	



Date Collected: 5/25/99
AM Peak Hour 8:00-9:00

TRAFFIC VOLUME SUMMARY Melville, NY

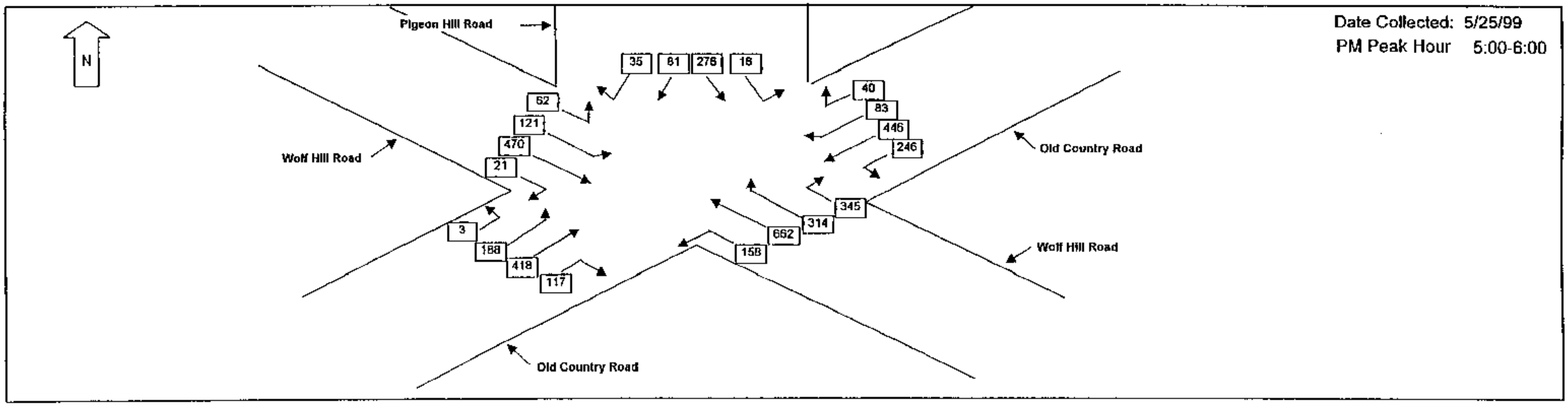
ESCHBACHER ENGINEERING, P.C.

Old Country Road
and
Wolf Hill Road
and
Pigeon Hill Road

Peak Perio Weekday PM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time	Southbound					Southeastbound					Southwestbound					Northeastbound					Northwestbound					Total	Cumm.
Begins	LLT	LT	TH	RT	TOTAL	LLT	LT	TH	RT	TOTAL	LLT	LT	TH	RT	TOTAL	LLT	LT	TH	RT	TOTAL	LLT	LT	TH	RT	TOTAL		Hourly
4:30 PM	1	50	12	3	66	11	23	119	4	157	32	68	16	10	126	1	43	47	19	110	37	120	62	87	306	765	
4:45 PM	5	48	10	5	68	12	14	69	2	97	49	75	18	8	150	0	40	59	27	126	26	162	78	85	351	441	
5:00 PM	5	84	15	8	112	14	24	127	3	168	60	96	15	7	178	1	53	97	25	176	41	144	79	82	346	634	
5:15 PM	2	77	28	5	112	20	27	109	4	160	54	107	21	10	192	1	58	109	32	200	39	168	77	84	368	684	2504
5:30 PM	6	70	14	10	100	17	35	94	5	151	70	126	23	12	231	0	34	114	29	177	31	173	74	89	367	659	2398
5:45 PM	3	45	24	12	84	11	35	140	9	195	62	117	24	11	214	1	43	98	31	173	47	177	84	90	398	666	2823
PM Peak Hour 5:00-6:00	16	276	81	35	408	62	121	470	21	674	246	446	83	40	815	3	188	418	117	726	158	662	314	345	1479	2823	



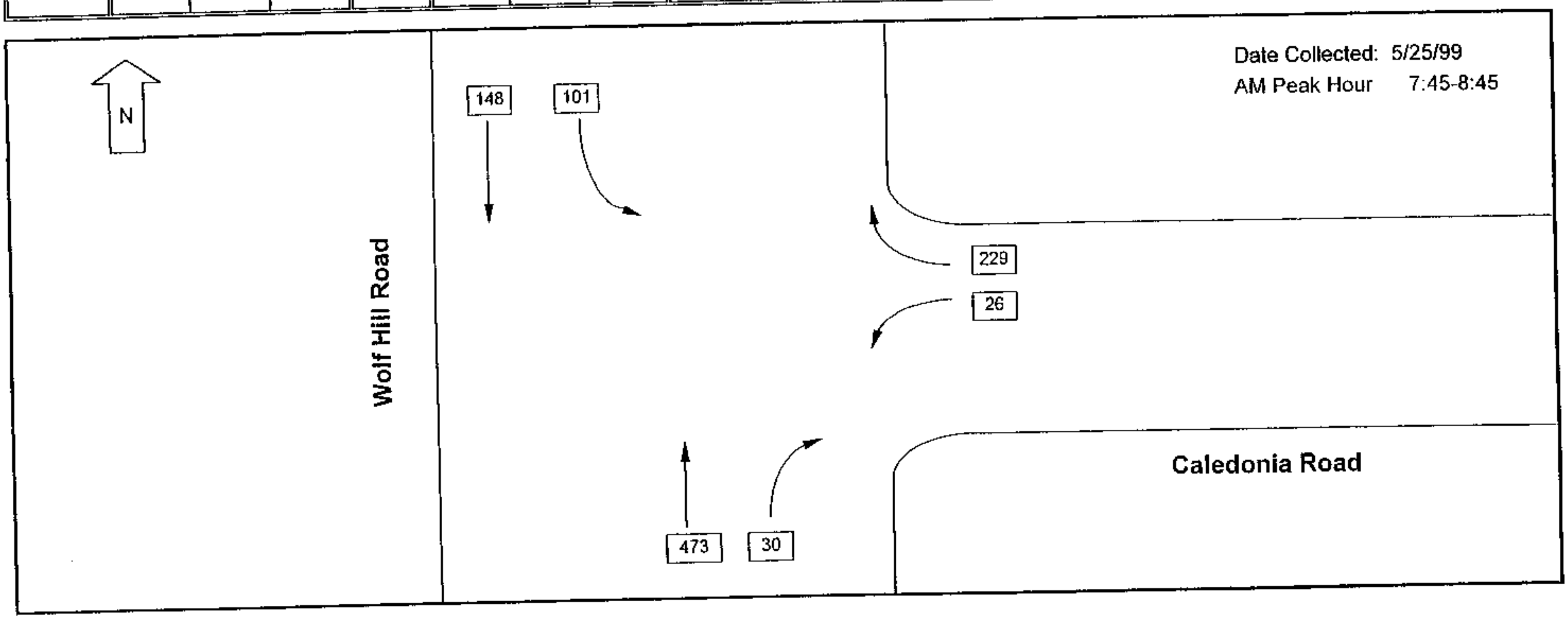
TRAFFIC VOLUME SUMMARY Melville, NY

Wolf Hill Road and Caledonia Road

Date Collected: 5/25/99 (Tuesday)

Peak Perio Weekday AM Peak Period

Time	Eastbound				Westbound				Northbound				Southbound				Total	Cumm.
Begins	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		Hourly
7:30 AM				0	2		44	46		100	6	106	16	14		30	182	
7:45 AM				0	3		48	51		124	9	133	15	40		55	239	
8:00 AM				0	7		63	70		120	5	125	21	49		70	265	
8:15 AM				0	11		54	65		111	4	115	39	32		71	251	937
8:30 AM				0	5		64	69		118	12	130	26	27		53	252	1007
8:45 AM				0	7		43	50		98	12	110	35	38		73	233	1001
AM Peak Hour 7:45-8:45				0	26	0	229	255	0	473	30	503	101	148	0	249	1007	



ESCHBACHER ENGINEERING, P.C.

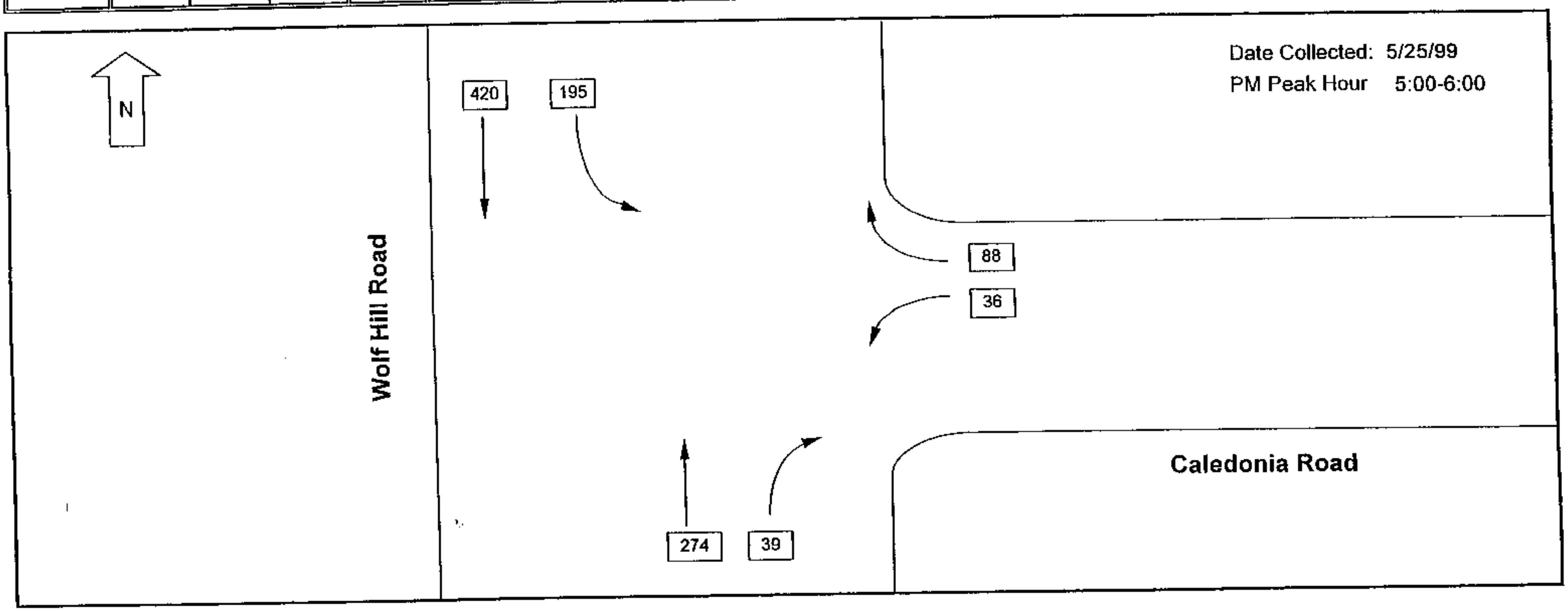
TRAFFIC VOLUME SUMMARY Melville, NY

Wolf Hill Road and Caledonia Road

Date Collected: 5/25/99 (Tuesday)

Peak Period Weekday PM Peak Period

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
4:30 PM				0	10		21	31		71	3	74	33	101		134	239	
4:45 PM				0	12		23	35		69	4	73	29	94		100	208	
5:00 PM				0	4		12	16		52	6	58	35	115		150	224	966
5:15 PM				0	13		24	37		88	9	97	52	109		161	295	994
5:30 PM				0	11		24	35		69	13	82	53	97		150	267	1052
5:45 PM				0	8		28	36		65	11	76	55	99		154	266	
PM Peak Hour 5:00-6:00				0	36	0	88	124	0	274	39	313	195	420	0	615	1052	



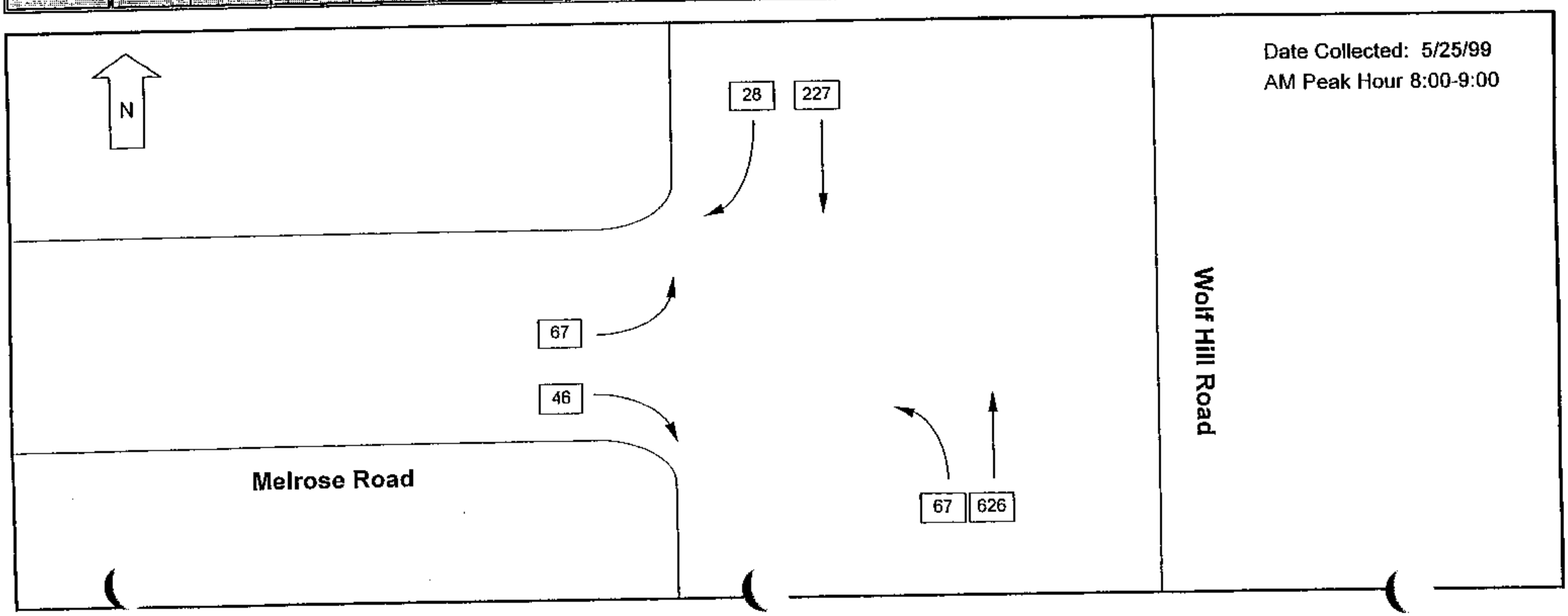
TRAFFIC VOLUME SUMMARY Melville, NY

Wolf Hill Road and Melrose Road

Date Collected: 5/25/99 (Tuesday)

Peak Period Weekday AM Peak Period

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
7:30 AM	9		8	17				0	12	144		156		48	4	52	225	
7:45 AM	13		9	22				0	13	151		164		51	5	56	242	
8:00 AM	21		13	34				0	18	172		190		51	8	59	283	
8:15 AM	15		8	23				0	10	165		175		70	5	75	273	1023
8:30 AM	12		15	27				0	24	151		175		46	4	50	252	1050
8:45 AM	19		10	29				0	15	138		153		60	11	71	253	1061
AM Peak Hour 8:00-9:00	67	0	46	113	0	0	0	0	67	626	0	693	0	227	28	255	1061	



ESCHBACHER ENGINEERING, P.C.

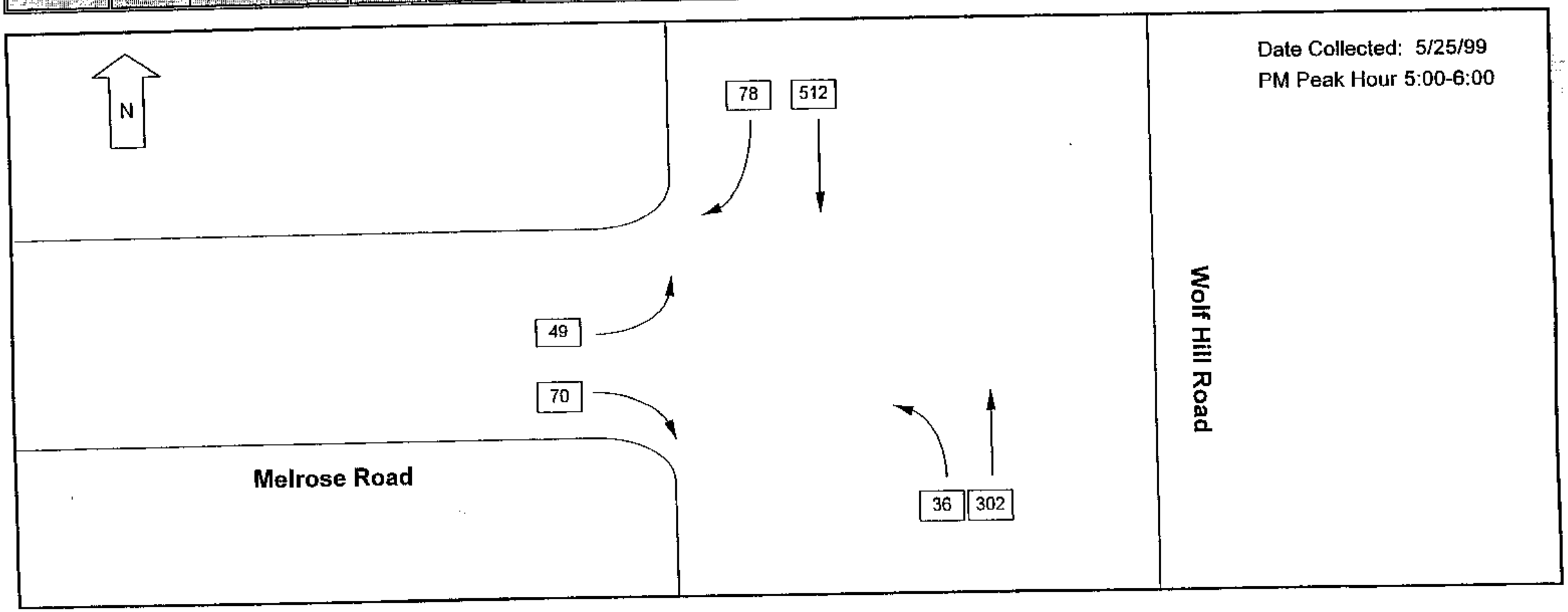
TRAFFIC VOLUME SUMMARY Melville, NY

Wolf Hill Road
and
Melrose Road

Date Collected: 5/25/99 (Tuesday)

Peak Period Weekday PM Peak Period

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
4:30 PM	10		12	22				0	6	79		85		93	13	106	213	
4:45 PM	12		9	21				0	7	85		92		89	14	103	216	
5:00 PM	19		21	40				0	7	52		59		116	19	135	234	
5:15 PM	9		17	26				0	12	93		105		144	21	165	296	959
5:30 PM	9		10	19				0	12	75		87		124	19	143	249	995
5:45 PM	12		22	34				0	5	82		87		128	19	147	268	1047
PM Peak Hour 5:00-6:00	49		70	70				0	36	302		338		512	78	590	1047	



ESCHBACHER ENGINEERING, P.C.

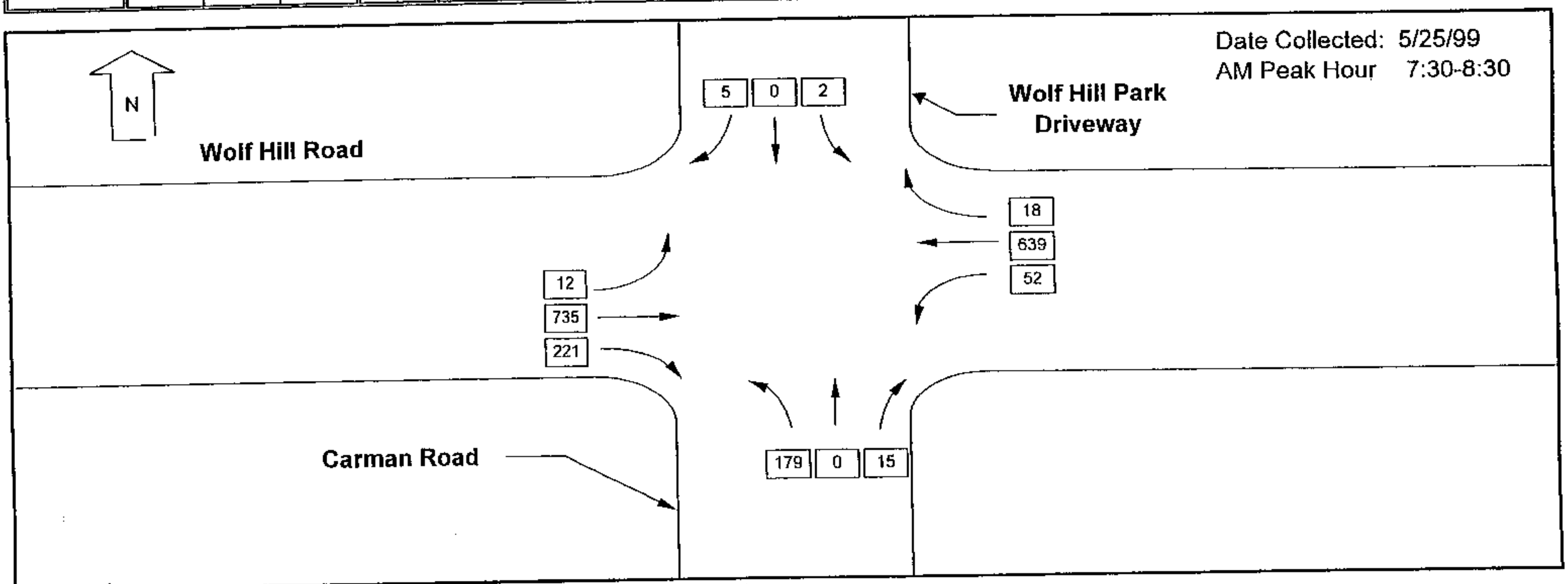
TRAFFIC VOLUME SUMMARY Melville, NY

Wolf Hill Road and Carman Road

Date Collected: 5/25/99 (Tuesday)

Peak Period: Weekday AM Peak Period

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
7:30 AM	4	179	34	217	13	153	2	168	19	0	1	20	1	0	2	3	408	
7:45 AM	1	193	63	257	13	192	3	208	56	0	5	61	1	0	2	3	529	
8:00 AM	0	181	55	236	10	149	7	166	61	0	2	63	0	0	0	0	465	
8:15 AM	7	182	69	258	16	145	6	167	43	0	7	50	0	0	1	1	476	1878
8:30 AM	0	141	53	194	13	141	0	154	40	0	7	47	0	0	0	0	395	1865
8:45 AM	0	161	42	203	7	184	0	191	69	0	10	79	0	0	0	0	473	1809
AM Peak Hour 7:30-8:30	12	735	221	968	52	639	18	709	179	0	15	194	2	0	5	7	1878	



Date Collected: 5/25/99
AM Peak Hour 7:30-8:30

ESCHBACHER ENGINEERING, P.C.

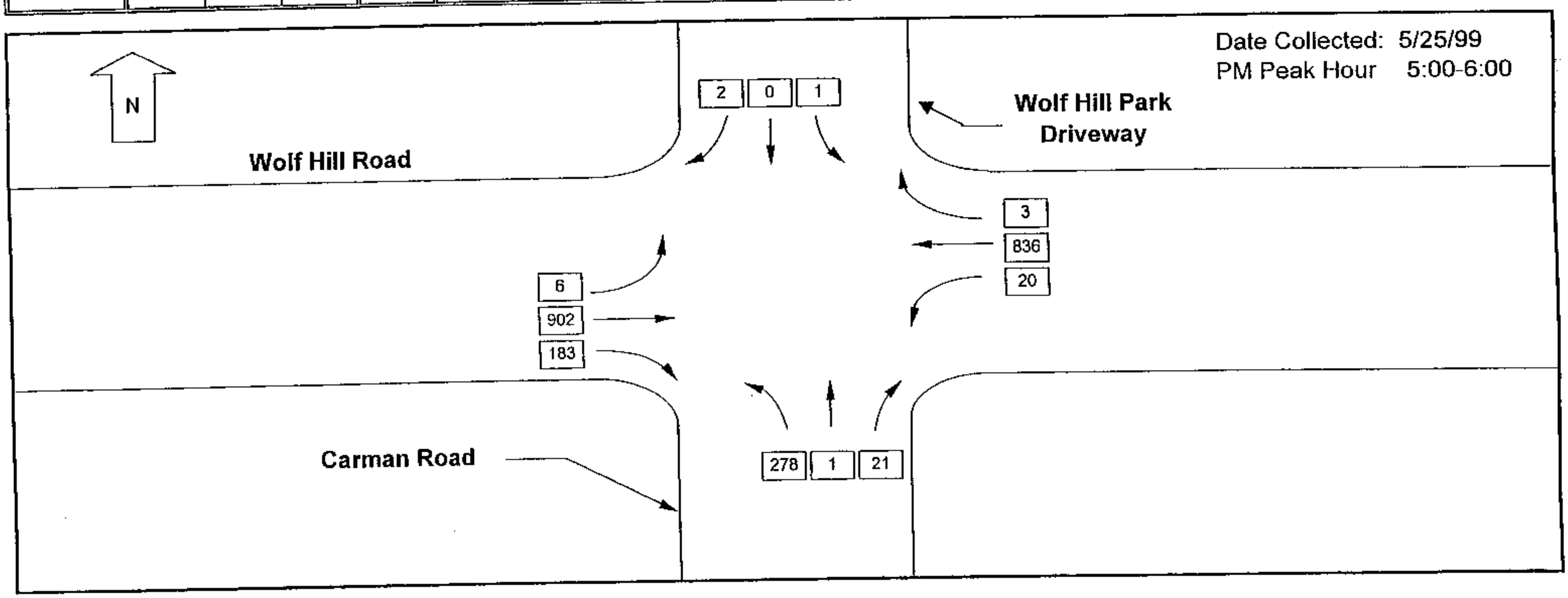
TRAFFIC VOLUME SUMMARY Melville, NY

Wolf Hill Road and Carman Road

Peak Period: Weekday PM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
4:30 PM	1	178	29	208	6	193	3	202	38	0	8	46	0	0	0	0	456	
4:45 PM	2	181	36	219	5	191	2	198	41	1	7	49	0	1	2	3	469	
5:00 PM	4	216	45	265	3	201	3	207	64	1	9	74	1	0	2	3	549	
5:15 PM	2	231	48	281	6	211	0	217	74	0	1	75	0	0	0	0	573	2047
5:30 PM	0	209	44	253	9	210	0	219	61	0	6	67	0	0	0	0	539	2130
5:45 PM	0	246	46	292	2	214	0	216	79	0	5	84	0	0	0	0	592	2253
PM Peak Hour 5:00-6:00	6	902	183	1091	20	836	3	859	278	1	21	300	1	0	2	3	2253	



TRAFFIC VOLUME SUMMARY Melville, NY

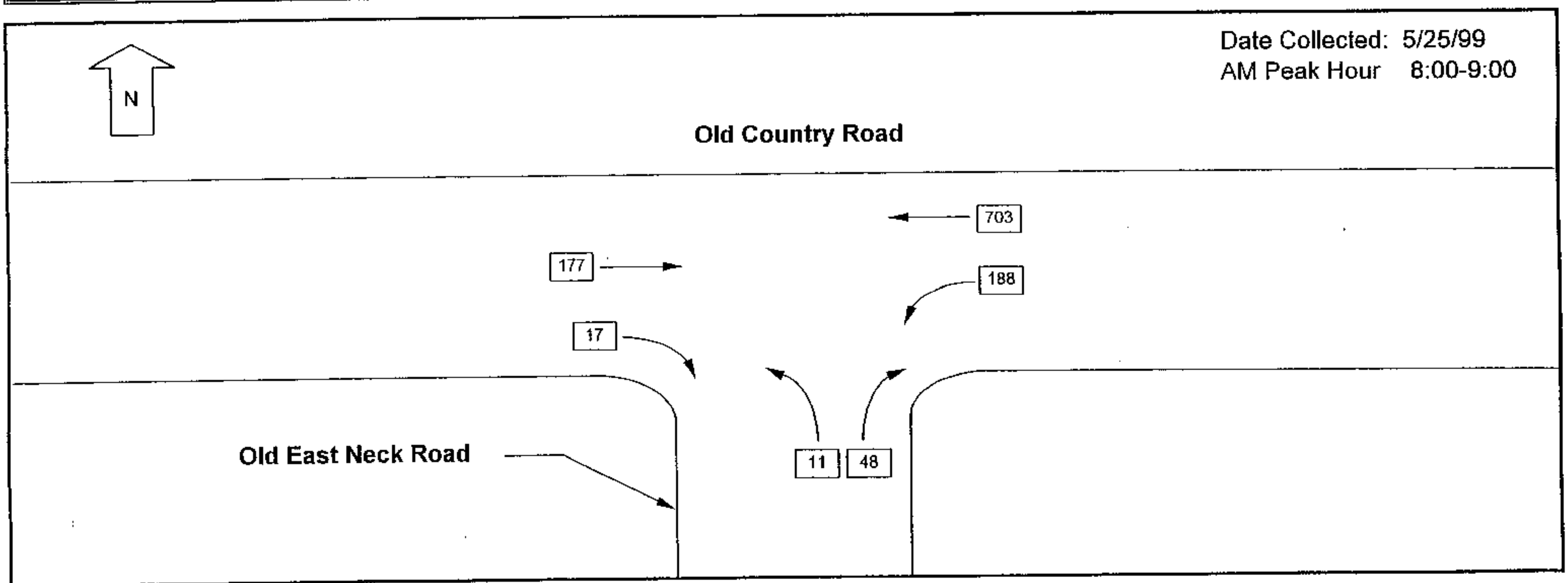
ESCHBACHER ENGINEERING, P.C.

Old Country Road
and
Old East Neck Road

Peak Period: Weekday AM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
7:30 AM		43	4	47	1	47		48	5		7	12				0	107	
7:45 AM		57	7	64	2	53		55	4		6	10				0	129	
8:00 AM		54	7	61	42	77		119	2		16	18				0	198	
8:15 AM		27	7	34	60	226		286	0		13	13				0	333	767
8:30 AM		46	0	46	44	195		239	7		7	14				0	299	959
8:45 AM		50	3	53	42	205		247	2		12	14				0	314	1144
AM Peak Hour 8:00-9:00	0	177	17	194	188	703	0	891	11	0	48	59	0	0	0	0	1144	



ESCHBACHER ENGINEERING, P.C.

TRAFFIC VOLUME SUMMARY Melville, NY

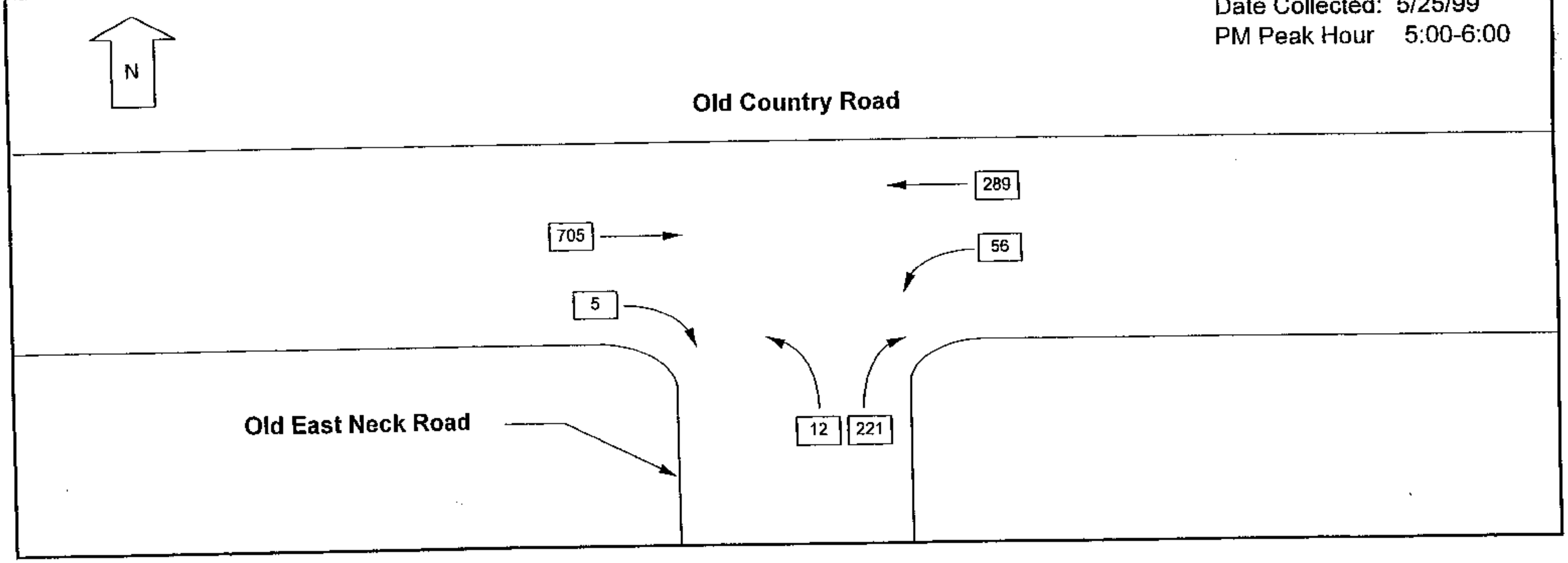
Old Country Road
and
Old East Neck Road

Date Collected: 5/25/99 (Tuesday)

Peak Period: Weekday PM Peak Period

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
4:30 PM		135	0	135	12	76		88	3		25	28				0	251	
4:45 PM		154	0	154	10	62		72	1		45	46				0	272	
5:00 PM		155	2	157	11	73		84	3		56	59				0	300	1215
5:15 PM		220	0	220	13	75		88	2		82	84				0	392	1273
5:30 PM		176	2	178	17	61		78	7		46	53				0	309	1288
5:45 PM		154	1	155	15	80		95	0		37	37				0	287	
***PM Peak Hour* 5:00-6:00**	0	705	5	710	56	289	0	345	12	0	221	233	0	0	0	0	1288	

Date Collected: 5/25/99
PM Peak Hour 5:00-6:00



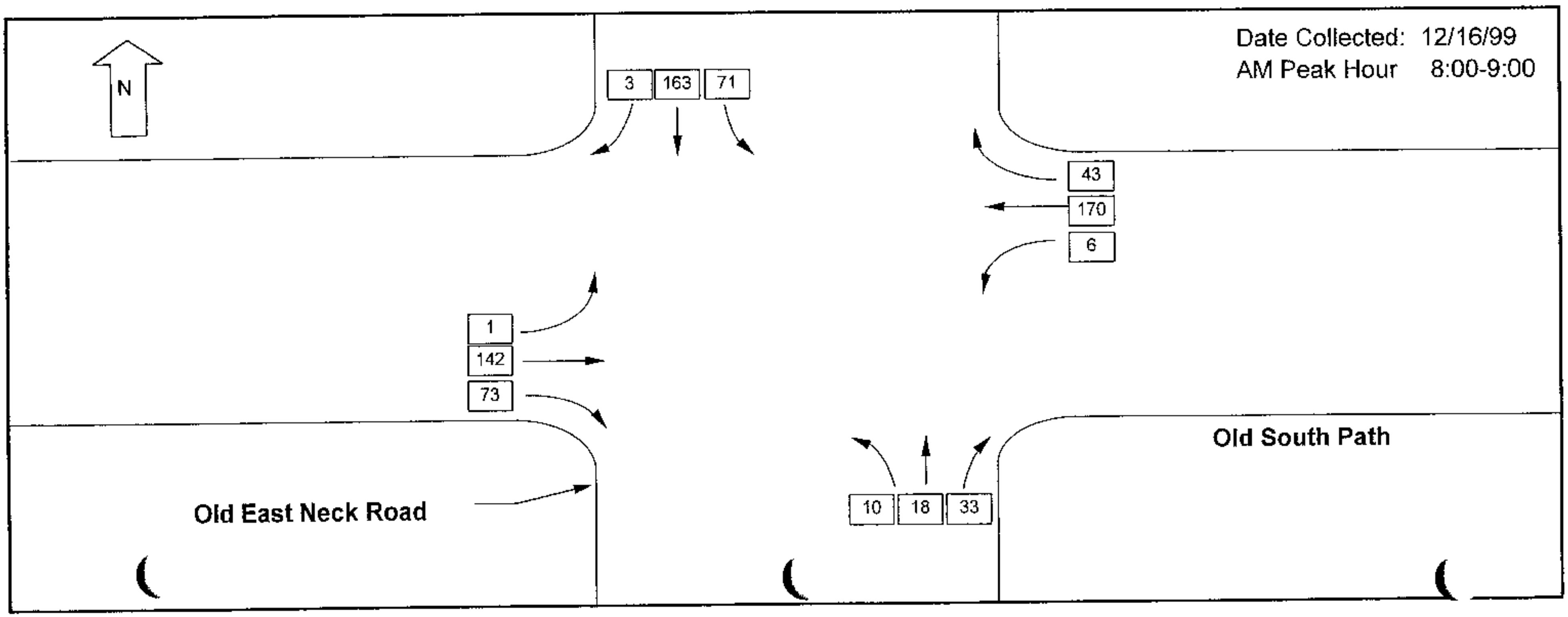
TRAFFIC VOLUME SUMMARY Melville, NY

Old South Path
and
Old East Neck Road

Weekday AM Peak Period

Date Collected: 12/16/9 (Thursday)

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
7:15 AM	1	15	12	28	0	45	9	54	9	3	6	18	15	28	3	46	146	
7:30 AM	0	18	11	29	1	32	7	40	2	6	10	18	13	24	0	37	124	
7:45 AM	0	19	16	35	1	48	10	59	1	6	9	16	18	32	2	52	162	
8:00 AM	1	35	13	49	1	44	18	63	1	2	9	12	14	37	3	54	178	610
8:15 AM	0	43	24	67	0	40	7	47	3	2	10	15	22	57	0	79	208	672
8:30 AM	0	32	20	52	4	33	11	48	3	6	8	17	15	29	0	44	161	709
8:45 AM	0	32	16	48	1	53	7	61	3	8	6	17	20	40	0	60	186	733
9:00 AM	0	29	16	45	1	43	5	49	2	7	12	21	11	26	0	37	152	707
9:15 AM	0	23	12	35	2	35	7	44	1	1	8	10	8	20	0	28	117	616
AM Peak Hour 8:00-9:00	**1**	**142**	**73**	**216**	**6**	**170**	**43**	**219**	**10**	**18**	**33**	**61**	**71**	**163**	**3**	**237**	**733**	



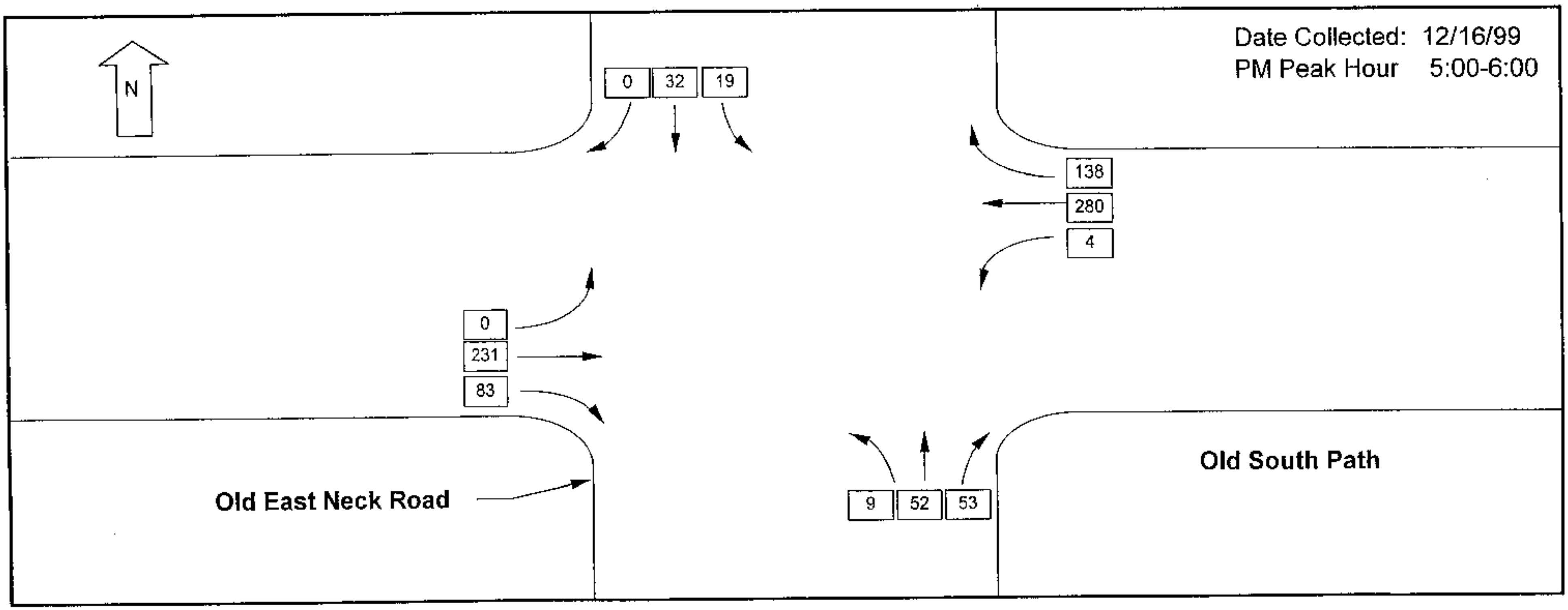
TRA 'IC VOLUME SUMMARY Melville, NY

ESCHBACHER ENGINE G, P.C.

Old South Path
and
Old East Neck Road

Date Collected: 12/16/99 (Thursday)

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
4:00 PM	1	51	15	67	1	42	16	59	1	7	9	17	9	13	0	22	165	
4:15 PM	0	64	18	82	1	47	16	64	3	9	7	19	5	11	1	17	182	
4:30 PM	0	58	19	77	0	64	31	95	1	9	13	23	10	7	0	17	212	
4:45 PM	1	59	21	81	1	60	23	84	0	13	7	20	7	10	0	17	202	761
5:00 PM	0	71	16	87	1	64	26	91	3	11	9	23	5	10	0	15	216	812
5:15 PM	0	67	24	91	3	73	40	116	2	14	18	34	2	5	0	7	248	878
5:30 PM	0	42	22	64	0	64	37	101	2	11	9	22	8	9	0	17	204	870
5:45 PM	0	51	21	72	0	79	35	114	2	16	17	35	4	8	0	12	233	901
6:00 PM	0	52	21	73	0	48	27	75	0	8	15	23	8	4	0	12	183	868
6:15 PM	0	55	16	71	0	51	17	68	1	4	14	19	5	8	0	13	171	791
PM Peak Hour 5:00-6:00	0	231	83	314	4	280	138	422	9	52	53	114	19	32	0	51	901	



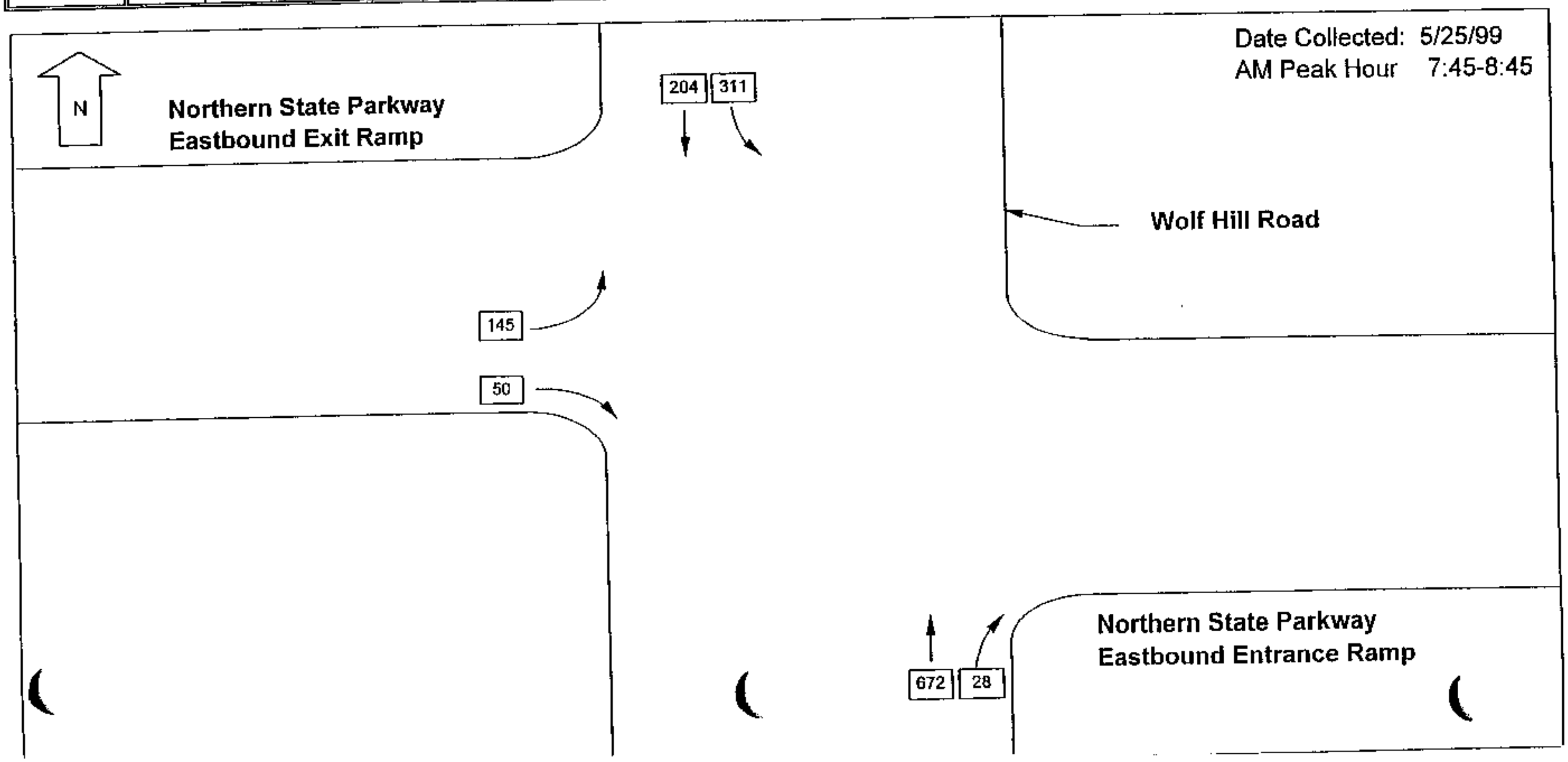
TRAFFIC VOLUME SUMMARY Melville, NY

On/Off Ramps of Eastbound Northern State Parkway and Wolf Hill Road

Date Collected: 5/25/99 (Tuesday)

Peak Period: Weekday AM Peak Period

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
7:30 AM	44		11	55				0		105	7	112	75	43		118	285	
7:45 AM	51		7	58				0		161	1	162	82	50		132	352	
8:00 AM	40		10	50				0		158	10	168	67	52		119	337	
8:15 AM	26		19	45				0		171	7	178	93	57		150	373	1347
8:30 AM	28		14	42				0		182	10	192	69	45		114	348	1410
8:45 AM	36		12	48				0		141	5	146	85	69		154	348	1406
AM Peak Hour 7:45-8:45	145	0	50	195	0	0	0	0	0	672	28	700	311	204	0	515	1410	



TRAFFIC VOLUME SUMMARY Melville, NY

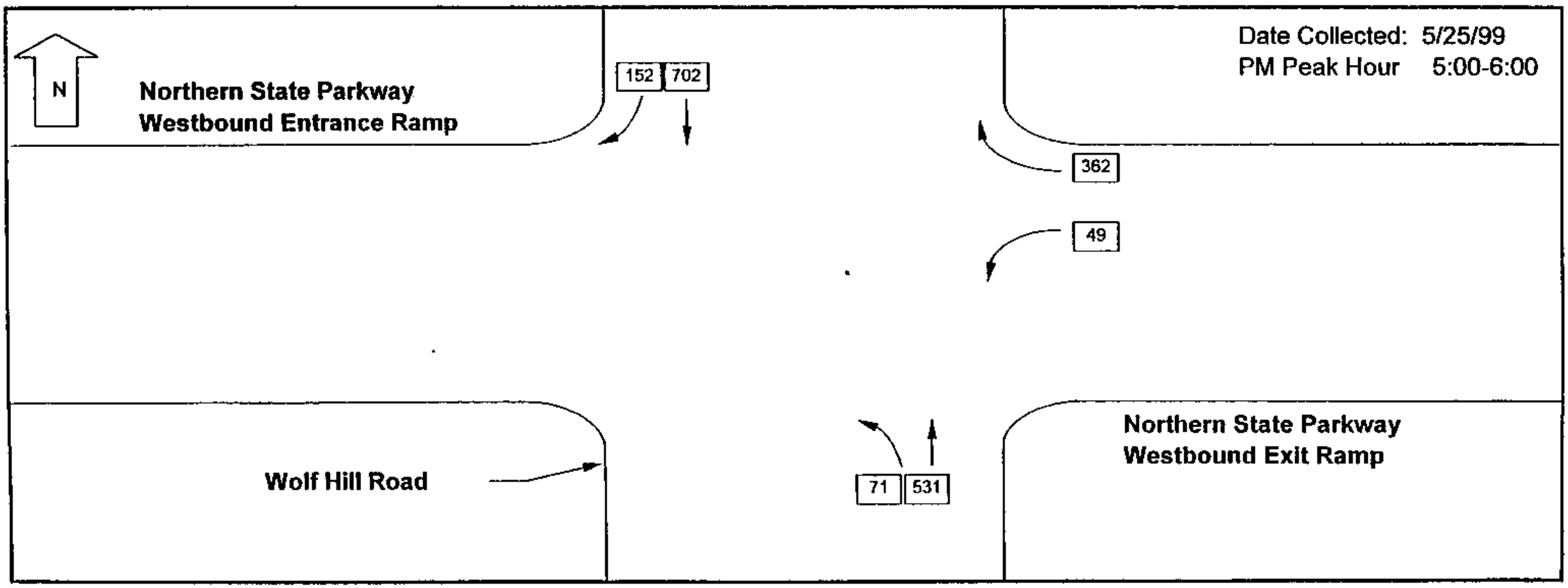
ESCHBACHER ENGINEERING, P.C.

On/Off Ramps of Westbound Northern State Parkway
and
Wolf Hill Road

Peak Period: Weekday PM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time Begins	Eastbound LT	Eastbound TH	Eastbound RT	Eastbound TOTAL	Westbound LT	Westbound TH	Westbound RT	Westbound TOTAL	Northbound LT	Northbound TH	Northbound RT	Northbound TOTAL	Southbound LT	Southbound TH	Southbound RT	Southbound TOTAL	Total	Cumm. Hourly
4:30 PM				0	10		83	93	20	146		166		164	29	193	452	
4:45 PM				0	11		86	97	21	124		145		162	38	200	442	
5:00 PM				0	9		79	88	12	119		131		185	42	227	446	
5:15 PM				0	8		111	119	20	164		184		170	35	205	508	1848
5:30 PM				0	11		95	106	17	111		128		179	31	210	444	1840
5:45 PM				0	21		77	98	22	137		159		168	44	212	469	1867
PM Peak Hour 5:00-6:00	0	0	0	0	49	0	362	411	71	531	0	602	0	702	152	854	1867	



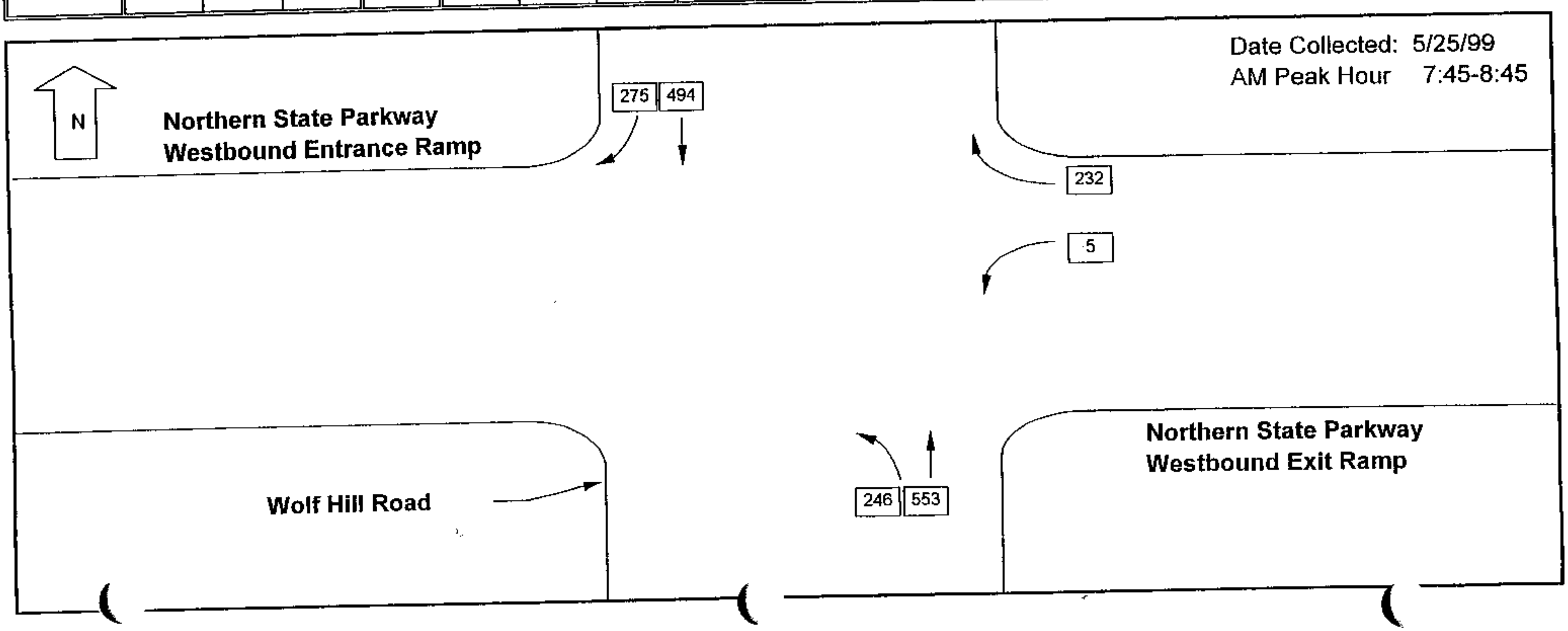
TRAFFIC VOLUME SUMMARY Melville, NY

On/Off Ramps of Westbound Northern State Parkway
and
Wolf Hill Road

Date Collected: 5/25/99 (Tuesday)

Peak Period: Weekday AM Peak Period

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
7:30 AM				0	4		55	59	48	119		167		112	75	187	413	
7:45 AM				0	0		69	69	55	146		201		120	70	190	460	
8:00 AM				0	2		61	63	59	157		216		119	72	191	470	
8:15 AM				0	1		52	53	63	129		192		132	70	202	447	1790
8:30 AM				0	2		50	52	69	121		190		123	63	186	428	1805
8:45 AM				0	4		74	78	46	131		177		134	66	200	455	1800
AM Peak Hour 7:45-8:45	0	0	0	0	5	0	232	237	246	553	0	799	0	494	275	769	1805	



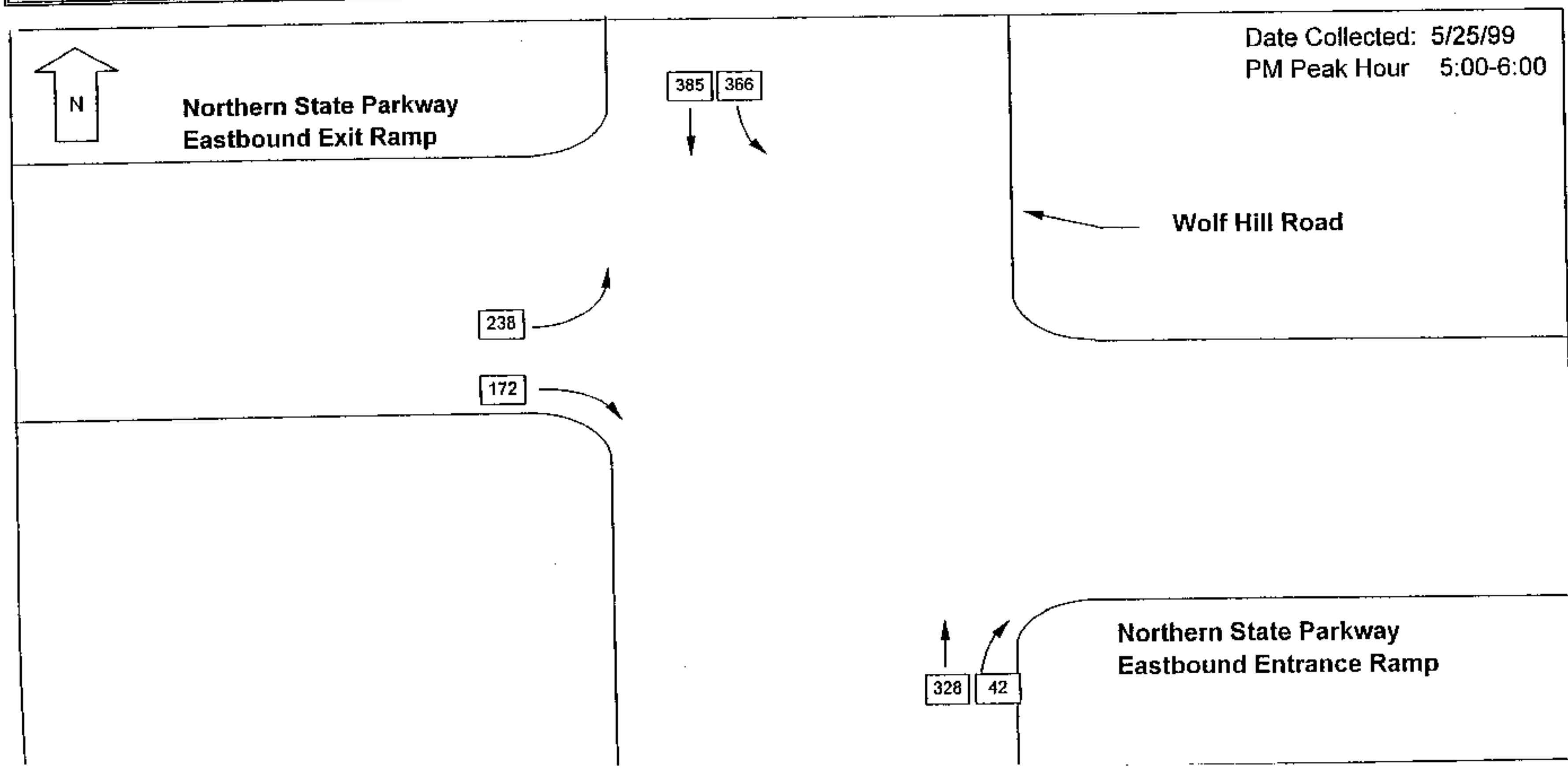
TRAFFIC VOLUME SUMMARY Melville, NY

On/Off Ramps of Eastbound Northern State Parkway and Wolf Hill Road

Peak Period: Weekday PM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time	Eastbound				Westbound				Northbound				Southbound				Total	Cumm.
Begins	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		Hourly
4:30 PM	73		41	114				0		87	9	96	81	93		174	384	
4:45 PM	74		40	114				0		71	12	83	68	105		173	370	
5:00 PM	62		41	103				0		69	8	77	114	80		194	374	
5:15 PM	70		42	112				0		100	8	108	76	102		178	398	1526
5:30 PM	54		53	107				0		70	11	81	87	103		190	378	1520
5:45 PM	52		36	88				0		89	15	104	89	100		189	381	1531
PM Peak Hour 5:00-6:00	238	0	172	410	0	0	0	0	0	328	42	370	366	385	0	751	1531	



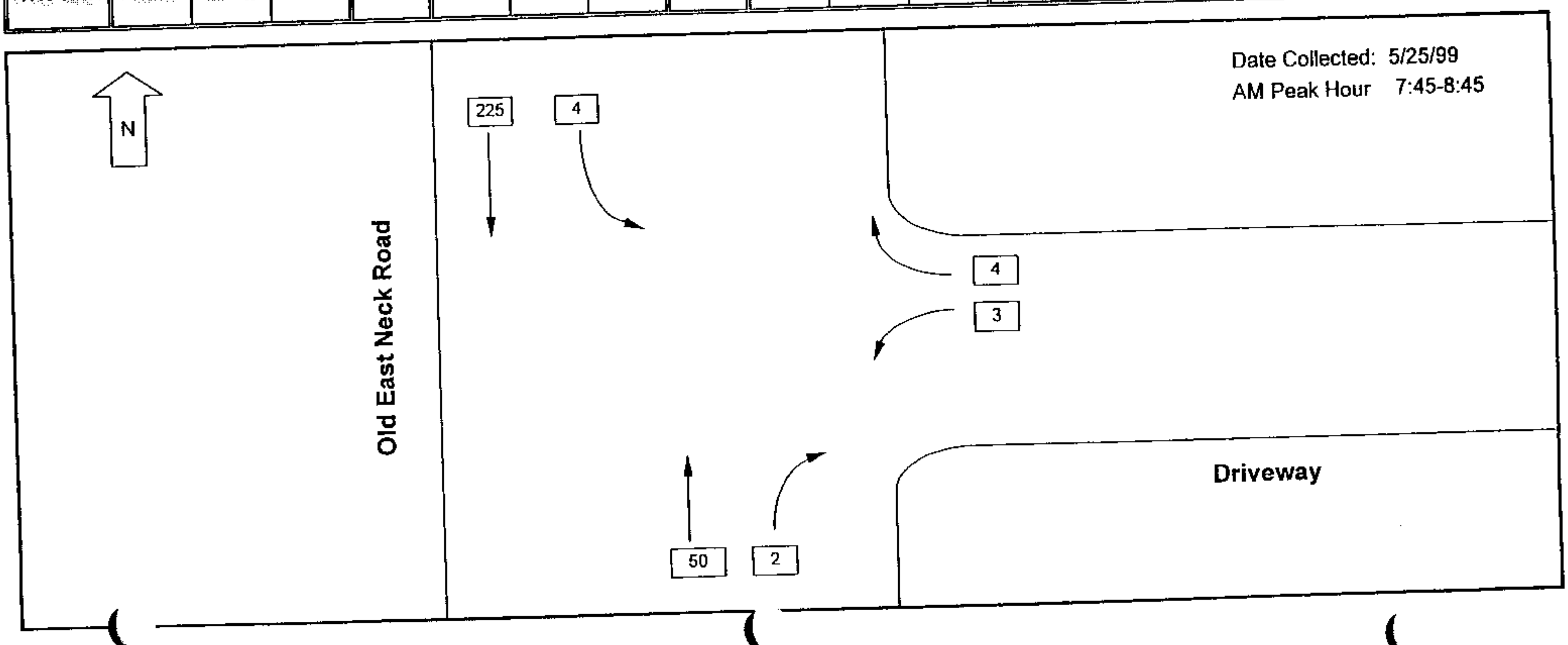
TRAFFIC VOLUME SUMMARY Melville, NY

Old East Neck Road and Driveway

Date Collected: 5/25/99 (Tuesday)

Peak Period Weekday AM Peak Period

Time Begins	Eastbound LT	Eastbound TH	Eastbound RT	Eastbound TOTAL	Westbound LT	Westbound TH	Westbound RT	Westbound TOTAL	Northbound LT	Northbound TH	Northbound RT	Northbound TOTAL	Southbound LT	Southbound TH	Southbound RT	Southbound TOTAL	Total	Cumm. Hourly
7:30 AM				0	0		1	1		9	0	9	0	48		48	58	
7:45 AM				0	1		0	1		12	0	12	1	54		55	68	
8:00 AM				0	0		1	1		16	1	17	1	52		53	71	
8:15 AM				0	1		2	3		14	1	15	2	67		69	87	284
8:30 AM				0	1		1	2		8	0	8	0	52		52	62	288
8:45 AM				0	1		0	1		14	1	15	1	46		47	63	283
***AM Peak Hour* 7:45-8:45**				**0**	**3**	**0**	**4**	**7**	**0**	**50**	**2**	**52**	**4**	**225**	**0**	**229**	**288**	



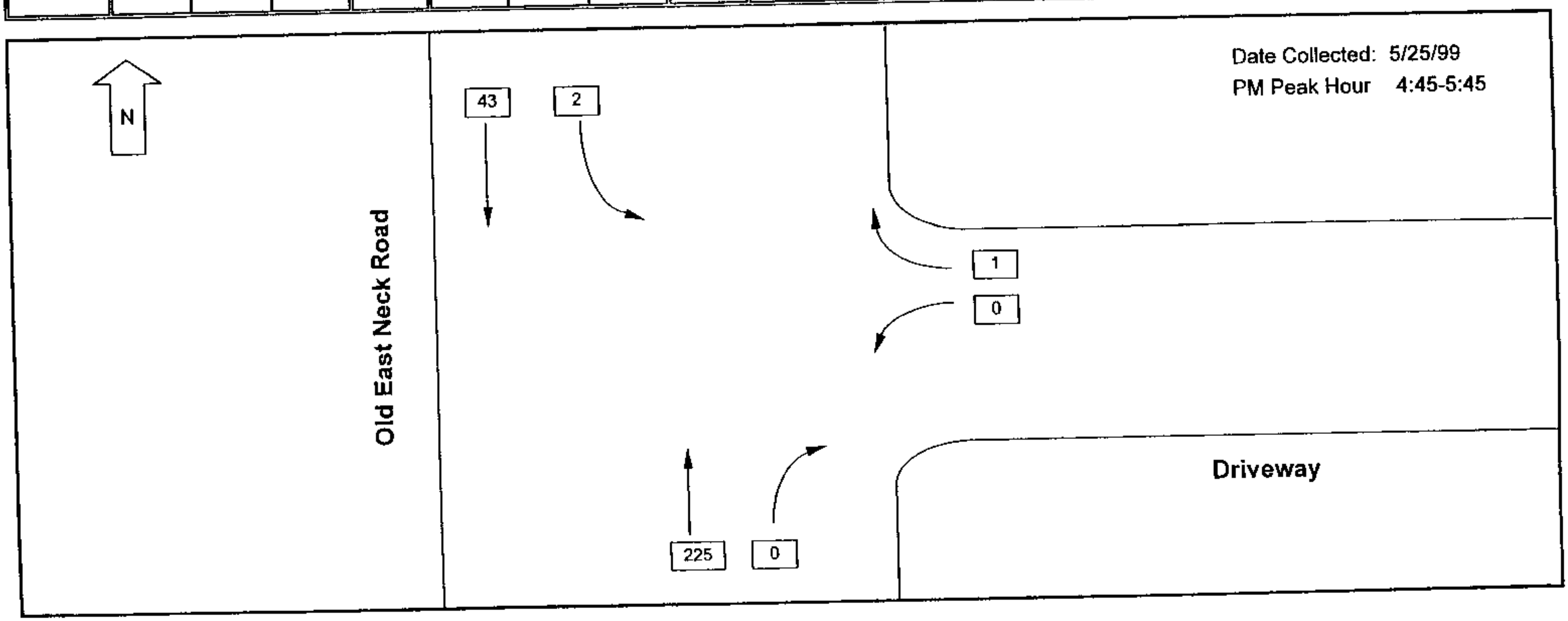
TRAFFIC VOLUME SUMMARY Melville, NY

Old East Neck Road and Driveway

Date Collected: 5/25/99 (Tuesday)

Peak Period Weekday PM Peak Period

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
4:30 PM				0	0		0	0		48	1	49	0	7		7	56	
4:45 PM				0	0		1	1		50	0	50	1	13		14	65	
5:00 PM				0	0		0	0		54	0	54	0	11		11	65	
5:15 PM				0	0		0	0		69	0	69	0	10		10	79	265
5:30 PM				0	0		0	0		52	0	52	1	9		10	62	271
5:45 PM				0	0		0	0		39	0	39	0	15		15	54	260
					0		0											
PM Peak Hour 4:45-5:45				0	0	0	1	1	0	225	0	225	2	43	0	45	271	



Date Collected: 5/25/99
PM Peak Hour 4:45-5:45

TRAFFIC VOLUME SUMMARY Melville, NY

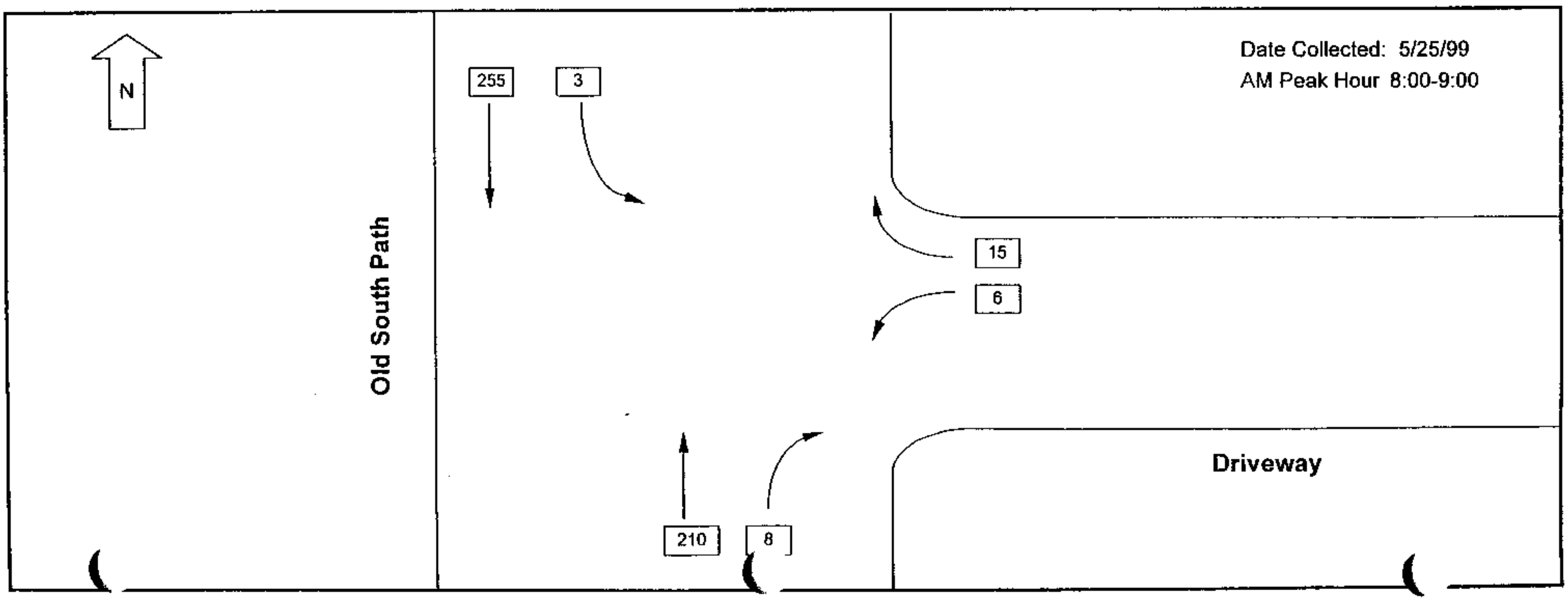
ESCHBACHER ENGINEERING, P.C.

Old South Path
and
Driveway

Peak Period Weekday AM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time Begins	Eastbound LT	Eastbound TH	Eastbound RT	Eastbound TOTAL	Westbound LT	Westbound TH	Westbound RT	Westbound TOTAL	Northbound LT	Northbound TH	Northbound RT	Northbound TOTAL	Southbound LT	Southbound TH	Southbound RT	Southbound TOTAL	Total	Cumm. Hourly
7:30 AM				0	4		4	8		45	0	45	0	46		46	99	
7:45 AM				0	3		1	4		65	3	68	0	33		33	105	
8:00 AM				0	3		2	5		39	5	44	3	50		53	102	
8:15 AM				0	0		5	5		57	1	58	0	60		60	123	429
8:30 AM				0	2		6	8		54	1	55	0	66		66	129	459
8:45 AM				0	1		2	3		60	1	61	0	79		79	143	497
AM Peak Hour 8:00-9:00				0	6	0	15	21	0	210	8	218	3	255	0	258	497	



TRAFFIC VOLUME SUMMARY Melville, NY

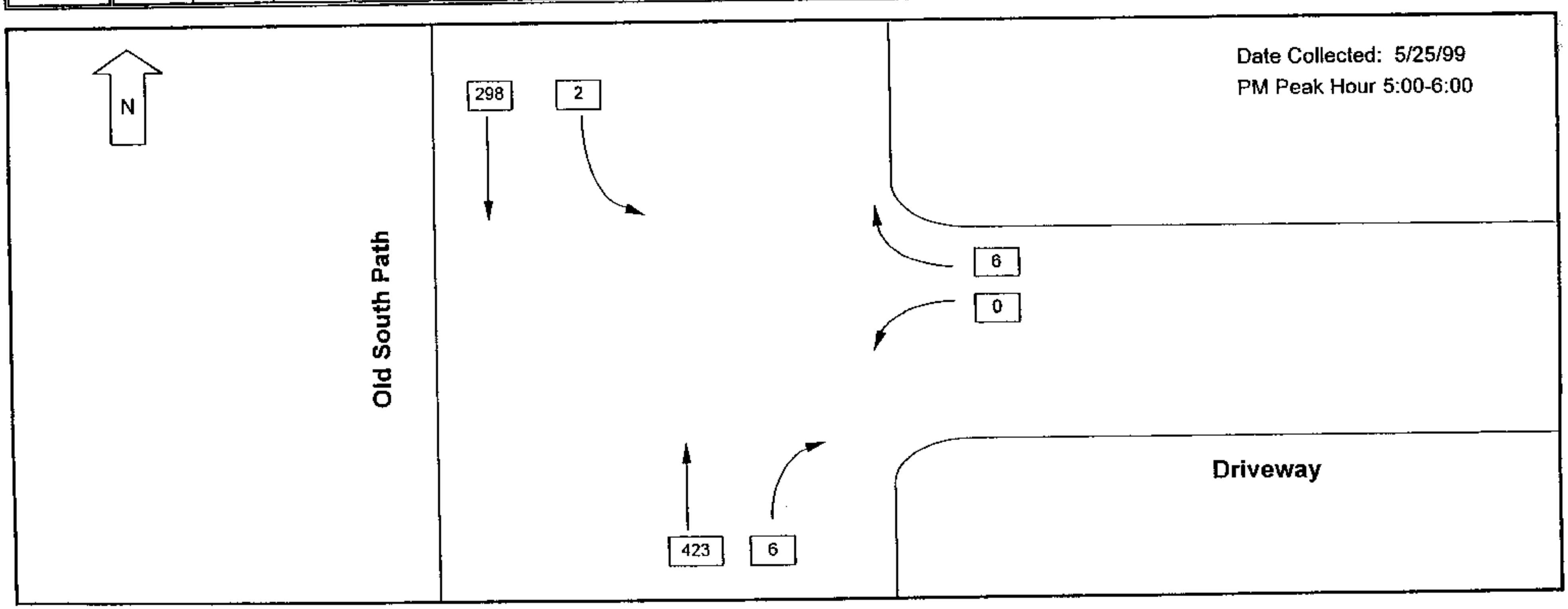
ESCHBACHER ENGINEERING, P.C.

Old South Path
and
Driveway

Peak Period Weekday PM Peak Period

Date Collected: 5/25/99 (Tuesday)

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
4:30 PM				0	0		1	1		66	0	66	0	56		56	123	
4:45 PM				0	0		0	0		89	0	89	1	58		59	148	
5:00 PM				0	0		2	2		104	2	106	0	85		85	193	
5:15 PM				0	0		0	0		137	2	139	1	68		69	208	672
5:30 PM				0	0		3	3		84	2	86	0	71		71	160	709
5:45 PM				0	0		1	1		98	0	98	1	74		75	174	735
***PM Peak Hour* 5:00-6:00**				**0**	**0**	**0**	**6**	**6**	**0**	**423**	**6**	**429**	**2**	**298**	**0**	**300**	**735**	



ESCHBACHER ENGINEERING, P.C.

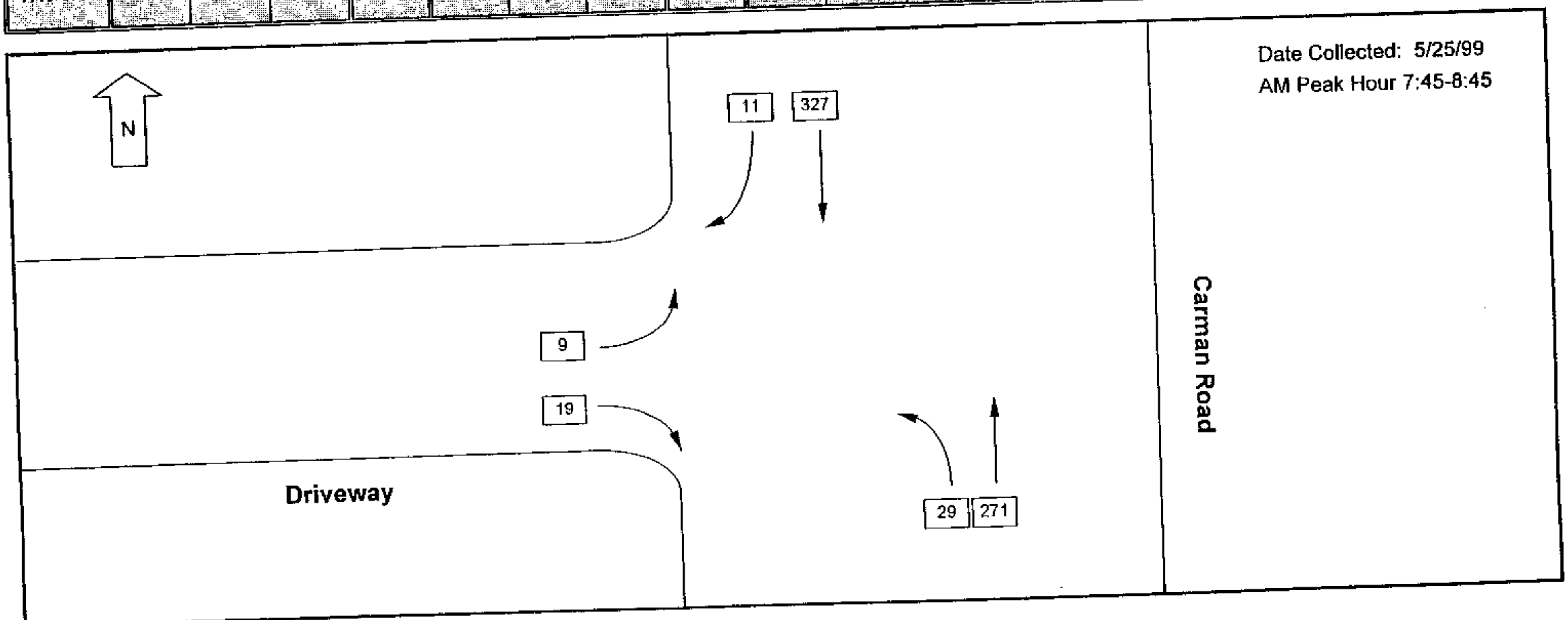
TRAFFIC VOLUME SUMMARY Melville, NY

Carman Road and Driveway

Date Collected: 5/25/99 (Tuesday)

Peak Period Weekday AM Peak Period

Time Begins	Eastbound LT	Eastbound TH	Eastbound RT	Eastbound TOTAL	Westbound LT	Westbound TH	Westbound RT	Westbound TOTAL	Northbound LT	Northbound TH	Northbound RT	Northbound TOTAL	Southbound LT	Southbound TH	Southbound RT	Southbound TOTAL	Total	Cumm. Hourly
7:30 AM	1		4	5				0	5	24		29		42	0	42	76	
7:45 AM	4		4	8				0	9	77		86		76	2	78	172	
8:00 AM	2		9	11				0	5	63		68		78	3	81	160	564
8:15 AM	1		4	5				0	9	66		75		74	2	76	156	666
8:30 AM	2		2	4				0	6	65		71		99	4	103	178	640
8:45 AM	6		4	10				0	6	67		73		61	2	63	146	
AM Peak Hour 7:45-8:45	9	0	19	28	0	0	0	0	29	271	0	300	0	327	11	338	666	



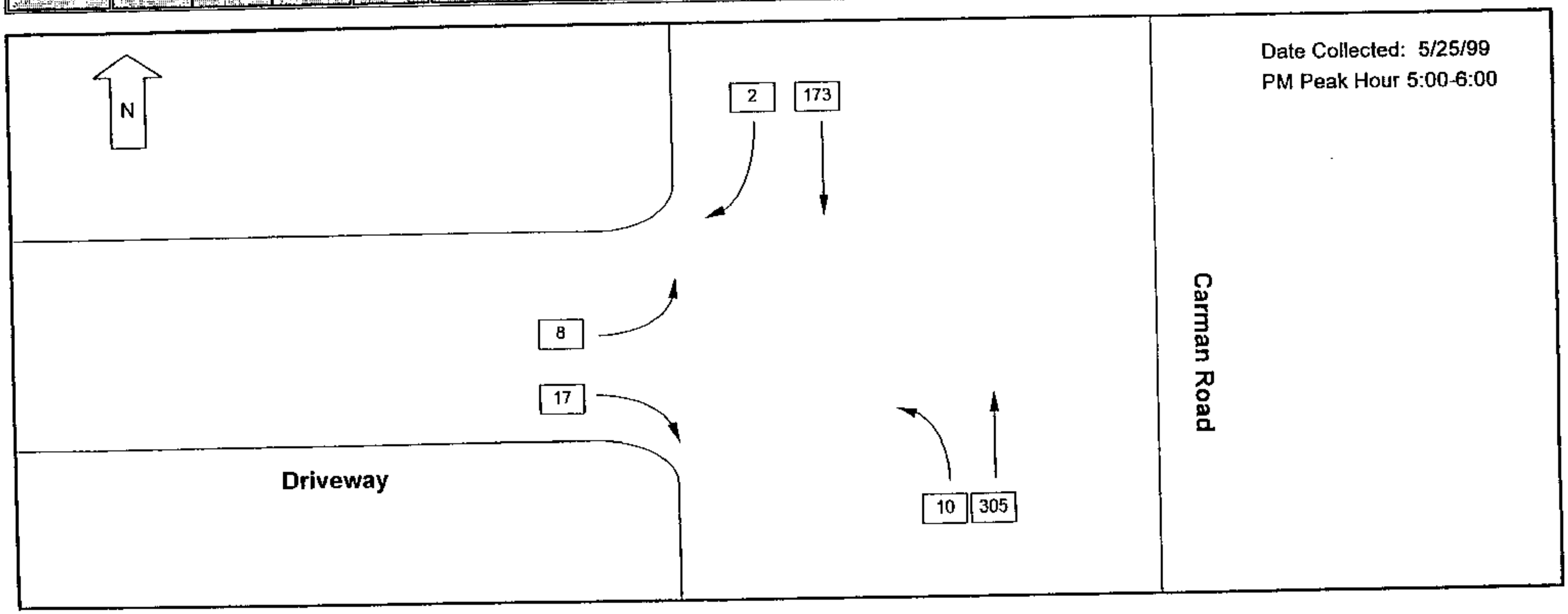
TRAFFIC VOLUME SUMMARY Melville, NY

Carman Road and Driveway

Date Collected: 5/25/99 (Tuesday)

Peak Period Weekday PM Peak Period

Time Begins	Eastbound				Westbound				Northbound				Southbound				Total	Cumm. Hourly
	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL	LT	TH	RT	TOTAL		
4:30 PM	2		5	7				0	2	48		50		31	4	35	92	
4:45 PM	1		3	4				0	0	52		52		38	3	41	97	
5:00 PM	2		4	6				0	3	74		77		36	0	36	119	436
5:15 PM	0		4	4				0	1	73		74		49	1	50	128	504
5:30 PM	2		4	6				0	1	99		100		53	1	54	160	515
5:45 PM	4		5	9				0	5	59		64		35	0	35	108	
***PM Peak Hour* 5:00-6:00**	**8**		**17**	**17**				**0**	**10**	**305**		**315**		**173**	**2**	**175**	**515**	

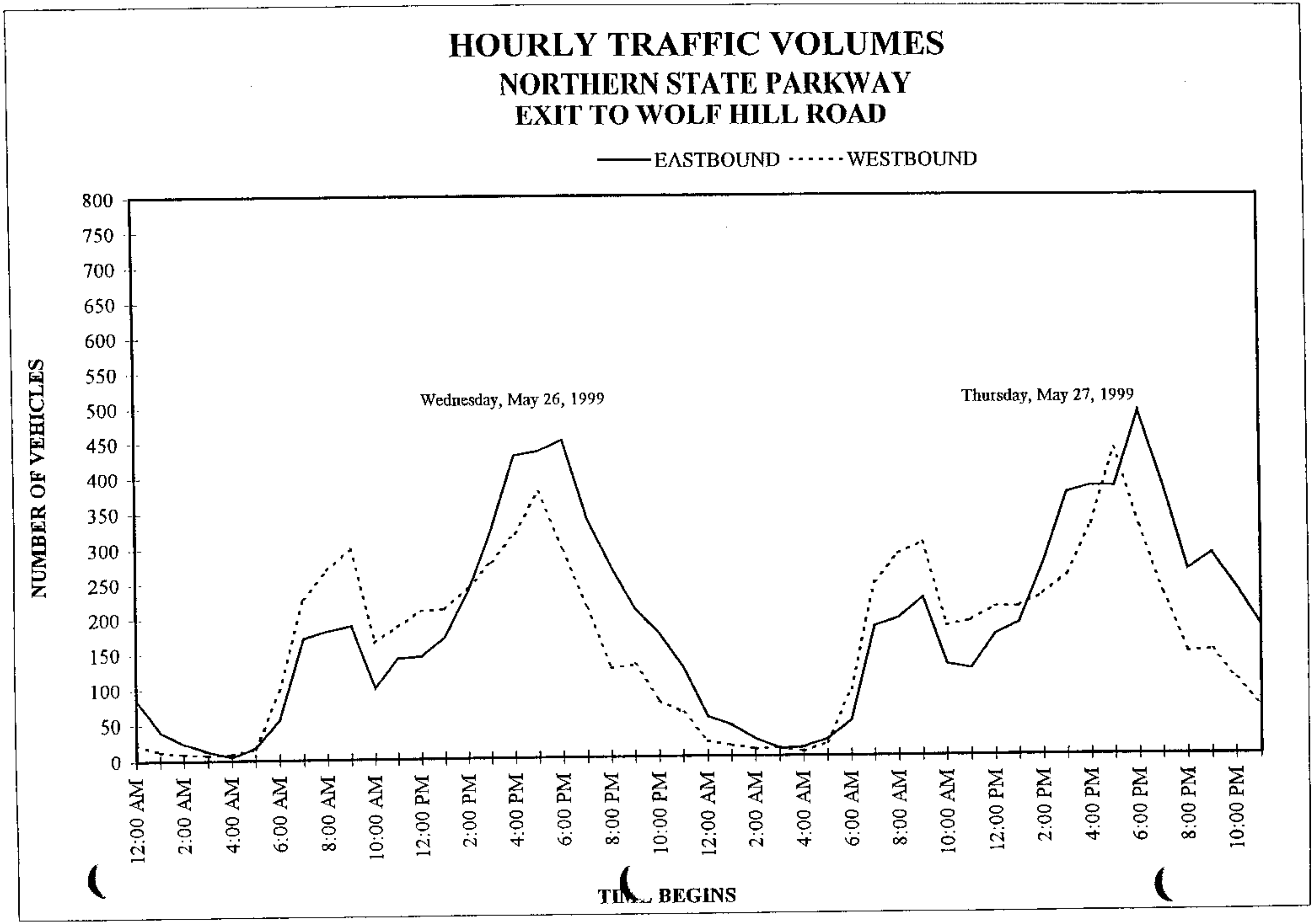


APPENDIX

ATR Machine Counts

HOURLY TRAFFIC VOLUMES
NORTHERN STATE PARKWAY
EXIT TO WOLF HILL ROAD
Wednesday, May 26, 1999
Through
Thursday, May 27, 1999

TIME BEGIN	Wednesday, May 26, 1999			Thursday, May 27, 1999		
	EASTBOUND	WESTBOUND	TOTAL	EASTBOUND	WESTBOUND	TOTAL
12:00 AM	84	22	106	54	21	75
1:00 AM	40	13	53	43	15	58
2:00 AM	24	10	34	24	10	34
3:00 AM	13	8	21	10	11	21
4:00 AM	4	9	13	12	6	18
5:00 AM	18	16	34	23	17	40
6:00 AM	55	97	152	48	92	140
7:00 AM	171	228	399	183	246	429
8:00 AM	181	269	450	194	287	481
9:00 AM	188	299	487	223	303	526
10:00 AM	99	165	264	128	183	311
11:00 AM	142	187	329	122	190	312
12:00 PM	144	209	353	171	210	381
1:00 PM	171	211	382	187	210	397
2:00 PM	237	242	479	273	228	501
3:00 PM	324	279	603	373	257	630
4:00 PM	430	319	749	383	329	712
5:00 PM	436	378	814	382	436	818
6:00 PM	451	295	746	488	325	813
7:00 PM	339	212	551	383	228	611
8:00 PM	270	125	395	263	145	408
9:00 PM	209	130	339	286	146	432
10:00 PM	174	78	252	237	103	340
11:00 PM	125	60	185	180	65	245
DAILY TOTAL	4,329	3,861	8,190	4,670	4,063	8,733

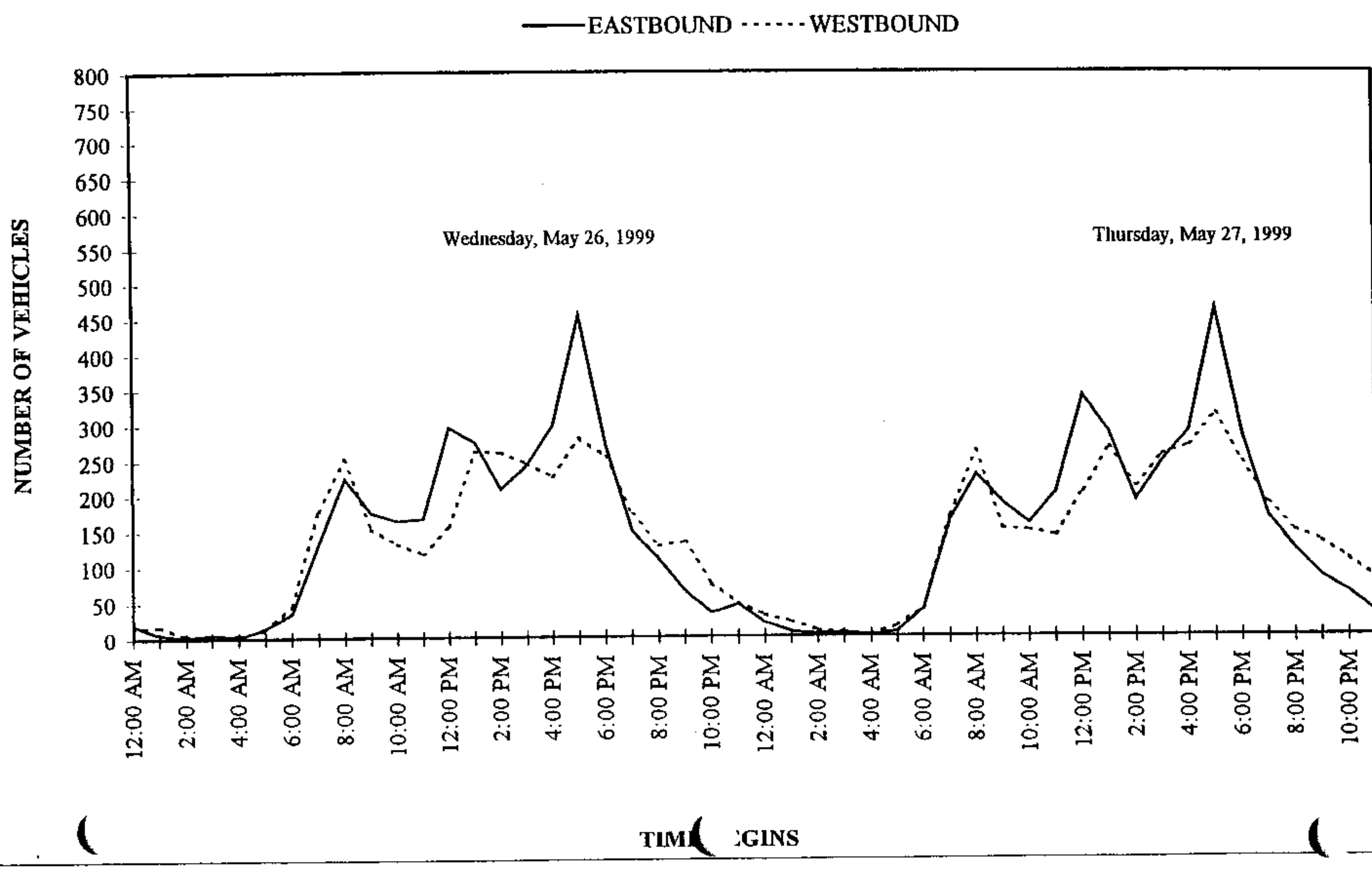

HOURLY TRAFFIC VOLUMES
NORTHERN STATE PARKWAY
EXIT TO WOLF HILL ROAD
EASTBOUND
WESTBOUND
NUMBER OF VEHICLES
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
Wednesday, May 26, 1999
Thursday, May 27, 1999
12:00 AM
2:00 AM
4:00 AM
6:00 AM
8:00 AM
10:00 AM
12:00 PM
2:00 PM
4:00 PM
6:00 PM
8:00 PM
10:00 PM
12:00 AM
2:00 AM
4:00 AM
6:00 AM
8:00 AM
10:00 AM
12:00 PM
2:00 PM
4:00 PM
6:00 PM
8:00 PM
10:00 PM
TIME BEGINS

HOURLY TRAFFIC VOLUMES
OLD SOUTH PATH
WEST OF ECHO LANE
Wednesday, May 26, 1999
Through
Thursday, May 27, 1999

TIME BEGIN	Wednesday, May 26, 1999			Thursday, May 27, 1999		
	EASTBOUND	WESTBOUND	TOTAL	EASTBOUND	WESTBOUND	TOTAL
12:00 AM	20	15	35	19	30	49
1:00 AM	6	18	24	7	21	28
2:00 AM	2	5	7	4	8	12
3:00 AM	6	5	11	5	6	11
4:00 AM	2	5	7	2	3	5
5:00 AM	14	12	26	7	14	21
6:00 AM	35	46	81	38	39	77
7:00 AM	131	179	310	163	170	333
8:00 AM	224	252	476	228	261	489
9:00 AM	175	153	328	187	151	338
10:00 AM	163	131	294	158	148	306
11:00 AM	167	117	284	202	141	343
12:00 PM	296	155	451	339	204	543
1:00 PM	275	262	537	287	265	552
2:00 PM	209	261	470	191	211	402
3:00 PM	243	245	488	246	255	501
4:00 PM	298	227	525	289	269	558
5:00 PM	454	280	734	462	313	775
6:00 PM	270	255	525	285	244	529
7:00 PM	148	172	320	168	186	354
8:00 PM	108	127	235	120	147	267
9:00 PM	63	133	196	82	132	214
10:00 PM	33	74	107	60	107	167
11:00 PM	45	47	92	32	80	112
DAILY TOTAL	3,387	3,176	6,563	3,581	3,405	6,986

HOURLY TRAFFIC VOLUMES

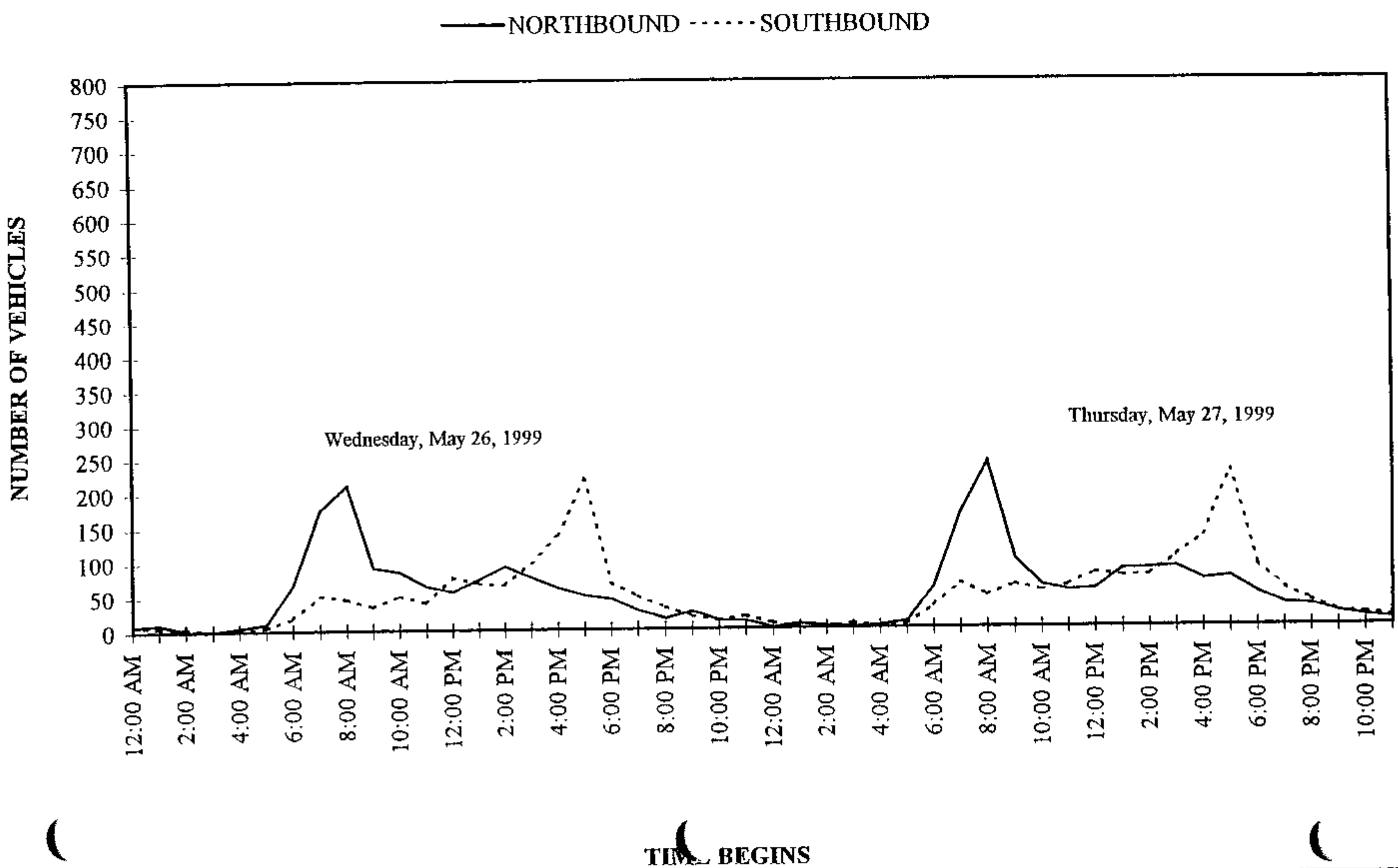
OLD SOUTH PATH
WEST OF ECHO LANE



HOURLY TRAFFIC VOLUMES
OLD EAST NECK ROAD
SOUTH OF ENTRANCE OF DEVELOPMENT CENTER
Wednesday, May 26, 1999
Through
Thursday, May 27, 1999

TIME	Wednesday, May 26, 1999			Thursday, May 27, 1999		
BEGIN	NORTHBOUND	SOUTHBOUND	TOTAL	NORTHBOUND	SOUTHBOUND	TOTAL
12:00 AM	8	9	17	1	7	8
1:00 AM	10	5	15	6	1	7
2:00 AM	1	4	5	3	1	4
3:00 AM	0	1	1	1	6	7
4:00 AM	4	1	5	3	2	5
5:00 AM	10	5	15	9	4	13
6:00 AM	66	19	85	59	31	90
7:00 AM	175	51	226	166	65	231
8:00 AM	210	46	256	240	46	286
9:00 AM	91	34	125	99	62	161
10:00 AM	85	50	135	61	53	114
11:00 AM	64	40	104	53	61	114
12:00 PM	56	77	133	55	79	134
1:00 PM	74	68	142	84	74	158
2:00 PM	92	65	157	85	75	160
3:00 PM	76	97	173	87	103	190
4:00 PM	60	137	197	68	132	200
5:00 PM	49	219	268	72	227	299
6:00 PM	44	68	112	48	90	138
7:00 PM	27	48	75	32	54	86
8:00 PM	15	31	46	30	36	66
9:00 PM	25	18	43	19	19	38
10:00 PM	12	12	24	13	17	30
11:00 PM	11	18	29	9	12	21
DAILY TOTAL	1,265	1,123	2,388	1,303	1,257	2,560

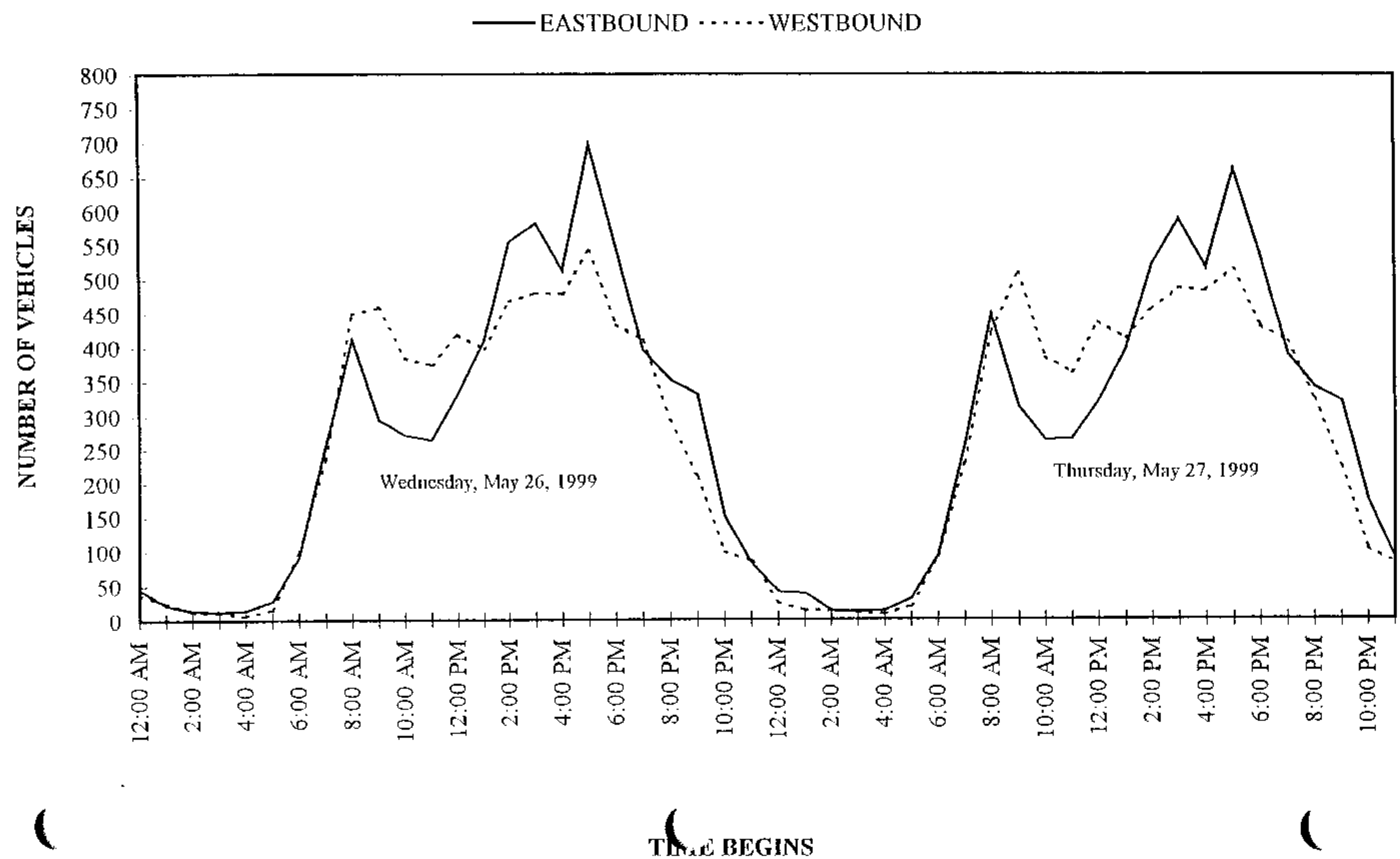
HOURLY TRAFFIC VOLUMES
OLD EAST NECK ROAD
SOUTH OF ENTRANCE OF DEVELOPMENT CENTER



HOURLY TRAFFIC VOLUMES
WOLF HILL ROAD
WEST OF OLD COUNTRY ROAD
Wednesday, May 26, 1999
Through
Thursday, May 27, 1999

TIME BEGIN	Wednesday, May 26, 1999			Thursday, May 27, 1999		
	EASTBOUND	WESTBOUND	TOTAL	EASTBOUND	WESTBOUND	TOTAL
12:00 AM	44	37	81	40	24	64
1:00 AM	21	24	45	38	13	51
2:00 AM	14	12	26	12	12	24
3:00 AM	12	11	23	11	10	21
4:00 AM	14	6	20	12	7	19
5:00 AM	27	15	42	30	19	49
6:00 AM	90	98	188	93	91	184
7:00 AM	255	235	490	256	230	486
8:00 AM	410	449	859	448	423	871
9:00 AM	294	459	753	313	510	823
10:00 AM	271	384	655	264	386	650
11:00 AM	264	374	638	266	364	630
12:00 PM	332	419	751	321	437	758
1:00 PM	409	398	807	396	414	810
2:00 PM	554	468	1022	520	456	976
3:00 PM	581	480	1061	587	488	1075
4:00 PM	512	479	991	517	483	1000
5:00 PM	696	542	1238	660	515	1175
6:00 PM	546	434	980	533	431	964
7:00 PM	396	410	806	390	409	799
8:00 PM	352	293	645	342	324	666
9:00 PM	332	209	541	322	223	545
10:00 PM	150	98	248	173	102	275
11:00 PM	81	84	165	88	81	169
DAILY TOTAL	6,657	6,418	13,075	6,632	6,452	13,084

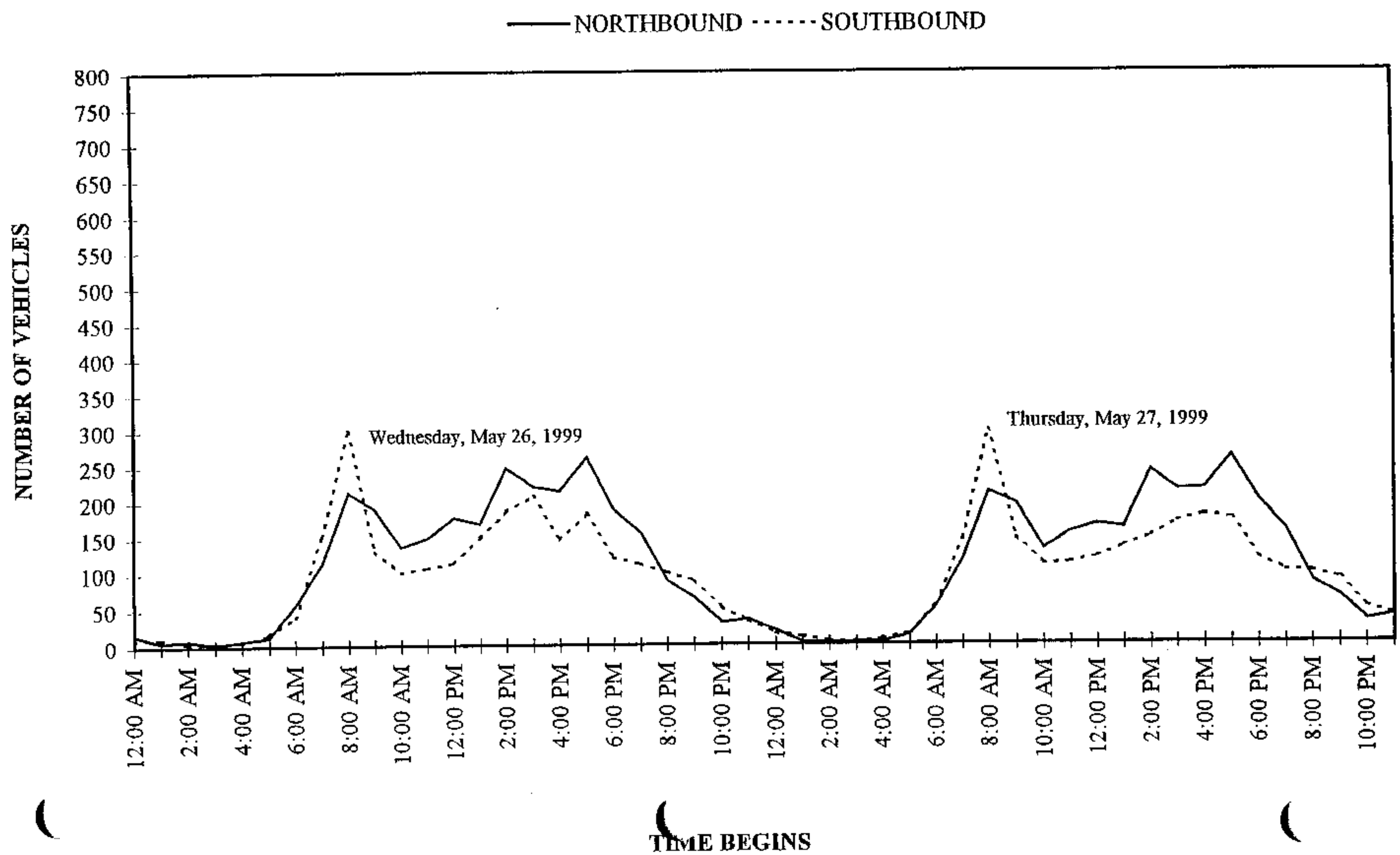
HOURLY TRAFFIC VOLUMES
WOLF HILL ROAD
WEST OF OLD COUNTRY ROAD



HOURLY TRAFFIC VOLUMES
CARMEN ROAD
SOUTH OF NORTHERN STATE PKWY
Wednesday, May 26, 1999
Through
Thursday, May 27, 1999

TIME BEGIN	Wednesday, May 26, 1999			Thursday, May 27, 1999		
	NORTHBOUND	SOUTHBOUND	TOTAL	NORTHBOUND	SOUTHBOUND	TOTAL
12:00 AM	17	11	28	19	15	34
1:00 AM	6	12	18	3	11	14
2:00 AM	9	4	13	2	4	6
3:00 AM	3	5	8	3	2	5
4:00 AM	8	6	14	3	7	10
5:00 AM	13	17	30	12	14	26
6:00 AM	56	39	95	51	52	103
7:00 AM	113	152	265	115	144	259
8:00 AM	212	300	512	211	298	509
9:00 AM	189	131	320	194	146	340
·00 AM	136	100	236	130	109	239
:00 AM	148	106	254	154	111	265
12:00 PM	177	113	290	165	118	283
1:00 PM	169	149	318	160	133	293
2:00 PM	246	186	432	240	147	387
3:00 PM	220	207	427	213	168	381
4:00 PM	214	146	360	214	178	392
5:00 PM	261	182	443	260	172	432
6:00 PM	188	120	308	198	117	315
7:00 PM	156	111	267	156	98	254
8:00 PM	87	99	186	83	97	180
9:00 PM	64	87	151	63	86	149
10:00 PM	30	50	80	30	48	78
11:00 PM	34	32	66	35	36	71
DAILY TOTAL	2,756	2,365	5,121	2,714	2,311	5.025

HOURLY TRAFFIC VOLUMES
CARMEN ROAD
SOUTH OF NORTHERN STATE PKWY



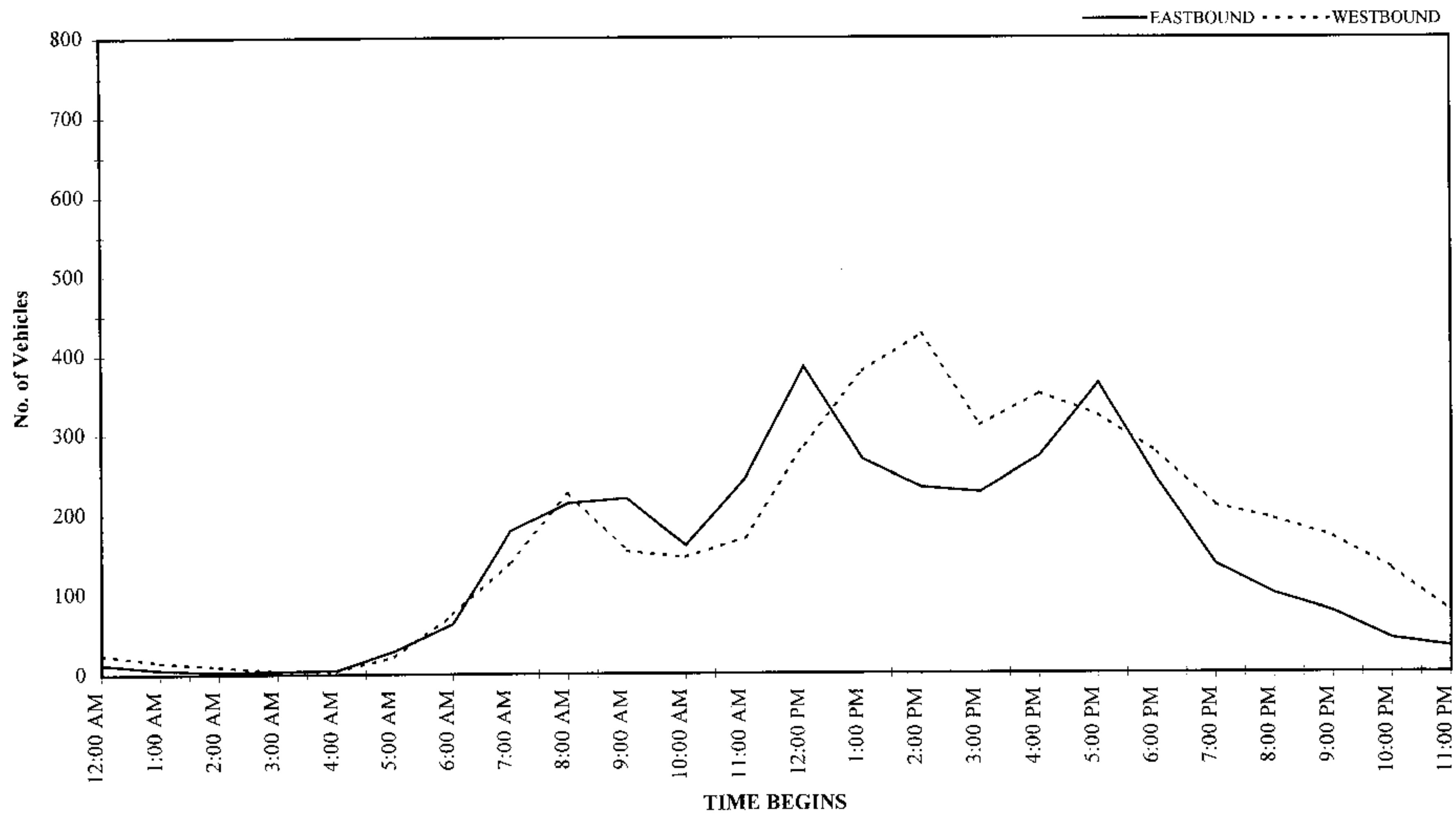
HOURLY TRAFFIC VOLUMES
OLD SOUTH PATH
BETWEEN OLD EAST NECK ROAD AND OLD COUNTRY ROAD
Thursday, Decemnber 16, 1999

TIME BEGINS	EASTBOUND	WESTBOUND	TOTAL
12:00 AM	13	25	38
1:00 AM	6	15	21
2:00 AM	3	10	13
3:00 AM	4	4	8
4:00 AM	5	4	9
5:00 AM	29	22	51
6:00 AM	63	75	138
7:00 AM	179	140	319
8:00 AM	214	226	440
9:00 AM	220	154	374
10:00 AM	161	146	307
11:00 AM	244	170	414
12:00 PM	385	286	671
1:00 PM	268	379	647
2:00 PM	233	426	659
3:00 PM	227	311	538
4:00 PM	272	351	623
5:00 PM	364	323	687
6:00 PM	242	276	518
7:00 PM	136	210	346
8:00 PM	99	193	292
9:00 PM	76	170	246
10:00 PM	42	130	172
11:00 PM	32	75	107
TOTAL	**3,517**	**4,121**	**7,638**

HOURLY TRAFFIC VOLUMES

OLD SOUTH PATH

Thursday, Decemnber 16, 1999



APPENDIX

HCS Analysis Worksheets

APPENDIX

HCS Analysis Worksheets

Signalized Intersections: Existing Conditions

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-01-1999
Eschbacher Engineering

Streets: (N-S) Bagatelle Road (E-W) Half Hollow Road
Analyst: GB File Name: BA@HAAME.HC9
Area Type: Other 5-25-99 AM PEAK
Comment: Existing Conditions (8:00-9:00 AM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	0	1	1	1	1	0
Volumes	260		69					138	193	108	519	
Lane W (ft)	11.0		12.0					13.0	13.0	10.0	11.0	
RTOR Vols			0						0			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left	*				EB Left	*			
Thru					Thru	*			
Right	*				Right	*			
Peds					Peds				
SB Left					WB Left	*			
Thru					Thru	*			
Right					Right	*			
Peds					Peds				
EB Right	*				NB Right				
WB Right					SB Right				
Green	16.0A				Green	42.0P			
Yellow/AR	3.0				Yellow/AR	4.0			

Cycle Length: 65 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	L	399	1621	0.687	0.246	17.7	C	16.6	C
	R	390	1583	0.187	0.246	12.5	B		
EB	T	1273	1925	0.114	0.662	2.6	A	1.1	A
	R	1636	1636	0.124	1.000	0.0	A		
WB	L	756	1143	0.151	0.662	2.7	A	3.5	A
	T	1191	1801	0.458	0.662	3.7	A		

Intersection Delay = 6.2 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.520

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 10-28-1999
Eschbacher Engineering

Streets: (N-S) Bagatelle Road (E-W) Half Hollow Road
Analyst: GB File Name: BA@HAPME.HC9
Area Type: Other 5-25-99 PM PEAK
Comment: Existing Conditions (5:00-6:00 PM)

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	1	0	1	0	0	0	0	1	1	1	1	0
Volumes	161		87					334	233	85	135	
Lane W (ft)	11.0		12.0					13.0	13.0	10.0	11.0	
RTOR Vols			0						0			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4
NB	Left	*			
	Thru				
	Right	*			
	Peds				
SB	Left				
	Thru				
	Right				
	Peds				
EB	Right	*			
WB	Right				
Green		11.0A			
Yellow/AR		3.0			

		5	6	7	8
EB	Left				
	Thru	*			
	Right	*			
	Peds				
WB	Left	*			
	Thru	*			
	Right				
	Peds				
NB	Right				
SB	Right				
Green		61.0P			
Yellow/AR		4.0			

Cycle Length: 79 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	Approach: LOS
NB	L	238	1711	0.709	0.139	27.3	D	25.0	C
	R	220	1583	0.417	0.139	20.8	C		
EB	T	1511	1925	0.233	0.785	1.5	A	0.9	A
	R	1636	1636	0.150	1.000	0.0	A		
WB	L	562	716	0.158	0.785	1.4	A	1.3	A
	T	1413	1801	0.100	0.785	1.3	A		

Intersection Delay = 6.8 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.305

HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g   11-01-1999

Eschbacher Engineering

Streets: (N-S) Bagatelle Road   (E-W) LIE N. Service Road

Analyst: CMM   File Name: BA@NLIAE.HC9

Area Type: Other   5-25-99 AM PEAK

Comment: Existing Conditions (8:00-9:00 AM)

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	1	1	0	0	2 <	0	0	0	0	0 >	3 <	0
Volumes	367	276			246	102				135	1736	55
Lane W (ft)	11.0	12.0			11.0						11.0	
RTOR Vols			0			0						0
Lost Time	3.00	3.00			3.00	3.00				3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4
NB Left	*	*		
Thru	*	*		
Right				
Peds				
SB Left				
Thru		*		
Right		*		
Peds				
EB Right				
WB Right				
Green	13.0A	18.0P		
Yellow/AR	2.0	4.0		

	5	6	7	8
EB Left				
Thru				
Right				
Peds				
WB Left	*			
Thru	*			
Right	*			
Peds				
NB Right				
SB Right				
Green	29.0P			
Yellow/AR	5.0			

Cycle Length: 71 secs Phase combination order: #1 #2 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	L	436	1621	0.885	0.479	22.0	C	15.7	C
	T	892	1863	0.326	0.479	7.5	B		
SB	TR	921	3443	0.417	0.268	14.0	B	14.0	B
WB	LTR	2340	5360	0.953	0.437	19.7	C	19.7	C

Intersection Delay = 18.3 sec/veh Intersection LOS = C

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.873

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g          10-28-1999
                         Eschbacher Engineering
=========================================================================
Streets: (N-S) Bagatelle Road              (E-W) LIE N. Service Road
Analyst: CMM                               File Name: BA@NLIPE.HC9
Area Type: Other                           5-25-99 PM PEAK
Comment: Existing Conditions (5:00-6:00 PM)
=========================================================================
           |  Northbound    |   Southbound   |   Eastbound    |  Westbound
           |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R
           | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- | ---- ---- ----
No. Lanes  |  1    1    0   |  0    2  < 0   |  0    0    0   |  0  > 3  < 0
Volumes    | 131  230       |      330   34  |                | 181  183   77
Lane W (ft)|11.0 12.0       |     11.0       |                |     11.0
RTOR Vols  |            0   |            0   |                |            0
Lost Time  |3.00 3.00       |     3.00 3.00  |                |3.00 3.00 3.00
-------------------------------------------------------------------------
                             Signal Operations
Phase Combination 1    2    3    4  |           5    6    7    8
NB  Left          *    *            | EB  Left
    Thru          *    *            |     Thru
    Right                           |     Right
    Peds                            |     Peds
SB  Left                            | WB  Left  *
    Thru               *            |     Thru  *
    Right              *            |     Right *
    Peds                            |     Peds
EB  Right                           | NB  Right
WB  Right                           | SB  Right
Green           6.0A 21.0P          | Green    31.0A
Yellow/AR       0.0   4.0           | Yellow/AR 4.0
Cycle Length:  66 secs  Phase combination order: #1 #2 #5
-------------------------------------------------------------------------
                   Intersection Performance Summary
     Lane   Group:  Adj Sat    v/c     g/C                     Approach:
     Mvmts   Cap     Flow     Ratio   Ratio   Delay    LOS   Delay   LOS
     -----  ----   -------    -----   -----   -----    ---   -----   ---
NB   L       298    1711      0.463   0.424     9.0    B       8.5    B
     T       790    1863      0.306   0.424     8.2    B
SB   TR     1184    3551      0.340   0.333    10.8    B      10.8    B
WB   LTR    2499    5155      0.205   0.485     6.3    B       6.3    B
           Intersection Delay =   8.3 sec/veh Intersection LOS = B
Lost Time/Cycle, L =    9.0 sec   Critical v/c(x)    = 0.299
-------------------------------------------------------------------------
```

HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g   11-01-1999

Eschbacher Engineering

Streets: (N-S) Bagatelle Road   (E-W) LIE S. Service Road
Analyst: Greg B   File Name: BA@SLIAE.HC9
Area Type: Other   5-25-99 AM PEAK
Comment: Existing Conditions (8:00-9:00 AM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2 <	0	1	1	0	0 >	3 <	0	0	0	0
Volumes		524	145	161	207		128	227	95			
Lane W (ft)		12.0		12.0	12.0			12.0				
RTOR Vols			0			0			0			
Lost Time		3.00	3.00	3.00	3.00		3.00	3.00	3.00			

Signal Operations

Phase Combination	1	2	3	4
NB Left				
Thru		*		
Right		*		
Peds				
SB Left	*	*		
Thru	*	*		
Right				
Peds				
EB Right				
WB Right				
Green	11.0A	27.0A		
Yellow/AR	4.0	4.0		

	5	6	7	8
EB Left	*			
Thru	*			
Right	*			
Peds				
WB Left				
Thru				
Right				
Peds				
NB Right				
SB Right				
Green	30.0A			
Yellow/AR	4.0			

Cycle Length: 80 secs   Phase combination order: #1 #2 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	TR	1195	3415	0.619	0.350	14.7	B	14.7	B
SB	L	358	1770	0.472	0.538	8.1	B	7.1	B
	T	1001	1863	0.218	0.538	6.3	B		
EB	LTR	2067	5335	0.252	0.387	10.8	B	10.8	B

Intersection Delay = 11.6 sec/veh   Intersection LOS = B

Lost Time/Cycle, L = 9.0 sec   Critical v/c(x) = 0.462

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 10-28-1999
Eschbacher Engineering

Streets: (N-S) Bagatelle Road (E-W) LIE S. Service Road
Analyst: GB File Name: BA@SLIPE.HC9
Area Type: Other 5-25-99 PM PEAK
Comment: Existing Conditions (5:00-6:00 PM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2 <	0	1	1	0	0 >	3 <	0	0	0	0
Volumes		258	103	160	338		108	1636	133			
Lane W (ft)		12.0		12.0	12.0			12.0				
RTOR Vols			0			0			0			
Lost Time		3.00	3.00	3.00	3.00		3.00	3.00	3.00			

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
NB Left					EB	Left	*			
Thru		*				Thru	*			
Right		*				Right	*			
Peds						Peds				
SB Left	*	*			WB	Left				
Thru	*	*				Thru				
Right						Right				
Peds						Peds				
EB Right					NB	Right				
WB Right					SB	Right				
Green	4.0A	27.0A			Green		30.0P			
Yellow/AR	0.0	4.0			Yellow/AR		4.0			

Cycle Length: 69 secs Phase combination order: #1 #2 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	TR	1371	3379	0.291	0.406	9.0	B	9.0	B
SB	L	317	1770	0.530	0.464	10.9	B	9.0	B
	T	864	1863	0.412	0.464	8.1	B		
EB	LTR	2477	5513	0.878	0.449	14.0	B	14.0	B

Intersection Delay = 12.5 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.688

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g        10-28-1999
                        Eschbacher Engineering
=========================================================================
Streets: (N-S) Carman Road                (E-W) Half Hollow Road
Analyst: GB                               File Name: CA@HAAME.HC9
Area Type: Other                          5-25-99 AM PEAK
Comment: Existing Conditions (7:45-8:45 AM)
=========================================================================
           |  Northbound  |  Southbound  |  Eastbound   |  Westbound   |
           | L    T    R  | L    T    R  | L    T    R  | L    T    R  |
           | ---- ---- ----| ---- ---- ----| ---- ---- ----| ---- ---- ----|
No. Lanes  | 0    0    0  | 1    0    1  | 1    1    0  | 0    1    1  |
Volumes    |              | 141      139 |  37  127     |      525  236|
Lane W (ft)|              |10.0      9.0 |11.0 12.0     |     12.0 14.0|
RTOR Vols  |              |           0  |           0  |           0  |
Lost Time  |              |3.00     3.00 |3.00 3.00     |     3.00 3.00|
-------------------------------------------------------------------------
                           Signal Operations
Phase Combination 1     2     3     4 |           5     6     7     8
NB   Left                             |EB  Left    *
     Thru                             |    Thru    *
     Right                            |    Right
     Peds                             |    Peds
SB   Left       *                     |WB  Left
     Thru                             |    Thru    *
     Right      *                     |    Right   *
     Peds                             |    Peds
EB   Right                            |NB  Right
WB   Right      *                     |SB  Right
Green         12.0A                   |Green     64.0P
Yellow/AR      3.0                    |Yellow/AR 4.0
Cycle Length:  83 secs  Phase combination order: #1 #5
-------------------------------------------------------------------------
                   Intersection Performance Summary
     Lane   Group:  Adj Sat   v/c     g/C                      Approach:
     Mvmts   Cap     Flow    Ratio   Ratio    Delay   LOS   Delay   LOS
     -----  ----   -------   -----   -----    -----   ---   -----   ---
SB   L       226    1565     0.654   0.145    26.2    D     27.6    D
     R       206    1425     0.709   0.145    29.0    D
EB   L       309     395     0.126   0.783     1.4    A      1.4    A
     T      1459    1863     0.092   0.783     1.4    A
WB   T      1459    1863     0.379   0.783     1.9    A      1.3    A
     R      1689    1689     0.147   1.000     0.0    A
            Intersection Delay =   7.4 sec/veh Intersection LOS = B
Lost Time/Cycle, L =   6.0 sec   Critical v/c(x)    = 0.430
-------------------------------------------------------------------------
```

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g        10-28-1999
                         Eschbacher Engineering
==========================================================================
Streets: (N-S) Carmen Road                 (E-W) Half Hollow Road
Analyst: GB                                File Name: CA@HAPME.HC9
Area Type: Other                           5-25-99 PM PEAK
Comment: Existing Conditions (4:45-5:45 PM)
==========================================================================
           |  Northbound   |  Southbound   |   Eastbound   |  Westbound
           |  L    T    R  |  L    T    R  |  L    T    R  |  L    T    R
           | ---- ---- ----| ---- ---- ----| ---- ---- ----| ---- ---- ----
No. Lanes  |  0    0    0  |  1    0    1  |  1    1    0  |  0    1    1
Volumes    |               | 157       169 | 135  378      |      146  133
Lane W (ft)|               |12.0      12.0 |11.0 12.0      |     12.0 14.0
RTOR Vols  |               |             0 |              0|              0
Lost Time  |               |3.00      3.00 |3.00 3.00      |     3.00 3.00
--------------------------------------------------------------------------
                           Signal Operations
Phase Combination 1    2    3    4   |                5    6    7    8
NB Left                              |EB  Left        *
   Thru                              |    Thru        *
   Right                             |    Right
   Peds                              |    Peds
SB Left           *                  |WB  Left
   Thru                              |    Thru        *
   Right          *                  |    Right       *
   Peds                              |    Peds
EB Right                             |NB  Right
WB Right          *                  |SB  Right
Green          12.0A                 |Green    38.0P
Yellow/AR       3.0                  |Yellow/AR 3.0
Cycle Length:  56 secs  Phase combination order: #1 #5
--------------------------------------------------------------------------
                  Intersection Performance Summary
     Lane   Group:  Adj Sat    v/c      g/C                     Approach:
     Mvmts   Cap     Flow     Ratio    Ratio    Delay   LOS    Delay   LOS
     -----  ----   -------    -----    -----    -----   ---    -----   ---
SB   L       359     1676     0.459    0.214     13.1    B      13.4    B
     R       339     1583     0.525    0.214     13.8    B
EB   L       788     1161     0.180    0.679      2.1    A       2.4    A
     T      1264     1863     0.315    0.679      2.4    A
WB   T      1264     1863     0.122    0.679      2.0    A       1.1    A
     R      1689     1689     0.083    1.000      0.0    A
              Intersection Delay =    5.3 sec/veh Intersection LOS = B
Lost Time/Cycle, L =    6.0 sec   Critical v/c(x)     = 0.365
--------------------------------------------------------------------------
```

HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g   10-28-1999

Eschbacher Engineering

Streets: (N-S) Half Hollow Road   (E-W) LIE N. Service Road

Analyst: GB   File Name: HA@NLIAE.HC9

Area Type: Other   5-25-99 AM PEAK

Comment: Existing Conditions (8:00-9:00 AM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	1	0	0	0	0 >	3	< 0
Volumes	42	113			571	150				239	971	11
Lane W (ft)	11.0	11.0			10.0	11.0					11.0	
RTOR Vols			0			0						0
Lost Time	3.00	3.00			3.00	3.00				3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4
NB Left	*			
Thru	*			
Right				
Peds				
SB Left				
Thru	*			
Right	*			
Peds				
EB Right				
WB Right				
Green	40.0A			
Yellow/AR	4.0			

	5	6	7	8
EB Left				
Thru				
Right				
Peds				
WB Left	*			
Thru	*			
Right	*			
Peds				
NB Right				
SB Right				
Green	32.0P			
Yellow/AR	4.0			

Cycle Length: 80 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	L	110	215	0.399	0.512	9.0	B	7.2	B
	T	923	1801	0.129	0.512	6.6	B		
SB	T	891	1739	0.674	0.512	10.8	B	10.0	B
	R	785	1531	0.201	0.512	6.9	B		
WB	LTR	2204	5342	0.642	0.412	12.6	B	12.6	B

Intersection Delay = 11.4 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec   Critical v/c(x) = 0.660

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-01-1999

Eschbacher Engineering

Streets: (N-S) Half Hollow Road (E-W) LIE N. Service Road

Analyst: GB File Name: HA@NLIPE.HC9

Area Type: Other 5-25-99 PM PEAK

Comment: Existing Conditions (5:00-6:00 PM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	1	0	0	0	0 >	3 <	0
Volumes	91	702			148	28				53	71	8
Lane W (ft)	11.0	11.0			10.0	11.0					11.0	
RTOR Vols			0			0						0
Lost Time	3.00	3.00			3.00	3.00				3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
NB	Left	*				EB	Left				
	Thru	*					Thru				
	Right						Right				
	Peds						Peds				
SB	Left					WB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
EB	Right					NB	Right				
WB	Right					SB	Right				
Green		37.0A				Green		30.0P			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 75 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	L	532	1050	0.180	0.507	6.5	B	14.1	B
	T	886	1749	0.834	0.507	15.1	C		
SB	T	856	1689	0.182	0.507	6.5	B	6.4	B
	R	753	1487	0.038	0.507	6.0	B		
WB	LTR	2108	5100	0.073	0.413	8.6	B	8.6	B

Intersection Delay = 12.2 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.492

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 10-28-1999

Eschbacher Engineering

Streets: (N-S) Old South Path (E-W) Half Hollow Road

Analyst: Greg B File Name: HA@OLAME.HC9

Area Type: Other 5-25-99 AM PEAK

Comment: Existing Conditions (7:45-8:45 AM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	1	0	0	1	1
Volumes				86		123	71	74			559	160
Lane W (ft)				12.0		15.0	10.0	12.0			12.0	12.0
RTOR Vols						0			0			0
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination	1	2	3	4
NB Left				
Thru				
Right				
Peds				
SB Left	*			
Thru				
Right	*			
Peds				
EB Right				
WB Right				
Green	14.0A			
Yellow/AR	4.0			

Phase Combination	5	6	7	8
EB Left	*			
Thru	*			
Right				
Peds				
WB Left				
Thru	*			
Right	*			
Peds				
NB Right				
SB Right				
Green	44.0A			
Yellow/AR	4.0			

Cycle Length: 66 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
SB	L	402	1770	0.226	0.227	13.5	B	13.7	B
	R	396	1742	0.326	0.227	13.9	B		
EB	L	218	319	0.345	0.682	3.2	A	2.7	A
	T	1270	1863	0.061	0.682	2.3	A		
WB	T	1270	1863	0.463	0.682	3.4	A	3.1	A
	R	1079	1583	0.156	0.682	2.4	A		

Intersection Delay = 5.2 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.429

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 10-28-1999
Eschbacher Engineering

Streets: (N-S) Half Hollow Road (E-W) Old South Path
Analyst: Greg B File Name: HA@OLPME.HC9
Area Type: Other 5-25-99 PM PEAK
Comment: Existing Conditions (5:00-6:00 PM)

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	0	0	0	1	0	1	1	1	0	0	1	1
Volumes				192		95	305	412			90	122
Lane W (ft)				12.0		15.0	10.0	12.0			12.0	12.0
RTOR Vols						0			0			0
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination	1	2	3	4
NB Left				
Thru				
Right				
Peds				
SB Left	*			
Thru				
Right	*			
Peds				
EB Right				
WB Right				
Green	15.0A			
Yellow/AR	4.0			

	5	6	7	8
EB Left	*			
Thru	*			
Right				
Peds				
WB Left				
Thru	*			
Right	*			
Peds				
NB Right				
SB Right				
Green	25.0P			
Yellow/AR	4.0			

Cycle Length: 48 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
SB	L	590	1770	0.342	0.333	7.9	B	7.7	B
	R	581	1742	0.172	0.333	7.3	B		
EB	L	693	1280	0.463	0.542	4.7	A	4.6	A
	T	1009	1863	0.430	0.542	4.4	A		
WB	T	1009	1863	0.094	0.542	3.4	A	3.5	A
	R	857	1583	0.149	0.542	3.5	A		

Intersection Delay = 5.1 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.417

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g         10-28-1999
                              Eschbacher Engineering
=======================================================================
Streets: (N-S) Half Hollow Road          (E-W) LIE S. Service Road
Analyst: GB                              File Name: HA@SLIAE.HC9
Area Type: Other                         5-25-99 AM PEAK
Comment: Existing Conditions (7:45-8:45 AM)
=======================================================================
           |  Northbound    |  Southbound    |   Eastbound    |  Westbound
           | L    T    R    | L    T    R    | L    T    R    | L    T    R
           |---- ---- ----  |---- ---- ---- |---- ---- ---- |---- ---- ----
No. Lanes  | 0    1    1    | 1    1    0    | 0  > 3  < 0    | 0    0    0
Volumes    |     147   59   | 22  776        |  34   55    4  |
Lane W (ft)|    11.0 11.0   |10.0 10.0       |      11.0      |
RTOR Vols  |           0    |           0    |             0  |
Lost Time  |    3.00 3.00   |3.00 3.00       |3.00 3.00 3.00  |
-----------------------------------------------------------------------
                           Signal Operations
Phase Combination 1    2    3    4  |               5    6    7    8
NB  Left                            |EB  Left       *
    Thru          *                 |    Thru       *
    Right         *                 |    Right      *
    Peds                            |    Peds
SB  Left          *                 |WB  Left
    Thru          *                 |    Thru
    Right                           |    Right
    Peds                            |    Peds
EB  Right                           |NB  Right
WB  Right                           |SB  Right
Green          43.0A                |Green     30.0P
Yellow/AR       4.0                 |Yellow/AR 4.0
Cycle Length:  81 secs  Phase combination order: #1 #5
-----------------------------------------------------------------------
                    Intersection Performance Summary
    Lane  Group:  Adj Sat    v/c     g/C                      Approach:
    Mvmts   Cap     Flow    Ratio   Ratio    Delay   LOS    Delay   LOS
    -----  ----   -------   -----   -----    -----   ---    -----   ---
NB  T       927     1706    0.167   0.543      6.0    B      5.9     B
    R       832     1531    0.075   0.543      5.7    B
SB  L       601     1107    0.038   0.543      5.6    B     16.0     C
    T       945     1739    0.865   0.543     16.3    C
EB  LTR    2018     5272    0.054   0.383     10.2    B     10.2     B
               Intersection Delay =  13.6 sec/veh Intersection LOS = B
Lost Time/Cycle, L =    6.0 sec   Critical v/c(x)     = 0.530
-----------------------------------------------------------------------
```

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 10-28-1999
Eschbacher Engineering

Streets: (N-S) Half Hollow Road (E-W) LIE S. Service Road
Analyst: GB File Name: HA@SLIPE.HC9
Area Type: Other 5-25-99 PM PEAK
Comment: Existing Conditions (5:00-6:00 PM)

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	0	1	1	1	1	0	0	> 3	< 0	0	0	0
Volumes		627	423	45	152		171	1168	9			
Lane W (ft)		11.0	11.0	10.0	10.0			11.0				
RTOR Vols			0			0			0			
Lost Time		3.00	3.00	3.00	3.00		3.00	3.00	3.00			

Signal Operations

Phase Combination	1	2	3	4
NB Left				
Thru	*			
Right	*			
Peds				
SB Left	*			
Thru	*			
Right				
Peds				
EB Right				
WB Right				
Green	39.0A			
Yellow/AR	4.0			

	5	6	7	8
EB Left	*			
Thru	*			
Right	*			
Peds				
WB Left				
Thru				
Right				
Peds				
NB Right				
SB Right				
Green	27.0P			
Yellow/AR	4.0			

Cycle Length: 74 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	T	922	1706	0.716	0.541	10.1	B	9.1	B
	R	828	1531	0.538	0.541	7.7	B		
SB	L	97	174	0.485	0.541	9.8	B	6.5	B
	T	940	1739	0.170	0.541	5.6	B		
EB	LTR	2029	5363	0.769	0.378	14.3	B	14.3	B

Intersection Delay = 11.8 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.738

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-01-1999
Eschbacher Engineering

===

Streets: (N-S) New York Avenue (E-W) Old Country Road
Analyst: Greg B File Name: NE@OLAME.HC9
Area Type: Other 5-25-99 AM PEAK
Comment: Existing Conditions (8:00-9:00 AM)

===

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	1	1 <	0	1	1	1	1	1	1	1	1	1
Volumes	114	140	1	16	171	218	44	183	36	22	787	6
Lane W (ft)	10.0	11.0		10.0	11.0	10.0	10.0	11.0	10.0	10.0	11.0	10.0
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4
NB	Left		*		
	Thru		*		
	Right		*		
	Peds				
SB	Left	*	*		
	Thru	*	*		
	Right	*	*		
	Peds				
EB	Right				
WB	Right				
Green		5.0A	16.0P		
Yellow/AR		3.0	4.0		

		5	6	7	8
EB	Left		*		
	Thru		*		
	Right		*		
	Peds				
WB	Left	*	*		
	Thru	*	*		
	Right	*	*		
	Peds				
NB	Right				
SB	Right				
Green		9.0A	36.0P		
Yellow/AR		3.0	4.0		

Cycle Length: 80 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	L	214	1008	0.560	0.213	20.6	C	19.2	C
	TR	362	1704	0.409	0.213	18.0	C		
SB	L	298	1652	0.057	0.313	12.5	B	14.4	B
	T	563	1801	0.320	0.313	13.7	B		
	R	462	1478	0.496	0.313	15.2	C		
EB	L	90	188	0.511	0.463	13.6	B	9.2	B
	T	833	1801	0.232	0.463	8.4	B		
	R	683	1478	0.056	0.463	7.7	B		
WB	L	613	1652	0.038	0.613	4.0	A	9.1	B
	T	1103	1801	0.751	0.613	9.2	B		
	R	905	1478	0.007	0.613	3.9	A		

Intersection Delay = 11.8 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.665

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g        11-01-1999
                        Eschbacher Engineering
=========================================================================
Streets: (N-S) New York Avenue             (E-W) Old Country Road
Analyst: Greg B                            File Name: NE@OLPME.HC9
Area Type: Other                           5-25-99 PM PEAK
Comment: Existing Conditions (5:00-6:00 PM)
=========================================================================
          |   Northbound   |   Southbound   |   Eastbound    |   Westbound
          |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R
          | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- | ---- ---- ----
No. Lanes |  1    1  <  0  |  1    1    1   |  1    1    1   |  1    1    1
Volumes   |   76  247    3 |   34  212  111 |  202  682  100 |   24  242   32
Lane W (ft)|10.0 11.0      |10.0 11.0 10.0  |10.0 11.0 10.0  |10.0 11.0 10.0
RTOR Vols |              0 |              0 |              0 |              0
Lost Time |3.00 3.00 3.00  |3.00 3.00 3.00  |3.00 3.00 3.00  |3.00 3.00 3.00
-------------------------------------------------------------------------
                              Signal Operations
Phase Combination 1     2     3     4    |             5     6     7     8
NB  Left          *     *                | EB  Left    *     *
    Thru          *     *                |     Thru    *     *
    Right         *     *                |     Right   *     *
    Peds                                 |     Peds
SB  Left                *                | WB  Left          *
    Thru                *                |     Thru          *
    Right               *                |     Right         *
    Peds                                 |     Peds
EB  Right                                | NB  Right
WB  Right                                | SB  Right
Green           7.0A 12.0P               | Green      16.0A 31.0P
Yellow/AR       3.0   4.0                | Yellow/AR 3.0   4.0
Cycle Length:   80 secs  Phase combination order: #1 #2 #5 #6
-------------------------------------------------------------------------
                   Intersection Performance Summary
     Lane   Group:  Adj Sat    v/c      g/C                      Approach:
     Mvmts   Cap     Flow     Ratio    Ratio    Delay    LOS   Delay   LOS
     -----  ----   -------    -----    -----    -----    ---   -----   ---
NB   L       235     1652     0.340    0.287     14.5     B     16.0    C
     TR      490     1703     0.537    0.287     16.4     C
SB   L       124      765     0.290    0.162     19.4     C     25.1    D
     T       293     1801     0.762    0.162     28.3     D
     R       240     1478     0.487    0.162     20.9     C
EB   L       596     1652     0.357    0.637      4.4     A      5.7    B
     T      1148     1801     0.625    0.637      6.4     B
     R       942     1478     0.111    0.637      3.7     A
WB   L        90      217     0.278    0.400     10.9     B     10.8    B
     T       720     1801     0.354    0.400     11.0     B
     R       591     1478     0.058    0.400      9.5     B
            Intersection Delay =  11.7 sec/veh Intersection LOS = B
Lost Time/Cycle, L =    9.0 sec   Critical v/c(x)     = 0.643
-------------------------------------------------------------------------
```

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-02-1999

Eschbacher Engineering

Streets: (N-S) Wolf Hill Road (E-W) Old Country Road

Analyst: Greg B File Name: WHOLPGAE.HC9

Area Type: Other 5-25-99 AM PEAK

Comment: Existing Conditions (8:00-9:00 AM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	1	1	1	2	< 0	1	2	< 0
Volumes	148	854	75	90	236	22	109	150	46	302	792	115
Lane W (ft)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left	*	*			EB Left	*	*		
Thru		*			Thru		*		
Right		*			Right		*		
Peds			*		Peds				
SB Left	*	*			WB Left	*	*		
Thru		*			Thru		*		
Right		*			Right		*		
Peds			*		Peds				
EB Right					NB Right	*			
WB Right					SB Right				
Green	10.0A	34.0P	16.0P		Green	10.0A	40.0P		
Yellow/AR	4.0	4.0	4.0		Yellow/AR	4.0	4.0		

Cycle Length: 130 secs Phase combination order: #1 #2 #3 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	L	301	1770	0.518	0.377	19.9	C	37.4	D
	T	1003	3725	0.941	0.269	41.8	E		
	R	560	1583	0.141	0.354	18.5	C		
SB	L	207	1770	0.459	0.377	21.4	C	24.9	C
	T	502	1863	0.495	0.269	26.5	D		
	R	426	1583	0.054	0.269	22.8	C		
EB	L	207	1770	0.556	0.423	20.8	C	20.9	C
	TR	1134	3595	0.190	0.315	20.9	C		
WB	L	463	1770	0.687	0.423	21.4	C	29.8	D
	TR	1153	3655	0.870	0.315	32.4	D		

Intersection Delay = 31.1 sec/veh Intersection LOS = D

Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.768

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g        10-28-1999
                           Eschbacher Engineering
=========================================================================
Streets: (N-S) Wolf Hill Road            (E-W) Old Country Road
Analyst: Greg B                          File Name: WHOLPGPE.HC9
Area Type: Other                         5-25-99 PM PEAK
Comment: Existing Conditions (5:00-6:00 PM)
=========================================================================
           |   Northbound   |   Southbound   |   Eastbound    |   Westbound
           |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R
           | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- | ---- ---- ----
No. Lanes  |  1    2    1   |  1    1    1   |  1    2  < 0   |  1    2  < 0
Volumes    |  158  976  345 |  183  470   21 |  191  418  117 |  246  446  123
Lane W (ft)|12.0 12.0 12.0  |12.0 12.0 12.0  |12.0 12.0       |12.0 12.0
RTOR Vols  |              0 |              0 |              0 |              0
Lost Time  |3.00 3.00 3.00  |3.00 3.00 3.00  |3.00 3.00 3.00  |3.00 3.00 3.00
-------------------------------------------------------------------------
                          Signal Operations
Phase Combination 1     2     3     4  |               5     6     7     8
NB  Left          *     *              | EB  Left      *     *
    Thru                *              |     Thru            *
    Right               *              |     Right           *
    Peds                      *        |     Peds
SB  Left          *     *              | WB  Left      *     *
    Thru                *              |     Thru            *
    Right               *              |     Right           *
    Peds                      *        |     Peds
EB  Right                              | NB  Right     *
WB  Right                              | SB  Right
Green            10.0A 35.0P 12.0P     | Green      12.0A 21.0P
Yellow/AR         4.0   4.0   4.0      | Yellow/AR 4.0   4.0
Cycle Length: 110 secs  Phase combination order: #1 #2 #3 #5 #6
-------------------------------------------------------------------------
                    Intersection Performance Summary
     Lane  Group:  Adj Sat    v/c     g/C                        Approach:
     Mvmts   Cap    Flow     Ratio   Ratio    Delay   LOS     Delay   LOS
     -----  ----  -------    -----   -----    -----   ---     -----   ---
NB    L      245    1770     0.678   0.455     19.7    C       24.4    C
      T     1219    3725     0.884   0.327     28.4    D
      R      705    1583     0.515   0.445     14.7    B
SB    L      245    1770     0.788   0.455     26.2    D       26.9    D
      T      610    1863     0.812   0.327     27.6    D
      R      518    1583     0.042   0.327     16.3    C
EB    L      277    1770     0.726   0.345     24.6    C       30.4    D
      TR     721    3603     0.820   0.200     32.4    D
WB    L      277    1770     0.935   0.345     45.7    E       38.5    D
      TR     721    3605     0.871   0.200     35.5    D
              Intersection Delay =  29.2 sec/veh Intersection LOS = D
Lost Time/Cycle, L =  12.0 sec   Critical v/c(x)      = 0.765
-------------------------------------------------------------------------
```

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 10-28-1999
Eschbacher Engineering

Streets: (N-S) Wolf Hill Road (E-W) Caledonia Road
Analyst: Greg B File Name: WO@CAAME.HC9
Area Type: Other 5-25-99 AM PEAK
Comment: Existing Conditions (7:45-8:45 AM)

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	0	1 <	0	1	1	0	0	0	0	0 >	0 <	0
Volumes		473	30	101	148					26		229
Lane W (ft)		15.0		10.0	13.0						15.0	
RTOR Vols			0			0						0
Lost Time		3.00	3.00	3.00	3.00					3.00		3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left					EB Left				
Thru	*				Thru				
Right	*				Right				
Peds					Peds				
SB Left	*				WB Left	*			
Thru	*				Thru				
Right					Right	*			
Peds					Peds				
EB Right					NB Right				
WB Right					SB Right				
Green	35.0P				Green	10.0A			
Yellow/AR	4.0				Yellow/AR	3.0			

Cycle Length: 52 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	TR	1198	1731	0.442	0.692	2.5	A	2.5	A
SB	L	273	394	0.389	0.692	2.7	A	2.1	A
	T	1333	1925	0.117	0.692	1.7	A		
WB	LR	305	1587	0.878	0.192	29.8	D	29.8	D

Intersection Delay = 9.3 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.537

HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g   10-28-1999

Eschbacher Engineering

Streets: (N-S) Wolf Hill Road   (E-W) Caledonia Road
Analyst: Greg B   File Name: WO@CAPME.HC9
Area Type: Other   5-25-99 PM PEAK
Comment: Existing Conditions (5:00-6:00 PM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 <	0	1	1	0	0	0	0	0 >	0 <	0
Volumes		274	39	195	420					36		88
Lane W (ft)		15.0		10.0	13.0						15.0	
RTOR Vols			0			0						0
Lost Time		3.00	3.00	3.00	3.00					3.00		3.00

Signal Operations

Phase Combination		1	2	3	4
NB	Left				
	Thru	*			
	Right	*			
	Peds				
SB	Left	*			
	Thru	*			
	Right				
	Peds				
EB	Right				
WB	Right				
Green		33.0P			
Yellow/AR		4.0			

		5	6	7	8
EB	Left				
	Thru				
	Right				
	Peds				
WB	Left	*			
	Thru				
	Right	*			
	Peds				
NB	Right				
SB	Right				
Green		20.0A			
Yellow/AR		4.0			

Cycle Length: 61 secs   Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	TR	955	1714	0.344	0.557	4.9	A	4.9	A
SB	L	366	657	0.560	0.557	7.1	B	5.8	B
	T	1073	1925	0.412	0.557	5.2	B		
WB	LR	559	1624	0.234	0.344	9.3	B	9.3	B

Intersection Delay = 5.9 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec   Critical v/c(x) = 0.436

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-01-1999

Eschbacher Engineering

Streets: (N-S) Wolf Hill Road (E-W) Melrose Road
Analyst: Greg B File Name: WO@MEAME.HC9
Area Type: Other 5-25-99 AM PEAK
Comment: Existing Conditions (8:00-9:00 AM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	0	0	1 <	0	1	0	1	0	0	0
Volumes	67	626			227	28	67		46			
Lane W (ft)		15.0			15.0		10.0		10.0			
RTOR Vols			0			0			0			
Lost Time	3.00	3.00			3.00	3.00	3.00		3.00			

Signal Operations

Phase Combination		1	2	3	4
NB	Left	*			
	Thru	*			
	Right				
	Peds				
SB	Left				
	Thru	*			
	Right	*			
	Peds				
EB	Right				
WB	Right				
Green		63.0P			
Yellow/AR		4.0			

		5	6	7	8
EB	Left	*			
	Thru				
	Right	*			
	Peds				
WB	Left				
	Thru				
	Right				
	Peds				
NB	Right				
SB	Right				
Green		11.0A			
Yellow/AR		4.0			

Cycle Length: 82 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	LT	1377	1765	0.530	0.780	2.5	A	2.5	A
SB	TR	1416	1814	0.189	0.780	1.5	A	1.5	A
EB	L	242	1652	0.294	0.146	20.4	C	20.2	C
	R	216	1478	0.222	0.146	20.0	C		

Intersection Delay = 4.1 sec/veh Intersection LOS = A

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.493

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g        11-01-1999
                          Eschbacher Engineering
==========================================================================
Streets: (N-S) Wolf Hill Road               (E-W) Melrose Road
Analyst: CMM                                File Name: WO@MEPME.HC9
Area Type: Other                            5-25-99 PM PEAK
Comment: Existing Conditions (5:00-6:00 PM)
==========================================================================
           |  Northbound    |  Southbound    |   Eastbound    |   Westbound
           |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R
           | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- | ---- ---- ----
No. Lanes  |  0  > 1    0   |  0    1  < 0   |  1    0    1   |  0    0    0
Volumes    |   36  302      |      512   78  |  49        70  |
Lane W (ft)|      15.0      |      15.0      |10.0      10.0  |
RTOR Vols  |              0 |             0  |            0   |
Lost Time  |3.00 3.00       |     3.00 3.00  |3.00      3.00  |
--------------------------------------------------------------------------
                              Signal Operations
Phase Combination 1     2     3     4  |                 5     6     7     8
NB  Left          *                    | EB  Left        *
    Thru          *                    |     Thru
    Right                              |     Right       *
    Peds                               |     Peds
SB  Left                               | WB  Left
    Thru          *                    |     Thru
    Right         *                    |     Right
    Peds                               |     Peds
EB  Right                              | NB  Right
WB  Right                              | SB  Right
Green           45.0P                  | Green      8.0A
Yellow/AR        4.0                   | Yellow/AR  4.0
Cycle Length:   61 secs  Phase combination order: #1 #5
--------------------------------------------------------------------------
                      Intersection Performance Summary
     Lane  Group:   Adj Sat     v/c      g/C                         Approach:
     Mvmts   Cap     Flow      Ratio    Ratio    Delay    LOS     Delay   LOS
     -----   ----   -------    -----    -----    -----    ---     -----   ---
NB   LT     1131     1500      0.315    0.754      1.6     A        1.6     A
SB   TR     1363     1808      0.456    0.754      2.0     A        2.0     A
EB   L       244     1652      0.213    0.148     14.9     B       15.2     C
     R       218     1478      0.339    0.148     15.4     C
                Intersection Delay =    3.4 sec/veh Intersection LOS = A
Lost Time/Cycle, L =    6.0 sec   Critical v/c(x)      = 0.437
--------------------------------------------------------------------------
```

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g        11-02-1999
                       Eschbacher Engineering
=========================================================================
Streets: (N-S) Carman Road               (E-W) Wolf Hill Road
Analyst: CMM                             File Name: WCEAM.HC9
Area Type: Other                         11-1-99 AM Peak
Comment: Existing Condtions: AM Peak Hour (7:30- 8:30AM)
=========================================================================
           |   Northbound   |   Southbound   |    Eastbound   |   Westbound
           |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R
           | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- | ---- ---- ----
No. Lanes  |  0  > 1    1   |  0  > 1    1   |  0  > 2  < 0   |  0  > 2  < 0
Volumes    |  179    1   15 |    2    1    5 |   12  735  221 |   52  639   18
Lane W (ft)|     12.0 12.0  |      12.0 12.0 |      12.0      |      12.0
RTOR Vols  |              0 |              0 |              0 |              0
Lost Time  |3.00 3.00 3.00  |3.00 3.00 3.00  |3.00 3.00 3.00  |3.00 3.00 3.00
-------------------------------------------------------------------------
                        Signal Operations
Phase Combination 1    2     3    4   |            5     6     7     8
NB   Left         *                   |EB  Left    *
     Thru         *                   |    Thru    *
     Right        *                   |    Right   *
     Peds                             |    Peds
SB   Left         *                   |WB  Left    *
     Thru         *                   |    Thru    *
     Right        *                   |    Right   *
     Peds                             |    Peds
EB   Right                            |NB  Right
WB   Right                            |SB  Right
Green          11.0A                  |Green     27.0P
Yellow/AR       3.0                   |Yellow/AR 4.0
Cycle Length:  45 secs  Phase combination order: #1 #5
-------------------------------------------------------------------------
                  Intersection Performance Summary
     Lane   Group:  Adj Sat    v/c      g/C                      Approach:
     Mvmts   Cap     Flow     Ratio    Ratio    Delay   LOS    Delay   LOS
     -----   ----   -------   -----    -----    -----   ---    -----   ---
NB   LT      428     1751     0.467    0.244    10.0     B      9.9     B
     R       387     1583     0.044    0.244     8.4     B
SB   LT      395     1614     0.008    0.244     8.3     B      8.3     B
     R       387     1583     0.016    0.244     8.3     B
EB   LTR    2036     3272     0.555    0.622     3.4     A      3.4     A
WB   LTR    1585     2547     0.522    0.622     3.3     A      3.3     A
              Intersection Delay =   4.1 sec/veh Intersection LOS = A
Lost Time/Cycle, L =   6.0 sec   Critical v/c(x)    = 0.530
-------------------------------------------------------------------------
```

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g        11-02-1999
                       Eschbacher Engineering
=========================================================================
Streets: (N-S) Carman Road                 (E-W) Wolf Hill Road
Analyst: CMM                               File Name: WCEPM.HC9
Area Type: Other                           11-1-99 PM Peak
Comment: Existing Condtions: PM Peak Hour (5:00-6:00 PM)
=========================================================================
           |  Northbound    |  Southbound    |   Eastbound    |  Westbound
           |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R
           | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- | ---- ---- ----
No. Lanes  |  0  > 1    1   |  0  > 1    1   |  0  > 2  < 0   |  0  > 2  < 0
Volumes    | 278    1   21  |   1    1    2  |   6  902  183  |  20  836    3
Lane W (ft)|     12.0 12.0  |     12.0 12.0  |     12.0       |     12.0
RTOR Vols  |            0   |            0   |            0   |            0
Lost Time  |3.00 3.00 3.00  |3.00 3.00 3.00  |3.00 3.00 3.00  |3.00 3.00 3.00
-------------------------------------------------------------------------
                         Signal Operations
Phase Combination 1    2    3    4  |            5     6     7     8
NB  Left          *                 | EB  Left   *
    Thru          *                 |     Thru   *
    Right         *                 |     Right  *
    Peds                            |     Peds
SB  Left          *                 | WB  Left   *
    Thru          *                 |     Thru   *
    Right         *                 |     Right  *
    Peds                            |     Peds
EB  Right                           | NB  Right
WB  Right                           | SB  Right
Green          11.0A                | Green    27.0P
Yellow/AR       3.0                 | Yellow/AR 4.0
Cycle Length:  45 secs  Phase combination order: #1 #5
-------------------------------------------------------------------------
              Intersection Performance Summary
     Lane  Group:  Adj Sat    v/c     g/C                      Approach:
     Mvmts   Cap    Flow     Ratio   Ratio   Delay   LOS     Delay   LOS
     -----  ----  -------   -----   -----    -----   ---     -----   ---
NB   LT      430    1758    0.721   0.244    14.1     B       13.7    B
     R       387    1583    0.059   0.244     8.4     B
SB   LT      390    1596    0.005   0.244     8.3     B        8.3    B
     R       387    1583    0.005   0.244     8.3     B
EB   LTR    2058    3307    0.619   0.622     3.8     A        3.8    A
WB   LTR    1870    3006    0.536   0.622     3.4     A        3.4    A
          Intersection Delay =    4.9 sec/veh Intersection LOS = A
Lost Time/Cycle, L =    6.0 sec   Critical v/c(x)     = 0.648
-------------------------------------------------------------------------
```

APPENDIX

HCS Analysis Worksheets

Signalized Intersections: No-Build Conditions

HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g   11-01-1999
Eschbacher Engineering

Streets: (N-S) Bagatelle Road   (E-W) Half Hollow Road
Analyst: GB   File Name: BA@HAAMN.HC9
Area Type: Other   5-25-99 AM PEAK
Comment: No-Build Conditions (8:00-9:00 AM)

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	1	0	1	0	0	0	0	1	1	1	1	0
Volumes	280		74					148	207	116	558	
Lane W (ft)	11.0		12.0					13.0	13.0	10.0	11.0	
RTOR Vols			0						0			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination	1	2	3	4
NB Left	*			
Thru				
Right	*			
Peds				
SB Left				
Thru				
Right				
Peds				
EB Right	*			
WB Right				
Green	16.0A			
Yellow/AR	3.0			

	5	6	7	8
EB Left	*			
Thru	*			
Right	*			
Peds				
WB Left	*			
Thru	*			
Right	*			
Peds				
NB Right				
SB Right				
Green	42.0P			
Yellow/AR	4.0			

Cycle Length: 65 secs   Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	Approach: LOS
NB	L	399	1621	0.740	0.246	19.5	C	18.0	C
	R	390	1583	0.200	0.246	12.6	B		
EB	T	1273	1925	0.123	0.662	2.6	A	1.1	A
	R	1636	1636	0.133	1.000	0.0	A		
WB	L	739	1117	0.165	0.662	2.7	A	3.6	A
	T	1191	1801	0.493	0.662	3.8	A		

Intersection Delay = 6.7 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec   Critical v/c(x) = 0.560

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 10-29-1999

Eschbacher Engineering

Streets: (N-S) Bagatelle Road (E-W) Half Hollow Road

Analyst: GB File Name: BA@HAPMN.HC9

Area Type: Other 5-25-99 PM PEAK

Comment: No-Build Conditions (5:00-6:00 PM)

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	1	0	1	0	0	0	0	1	1	1	1	0
Volumes	173		94					359	250	91	145	
Lane W (ft)	11.0		12.0					13.0	13.0	10.0	11.0	
RTOR Vols			0						0			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
NB	Left	*				EB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
SB	Left					WB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
EB	Right	*				NB	Right				
WB	Right					SB	Right				
Green		11.0A				Green		61.0P			
Yellow/AR		3.0				Yellow/AR		4.0			

Cycle Length: 79 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	L	238	1711	0.764	0.139	30.4	D	27.1	D
	R	220	1583	0.449	0.139	21.2	C		
EB	T	1511	1925	0.250	0.785	1.5	A	0.9	A
	R	1636	1636	0.161	1.000	0.0	A		
WB	L	532	678	0.180	0.785	1.4	A	1.3	A
	T	1413	1801	0.108	0.785	1.3	A		

Intersection Delay = 7.3 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.328

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-01-1999
Eschbacher Engineering

Streets: (N-S) Bagatelle Road (E-W) LIE N. Service Road
Analyst: CMM File Name: BA@NLIAN.HC9
Area Type: Other 5-25-99 AM PEAK
Comment: No-Build Conditions (8:00-9:00 AM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	2 <	0	0	0	0	0 >	3 <	0
Volumes	395	297			264	110				145	1866	59
Lane W (ft)	11.0	12.0			11.0						11.0	
RTOR Vols			0			0						0
Lost Time	3.00	3.00			3.00	3.00				3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4
NB Left	*	*		
Thru	*	*		
Right				
Peds				
SB Left				
Thru		*		
Right		*		
Peds				
EB Right				
WB Right				
Green	13.0A	18.0P		
Yellow/AR	2.0	4.0		

	5	6	7	8
EB Left				
Thru				
Right				
Peds				
WB Left	*			
Thru	*			
Right	*			
Peds				
NB Right				
SB Right				
Green	29.0P			
Yellow/AR	5.0			

Cycle Length: 71 secs Phase combination order: #1 #2 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	L	421	1621	0.988	0.479	40.1	E	26.1	D
	T	892	1863	0.351	0.479	7.6	B		
SB	TR	921	3442	0.449	0.268	14.2	B	14.2	B
WB	LTR	2340	5360	1.024	0.437	33.1	D	33.1	D

Intersection Delay = 29.5 sec/veh Intersection LOS = D
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.999

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g         10-29-1999
                        Eschbacher Engineering
=======================================================================
Streets: (N-S) Bagatelle Road           (E-W) LIE N. Service Road
Analyst: Greg B                         File Name: BA@NLIPN.HC9
Area Type: Other                        5-25-99 PM PEAK
Comment: No-Build Conditions (5:00-6:00 PM)
=======================================================================
           |  Northbound    |  Southbound   |   Eastbound    |  Westbound
           |  L    T    R   |  L    T    R  |  L    T    R   |  L    T    R
           | ---- ---- ---- | ---- ---- ----| ---- ---- ---- | ---- ---- ----
No. Lanes  |  1    1    0   |  0    2  < 0  |  0    0    0   |  0  > 3  < 0
Volumes    | 141  247       |      355   37 |                | 195  197   83
Lane W (ft)|11.0 12.0       |      11.0     |                |      11.0
RTOR Vols  |            0   |            0  |                |             0
Lost Time  |3.00 3.00       |     3.00 3.00 |                |3.00 3.00 3.00
-----------------------------------------------------------------------
                         Signal Operations
Phase Combination 1     2    3    4   |            5     6     7     8
NB  Left          *     *             | EB  Left
    Thru          *     *             |     Thru
    Right                             |     Right
    Peds                              |     Peds
SB  Left                              | WB  Left     *
    Thru                *             |     Thru     *
    Right               *             |     Right    *
    Peds                              |     Peds
EB  Right                             | NB  Right
WB  Right                             | SB  Right
Green           6.0A 21.0P            | Green     31.0A
Yellow/AR       0.0   4.0             | Yellow/AR 4.0
Cycle Length:  66 secs  Phase combination order: #1 #2 #5
-----------------------------------------------------------------------
                Intersection Performance Summary
    Lane  Group:  Adj Sat    v/c     g/C                      Approach:
    Mvmts   Cap    Flow     Ratio   Ratio   Delay   LOS    Delay   LOS
    -----  ----  -------    -----   -----   -----   ---    -----   ---
NB  L       262    1621     0.565   0.424   10.8     B      9.2     B
    T       790    1863     0.329   0.424    8.3     B
SB  TR     1183    3550     0.367   0.333   10.9     B     10.9     B
WB  LTR    2499    5155     0.220   0.485    6.3     B      6.3     B
              Intersection Delay =   8.6 sec/veh Intersection LOS = B
Lost Time/Cycle, L =   6.0 sec   Critical v/c(x)    = 0.331
-----------------------------------------------------------------------
```

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-01-1999
Eschbacher Engineering

Streets: (N-S) Bagatelle Road (E-W) LIE S. Service Road
Analyst: Greg B File Name: BA@SLIAN.HC9
Area Type: Other 5-25-99 AM PEAK
Comment: No-Build Conditions (8:00-9:00 AM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	< 0	1	1	0	0	> 3	< 0	0	0	0
Volumes		563	156	173	223		138	254	102			
Lane W (ft)		12.0		12.0	12.0			12.0				
RTOR Vols			0			0			0			
Lost Time		3.00	3.00	3.00	3.00		3.00	3.00	3.00			

Signal Operations

Phase Combination	1	2	3	4
NB Left				
Thru		*		
Right		*		
Peds				
SB Left	*	*		
Thru	*	*		
Right				
Peds				
EB Right				
WB Right				
Green	11.0A	27.0A		
Yellow/AR	4.0	4.0		

	5	6	7	8
EB Left	*			
Thru	*			
Right	*			
Peds				
WB Left				
Thru				
Right				
Peds				
NB Right				
SB Right				
Green	30.0A			
Yellow/AR	4.0			

Cycle Length: 80 secs Phase combination order: #1 #2 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	TR	1195	3415	0.665	0.350	15.2	C	15.2	C
SB	L	358	1770	0.508	0.538	8.6	B	7.3	B
	T	1001	1863	0.235	0.538	6.3	B		
EB	LTR	2070	5341	0.276	0.387	10.9	B	10.9	B

Intersection Delay = 12.0 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.499

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 10-29-1999

Eschbacher Engineering

Streets: (N-S) Bagatelle Road (E-W) LIE S. Service Road

Analyst: GB File Name: BA@SLIPN.HC9

Area Type: Other 5-25-99 PM PEAK

Comment: No-Build Conditions (5:00-6:00 PM)

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	0	2 <	0	1	1	0	0 >	3 <	0	0	0	0
Volumes		277	111	172	363		116	1778	143			
Lane W (ft)		12.0		12.0	12.0			12.0				
RTOR Vols			0			0			0			
Lost Time		3.00	3.00	3.00	3.00		3.00	3.00	3.00			

Signal Operations

Phase Combination	1	2	3	4
NB Left				
Thru		*		
Right		*		
Peds				
SB Left	*	*		
Thru	*	*		
Right				
Peds				
EB Right				
WB Right				
Green	4.0A	27.0A		
Yellow/AR	0.0	4.0		

	5	6	7	8
EB Left	*			
Thru	*			
Right	*			
Peds				
WB Left				
Thru				
Right				
Peds				
NB Right				
SB Right				
Green	30.0P			
Yellow/AR	4.0			

Cycle Length: 69 secs Phase combination order: #1 #2 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	TR	1371	3378	0.313	0.406	9.1	B	9.1	B
SB	L	293	1770	0.618	0.464	12.9	B	9.8	B
	T	864	1863	0.442	0.464	8.3	B		
EB	LTR	2477	5514	0.953	0.449	18.8	C	18.8	C

Intersection Delay = 16.0 sec/veh Intersection LOS = C

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.771

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 10-29-1999
Eschbacher Engineering

===

Streets: (N-S) Carman Road (E-W) Half Hollow Road
Analyst: GB File Name: CA@HAAMN.HC9
Area Type: Other 5-25-99 AM PEAK
Comment: No-Build Conditions (7:45-8:45 AM)

===

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	0	0	0	1	0	1	1	1	0	0	1	1
Volumes				152		149	40	137			564	254
Lane W (ft)				10.0		9.0	11.0	12.0			12.0	14.0
RTOR Vols						0			0			0
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination	1	2	3	4
NB Left				
Thru				
Right				
Peds				
SB Left	*			
Thru				
Right	*			
Peds				
EB Right				
WB Right	*			
Green	12.0A			
Yellow/AR	3.0			

	5	6	7	8
EB Left	*			
Thru	*			
Right				
Peds				
WB Left				
Thru	*			
Right	*			
Peds				
NB Right				
SB Right				
Green	64.0P			
Yellow/AR	4.0			

Cycle Length: 83 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
SB	L	226	1565	0.707	0.145	28.4	D	30.3	D
	R	206	1425	0.762	0.145	32.3	D		
EB	L	276	353	0.152	0.783	1.5	A	1.4	A
	T	1459	1863	0.099	0.783	1.4	A		
WB	T	1459	1863	0.407	0.783	2.0	A	1.4	A
	R	1689	1689	0.158	1.000	0.0	A		

Intersection Delay = 8.1 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.462

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 10-29-1999
Eschbacher Engineering

Streets: (N-S) Carmen Road (E-W) Half Hollow Road
Analyst: GB File Name: CA@HAPMN.HC9
Area Type: Other 5-25-99 PM PEAK
Comment: No-Build Conditions (4:45-5:45 PM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	1	0	0	1	1
Volumes				169		182	145	406			157	143
Lane W (ft)				12.0		12.0	11.0	12.0			12.0	14.0
RTOR Vols						0			0			0
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4
NB	Left				
	Thru				
	Right				
	Peds				
SB	Left	*			
	Thru				
	Right	*			
	Peds				
EB	Right				
WB	Right	*			
Green		12.0A			
Yellow/AR		3.0			

		5	6	7	8
EB	Left	*			
	Thru	*			
	Right				
	Peds				
WB	Left				
	Thru	*			
	Right	*			
	Peds				
NB	Right				
SB	Right				
Green		38.0P			
Yellow/AR		3.0			

Cycle Length: 56 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
SB	L	359	1676	0.496	0.214	13.4	B	13.9	B
	R	339	1583	0.566	0.214	14.4	B		
EB	L	770	1135	0.199	0.679	2.2	A	2.4	A
	T	1264	1863	0.338	0.679	2.5	A		
WB	T	1264	1863	0.131	0.679	2.1	A	1.1	A
	R	1689	1689	0.089	1.000	0.0	A		

Intersection Delay = 5.4 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.393

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 10-29-1999
Eschbacher Engineering

Streets: (N-S) Half Hollow Road (E-W) LIE N. Service Road
Analyst: GB File Name: HA@NLIAN.HC9
Area Type: Other 5-25-99 AM PEAK
Comment: No-Build Conditions (8:00-9:00 AM)

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	1	1	0	0	1	1	0	0	0	0 >	3	< 0
Volumes	56	131			622	167				257	1044	20
Lane W (ft)	11.0	11.0			10.0	11.0					11.0	
RTOR Vols			0			0						0
Lost Time	3.00	3.00			3.00	3.00				3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4
NB	Left	*			
	Thru	*			
	Right				
	Peds				
SB	Left				
	Thru	*			
	Right	*			
	Peds				
EB	Right				
WB	Right				
Green		40.0A			
Yellow/AR		4.0			

		5	6	7	8
EB	Left				
	Thru				
	Right				
	Peds				
WB	Left	*			
	Thru	*			
	Right	*			
	Peds				
NB	Right				
SB	Right				
Green		32.0P			
Yellow/AR		4.0			

Cycle Length: 80 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	Approach: LOS
NB	L	90	166	0.689	0.512	22.4	C	11.5	B
	T	923	1801	0.150	0.512	6.7	B		
SB	T	891	1739	0.735	0.512	12.1	B	11.0	B
	R	785	1531	0.224	0.512	7.0	B		
WB	LTR	2202	5338	0.695	0.412	13.2	B	13.2	B

Intersection Delay = 12.3 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.717

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g        11-01-1999
                              Eschbacher Engineering
===========================================================================
Streets: (N-S) Half Hollow Road          (E-W) LIE N. Service Road
Analyst: GB                              File Name: HA@NLIPN.HC9
Area Type: Other                         5-25-99 PM PEAK
Comment: No-Build Conditions (5:00-6:00 PM)
===========================================================================
          |  Northbound  |  Southbound  |  Eastbound   |  Westbound   |
          |  L    T    R |  L    T    R |  L    T    R |  L    T    R |
          | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- |
No. Lanes |  1    1    0 |  0    1    1 |  0    0    0 |  0  > 3  < 0 |
Volumes   |  118  765    |      168   41 |              |  57   76   16 |
Lane W (ft)|11.0 11.0    |     10.0 11.0 |              |      11.0     |
RTOR Vols |            0 |             0 |              |             0 |
Lost Time |3.00 3.00     |     3.00 3.00 |              |3.00 3.00 3.00 |
---------------------------------------------------------------------------
                           Signal Operations
Phase Combination 1     2     3     4  |                5     6     7     8
NB  Left          *                    | EB  Left
    Thru          *                    |     Thru
    Right                              |     Right
    Peds                               |     Peds
SB  Left                               | WB  Left       *
    Thru          *                    |     Thru       *
    Right         *                    |     Right      *
    Peds                               |     Peds
EB  Right                              | NB  Right
WB  Right                              | SB  Right
Green          37.0A                   | Green     30.0P
Yellow/AR       4.0                    | Yellow/AR 4.0
Cycle Length:  75 secs  Phase combination order: #1 #5
---------------------------------------------------------------------------
                 Intersection Performance Summary
     Lane  Group:  Adj Sat    v/c      g/C                      Approach:
     Mvmts   Cap     Flow    Ratio    Ratio    Delay   LOS    Delay   LOS
     -----   ----  -------   -----    -----    -----   ---    -----   ---
NB   L       503     992     0.247    0.507      6.8    B      18.5    C
     T       886    1749     0.908    0.507     20.3    C
SB   T       856    1689     0.207    0.507      6.6    B       6.5    B
     R       753    1487     0.057    0.507      6.1    B
WB   LTR    2094    5066     0.083    0.413      8.6    B       8.6    B
             Intersection Delay =  15.2 sec/veh Intersection LOS = C
Lost Time/Cycle, L =   6.0 sec   Critical v/c(x)     = 0.537
---------------------------------------------------------------------------
```

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 10-29-1999
Eschbacher Engineering

Streets: (N-S) Old South Path (E-W) Half Hollow Road
Analyst: Greg B File Name: HA@OLAMN.HC9
Area Type: Other 5-25-99 AM PEAK
Comment: No-Build Conditions (7:45-8:45 AM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	1	0	0	1	1
Volumes				106		132	94	80			601	172
Lane W (ft)				12.0		15.0	10.0	12.0			12.0	12.0
RTOR Vols						0			0			0
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
NB Left					EB	Left	*			
Thru						Thru	*			
Right						Right				
Peds						Peds				
SB Left	*				WB	Left				
Thru						Thru	*			
Right	*					Right	*			
Peds						Peds				
EB Right					NB	Right				
WB Right					SB	Right				
Green	14.0A				Green		44.0P			
Yellow/AR	4.0				Yellow/AR		4.0			

Cycle Length: 66 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	Approach: LOS
SB	L	402	1770	0.278	0.227	13.7	B	13.9	B
	R	396	1742	0.351	0.227	14.1	B		
EB	L	171	251	0.579	0.682	7.1	B	4.9	A
	T	1270	1863	0.066	0.682	2.3	A		
WB	T	1270	1863	0.498	0.682	3.5	A	3.3	A
	R	1080	1583	0.168	0.682	2.4	A		

Intersection Delay = 5.7 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.522

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g        10-29-1999
                          Eschbacher Engineering
======================================================================
Streets: (N-S) Half Hollow Road          (E-W) Old South Path
Analyst: Greg B                          File Name: HA@OLPMN.HC9
Area Type: Other                         5-25-99 PM PEAK
Comment: No-Build Conditions (5:00-6:00 PM)
======================================================================
           |  Northbound   |  Southbound   |   Eastbound   |   Westbound   |
           |  L    T    R  |  L    T    R  |  L    T    R  |  L    T    R  |
           | ---- ---- ----| ---- ---- ----| ---- ---- ----| ---- ---- ----|
No. Lanes  |  0    0    0  |  1    0    1  |  1    1    0  |  0    1    1  |
Volumes    |               | 225       102 | 345  443      |       97  131 |
Lane W (ft)|               |12.0      15.0 |10.0 12.0      |     12.0 12.0 |
RTOR Vols  |               |             0 |             0 |              0|
Lost Time  |               |3.00      3.00 |3.00 3.00      |     3.00 3.00 |
----------------------------------------------------------------------
                           Signal Operations
Phase Combination 1    2     3     4  |                5     6     7     8
NB   Left                             | EB  Left       *
     Thru                             |     Thru       *
     Right                            |     Right
     Peds                             |     Peds
SB   Left        *                    | WB  Left
     Thru                             |     Thru       *
     Right       *                    |     Right      *
     Peds                             |     Peds
EB   Right                            | NB  Right
WB   Right                            | SB  Right
Green         15.0A                   | Green     25.0P
Yellow/AR      4.0                    | Yellow/AR 4.0
Cycle Length:  48 secs  Phase combination order: #1 #5
----------------------------------------------------------------------
                  Intersection Performance Summary
     Lane  Group:  Adj Sat   v/c    g/C                    Approach:
     Mvmts   Cap    Flow    Ratio   Ratio   Delay   LOS   Delay   LOS
     -----  ----  -------   -----   -----   -----   ---   -----   ---
SB   L       590    1770    0.402   0.333     8.2    B      7.9    B
     R       581    1742    0.184   0.333     7.4    B
EB   L       681    1258    0.533   0.542     5.2    B      4.9    A
     T      1009    1863    0.462   0.542     4.6    A
WB   T      1009    1863    0.101   0.542     3.4    A      3.5    A
     R       857    1583    0.161   0.542     3.6    A
                 Intersection Delay =   5.4 sec/veh Intersection LOS = B
Lost Time/Cycle, L =   6.0 sec   Critical v/c(x)     = 0.483
----------------------------------------------------------------------
```

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g          10-29-1999
                              Eschbacher Engineering
===========================================================================
Streets: (N-S) Half Hollow Road              (E-W) LIE S. Service Road
Analyst: GB                                  File Name: HA@SLIAN.HC9
Area Type: Other                             5-25-99 AM PEAK
Comment: No-Build Conditions (7:45-8:45 AM)
===========================================================================
          |  Northbound  |  Southbound  |  Eastbound   |  Westbound
          |  L   T   R   |  L   T   R   |  L   T   R   |  L   T   R
          | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- | ---- ---- ----
No. Lanes |  0   1   1   |  1   1   0   |  0 > 3 < 0   |  0   0   0
Volumes   |     158   63 |  32  834     |  49  69    4 |
Lane W (ft)|   11.0 11.0 |10.0 10.0     |     11.0     |
RTOR Vols |           0  |            0 |            0 |
Lost Time |     3.00 3.00|3.00 3.00     |3.00 3.00 3.00|
---------------------------------------------------------------------------
                         Signal Operations
Phase Combination 1    2    3    4  |             5     6     7     8
NB  Left                            | EB  Left    *
    Thru          *                 |     Thru    *
    Right         *                 |     Right   *
    Peds                            |     Peds
SB  Left          *                 | WB  Left
    Thru          *                 |     Thru
    Right                           |     Right
    Peds                            |     Peds
EB  Right                           | NB  Right
WB  Right                           | SB  Right
Green          43.0A                | Green     30.0P
Yellow/AR       4.0                 | Yellow/AR 4.0
Cycle Length:  81 secs  Phase combination order: #1 #5
---------------------------------------------------------------------------
                   Intersection Performance Summary
     Lane  Group:  Adj Sat    v/c     g/C                       Approach:
     Mvmts  Cap     Flow     Ratio   Ratio    Delay   LOS    Delay  LOS
     -----  ----   -------   -----   -----    -----   ---    -----  ---
NB   T      927     1706     0.179   0.543      6.1    B       6.0   B
     R      832     1531     0.079   0.543      5.7    B
SB   L      584     1075     0.058   0.543      5.6    B      21.4   C
     T      945     1739     0.929   0.543     22.0    C
EB   LTR   2017     5271     0.070   0.383     10.2    B      10.2   B
           Intersection Delay =  17.4 sec/veh Intersection LOS = C
Lost Time/Cycle, L =   6.0 sec   Critical v/c(x)      = 0.574
---------------------------------------------------------------------------
```

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g        10-29-1999
                       Eschbacher Engineering
======================================================================
Streets: (N-S) Half Hollow Road          (E-W) LIE S. Service Road
Analyst: GB                              File Name: HA@SLIPN.HC9
Area Type: Other                         5-25-99 PM PEAK
Comment: No-Build Conditions (5:00-6:00 PM)
======================================================================
         |  Northbound  |  Southbound  |  Eastbound   |  Westbound
         |  L   T   R   |  L   T   R   |  L   T   R   |  L   T   R
         | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- | ---- ---- ----
No. Lanes |  0   1   1   |  1   1   0   |  0 > 3 < 0   |  0   0   0
Volumes  |     674  455 |  57  163     | 214 1275  10 |
Lane W (ft)|   11.0 11.0 |10.0 10.0     |     11.0     |
RTOR Vols |           0 |            0 |           0  |
Lost Time |   3.00 3.00 |3.00 3.00     |3.00 3.00 3.00|
----------------------------------------------------------------------
                          Signal Operations
Phase Combination 1     2     3     4  |                5    6    7    8
NB  Left                               |EB  Left        *
    Thru          *                    |    Thru        *
    Right         *                    |    Right       *
    Peds                               |    Peds
SB  Left          *                    |WB  Left
    Thru          *                    |    Thru
    Right                              |    Right
    Peds                               |    Peds
EB  Right                              |NB  Right
WB  Right                              |SB  Right
Green           39.0A                  |Green      27.0P
Yellow/AR        4.0                   |Yellow/AR 4.0
Cycle Length:   74 secs  Phase combination order: #1 #5
----------------------------------------------------------------------
                  Intersection Performance Summary
     Lane   Group:   Adj Sat    v/c     g/C                    Approach:
     Mvmts    Cap     Flow     Ratio   Ratio    Delay   LOS   Delay   LOS
     -----   ----   -------    -----   -----    -----   ---   -----   ---
NB   T        922     1706     0.769   0.541     11.4    B     10.1    B
     R        828     1531     0.579   0.541      8.1    B
SB   L         97      174     0.619   0.541     15.3    C      8.1    B
     T        940     1739     0.183   0.541      5.6    B
EB   LTR     2027     5358     0.856   0.378     16.4    C     16.4    C
              Intersection Delay =  13.4 sec/veh Intersection LOS = B
Lost Time/Cycle, L =   6.0 sec   Critical v/c(x)     = 0.805
----------------------------------------------------------------------
```

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-01-1999
Eschbacher Engineering

Streets: (N-S) New York Avenue (E-W) Old Country Road
Analyst: Greg B File Name: NE@OLAMN.HC9
Area Type: Other 5-25-99 AM PEAK
Comment: No-Build Conditions (8:00-9:00 AM)

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	1	1	< 0	1	1	1	1	1	1	1	1	1
Volumes	141	151	1	17	184	251	61	225	53	24	884	6
Lane W (ft)	10.0	11.0		10.0	11.0	10.0	10.0	11.0	10.0	10.0	11.0	10.0
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4
NB	Left		*		
	Thru		*		
	Right		*		
	Peds				
SB	Left	*	*		
	Thru	*	*		
	Right	*	*		
	Peds				
EB	Right				
WB	Right				
Green		5.0A	16.0P		
Yellow/AR		3.0	4.0		

Phase Combination		5	6	7	8
EB	Left		*		
	Thru		*		
	Right		*		
	Peds				
WB	Left	*	*		
	Thru	*	*		
	Right	*	*		
	Peds				
NB	Right				
SB	Right				
Green		9.0A	36.0P		
Yellow/AR		3.0	4.0		

Cycle Length: 80 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	Approach: LOS
NB	L	208	978	0.712	0.213	26.2	D	22.1	C
	TR	362	1704	0.442	0.213	18.3	C		
SB	L	286	1652	0.063	0.313	12.5	B	15.1	C
	T	563	1801	0.345	0.313	13.8	B		
	R	462	1478	0.572	0.313	16.1	C		
EB	L	90	188	0.711	0.463	25.9	D	11.6	B
	T	833	1801	0.285	0.463	8.7	B		
	R	683	1478	0.082	0.463	7.8	B		
WB	L	536	1652	0.047	0.613	4.1	A	12.1	B
	T	1103	1801	0.844	0.613	12.4	B		
	R	905	1478	0.007	0.613	3.9	A		

Intersection Delay = 14.2 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.752

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g        11-12-1999
                     Eschbacher Engineering
=========================================================================
Streets: (N-S) New York Avenue          (E-W) Old Country Road
Analyst: Greg B                         File Name: NE@OLPMN.HC9
Area Type: Other                        5-25-99 PM PEAK
Comment: No-Build Conditions (5:00-6:00 PM)
=========================================================================
           |  Northbound    |  Southbound    |   Eastbound    |   Westbound
           |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R
           | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- | ---- ---- ----
No. Lanes  |  1    1  < 0   |  1    1    1   |  1    1    1   |  1    1    1
Volumes    |   99  266    3 |   37  228  136 |  239  774  128 |   26  292   34
Lane W (ft)|10.0 11.0       |10.0 11.0 10.0 |10.0 11.0 10.0 |10.0 11.0 10.0
RTOR Vols  |              0 |              0 |              0 |              0
Lost Time  |3.00 3.00 3.00 |3.00 3.00 3.00 |3.00 3.00 3.00 |3.00 3.00 3.00
-------------------------------------------------------------------------
                          Signal Operations
Phase Combination 1    2    3    4  |                5    6    7    8
NB  Left          *    *            |EB  Left        *    *
    Thru          *    *            |    Thru        *    *
    Right         *    *            |    Right       *    *
    Peds                            |    Peds
SB  Left               *            |WB  Left             *
    Thru               *            |    Thru             *
    Right              *            |    Right            *
    Peds                            |    Peds
EB  Right                           |NB  Right
WB  Right                           |SB  Right
Green           7.0A 12.0P          |Green     16.0A 31.0P
Yellow/AR       3.0   4.0           |Yellow/AR 3.0    4.0
Cycle Length:  80 secs  Phase combination order: #1 #2 #5 #6
-------------------------------------------------------------------------
                 Intersection Performance Summary
     Lane  Group:  Adj Sat   v/c     g/C                      Approach:
     Mvmts   Cap    Flow    Ratio   Ratio    Delay   LOS    Delay   LOS
     -----  ----  -------   -----   -----    -----   ---    -----   ---
NB   L       235    1652    0.443   0.287    15.4     C      16.6    C
     TR      490    1703    0.578   0.287    17.0     C
SB   L       117     718    0.334   0.162    19.8     C      28.0    D
     T       293    1801    0.820   0.162    32.3     D
     R       240    1478    0.595   0.162    22.9     C
EB   L       540    1652    0.467   0.637     5.1     B       6.7    B
     T      1148    1801    0.710   0.637     7.6     B
     R       942    1478    0.143   0.637     3.7     A
WB   L        90     217    0.300   0.400    11.1     B      11.3    B
     T       720    1801    0.426   0.400    11.5     B
     R       591    1478    0.061   0.400     9.5     B
            Intersection Delay =  12.8 sec/veh Intersection LOS = B
Lost Time/Cycle, L =    9.0 sec   Critical v/c(x)      = 0.731
-------------------------------------------------------------------------
```

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-02-1999
Eschbacher Engineering

Streets: (N-S) Wolf Hill Road (E-W) Old Country Road
Analyst: Greg B File Name: WHOLPGAN.HC9
Area Type: Other 5-25-99 AM PEAK
Comment: No-Build Conditions (8:00-9:00 AM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	1	1	1	2	< 0	1	2	< 0
Volumes	177	918	75	97	254	24	124	168	64	325	792	124
Lane W (ft)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4
NB	Left	*	*		
	Thru		*		
	Right		*		
	Peds			*	
SB	Left	*	*		
	Thru		*		
	Right		*		
	Peds			*	
EB	Right				
WB	Right				
Green		10.0A	34.0P	16.0P	
Yellow/AR		4.0	4.0	4.0	

		5	6	7	8
EB	Left	*	*		
	Thru		*		
	Right		*		
	Peds				
WB	Left	*	*		
	Thru		*		
	Right		*		
	Peds				
NB	Right	*			
SB	Right				
Green		10.0A	40.0P		
Yellow/AR		4.0	4.0		

Cycle Length: 130 secs Phase combination order: #1 #2 #3 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	L	283	1770	0.657	0.377	22.9	C	48.2	E
	T	1003	3725	1.011	0.269	55.2	E		
	R	560	1583	0.141	0.354	18.5	C		
SB	L	207	1770	0.493	0.377	21.9	C	25.4	D
	T	502	1863	0.532	0.269	27.0	D		
	R	426	1583	0.059	0.269	22.8	C		
EB	L	207	1770	0.633	0.423	22.9	C	21.8	C
	TR	1127	3572	0.227	0.315	21.2	C		
WB	L	431	1770	0.794	0.423	26.4	D	31.4	D
	TR	1151	3650	0.880	0.315	33.0	D		

Intersection Delay = 35.9 sec/veh Intersection LOS = D
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.792

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 10-29-1999
Eschbacher Engineering

Streets: (N-S) Wolf Hill Road (E-W) Old Country Road
Analyst: Greg B File Name: WHOLPGPN.HC9
Area Type: Other 5-25-99 PM PEAK
Comment: No-Build Conditions (5:00-6:00 PM)

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	1	2	1	1	1	1	1	2	< 0	1	2	< 0
Volumes	187	1050	371	197	505	23	210	454	147	264	486	132
Lane W (ft)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4
NB Left	*	*		
Thru		*		
Right		*		
Peds			*	
SB Left	*	*		
Thru		*		
Right		*		
Peds			*	
EB Right				
WB Right				
Green	10.0A	35.0P	12.0P	
Yellow/AR	4.0	4.0	4.0	

	5	6	7	8
EB Left	*	*		
Thru		*		
Right		*		
Peds				
WB Left	*	*		
Thru		*		
Right		*		
Peds				
NB Right	*			
SB Right				
Green	12.0A	21.0P		
Yellow/AR	4.0	4.0		

Cycle Length: 110 secs Phase combination order: #1 #2 #3 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	L	245	1770	0.804	0.455	27.8	D	29.7	D
	T	1219	3725	0.952	0.327	34.8	D		
	R	705	1583	0.554	0.445	15.2	C		
SB	L	245	1770	0.845	0.455	32.8	D	31.6	D
	T	610	1863	0.873	0.327	31.8	D		
	R	518	1583	0.046	0.327	16.3	C		
EB	L	277	1770	0.798	0.345	29.0	D	38.0	D
	TR	718	3589	0.926	0.200	41.0	E		
WB	L	277	1770	1.004	0.345	62.4	F	49.3	E
	TR	721	3606	0.948	0.200	44.0	E		

Intersection Delay = 36.0 sec/veh Intersection LOS = D
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.829

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 10-29-1999

Eschbacher Engineering

Streets: (N-S) Wolf Hill Road (E-W) Caledonia Road

Analyst: Greg B File Name: WO@CAAMN.HC9

Area Type: Other 5-25-99 AM PEAK

Comment: No-Build Conditions (7:45-8:45 AM)

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	0	1 <	0	1	1	0	0	0	0	0 >	0 <	0
Volumes		508	32	109	159					28		246
Lane W (ft)		15.0		10.0	13.0						15.0	
RTOR Vols			0			0						0
Lost Time		3.00	3.00	3.00	3.00					3.00		3.00

Signal Operations

Phase Combination	1	2	3	4
NB Left				
Thru	*			
Right	*			
Peds				
SB Left	*			
Thru	*			
Right				
Peds				
EB Right				
WB Right				
Green	35.0P			
Yellow/AR	4.0			

	5	6	7	8
EB Left				
Thru				
Right				
Peds				
WB Left	*			
Thru				
Right	*			
Peds				
NB Right				
SB Right				
Green	10.0A			
Yellow/AR	3.0			

Cycle Length: 52 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	TR	1198	1731	0.475	0.692	2.6	A	2.6	A
SB	L	244	353	0.471	0.692	3.4	A	2.4	A
	T	1333	1925	0.125	0.692	1.7	A		
WB	LR	305	1587	0.944	0.192	40.1	E	40.1	E

Intersection Delay = 12.0 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.577

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 10-29-1999
Eschbacher Engineering

Streets: (N-S) Wolf Hill Road (E-W) Caledonia Road
Analyst: Greg B File Name: WO@CAPMN.HC9
Area Type: Other 5-25-99 PM PEAK
Comment: No-Build Conditions (5:00-6:00 PM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 <	0	1	1	0	0	0	0	0 >	0 <	0
Volumes		295	42	210	452					39		95
Lane W (ft)		15.0		10.0	13.0						15.0	
RTOR Vols			0			0						0
Lost Time		3.00	3.00	3.00	3.00					3.00		3.00

Signal Operations

Phase Combination		1	2	3	4
NB	Left				
	Thru	*			
	Right	*			
	Peds				
SB	Left	*			
	Thru	*			
	Right				
	Peds				
EB	Right				
WB	Right				
Green		33.0P			
Yellow/AR		4.0			

		5	6	7	8
EB	Left				
	Thru				
	Right				
	Peds				
WB	Left	*			
	Thru				
	Right	*			
	Peds				
NB	Right				
SB	Right				
Green		20.0A			
Yellow/AR		4.0			

Cycle Length: 61 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	TR	956	1715	0.371	0.557	5.0	A	5.0	A
SB	L	343	615	0.645	0.557	8.9	B	6.5	B
	T	1073	1925	0.444	0.557	5.3	B		
WB	LR	559	1624	0.252	0.344	9.3	B	9.3	B

Intersection Delay = 6.4 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.495

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-01-1999
Eschbacher Engineering

Streets: (N-S) Wolf Hill Road (E-W) Melrose Road
Analyst: Greg B File Name: WO@MEAMN.HC9
Area Type: Other 5-25-99 AM PEAK
Comment: No-Build Conditions (8:00-9:00 AM)

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	0	> 1	0	0	1 <	0	1	0	1	0	0	0
Volumes	72	673			244	30	72		49			
Lane W (ft)		15.0			15.0		10.0		10.0			
RTOR Vols			0			0			0			
Lost Time	3.00	3.00			3.00	3.00	3.00		3.00			

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
NB Left	*				EB	Left	*			
Thru	*					Thru				
Right						Right	*			
Peds						Peds				
SB Left					WB	Left				
Thru	*					Thru				
Right	*					Right				
Peds						Peds				
EB Right					NB	Right				
WB Right					SB	Right				
Green	63.0P				Green		11.0A			
Yellow/AR	4.0				Yellow/AR		4.0			

Cycle Length: 82 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	LT	1363	1747	0.575	0.780	2.8	A	2.8	A
SB	TR	1415	1813	0.204	0.780	1.5	A	1.5	A
EB	L	242	1652	0.314	0.146	20.5	C	20.3	C
	R	216	1478	0.240	0.146	20.1	C		

Intersection Delay = 4.3 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.534

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g          11-01-1999
                               Eschbacher Engineering
===========================================================================
Streets: (N-S) Wolf Hill Road                 (E-W) Melrose Road
Analyst: CMM                                  File Name: WO@MEPMN.HC9
Area Type: Other                              5-25-99 PM PEAK
Comment: No-Build Conditions (5:00-6:00 PM)
===========================================================================
           |  Northbound   |  Southbound   |   Eastbound   |   Westbound
           |  L    T    R  |  L    T    R  |  L    T    R  |  L    T    R
           | ---- ---- ----| ---- ---- ----| ---- ---- ----| ---- ---- ----
No. Lanes  |  0  > 1    0  |  0    1  < 0  |  1    0    1  |  0    0    0
Volumes    |  39  325      |       550  84 |  53        75 |
Lane W (ft)|      15.0     |      15.0     |10.0      10.0 |
RTOR Vols  |              0|              0|             0 |
Lost Time  |3.00 3.00      |     3.00 3.00 |3.00      3.00 |
---------------------------------------------------------------------------
                              Signal Operations
Phase Combination 1      2      3      4 |               5     6     7     8
NB  Left          *                       | EB  Left      *
    Thru          *                       |     Thru
    Right                                 |     Right     *
    Peds                                  |     Peds
SB  Left                                  | WB  Left
    Thru          *                       |     Thru
    Right         *                       |     Right
    Peds                                  |     Peds
EB  Right                                 | NB  Right
WB  Right                                 | SB  Right
Green          45.0P                      | Green     8.0A
Yellow/AR       4.0                       | Yellow/AR 4.0
Cycle Length:  61 secs  Phase combination order: #1 #5
---------------------------------------------------------------------------
                    Intersection Performance Summary
     Lane   Group:  Adj Sat    v/c     g/C                       Approach:
     Mvmts   Cap     Flow     Ratio   Ratio    Delay   LOS     Delay   LOS
     -----  ----   -------   -----   -----    -----   ---     -----   ---
NB   LT     1061     1407    0.361   0.754      1.7    A        1.7    A
SB   TR     1363     1808    0.489   0.754      2.1    A        2.1    A
EB   L       244     1652    0.230   0.148     14.9    B       15.3    C
     R       218     1478    0.362   0.148     15.6    C
                Intersection Delay =   3.5 sec/veh Intersection LOS = A
Lost Time/Cycle, L =    6.0 sec   Critical v/c(x)     = 0.469
---------------------------------------------------------------------------
```

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g        11-02-1999
                          Eschbacher Engineering
===========================================================================
Streets: (N-S) Carman Road                   (E-W) Wolf Hill Road
Analyst: CMM                                 File Name: WCNBAM.HC9
Area Type: Other                             11-1-99 AM Peak
Comment: No-Build Condtions: AM Peak Hour (7:30- 8:30AM)
===========================================================================
          |  Northbound    |  Southbound    |   Eastbound    |  Westbound
          |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R
          | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- | ---- ---- ----
No. Lanes |  0  > 1    1   |  0  > 1    1   |  0  > 2  < 0   |  0  > 2  < 0
Volumes   | 192    1   16  |   2    1    5  |  13  800  238  |  56  705   19
Lane W (ft)|     12.0 12.0 |     12.0 12.0  |     12.0       |     12.0
RTOR Vols |             0  |             0  |              0 |              0
Lost Time |3.00 3.00 3.00|3.00 3.00 3.00|3.00 3.00 3.00|3.00 3.00 3.00
---------------------------------------------------------------------------
                            Signal Operations
Phase Combination 1     2     3     4  |          5     6     7     8
NB  Left          *                    | EB  Left   *
    Thru          *                    |     Thru   *
    Right         *                    |     Right  *
    Peds                               |     Peds
SB  Left          *                    | WB  Left   *
    Thru          *                    |     Thru   *
    Right         *                    |     Right  *
    Peds                               |     Peds
EB  Right                              | NB  Right
WB  Right                              | SB  Right
Green          11.0A                   | Green     27.0P
Yellow/AR       3.0                    | Yellow/AR 4.0
Cycle Length:  45 secs  Phase combination order: #1 #5
---------------------------------------------------------------------------
                    Intersection Performance Summary
     Lane  Group:   Adj Sat    v/c      g/C                       Approach:
     Mvmts  Cap      Flow      Ratio    Ratio    Delay   LOS    Delay   LOS
     -----  ----    -------    -----    -----    -----   ---    -----   ---
NB   LT     428      1751      0.500    0.244    10.2     B     10.1     B
     R      387      1583      0.047    0.244     8.4     B
SB   LT     391      1601      0.008    0.244     8.3     B      8.3     B
     R      387      1583      0.016    0.244     8.3     B
EB   LTR   1987      3193      0.617    0.622     3.8     A      3.8     A
WB   LTR   1561      2509      0.582    0.622     3.7     A      3.7     A
        Intersection Delay =     4.4 sec/veh Intersection LOS = A
Lost Time/Cycle, L =   6.0 sec   Critical v/c(x)     = 0.584
---------------------------------------------------------------------------
```

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g          11-02-1999
                               Eschbacher Engineering
===========================================================================
Streets: (N-S) Carman Road                    (E-W) Wolf Hill Road
Analyst: CMM                                  File Name: WCNBPM.HC9
Area Type: Other                              11-1-99 AM Peak
Comment: No-Build Condtions: PM Peak Hour (5:00- 6:00PM)
===========================================================================
           |  Northbound    |  Southbound    |   Eastbound    |  Westbound
           |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R
           | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- | ---- ---- ----
No. Lanes  |  0  > 1    1   |  0  > 1    1   |  0  > 2  < 0   |  0  > 2  < 0
Volumes    | 299    1    23 |   1    1     2 |    6  991  197 |   22  916    3
Lane W (ft)|     12.0 12.0  |     12.0 12.0  |     12.0       |     12.0
RTOR Vols  |              0 |              0 |              0 |              0
Lost Time  |3.00 3.00 3.00  |3.00 3.00 3.00  |3.00 3.00 3.00  |3.00 3.00 3.00
---------------------------------------------------------------------------
                                Signal Operations
Phase Combination 1     2     3     4  |              5     6     7     8
NB  Left          *                    | EB  Left     *
    Thru          *                    |     Thru     *
    Right         *                    |     Right    *
    Peds                               |     Peds
SB  Left          *                    | WB  Left     *
    Thru          *                    |     Thru     *
    Right         *                    |     Right    *
    Peds                               |     Peds
EB  Right                              | NB  Right
WB  Right                              | SB  Right
Green          11.0A                   | Green     27.0P
Yellow/AR       3.0                    | Yellow/AR 4.0
Cycle Length:  45 secs  Phase combination order: #1 #5
---------------------------------------------------------------------------
                         Intersection Performance Summary
      Lane   Group:    Adj Sat    v/c      g/C                       Approach:
      Mvmts   Cap       Flow     Ratio    Ratio    Delay    LOS    Delay   LOS
      -----   ----    -------    -----    -----    -----    ---    -----   ---
NB    LT      430      1758      0.775    0.244     16.1     C      15.6    C
      R       387      1583      0.067    0.244      8.4     B
SB    LT      387      1584      0.005    0.244      8.3     B       8.3    B
      R       387      1583      0.005    0.244      8.3     B
EB    LTR    2061      3312      0.676    0.622      4.2     A       4.2    A
WB    LTR    1842      2961      0.595    0.622      3.7     A       3.7    A
                Intersection Delay =    5.4 sec/veh Intersection LOS = B
Lost Time/Cycle, L =    6.0 sec    Critical v/c(x)     = 0.704
---------------------------------------------------------------------------
```

APPENDIX

HCS Analysis Worksheets

Signalized Intersections: Build Conditions

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-01-1999
Eschbacher Engineering

Streets: (N-S) Bagatelle Road (E-W) Half Hollow Road
Analyst: GB File Name: BA@HAAMB.HC9
Area Type: Other 5-25-99 AM PEAK
Comment: Build Conditions (8:00-9:00 AM)

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	1	0	1	0	0	0	0	1	1	1	1	0
Volumes	308		74					148	248	116	565	
Lane W (ft)	11.0		12.0					13.0	13.0	10.0	11.0	
RTOR Vols			0						0			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left	*				EB Left	*			
Thru					Thru	*			
Right	*				Right	*			
Peds					Peds				
SB Left					WB Left	*			
Thru					Thru	*			
Right					Right	*			
Peds					Peds				
EB Right	*				NB Right				
WB Right					SB Right				
Green	16.0A				Green	42.0P			
Yellow/AR	3.0				Yellow/AR	4.0			

Cycle Length: 65 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	L	399	1621	0.812	0.246	23.2	C	21.1	C
	R	390	1583	0.200	0.246	12.6	B		
EB	T	1273	1925	0.123	0.662	2.6	A	1.0	A
	R	1636	1636	0.160	1.000	0.0	A		
WB	L	739	1117	0.165	0.662	2.7	A	3.7	A
	T	1191	1801	0.499	0.662	3.9	A		

Intersection Delay = 7.5 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.584

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-01-1999
Eschbacher Engineering

Streets: (N-S) Bagatelle Road (E-W) Half Hollow Road
Analyst: Greg B File Name: BA@HAPMB.HC9
Area Type: Other 5-25-99 PM PEAK
Comment: Build Conditions (5:00-6:00 PM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	0	1	1	1	1	0
Volumes	223		94					359	299	91	157	
Lane W (ft)	11.0		12.0					13.0	13.0	10.0	11.0	
RTOR Vols			0						0			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4
NB	Left	*			
	Thru				
	Right	*			
	Peds				
SB	Left				
	Thru				
	Right				
	Peds				
EB	Right	*			
WB	Right				
Green		11.0A			
Yellow/AR		3.0			

		5	6	7	8
EB	Left				
	Thru	*			
	Right	*			
	Peds				
WB	Left	*			
	Thru	*			
	Right				
	Peds				
NB	Right				
SB	Right				
Green		61.0P			
Yellow/AR		4.0			

Cycle Length: 79 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	L	238	1711	0.986	0.139	63.0	F	50.6	E
	R	220	1583	0.449	0.139	21.2	C		
EB	T	1511	1925	0.250	0.785	1.5	A	0.8	A
	R	1636	1636	0.193	1.000	0.0	A		
WB	L	532	678	0.180	0.785	1.4	A	1.3	A
	T	1413	1801	0.117	0.785	1.3	A		

Intersection Delay = 13.8 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.361

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g        11-01-1999
                            Eschbacher Engineering
=======================================================================
Streets: (N-S) Bagatelle Road              (E-W) LIE N. Service Road
Analyst: Greg B                            File Name: BA@NLIAB.HC9
Area Type: Other                           5-25-99 AM PEAK
Comment: Build Conditions (8:00-9:00 AM)
=======================================================================
          |  Northbound   |  Southbound   |   Eastbound   |  Westbound   |
          |  L    T    R  |  L    T    R  |  L    T    R  |  L    T    R |
          | ---- ---- ----| ---- ---- ----| ---- ---- ----| ---- ---- ----|
No. Lanes |  1    1    0  |  0    2  < 0  |  0    0    0  |  0  > 3  < 0 |
Volumes   | 395  297      |      305  110 |               | 145 1866   87|
Lane W (ft)|11.0 12.0     |      11.0     |               |     11.0     |
RTOR Vols |            0  |            0  |               |            0 |
Lost Time |3.00 3.00      |      3.00 3.00|               |3.00 3.00 3.00|
-----------------------------------------------------------------------
                         Signal Operations
Phase Combination 1    2    3    4  |             5     6     7     8
NB  Left          *    *            |EB  Left
    Thru          *    *            |    Thru
    Right                           |    Right
    Peds                            |    Peds
SB  Left                            |WB  Left     *
    Thru               *            |    Thru     *
    Right              *            |    Right    *
    Peds                            |    Peds
EB  Right                           |NB  Right
WB  Right                           |SB  Right
Green           13.0A 18.0P         |Green      29.0P
Yellow/AR         2.0  4.0          |Yellow/AR  5.0
Cycle Length:   71 secs  Phase combination order: #1 #2 #5
-----------------------------------------------------------------------
                  Intersection Performance Summary
     Lane    Group:  Adj Sat   v/c     g/C                    Approach:
     Mvmts    Cap     Flow    Ratio   Ratio   Delay  LOS    Delay   LOS
     -----   ----   -------   -----   -----   -----  ---    -----   ---
NB   L        399    1621     1.043   0.479    56.3   E      35.4    D
     T        892    1863     0.351   0.479     7.6   B
SB   TR       925    3458     0.496   0.268    14.5   B      14.5    B
WB   LTR     2336    5350     1.040   0.437    38.0   D      38.0    D
            Intersection Delay =  34.5 sec/veh Intersection LOS = D
Lost Time/Cycle, L =    6.0 sec    Critical v/c(x)     = 1.064
-----------------------------------------------------------------------
```

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g         11-02-1999
                          Eschbacher Engineering
=======================================================================
Streets: (N-S) Bagatelle Road            (E-W) LIE N. Service Road
Analyst: Greg B                          File Name: BA@NLIPB.HC9
Area Type: Other                         5-25-99 PM PEAK
Comment: Build Conditions (5:00-6:00 PM)
=======================================================================
              |  Northbound   |  Southbound   |   Eastbound   |  Westbound   |
              | L    T    R   | L    T    R   | L    T    R   | L    T    R  |
              | ---- ---- ----| ---- ---- ----| ---- ---- ----| ---- ---- ---|
No. Lanes     |  1    1    0  |  0    2  < 0  |  0    0    0  | 0  > 3  < 0  |
Volumes       | 141  247      |      404   37 |               |195  197  133 |
Lane W (ft)   |11.0 12.0      |      11.0     |               |     11.0     |
RTOR Vols     |             0 |             0 |               |            0 |
Lost Time     |3.00 3.00      |      3.00 3.00|               |3.00 3.00 3.00|
-----------------------------------------------------------------------
                            Signal Operations
Phase Combination 1     2     3     4    |            5     6     7     8
NB   Left         *     *                | EB  Left
     Thru         *     *                |     Thru
     Right                               |     Right
     Peds                                |     Peds
SB   Left                                | WB  Left    *
     Thru               *                |     Thru    *
     Right              *                |     Right   *
     Peds                                |     Peds
EB   Right                               | NB  Right
WB   Right                               | SB  Right
Green            6.0A 21.0P              | Green     31.0A
Yellow/AR        0.0   4.0               | Yellow/AR 4.0
Cycle Length:    66 secs  Phase combination order: #1 #2 #5
-----------------------------------------------------------------------
                       Intersection Performance Summary
     Lane  Group:   Adj Sat    v/c     g/C                      Approach:
     Mvmts    Cap     Flow    Ratio   Ratio    Delay   LOS    Delay   LOS
     -----   ----   -------   -----   -----    -----   ---    -----   ---
NB   L        234     1621    0.632   0.424     12.7    B       9.9     B
     T        790     1863    0.329   0.424      8.3    B
SB   TR      1185     3556    0.411   0.333     11.1    B      11.1     B
WB   LTR     2474     5102    0.245   0.485      6.4    B       6.4     B
                 Intersection Delay =    8.9 sec/veh Intersection LOS = B
Lost Time/Cycle, L =    6.0 sec   Critical v/c(x)     = 0.374
-----------------------------------------------------------------------
```

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g          11-01-1999
                            Eschbacher Engineering
===========================================================================
Streets: (N-S) Bagatelle Road             (E-W) LIE S. Service Road
Analyst: Greg B                           File Name: BA@SLIAB.HC9
Area Type: Other                          5-25-99 AM PEAK
Comment: Build Conditions (8:00-9:00 AM)
===========================================================================
           |  Northbound  |  Southbound  |  Eastbound   |  Westbound   |
           |  L   T   R   |  L   T   R   |  L   T   R   |  L   T   R   |
           | ---- ---- ----| ---- ---- ----| ---- ---- ----| ---- ---- ----|
No. Lanes  |  0   2 <  0  |  1   1    0  |  0 > 3 <  0  |  0   0    0  |
Volumes    |     563  156 | 214  223     | 138  254  102|              |
Lane W (ft)|     12.0     |12.0 12.0     |     12.0     |              |
RTOR Vols  |            0 |             0|             0|              |
Lost Time  |     3.00 3.00|3.00 3.00     |3.00 3.00 3.00|              |
---------------------------------------------------------------------------
                            Signal Operations
Phase Combination 1      2     3     4  |               5     6     7     8
NB  Left                                | EB  Left      *
    Thru                 *              |     Thru      *
    Right                *              |     Right     *
    Peds                                |     Peds
SB  Left          *      *              | WB  Left
    Thru          *      *              |     Thru
    Right                               |     Right
    Peds                                |     Peds
EB  Right                               | NB  Right
WB  Right                               | SB  Right
Green           11.0P 27.0A             | Green     30.0P
Yellow/AR        4.0   4.0              | Yellow/AR 4.0
Cycle Length:  80 secs  Phase combination order: #1 #2 #5
---------------------------------------------------------------------------
                    Intersection Performance Summary
      Lane   Group:  Adj Sat    v/c     g/C                      Approach:
      Mvmts   Cap     Flow     Ratio   Ratio   Delay   LOS    Delay   LOS
      -----  ----   -------    -----   -----   -----   ---    -----   ---
NB    TR     1195    3415     0.665   0.350    15.2     C      15.2    C
SB    L       358    1770     0.628   0.538    10.5     B       8.4    B
      T      1001    1863     0.235   0.538     6.3     B
EB    LTR    2070    5341     0.276   0.387    10.9     B      10.9    B
              Intersection Delay =  12.1 sec/veh Intersection LOS = B
Lost Time/Cycle, L =    9.0 sec   Critical v/c(x)     = 0.526
---------------------------------------------------------------------------
```

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-01-1999
Eschbacher Engineering

==

Streets: (N-S) Bagatelle Road (E-W) LIE S. Service Road
Analyst: GB File Name: BA@SLIPB.HC9
Area Type: Other 5-25-99 PM PEAK
Comment: Build Conditions (5:00-6:00 PM)

==

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	0	2 <	0	1	1	0	0 >	3 <	0	0	0	0
Volumes		277	111	221	363		116	1778	143			
Lane W (ft)		12.0		12.0	12.0			12.0				
RTOR Vols			0			0			0			
Lost Time		3.00	3.00	3.00	3.00		3.00	3.00	3.00			

Signal Operations

Phase Combination	1	2	3	4
NB Left				
Thru		*		
Right		*		
Peds				
SB Left	*	*		
Thru	*	*		
Right				
Peds				
EB Right				
WB Right				
Green	4.0A	27.0A		
Yellow/AR	0.0	4.0		

	5	6	7	8
EB Left	*			
Thru	*			
Right	*			
Peds				
WB Left				
Thru				
Right				
Peds				
NB Right				
SB Right				
Green	30.0P			
Yellow/AR	4.0			

Cycle Length: 69 secs Phase combination order: #1 #2 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	Approach: LOS
NB	TR	1371	3378	0.313	0.406	9.1	B	9.1	B
SB	L	293	1770	0.795	0.464	20.9	C	13.1	B
	T	864	1863	0.442	0.464	8.3	B		
EB	LTR	2477	5514	0.953	0.449	18.8	C	18.8	C

Intersection Delay = 16.5 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.867

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-01-1999
Eschbacher Engineering

Streets: (N-S) Carman Road (E-W) Half Hollow Road
Analyst: Greg B File Name: CA@HAAMB.HC9
Area Type: Other 5-25-99 AM PEAK
Comment: Build Conditions (7:45-8:45 AM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	1	0	0	1	1
Volumes				162		178	62	168			595	258
Lane W (ft)				10.0		9.0	11.0	12.0			12.0	14.0
RTOR Vols						0			0			0
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination	1	2	3	4
NB Left				
Thru				
Right				
Peds				
SB Left	*			
Thru				
Right	*			
Peds				
EB Right				
WB Right	*			
Green	12.0A			
Yellow/AR	3.0			

	5	6	7	8
EB Left	*			
Thru	*			
Right				
Peds				
WB Left				
Thru	*			
Right	*			
Peds				
NB Right				
SB Right				
Green	64.0P			
Yellow/AR	4.0			

Cycle Length: 83 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
SB	L	226	1565	0.756	0.145	31.1	D	40.7	E
	R	206	1425	0.908	0.145	49.5	E		
EB	L	233	297	0.279	0.783	1.8	A	1.5	A
	T	1459	1863	0.121	0.783	1.4	A		
WB	T	1459	1863	0.429	0.783	2.0	A	1.4	A
	R	1689	1689	0.161	1.000	0.0	A		

Intersection Delay = 10.8 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.504

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g         11-01-1999
                           Eschbacher Engineering
==========================================================================
Streets: (N-S) Carmen Road                     (E-W) Half Hollow Road
Analyst: Greg B                                File Name: CA@HAPMB.HC9
Area Type: Other                               5-25-99 PM PEAK
Comment: Build Conditions (4:45-5:45 PM)
==========================================================================
           |  Northbound   |  Southbound   |   Eastbound   |  Westbound
           |  L    T    R  |  L    T    R  |  L    T    R  |  L    T    R
           | ---- ---- ----| ---- ---- ----| ---- ---- ----| ---- ---- ----
No. Lanes  |  0    0    0  |  1    0    1  |  1    1    0  |  0    1    1
Volumes    |               | 175       219 | 183  449      |      207  155
Lane W (ft)|               |12.0      12.0 |11.0 12.0      |     12.0 14.0
RTOR Vols  |               |             0 |             0 |             0
Lost Time  |               |3.00      3.00 |3.00 3.00      |     3.00 3.00
--------------------------------------------------------------------------
                           Signal Operations
Phase Combination 1     2     3     4  |             5     6     7     8
NB  Left                               | EB  Left    *
    Thru                               |     Thru    *
    Right                              |     Right
    Peds                               |     Peds
SB  Left          *                    | WB  Left
    Thru                               |     Thru    *
    Right         *                    |     Right   *
    Peds                               |     Peds
EB  Right                              | NB  Right
WB  Right         *                    | SB  Right
Green           12.0A                  | Green     38.0P
Yellow/AR        3.0                   | Yellow/AR 3.0
Cycle Length:   56 secs  Phase combination order: #1 #5
--------------------------------------------------------------------------
                  Intersection Performance Summary
      Lane   Group:   Adj Sat    v/c     g/C                     Approach:
      Mvmts   Cap      Flow     Ratio   Ratio    Delay   LOS   Delay   LOS
      -----  ----    -------    -----   -----    -----   ---   -----   ---
SB    L       359     1676      0.512   0.214    13.6     B     15.4    C
      R       339     1583      0.681   0.214    16.8     C
EB    L       686     1011      0.281   0.679     2.4     A      2.5    A
      T      1264     1863      0.374   0.679     2.6     A
WB    T      1264     1863      0.172   0.679     2.1     A      1.2    A
      R      1689     1689      0.097   1.000     0.0     A
                Intersection Delay =   5.8 sec/veh Intersection LOS = B
Lost Time/Cycle, L =   6.0 sec   Critical v/c(x)    = 0.448
--------------------------------------------------------------------------
```

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g          11-01-1999
                        Eschbacher Engineering
==========================================================================
Streets: (N-S) Half Hollow Road              (E-W) LIE N. Service Road
Analyst: GB                                  File Name: HA@NLIAB.HC9
Area Type: Other                             5-25-99 AM PEAK
Comment: Build Conditions (8:00-9:00 AM)
==========================================================================
             |  Northbound   |  Southbound   |   Eastbound   |   Westbound   |
             |  L    T    R  |  L    T    R  |  L    T    R  |  L    T    R  |
             | ---- ---- ----| ---- ---- ----| ---- ---- ----| ---- ---- ----|
No. Lanes    |  1    1    0  |  0    1    1  |  0    0    0  |  0  > 3  < 0  |
Volumes      |   56  166     |      630  200 |               | 257 1044   20 |
Lane W (ft)  |11.0 11.0      |     10.0 11.0 |               |     11.0      |
RTOR Vols    |            0  |            0  |               |            0  |
Lost Time    |3.00 3.00      |     3.00 3.00 |               |3.00 3.00 3.00 |
--------------------------------------------------------------------------
                            Signal Operations
Phase Combination 1     2     3     4  |                5     6     7     8
NB  Left          *                    | EB  Left
    Thru          *                    |     Thru
    Right                              |     Right
    Peds                               |     Peds
SB  Left                               | WB  Left       *
    Thru          *                    |     Thru       *
    Right         *                    |     Right      *
    Peds                               |     Peds
EB  Right                              | NB  Right
WB  Right                              | SB  Right
Green           40.0A                  | Green    32.0P
Yellow/AR        4.0                   | Yellow/AR 4.0
Cycle Length:   80 secs  Phase combination order: #1 #5
--------------------------------------------------------------------------
                   Intersection Performance Summary
                                                              Approach:
    Lane  Group:  Adj Sat    v/c     g/C                    Delay   LOS
    Mvmts   Cap    Flow     Ratio   Ratio    Delay   LOS
    -----   ----  -------   -----   -----    -----   ---    -----   ---
NB  L        90     166     0.689   0.512    22.4     C     10.9     B
    T       923    1801     0.190   0.512     6.8     B
SB  T       891    1739     0.744   0.512    12.3     B     11.1     B
    R       785    1531     0.269   0.512     7.2     B
WB  LTR    2202    5338     0.695   0.412    13.2     B     13.2     B
            Intersection Delay =  12.3 sec/veh Intersection LOS = B
Lost Time/Cycle, L =   6.0 sec   Critical v/c(x)      = 0.722
--------------------------------------------------------------------------
```

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-01-1999
Eschbacher Engineering

Streets: (N-S) Half Hollow Road (E-W) LIE N. Service Road
Analyst: GB File Name: HA@NLIPB.HC9
Area Type: Other 5-25-99 PM PEAK
Comment: Build Conditions (5:00-6:00 PM)

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	1	1	0	0	1	1	0	0	0	0 >	3	< 0
Volumes	118	827			178	82				57	76	16
Lane W (ft)	11.0	11.0			10.0	11.0					11.0	
RTOR Vols			0			0						0
Lost Time	3.00	3.00			3.00	3.00				3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
NB Left	*				EB	Left				
Thru	*					Thru				
Right						Right				
Peds						Peds				
SB Left					WB	Left	*			
Thru	*					Thru	*			
Right	*					Right	*			
Peds						Peds				
EB Right					NB	Right				
WB Right					SB	Right				
Green	37.0A				Green		30.0P			
Yellow/AR	4.0				Yellow/AR		4.0			

Cycle Length: 75 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	L	489	966	0.253	0.507	6.8	B	28.3	D
	T	886	1749	0.983	0.507	31.3	D		
SB	T	856	1689	0.219	0.507	6.7	B	6.5	B
	R	753	1487	0.114	0.507	6.3	B		
WB	LTR	2094	5066	0.083	0.413	8.6	B	8.6	B

Intersection Delay = 21.8 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.578

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g          11-01-1999
                         Eschbacher Engineering
========================================================================
Streets: (N-S) Old South Path             (E-W) Half Hollow Road
Analyst: Greg B                           File Name: HA@OLAMB.HC9
Area Type: Other                          5-25-99 AM PEAK
Comment: Build Conditions (7:45-8:45 AM)
========================================================================
          |  Northbound    |  Southbound    |  Eastbound     |  Westbound
          |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R
          | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- | ---- ---- ----
No. Lanes |  0    0    0   |  1    0    1   |  1    1    0   |  0    1    1
Volumes   |                |  156       163 | 125   84       |      611  222
Lane W (ft)|               | 12.0      15.0 |10.0 12.0       |     12.0 12.0
RTOR Vols |                |              0 |              0 |            0
Lost Time |                |3.00       3.00 |3.00 3.00       |     3.00 3.00
------------------------------------------------------------------------
                           Signal Operations
Phase Combination 1    2    3    4 |               5     6     7     8
NB   Left                          | EB  Left      *
     Thru                          |     Thru      *
     Right                         |     Right
     Peds                          |     Peds
SB   Left         *                | WB  Left
     Thru                          |     Thru      *
     Right        *                |     Right     *
     Peds                          |     Peds
EB   Right                         | NB  Right
WB   Right                         | SB  Right
Green          14.0A               | Green    44.0P
Yellow/AR       4.0                | Yellow/AR 4.0
Cycle Length:  66 secs  Phase combination order: #1 #5
------------------------------------------------------------------------
                   Intersection Performance Summary
       Lane  Group:  Adj Sat    v/c     g/C                        Approach:
       Mvmts  Cap     Flow     Ratio   Ratio    Delay   LOS     Delay   LOS
       -----  ----  -------    -----   -----    -----   ---     -----   ---
SB     L       402    1770     0.408   0.227    14.4     B      14.5     B
       R       396    1742     0.434   0.227    14.6     B
EB     L       162     237     0.817   0.682    22.8     C      14.6     B
       T      1270    1863     0.069   0.682     2.3     A
WB     T      1270    1863     0.506   0.682     3.6     A       3.3     A
       R      1079    1583     0.217   0.682     2.5     A
               Intersection Delay =    7.7 sec/veh Intersection LOS = B
Lost Time/Cycle, L =    6.0 sec   Critical v/c(x)     = 0.721
------------------------------------------------------------------------
```

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-01-1999
Eschbacher Engineering

Streets: (N-S) Old South Path (E-W) Half Hollow Road
Analyst: Greg B File Name: HA@OLPMB.HC9
Area Type: Other 5-25-99 PM PEAK
Comment: Build Conditions (5:00-6:00 PM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	1	0	0	1	1
Volumes				294		151	395	443			104	171
Lane W (ft)				12.0		15.0	10.0	12.0			12.0	12.0
RTOR Vols						0			0			0
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
NB Left					EB	Left	*			
Thru						Thru	*			
Right						Right				
Peds						Peds				
SB Left	*				WB	Left				
Thru						Thru	*			
Right	*					Right	*			
Peds						Peds				
EB Right					NB	Right				
WB Right					SB	Right				
Green	15.0A				Green		25.0P			
Yellow/AR	4.0				Yellow/AR		4.0			

Cycle Length: 48 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
SB	L	590	1770	0.524	0.333	9.0	B	8.6	B
	R	581	1742	0.274	0.333	7.7	B		
EB	L	671	1238	0.620	0.542	6.2	B	5.3	B
	T	1009	1863	0.462	0.542	4.6	A		
WB	T	1009	1863	0.108	0.542	3.5	A	3.6	A
	R	858	1583	0.210	0.542	3.7	A		

Intersection Delay = 6.0 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.584

HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g   11-01-1999
Eschbacher Engineering

Streets: (N-S) Half Hollow Road   (E-W) LIE S. Service Road
Analyst: Greg B   File Name: HA@SLIAB.HC9
Area Type: Other   5-25-99 AM PEAK
Comment: Build Conditions (7:45-8:45 AM)

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	0	1	1	1	1	0	0	> 3	< 0	0	0	0
Volumes		158	70	32	842		77	69	4			
Lane W (ft)		11.0	11.0	10.0	10.0			11.0				
RTOR Vols			0			0			0			
Lost Time		3.00	3.00	3.00	3.00		3.00	3.00	3.00			

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
NB Left					EB	Left	*			
Thru	*					Thru	*			
Right	*					Right	*			
Peds						Peds				
SB Left	*				WB	Left				
Thru	*					Thru				
Right						Right				
Peds						Peds				
EB Right					NB	Right				
WB Right					SB	Right				
Green	43.0A				Green		30.0P			
Yellow/AR	4.0				Yellow/AR		4.0			

Cycle Length: 81 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	Approach: LOS
NB	T	927	1706	0.179	0.543	6.1	B	6.0	B
	R	832	1531	0.089	0.543	5.7	B		
SB	L	584	1075	0.058	0.543	5.6	B	22.4	C
	T	945	1739	0.938	0.543	23.1	C		
EB	LTR	2008	5247	0.087	0.383	10.3	B	10.3	B

Intersection Delay = 17.9 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.586

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g          11-01-1999
                          Eschbacher Engineering
==========================================================================
Streets: (N-S) Half Hollow Road          (E-W) LIE S. Service Road
Analyst: Greg B                          File Name: HA@SLIPB.HC9
Area Type: Other                         5-25-99 PM PEAK
Comment: Build Conditions (5:00-6:00 PM)
==========================================================================
           |  Northbound    |  Southbound    |   Eastbound    |   Westbound    |
           |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R   |
           | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- |
No. Lanes  |  0    1    1   |  1    1    0   |  0  > 3  < 0   |  0    0    0   |
Volumes    |      686  455  |  57  173       | 264 1275   10  |                |
Lane W (ft)|     11.0 11.0  |10.0 10.0       |     11.0       |                |
RTOR Vols  |            0   |            0   |            0   |                |
Lost Time  |     3.00 3.00  |3.00 3.00       |3.00 3.00 3.00  |                |
--------------------------------------------------------------------------
                          Signal Operations
Phase Combination 1    2    3    4    |              5    6    7    8
NB   Left                             | EB  Left     *
     Thru         *                   |     Thru     *
     Right        *                   |     Right    *
     Peds                             |     Peds
SB   Left         *                   | WB  Left
     Thru         *                   |     Thru
     Right                            |     Right
     Peds                             |     Peds
EB   Right                            | NB  Right
WB   Right                            | SB  Right
Green          39.0A                  | Green     27.0P
Yellow/AR       4.0                   | Yellow/AR 4.0
Cycle Length:  74 secs  Phase combination order: #1 #5
--------------------------------------------------------------------------
                   Intersection Performance Summary
     Lane   Group:  Adj Sat    v/c     g/C                      Approach:
     Mvmts   Cap     Flow     Ratio   Ratio    Delay   LOS    Delay   LOS
     -----  ----   -------    -----   -----    -----   ---    -----   ---
NB   T       922     1706     0.783   0.541     11.9    B      10.4    B
     R       828     1531     0.579   0.541      8.1    B
SB   L        97      174     0.619   0.541     15.3    C       8.0    B
     T       940     1739     0.194   0.541      5.6    B
EB   LTR    2025     5351     0.886   0.378     17.6    C      17.6    C
           Intersection Delay =  14.2 sec/veh Intersection LOS = B
Lost Time/Cycle, L =    6.0 sec   Critical v/c(x)     = 0.825
--------------------------------------------------------------------------
```

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-01-1999
Eschbacher Engineering

Streets: (N-S) New York Avenue (E-W) Old Country Road
Analyst: Greg B File Name: NE@OLAMB.HC9
Area Type: Other 5-25-99 AM PEAK
Comment: Build Conditions (8:00-9:00 AM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1 <	0	1	1	1	1	1	1	1	1	1
Volumes	149	158	1	24	190	251	61	242	60	24	901	13
Lane W (ft)	10.0	11.0		10.0	11.0	10.0	10.0	11.0	10.0	10.0	11.0	10.0
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4
NB	Left		*		
	Thru		*		
	Right		*		
	Peds				
SB	Left	*	*		
	Thru	*	*		
	Right	*	*		
	Peds				
EB	Right				
WB	Right				
Green		5.0A	16.0P		
Yellow/AR		3.0	4.0		

		5	6	7	8
EB	Left		*		
	Thru		*		
	Right		*		
	Peds				
WB	Left	*	*		
	Thru	*	*		
	Right	*	*		
	Peds				
NB	Right				
SB	Right				
Green		9.0A	36.0P		
Yellow/AR		3.0	4.0		

Cycle Length: 80 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	L	205	966	0.765	0.213	29.7	D	23.9	C
	TR	362	1704	0.461	0.213	18.4	C		
SB	L	279	1652	0.090	0.313	12.6	B	15.0	B
	T	563	1801	0.355	0.313	13.9	B		
	R	462	1478	0.572	0.313	16.1	C		
EB	L	90	188	0.711	0.463	25.9	D	11.5	B
	T	833	1801	0.306	0.463	8.8	B		
	R	683	1478	0.092	0.463	7.8	B		
WB	L	509	1652	0.049	0.613	4.2	A	12.8	B
	T	1103	1801	0.860	0.613	13.2	B		
	R	905	1478	0.015	0.613	3.9	A		

Intersection Delay = 14.7 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.762

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-01-1999

Eschbacher Engineering

Streets: (N-S) New York Avenue (E-W) Old Country Road

Analyst: Greg B File Name: NE@OLPMB.HC9

Area Type: Other 5-25-99 PM PEAK

Comment: Build Conditions (5:00-6:00 PM)

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	1	1	< 0	1	1	1	1	1	1	1	1	1
Volumes	108	276	3	50	240	136	239	800	140	26	313	43
Lane W (ft)	10.0	11.0		10.0	11.0	10.0	10.0	11.0	10.0	10.0	11.0	10.0
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4
NB Left	*	*		
Thru	*	*		
Right	*	*		
Peds				
SB Left		*		
Thru		*		
Right		*		
Peds				
EB Right				
WB Right				
Green	7.0A	12.0P		
Yellow/AR	3.0	4.0		

	5	6	7	8
EB Left	*	*		
Thru	*	*		
Right	*	*		
Peds				
WB Left		*		
Thru		*		
Right		*		
Peds				
NB Right				
SB Right				
Green	16.0A	31.0P		
Yellow/AR	3.0	4.0		

Cycle Length: 80 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	L	235	1652	0.485	0.287	15.9	C	16.9	C
	TR	490	1703	0.600	0.287	17.3	C		
SB	L	113	694	0.470	0.162	21.9	C	30.6	D
	T	293	1801	0.865	0.162	36.7	D		
	R	240	1478	0.595	0.162	22.9	C		
EB	L	521	1652	0.484	0.637	5.4	B	7.0	B
	T	1148	1801	0.734	0.637	8.1	B		
	R	942	1478	0.156	0.637	3.8	A		
WB	L	90	217	0.300	0.400	11.1	B	11.4	B
	T	720	1801	0.457	0.400	11.7	B		
	R	591	1478	0.076	0.400	9.6	B		

Intersection Delay = 13.6 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.763

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-02-1999
Eschbacher Engineering

Streets: (N-S) Wolf Hill Road (E-W) Old Country Road
Analyst: Greg B File Name: WHOLPGAB.HC9
Area Type: Other 5-25-99 AM PEAK
Comment: Build Conditions (8:00-9:00 AM)

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	1	1	1	2	< 0	1	2	< 0
Volumes	187	927	83	97	258	24	124	170	74	326	866	124
Lane W (ft)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4
NB	Left	*	*		
	Thru		*		
	Right		*		
	Peds			*	
SB	Left	*	*		
	Thru		*		
	Right		*		
	Peds			*	
EB	Right				
WB	Right				
Green		10.0A	34.0P	16.0P	
Yellow/AR		4.0	4.0	4.0	

		5	6	7	8
EB	Left	*	*		
	Thru		*		
	Right		*		
	Peds				
WB	Left	*	*		
	Thru		*		
	Right		*		
	Peds				
NB	Right	*			
SB	Right				
Green		10.0A	40.0P		
Yellow/AR		4.0	4.0		

Cycle Length: 130 secs Phase combination order: #1 #2 #3 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	L	279	1770	0.706	0.377	24.7	C	50.4	E
	T	1003	3725	1.022	0.269	58.0	E		
	R	560	1583	0.155	0.354	18.6	C		
SB	L	207	1770	0.493	0.377	21.9	C	25.6	D
	T	502	1863	0.542	0.269	27.2	D		
	R	426	1583	0.059	0.269	22.8	C		
EB	L	207	1770	0.633	0.423	23.5	C	22.0	C
	TR	1121	3556	0.241	0.315	21.3	C		
WB	L	421	1770	0.815	0.423	27.9	D	37.0	D
	TR	1153	3655	0.950	0.315	39.8	D		

Intersection Delay = 39.0 sec/veh Intersection LOS = D
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.820

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 11-01-1999

Eschbacher Engineering

==

Streets: (N-S) Wolf Hill Road (E-W) Old Country Road

Analyst: Greg B File Name: WHOLPGPB.HC9

Area Type: Other 5-25-99 PM PEAK

Comment: Build Conditions (5:00-6:00 PM)

==

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	1	1	1	2 <	0	1	2 <	0
Volumes	203	1061	375	197	508	23	210	457	161	267	490	132
Lane W (ft)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4
NB	Left	*	*		
	Thru		*		
	Right		*		
	Peds			*	
SB	Left	*	*		
	Thru		*		
	Right		*		
	Peds			*	
EB	Right				
WB	Right				
Green		10.0A	35.0P	12.0P	
Yellow/AR		4.0	4.0	4.0	

		5	6	7	8
EB	Left	*	*		
	Thru		*		
	Right		*		
	Peds				
WB	Left	*	*		
	Thru		*		
	Right		*		
	Peds				
NB	Right	*			
SB	Right				
Green		12.0A	21.0P		
Yellow/AR		4.0	4.0		

Cycle Length: 110 secs Phase combination order: #1 #2 #3 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	L	245	1770	0.873	0.455	36.4	D	31.7	D
	T	1219	3725	0.962	0.327	36.4	D		
	R	705	1583	0.560	0.445	15.3	C		
SB	L	245	1770	0.845	0.455	32.8	D	31.9	D
	T	610	1863	0.877	0.327	32.2	D		
	R	518	1583	0.046	0.327	16.3	C		
EB	L	277	1770	0.798	0.345	29.1	D	40.9	E
	TR	716	3580	0.953	0.200	44.7	E		
WB	L	277	1770	1.014	0.345	65.6	F	50.8	E
	TR	721	3607	0.954	0.200	44.8	E		

Intersection Delay = 37.8 sec/veh Intersection LOS = D

Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.844

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g          11-01-1999
                        Eschbacher Engineering
========================================================================
Streets: (N-S) Wolf Hill Road              (E-W) Caledonia Road
Analyst: Greg B                            File Name: WO@CAAMB.HC9
Area Type: Other                           5-25-99 AM PEAK
Comment: Build Conditions (7:45-8:45 AM)
========================================================================
           |   Northbound   |   Southbound   |   Eastbound    |   Westbound
           |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R
           | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- | ---- ---- ----
No. Lanes  |  0    1  < 0   |  1    1    0   |  0    0    0   |  0  > 0  < 0
Volumes    |      511   32  | 109  161       |                |  28       246
Lane W (ft)|     15.0       |10.0 13.0       |                |      15.0
RTOR Vols  |             0  |            0   |                |             0
Lost Time  |     3.00 3.00  |3.00 3.00       |                |3.00      3.00
------------------------------------------------------------------------
                           Signal Operations
Phase Combination 1     2     3     4 |                5     6     7     8
NB   Left                             |EB  Left
     Thru         *                   |    Thru
     Right        *                   |    Right
     Peds                             |    Peds
SB   Left         *                   |WB  Left        *
     Thru         *                   |    Thru
     Right                            |    Right       *
     Peds                             |    Peds
EB   Right                            |NB  Right
WB   Right                            |SB  Right
Green            35.0P                |Green      10.0A
Yellow/AR         4.0                 |Yellow/AR  3.0
Cycle Length:    52 secs  Phase combination order: #1 #5
------------------------------------------------------------------------
                    Intersection Performance Summary
                                                           Approach:
     Lane  Group:  Adj Sat    v/c     g/C                  Delay   LOS
     Mvmts   Cap    Flow     Ratio   Ratio   Delay   LOS
     -----  ----   -------   -----   -----   -----   ---   -----   ---
NB   TR     1198    1731     0.477   0.692     2.6    A     2.6     A
SB   L       242     350     0.475   0.692     3.5    A     2.5     A
     T      1333    1925     0.127   0.692     1.7    A
WB   LR      305    1587     0.944   0.192    40.1    E    40.1     E
                Intersection Delay =  12.0 sec/veh Intersection LOS = B
Lost Time/Cycle, L =    6.0 sec   Critical v/c(x)     = 0.579
------------------------------------------------------------------------
```

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g        11-01-1999
                           Eschbacher Engineering
==========================================================================
Streets: (N-S) Wolf Hill Road                (E-W) Caledonia Road
Analyst: Greg B                              File Name: WO@CAPMB.HC9
Area Type: Other                             5-25-99 PM PEAK
Comment: Build Conditions (5:00-6:00 PM)
==========================================================================
               |  Northbound   |  Southbound   |   Eastbound   |   Westbound   |
               |  L    T    R  |  L    T    R  |  L    T    R  |  L    T    R  |
               | ---- ---- ----| ---- ---- ----| ---- ---- ----| ---- ---- ----|
No. Lanes      |  0    1 <  0  |  1    1    0  |  0    0    0  |  0  > 0  <  0 |
Volumes        |      300   42 | 210  456      |               |  39        95 |
Lane W (ft)    |     15.0      |10.0 13.0      |               |     15.0      |
RTOR Vols      |            0  |            0  |               |            0  |
Lost Time      |     3.00 3.00 |3.00 3.00      |               |3.00      3.00 |
--------------------------------------------------------------------------
                              Signal Operations
Phase Combination 1     2     3     4  |                 5     6     7     8
NB   Left                              | EB  Left
     Thru         *                    |     Thru
     Right        *                    |     Right
     Peds                              |     Peds
SB   Left         *                    | WB  Left        *
     Thru         *                    |     Thru
     Right                             |     Right       *
     Peds                              |     Peds
EB   Right                             | NB  Right
WB   Right                             | SB  Right
Green           33.0P                  | Green     20.0A
Yellow/AR        4.0                   | Yellow/AR 4.0
Cycle Length:   61 secs   Phase combination order: #1 #5
--------------------------------------------------------------------------
                         Intersection Performance Summary
      Lane   Group:  Adj Sat    v/c     g/C                       Approach:
      Mvmts   Cap     Flow     Ratio   Ratio    Delay    LOS    Delay   LOS
      -----   ----   -------   -----   -----    -----    ---    -----   ---
NB    TR       956    1715     0.377   0.557      5.0     A      5.0     A
SB    L        339     607     0.653   0.557      9.2     B      6.6     B
      T       1073    1925     0.447   0.557      5.4     B
WB    LR       559    1624     0.252   0.344      9.3     B      9.3     B
                 Intersection Delay =   6.4 sec/veh Intersection LOS = B
Lost Time/Cycle, L =    6.0 sec   Critical v/c(x)    = 0.500
--------------------------------------------------------------------------
```

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g        11-01-1999
                          Eschbacher Engineering
=======================================================================
Streets: (N-S) Wolf Hill Road          (E-W) Melrose Road
Analyst: Greg B                        File Name: WO@MEAMB.HC9
Area Type: Other                       5-25-99 AM PEAK
Comment: Build Conditions (8:00-9:00 AM)
=======================================================================
          |   Northbound   |   Southbound   |   Eastbound    |   Westbound
          |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R
          | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- | ---- ---- ----
No. Lanes |  0  > 1    0   |  0    1  <  0  |  1    0    1   |  0    0    0
Volumes   |   75  673      |      244    30 |  72        51  |
Lane W (ft)|     15.0      |      15.0      |10.0      10.0  |
RTOR Vols |             0  |             0 |            0  |
Lost Time |3.00 3.00       |     3.00 3.00 |3.00      3.00 |
-----------------------------------------------------------------------
                             Signal Operations
Phase Combination 1     2     3     4    |              5     6     7     8
NB  Left          *                      |EB  Left      *
    Thru          *                      |    Thru
    Right                                |    Right     *
    Peds                                 |    Peds
SB  Left                                 |WB  Left
    Thru          *                      |    Thru
    Right         *                      |    Right
    Peds                                 |    Peds
EB  Right                                |NB  Right
WB  Right                                |SB  Right
Green            63.0P                   |Green     11.0A
Yellow/AR         4.0                    |Yellow/AR 4.0
Cycle Length:  82 secs  Phase combination order: #1 #5
-----------------------------------------------------------------------
                     Intersection Performance Summary
    Lane  Group:  Adj Sat    v/c     g/C                     Approach:
    Mvmts   Cap    Flow     Ratio   Ratio    Delay   LOS   Delay   LOS
    -----   ----  -------   -----   -----    -----   ---   -----   ---
NB   LT     1357    1739    0.580   0.780     2.8     A      2.8    A
SB   TR     1415    1813    0.204   0.780     1.5     A      1.5    A
EB   L       242    1652    0.314   0.146    20.5     C     20.4    C
     R       216    1478    0.250   0.146    20.2     C
               Intersection Delay =   4.4 sec/veh Intersection LOS = A
Lost Time/Cycle, L =    6.0 sec   Critical v/c(x)     = 0.538
-----------------------------------------------------------------------
```

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g        11-01-1999
                          Eschbacher Engineering
==========================================================================
Streets: (N-S) Wolf Hill Road               (E-W) Melrose Road
Analyst: Greg B                             File Name: WO@MEPMB.HC9
Area Type: Other                            5-25-99 PM PEAK
Comment: Build Conditions (5:00-6:00 PM)
==========================================================================
          |  Northbound   |  Southbound   |   Eastbound   |   Westbound   |
          |  L   T    R   |  L   T    R   |  L   T    R   |  L   T    R   |
          | ---- ---- ----| ---- ---- ----| ---- ---- ----| ---- ---- ----|
No. Lanes |  0  > 1    0  |  0    1  < 0  |  1    0    1  |  0    0    0  |
Volumes   |  44  325      |      550   84 |  53        79 |               |
Lane W (ft)|     15.0     |     15.0      |10.0      10.0 |               |
RTOR Vols |            0  |            0  |            0  |               |
Lost Time |3.00 3.00      |     3.00 3.00 |3.00      3.00 |               |
--------------------------------------------------------------------------
                          Signal Operations
Phase Combination 1     2     3     4  |               5     6     7     8
NB   Left         *                    | EB  Left      *
     Thru         *                    |     Thru
     Right                             |     Right     *
     Peds                              |     Peds
SB   Left                              | WB  Left
     Thru         *                    |     Thru
     Right        *                    |     Right
     Peds                              |     Peds
EB   Right                             | NB  Right
WB   Right                             | SB  Right
Green          45.0P                   | Green     8.0A
Yellow/AR       4.0                    | Yellow/AR 4.0
Cycle Length:  61 secs  Phase combination order: #1 #5
--------------------------------------------------------------------------
                    Intersection Performance Summary
     Lane  Group:  Adj Sat    v/c     g/C                      Approach:
     Mvmts   Cap    Flow     Ratio   Ratio    Delay   LOS    Delay    LOS
     -----  ----  -------    -----   -----    -----   ---    -----    ---
NB   LT     1021   1354      0.380   0.754     1.8     A      1.8      A
SB   TR     1363   1808      0.489   0.754     2.1     A      2.1      A
EB   L       244   1652      0.230   0.148    14.9     B     15.4      C
     R       218   1478      0.381   0.148    15.7     C
               Intersection Delay =   3.6 sec/veh Intersection LOS = A
Lost Time/Cycle, L =    6.0 sec   Critical v/c(x)     = 0.472
--------------------------------------------------------------------------
```

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g        11-02-1999
                        Eschbacher Engineering
========================================================================
Streets: (N-S) Carman Road                (E-W) Wolf Hill Road
Analyst: CMM                              File Name: WCBAM.HC9
Area Type: Other                          11-1-99 AM Peak
Comment: Build Condtions: AM Peak Hour (7:30- 8:30AM)
========================================================================
           |   Northbound   |   Southbound   |   Eastbound    |   Westbound
           |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R
           | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- | ---- ---- ----
No. Lanes  |  0  > 1    1   |  0  > 1    1   |  0  > 2  < 0   |  0  > 2  < 0
Volumes    | 192    1   33  |   2    1    5  |  13  810  248  |  66  715   19
Lane W (ft)|     12.0 12.0  |     12.0 12.0  |     12.0       |     12.0
RTOR Vols  |             0  |             0  |             0  |             0
Lost Time  |3.00 3.00 3.00  |3.00 3.00 3.00  |3.00 3.00 3.00  |3.00 3.00 3.00
------------------------------------------------------------------------
                          Signal Operations
Phase Combination 1     2     3     4  |              5     6     7     8
NB   Left         *                    |EB  Left      *
     Thru         *                    |    Thru      *
     Right        *                    |    Right     *
     Peds                              |    Peds
SB   Left         *                    |WB  Left      *
     Thru         *                    |    Thru      *
     Right        *                    |    Right     *
     Peds                              |    Peds
EB   Right                             |NB  Right
WB   Right                             |SB  Right
Green           11.0A                  |Green     27.0P
Yellow/AR        3.0                   |Yellow/AR 4.0
Cycle Length:   45 secs  Phase combination order: #1 #5
------------------------------------------------------------------------
                   Intersection Performance Summary
     Lane   Group:  Adj Sat    v/c     g/C                      Approach:
     Mvmts    Cap    Flow     Ratio   Ratio    Delay    LOS    Delay   LOS
     -----   ----   -------   -----   -----    -----    ---    -----   ---
NB   LT       428    1751     0.500   0.244    10.2      B     10.0     B
     R        387    1583     0.096   0.244     8.5      B
SB   LT       391    1601     0.008   0.244     8.3      B      8.3     B
     R        387    1583     0.016   0.244     8.3      B
EB   LTR     1975    3175     0.632   0.622     3.9      A      3.9     A
WB   LTR     1504    2418     0.619   0.622     3.9      A      3.9     A
             Intersection Delay =   4.6 sec/veh Intersection LOS = A
Lost Time/Cycle, L =    6.0 sec   Critical v/c(x)     = 0.595
------------------------------------------------------------------------
```

```
HCM: SIGNALIZED INTERSECTION SUMMARY   Version 2.4g         11-02-1999
                           Eschbacher Engineering
===========================================================================
Streets: (N-S) Carman Road                  (E-W) Wolf Hill Road
Analyst: CMM                                File Name: WCBPM.HC9
Area Type: Other                            11-1-99 AM Peak
Comment: Build Condtions: PM Peak Hour (5:00-6:00PM)
===========================================================================
          |   Northbound   |   Southbound   |    Eastbound   |    Westbound   |
          |  L    T    R   |  L    T    R   |  L    T    R   |  L    T    R   |
          | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- | ---- ---- ---- |
No. Lanes |  0  > 1    1   |  0  > 1    1   |  0  > 2  < 0   |  0  > 2  < 0   |
Volumes   | 312    1   39  |   1    1    2  |    6 1005  213 |  43  932     3 |
Lane W (ft)|   12.0 12.0   |     12.0 12.0  |      12.0      |      12.0      |
RTOR Vols |            0   |            0  |             0  |             0  |
Lost Time |3.00 3.00 3.00  |3.00 3.00 3.00  |3.00 3.00 3.00  |3.00 3.00 3.00  |
---------------------------------------------------------------------------
                             Signal Operations
Phase Combination 1     2     3     4 |           5     6     7     8
NB   Left         *                   | EB  Left  *
     Thru         *                   |     Thru  *
     Right        *                   |     Right *
     Peds                             |     Peds
SB   Left         *                   | WB  Left  *
     Thru         *                   |     Thru  *
     Right        *                   |     Right *
     Peds                             |     Peds
EB   Right                            | NB  Right
WB   Right                            | SB  Right
Green          11.0A                  | Green    27.0P
Yellow/AR       3.0                   | Yellow/AR 4.0
Cycle Length:  45 secs  Phase combination order: #1 #5
---------------------------------------------------------------------------
                    Intersection Performance Summary
    Lane   Group:  Adj Sat   v/c     g/C                      Approach:
    Mvmts   Cap     Flow     Ratio   Ratio    Delay   LOS    Delay   LOS
    -----  ----   -------   -----   -----    -----   ---    -----   ---
NB  LT      430     1758    0.810   0.244     18.0    C      16.9    C
    R       387     1583    0.111   0.244      8.5    B
SB  LT      385     1577    0.005   0.244      8.3    B       8.3    B
    R       387     1583    0.005   0.244      8.3    B
EB  LTR    2060     3311    0.694   0.622      4.4    A       4.4    A
WB  DfL     166      266    0.290   0.622      2.8    A      11.1    B
    TR     1159     1862    0.897   0.622     11.5    B
              Intersection Delay =   8.6 sec/veh Intersection LOS = B
Lost Time/Cycle, L =   6.0 sec   Critical v/c(x)     = 0.872
---------------------------------------------------------------------------
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APPENDIX

HCS Analysis Worksheets

Unsignalized Intersections: Existing Conditions

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Old East Neck Road (E-W) Old Country Road
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... Existing Conditions: AM Peak Period (8:00-9:00 AM)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 <	0	0 >	1	0	0 >	0 <	0	0	0	0
Stop/Yield			N			N						
Volumes		177	17	188	703		11		48			
PHF		.95	.95	.95	.95		.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	195	
Potential Capacity: (pcph)	1103	
Movement Capacity: (pcph)	1103	
Prob. of Queue-Free State:	0.95	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	204	
Potential Capacity: (pcph)	1370	
Movement Capacity: (pcph)	1370	
Prob. of Queue-Free State:	0.84	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.72	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1133	
Potential Capacity: (pcph)	234	
Major LT, Minor TH Impedance Factor:	0.72	
Adjusted Impedance Factor:	0.72	
Capacity Adjustment Factor due to Impeding Movements	0.72	
Movement Capacity: (pcph)	168	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	13	168 >	538	7.7	0.4	B	7.7
NB R	56	1103 >					
WB L	218	1370		3.1	0.6	A	0.7

Intersection Delay = 0.9 sec/veh

HCS: Unsignalized Intersections   Release 2.1g   OL@OCPME.HC0   Page 1

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY   11747-
Ph: (516) 249-8822

Streets: (N-S) Old East Neck Road   (E-W) Old Country Road
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... Existing Conditions: PM Peak Period (5:00 - 6:00PM)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 <	0	0 >	1	0	0 >	0 <	0	0	0	0
Stop/Yield			N			N						
Volumes		705	5	56	289		12		221			
PHF		.95	.95	.95	.95		.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	744	
Potential Capacity: (pcph)	581	
Movement Capacity: (pcph)	581	
Prob. of Queue-Free State:	0.56	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	747	
Potential Capacity: (pcph)	755	
Movement Capacity: (pcph)	755	
Prob. of Queue-Free State:	0.91	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.90	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1108	
Potential Capacity: (pcph)	242	
Major LT, Minor TH Impedance Factor:	0.90	
Adjusted Impedance Factor:	0.90	
Capacity Adjustment Factor due to Impeding Movements	0.90	
Movement Capacity: (pcph)	217	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	14	217 >	535	13.4	2.9	C	13.4
NB R	256	581 >					
WB L	65	755		5.2	0.2	B	0.8

Intersection Delay = 2.6 sec/veh

HCS: Unsignalized Intersections Release 2.1g OL@ENAME.HC0 Page 1

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Old East Neck Road (E-W) Old South Path
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst................... Greg B
Date of Analysis.......... 12/16/99
Other Information......... Existing Conditions: AM Peak Period (8:00-9:00 AM)

Two-way Stop-controlled Intersection

	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R
No. Lanes	0	> 1	< 0	0	> 1	1	0	> 1	1	0	> 1	< 0
Stop/Yield			N			N						
Volumes	1	142	73	6	170	43	10	18	33	71	163	3
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	188	179
Potential Capacity: (pcph)	1112	1124
Movement Capacity: (pcph)	1112	1124
Prob. of Queue-Free State:	0.96	1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	226	224
Potential Capacity: (pcph)	1338	1341
Movement Capacity: (pcph)	1338	1341
Prob. of Queue-Free State:	0.99	1.00
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)		1700
Major LT Shared Lane Prob. of Queue-Free State:	0.99	1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	418	412
Potential Capacity: (pcph)	658	663
Capacity Adjustment Factor due to Impeding Movements	0.99	0.99
Movement Capacity: (pcph)	654	659
Prob. of Queue-Free State:	0.97	0.71

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	462	400
Potential Capacity: (pcph)	572	621
Major LT, Minor TH Impedance Factor:	0.71	0.96
Adjusted Impedance Factor:	0.77	0.97
Capacity Adjustment Factor due to Impeding Movements	0.77	0.94
Movement Capacity: (pcph)	442	582

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	12	442 >	557	6.9	0.1	B	
NB T	21	654 >					5.0
NB R	39	1112		3.4	0.0	A	
SB L	83	582 >					
SB T	189	659 >	636	10.0	2.5	B	10.0
SB R	3	1124 >					
EB L	1	1341		2.7	0.0	A	0.0
WB L	7	1338		2.7	0.0	A	0.1

Intersection Delay = 3.7 sec/veh

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Old East Neck Road (E-W) Old South Path
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst................... Greg B
Date of Analysis.......... 12/16/99
Other Information......... Existing Conditions: PM Peak Period (5:00-6:00 PM)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	1	0	> 1	1	0	> 1	< 0
Stop/Yield			N			N						
Volumes	0	231	83	4	280	138	9	52	53	19	32	0
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	286	295
Potential Capacity: (pcph)	992	981
Movement Capacity: (pcph)	992	981
Prob. of Queue-Free State:	0.94	1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	330	440
Potential Capacity: (pcph)	1194	1058
Movement Capacity: (pcph)	1194	1058
Prob. of Queue-Free State:	1.00	1.00
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)		1700
Major LT Shared Lane Prob. of Queue-Free State:	1.00	1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	730	629
Potential Capacity: (pcph)	452	510
Capacity Adjustment Factor due to Impeding Movements	1.00	1.00
Movement Capacity: (pcph)	450	508
Prob. of Queue-Free State:	0.86	0.93

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	602	642
Potential Capacity: (pcph)	474	450
Major LT, Minor TH Impedance Factor:	0.92	0.86
Adjusted Impedance Factor:	0.94	0.89
Capacity Adjustment Factor due to Impeding Movements	0.94	0.84
Movement Capacity: (pcph)	446	377

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	10	446 >	449	9.5	0.6	B	
NB T	61	450 >					6.9
NB R	62	992		3.9	0.1	A	
SB L	22	377 >					
SB T	37	508 >	450	9.2	0.5	B	9.2
SB R	0	981 >					
EB L	0	1058		3.4	0.0	A	0.0
WB L	4	1194		3.0	0.0	A	0.0

Intersection Delay = 1.4 sec/veh

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Wolfhill Road (E-W) Entrance/Exit EB NSP
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst.................. Greg B
Date of Analysis.......... 5/25/99
Other Information......... Existing Conditions: AM Peak Period (7:45 - 8:45AM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 <	0	0 >	1	0	0 >	0 <	0	0	0	0
Stop/Yield			N			N						
Volumes		672	28	311	204		145		50			
PHF		.95	.95	.95	.95		.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		215
Potential Capacity: (pcph)		1077
Movement Capacity: (pcph)		1077
Prob. of Queue-Free State:		0.95

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	736	
Potential Capacity: (pcph)	764	
Movement Capacity: (pcph)	764	
Prob. of Queue-Free State:	0.53	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.46	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		1264
Potential Capacity: (pcph)		196
Major LT, Minor TH Impedance Factor:		0.46
Adjusted Impedance Factor:		0.46
Capacity Adjustment Factor due to Impeding Movements		0.46
Movement Capacity: (pcph)		90

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	168	90 >	118	498.6	15.9	F	498.6
EB R	58	1077 >					
SB L	360	764		8.8	2.7	B	5.3

Intersection Delay = 70.9 sec/veh

HCS: Unsignalized Intersections Release 2.1g WO@ENSPE.HC0 Page 1

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Wolfhill Road (E-W) Entrance/Exit EB NSP
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst.................. Greg B
Date of Analysis.......... 5/25/99
Other Information......... Existing Conditions: PM Peak Period (5:00 - 6:00PM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 <	0	0 >	1	0	0 >	0 <	0	0	0	0
Stop/Yield			N			N						
Volumes		328	42	385	366		238		172			
PHF		.95	.95	.95	.95		.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		385
Potential Capacity: (pcph)		884
Movement Capacity: (pcph)		884
Prob. of Queue-Free State:		0.77

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	389	
Potential Capacity: (pcph)	1119	
Movement Capacity: (pcph)	1119	
Prob. of Queue-Free State:	0.60	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.48	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		1157
Potential Capacity: (pcph)		226
Major LT, Minor TH Impedance Factor:		0.48
Adjusted Impedance Factor:		0.48
Capacity Adjustment Factor due to Impeding Movements		0.48
Movement Capacity: (pcph)		110

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	276	110 >	174	830.5	39.2	F	830.5
EB R	199	884 >					
SB L	446	1119		5.3	2.1	B	2.7

Intersection Delay = 223.8 sec/veh

HCS: Unsignalized Intersections   Release 2.1g   WO@WNSAE.HC0   Page 1

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY   11747-3609
Ph: (516) 249-8822

Streets: (N-S) Wolfhill Road   (E-W) Entrance/Exit WB NSP
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... Existing Conditions: AM Peak Period (7:45 - 8:45AM)

Two-way Stop-controlled Intersection

	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
No. Lanes	1	1	0	0	1 <	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	246	553			494	275				5		232
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	582	
Potential Capacity: (pcph)	702	
Movement Capacity: (pcph)	702	
Prob. of Queue-Free State:	0.62	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		809
Potential Capacity: (pcph)		706
Movement Capacity: (pcph)		706
Prob. of Queue-Free State:		0.60

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	1506	
Potential Capacity: (pcph)	142	
Major LT, Minor TH Impedance Factor:	0.60	
Adjusted Impedance Factor:	0.60	
Capacity Adjustment Factor due to Impeding Movements	0.60	
Movement Capacity: (pcph)	85	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	6	85		45.5	0.1	F	9.0
WB R	268	702		8.3	1.9	B	
NB L	285	706		8.5	2.1	B	2.6

Intersection Delay = 2.3 sec/veh

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Wolf Hill Road (E-W) Entrance/Exit WB NSP
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... Existing Conditions: PM Peak Period (5:00 - 6:00PM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1 <	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	71	531			702	152				49		362
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	559	
Potential Capacity: (pcph)	721	
Movement Capacity: (pcph)	721	
Prob. of Queue-Free State:	0.42	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		899
Potential Capacity: (pcph)		639
Movement Capacity: (pcph)		639
Prob. of Queue-Free State:		0.87

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	1453	
Potential Capacity: (pcph)	153	
Major LT, Minor TH Impedance Factor:	0.87	
Adjusted Impedance Factor:	0.87	
Capacity Adjustment Factor due to Impeding Movements	0.87	
Movement Capacity: (pcph)	133	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	57	133		46.0	1.7	F	15.8
WB R	419	721		11.7	3.8	C	
NB L	83	639		6.5	0.4	B	0.8

Intersection Delay = 3.7 sec/veh

APPENDIX

HCS Analysis Worksheets

Unsignalized Intersections: No-Build Conditions

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Old East Neck Road (E-W) Old Country Road
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... No-Build Conditions: AM Peak Period (8:00-9:00 AM)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	< 0	0	> 1	0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes		218	18	202	794		12		52			
PHF		.95	.95	.95	.95		.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	238	
Potential Capacity: (pcph)	1049	
Movement Capacity: (pcph)	1049	
Prob. of Queue-Free State:	0.94	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	248	
Potential Capacity: (pcph)	1306	
Movement Capacity: (pcph)	1306	
Prob. of Queue-Free State:	0.82	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.65	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1288	
Potential Capacity: (pcph)	190	
Major LT, Minor TH Impedance Factor:	0.65	
Adjusted Impedance Factor:	0.65	
Capacity Adjustment Factor due to Impeding Movements	0.65	
Movement Capacity: (pcph)	123	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	14	123 >	436	10.0	0.6	B	10.0
NB R	61	1049 >					
WB L	234	1306		3.4	0.7	A	0.7

Intersection Delay = 1.0 sec/veh

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Old East Neck Road (E-W) Old Country Road
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst.................. Greg B
Date of Analysis.......... 5/25/99
Other Information......... No-Build Conditions: PM Peak Period (5:00 - 6:00PM)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 <	0	0 >	1	0	0 >	0 <	0	0	0	0
Stop/Yield			N			N						
Volumes		799	5	60	343		13		238			
PHF		.95	.95	.95	.95		.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	844	
Potential Capacity: (pcph)	517	
Movement Capacity: (pcph)	517	
Prob. of Queue-Free State:	0.47	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	846	
Potential Capacity: (pcph)	678	
Movement Capacity: (pcph)	678	
Prob. of Queue-Free State:	0.90	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.87	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1268	
Potential Capacity: (pcph)	195	
Major LT, Minor TH Impedance Factor:	0.87	
Adjusted Impedance Factor:	0.87	
Capacity Adjustment Factor due to Impeding Movements	0.87	
Movement Capacity: (pcph)	170	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	15	170 >					
			468	19.5	4.1	C	19.5
NB R	276	517 >					
WB L	69	678		5.9	0.3	B	0.9

Intersection Delay = 3.6 sec/veh

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Old East Neck Road   (E-W) Old South Path
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst................... Greg B
Date of Analysis.......... 12/16/99
Other Information......... No-Build Conditions: AM Peak Period (8:00-9:00 AM)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	1	0	> 1	1	0	> 1	< 0
Stop/Yield			N			N						
Volumes	1	167	78	6	201	46	11	19	35	76	175	3
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	217	212
Potential Capacity: (pcph)	1075	1081
Movement Capacity: (pcph)	1075	1081
Prob. of Queue-Free State:	0.96	1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	258	260
Potential Capacity: (pcph)	1292	1289
Movement Capacity: (pcph)	1292	1289
Prob. of Queue-Free State:	0.99	1.00
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)		1700
Major LT Shared Lane Prob. of Queue-Free State:	0.99	1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	484	477
Potential Capacity: (pcph)	608	613
Capacity Adjustment Factor due to Impeding Movements	0.99	0.99
Movement Capacity: (pcph)	604	609
Prob. of Queue-Free State:	0.96	0.67

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	530	464
Potential Capacity: (pcph)	522	570
Major LT, Minor TH Impedance Factor:	0.66	0.96
Adjusted Impedance Factor:	0.74	0.97
Capacity Adjustment Factor due to Impeding Movements	0.74	0.93
Movement Capacity: (pcph)	385	530

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	13	385 >	499	7.8	0.1	B	5.5
NB T	22	604 >					
NB R	41	1075		3.5	0.0	A	
SB L	88	530 >					
SB T	202	609 >	585	12.3	3.2	C	12.3
SB R	3	1081 >					
EB L	1	1289		2.8	0.0	A	0.0
WB L	7	1292		2.8	0.0	A	0.1

Intersection Delay = 4.3 sec/veh

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Old East Neck Road (E-W) Old South Path
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst.................. Greg B
Date of Analysis.......... 12/16/99
Other Information......... No-Build Conditions: PM Peak Period (5:00-6:00 PM)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	1	0	> 1	1	0	> 1	< 0
Stop/Yield			N			N						
Volumes	1	268	89	4	318	148	10	56	57	20	34	0
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	329	335
Potential Capacity: (pcph)	943	937
Movement Capacity: (pcph)	943	937
Prob. of Queue-Free State:	0.93	1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	376	491
Potential Capacity: (pcph)	1135	1000
Movement Capacity: (pcph)	1135	1000
Prob. of Queue-Free State:	1.00	1.00
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)		1700
Major LT Shared Lane Prob. of Queue-Free State:	1.00	1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	825	716
Potential Capacity: (pcph)	403	459
Capacity Adjustment Factor due to Impeding Movements	0.99	0.99
Movement Capacity: (pcph)	401	456
Prob. of Queue-Free State:	0.84	0.91

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	687	728
Potential Capacity: (pcph)	424	401
Major LT, Minor TH Impedance Factor:	0.91	0.83
Adjusted Impedance Factor:	0.93	0.87
Capacity Adjustment Factor due to Impeding Movements	0.93	0.81
Movement Capacity: (pcph)	394	325

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	12	394 >	400	11.1	0.8	C	
NB T	65	401 >					7.9
NB R	66	943		4.1	0.1	A	
SB L	23	325 >					
SB T	40	456 >	398	10.7	0.6	C	10.7
SB R	0	937 >					
EB L	1	1000		3.6	0.0	A	0.0
WB L	4	1135		3.2	0.0	A	0.0

Intersection Delay = 1.6 sec/veh

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Wolfhill Road (E-W) Entrance/Exit EB NSP
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... No-Build Conditions: AM Peak Period (7:45 - 8:45AM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 <	0	0 >	1	0	0 >	0 <	0	0	0	0
Stop/Yield			N			N						
Volumes		722	30	349	219		156		54			
PHF		.95	.95	.95	.95		.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		231
Potential Capacity: (pcph)		1058
Movement Capacity: (pcph)		1058
Prob. of Queue-Free State:		0.94

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	792	
Potential Capacity: (pcph)	719	
Movement Capacity: (pcph)	719	
Prob. of Queue-Free State:	0.44	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.35	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		1374
Potential Capacity: (pcph)		170
Major LT, Minor TH Impedance Factor:		0.35
Adjusted Impedance Factor:		0.35
Capacity Adjustment Factor due to Impeding Movements		0.35
Movement Capacity: (pcph)		59

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	180	59 >	78	*	21.8	F	*
EB R	63	1058 >					
SB L	404	719		11.2	3.6	C	6.9

Intersection Delay = 148.3 sec/veh

* The calculated value was greater than 999.9.

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Wolfhill Road (E-W) Entrance/Exit EB NSP
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst.................. Greg B
Date of Analysis.......... 5/25/99
Other Information......... No-Build Conditions: PM Peak Period (5:00 - 6:00PM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	< 0	0	> 1	0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes		353	45	414	414		256		185			
PHF		.95	.95	.95	.95		.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		436
Potential Capacity: (pcph)		833
Movement Capacity: (pcph)		833
Prob. of Queue-Free State:		0.74

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	419	
Potential Capacity: (pcph)	1082	
Movement Capacity: (pcph)	1082	
Prob. of Queue-Free State:	0.56	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.40	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		1268
Potential Capacity: (pcph)		195
Major LT, Minor TH Impedance Factor:		0.40
Adjusted Impedance Factor:		0.40
Capacity Adjustment Factor due to Impeding Movements		0.40
Movement Capacity: (pcph)		79

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	296	79 >	128	*	48.8	F	*
EB R	215	833 >					
SB L	480	1082		6.0	2.5	B	3.0

Intersection Delay = 374.8 sec/veh

* The calculated value was greater than 999.9.

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Wolfhill Road (E-W) Entrance/Exit WB NSP
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... No-Build Conditions: AM Peak Period (7:45 - 8:45AM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1 <	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	264	594			546	296				5		266
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	625	
Potential Capacity: (pcph)	668	
Movement Capacity: (pcph)	668	
Prob. of Queue-Free State:	0.54	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		887
Potential Capacity: (pcph)		648
Movement Capacity: (pcph)		648
Prob. of Queue-Free State:		0.53

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	1634	
Potential Capacity: (pcph)	120	
Major LT, Minor TH Impedance Factor:	0.53	
Adjusted Impedance Factor:	0.53	
Capacity Adjustment Factor due to Impeding Movements	0.53	
Movement Capacity: (pcph)	63	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	6	63		63.1	0.2	F	10.9
WB R	308	668		9.9	2.6	B	
NB L	306	648		10.4	2.6	C	3.2

Intersection Delay = 2.9 sec/veh

HCS: Unsignalized Intersections Release 2.1g WO@WNSPN.HC0 Page 1

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Wolf Hill Road (E-W) Entrance/Exit WB NSP
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... No-Build Conditions: PM Peak Period (5:00 - 6:00PM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1 <	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	76	571			766	163				53		406
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	601	
Potential Capacity: (pcph)	687	
Movement Capacity: (pcph)	687	
Prob. of Queue-Free State:	0.32	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		978
Potential Capacity: (pcph)		586
Movement Capacity: (pcph)		586
Prob. of Queue-Free State:		0.85

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	1573	
Potential Capacity: (pcph)	130	
Major LT, Minor TH Impedance Factor:	0.85	
Adjusted Impedance Factor:	0.85	
Capacity Adjustment Factor due to Impeding Movements	0.85	
Movement Capacity: (pcph)	110	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	62	110		68.5	2.3	F	21.9
WB R	470	687		15.8	5.3	C	
NB L	88	586		7.2	0.5	B	0.8

Intersection Delay = 5.2 sec/veh

APPENDIX

HCS Analysis Worksheets

Unsignalized Intersections: Build Conditions

HCS: Unsignalized Intersections Release 2.1g OL@OCAMB.HC0 Page 1

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Old East Neck Road (E-W) Old Country Road
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... Build Conditions: AM Peak Period (8:00-9:00 AM)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 <	0	0 >	1	0	0 >	0 <	0	0	0	0
Stop/Yield			N			N						
Volumes		218	45	214	794		39		64			
PHF		.95	.95	.95	.95		.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

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              Worksheet for TWSC Intersection
----------------------------------------------------------------------
Step 1: RT from Minor Street                      NB             SB
----------------------------------------------------------------------
Conflicting Flows: (vph)                          252
Potential Capacity: (pcph)                       1032
Movement Capacity: (pcph)                        1032
Prob. of Queue-Free State:                       0.93
----------------------------------------------------------------------
Step 2: LT from Major Street                      WB             EB
----------------------------------------------------------------------
Conflicting Flows: (vph)                          276
Potential Capacity: (pcph)                       1266
Movement Capacity: (pcph)                        1266
Prob. of Queue-Free State:                       0.80
TH Saturation Flow Rate: (pcphpl)                1700
RT Saturation Flow Rate: (pcphpl)
Major LT Shared Lane Prob.
 of Queue-Free State:                            0.61
----------------------------------------------------------------------
Step 4: LT from Minor Street                      NB             SB
----------------------------------------------------------------------
Conflicting Flows: (vph)                         1314
Potential Capacity: (pcph)                        184
Major LT, Minor TH
 Impedance Factor:                               0.61
Adjusted Impedance Factor:                       0.61
Capacity Adjustment Factor
 due to Impeding Movements                       0.61
Movement Capacity: (pcph)                         113
----------------------------------------------------------------------
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Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	45	113 >	253	26.3	2.3	D	26.3
NB R	74	1032 >					
WB L	248	1266		3.5	0.8	A	0.8

Intersection Delay = 2.5 sec/veh

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Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst.................. Greg B
Date of Analysis.......... 5/25/99
Other Information......... Build Conditions: PM Peak Period (5:00 - 6:00PM)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 <	0	0 >	1	0	0 >	0 <	0	0	0	0
Stop/Yield			N			N						
Volumes		799	35	80	343		44		25			
PHF		.95	.95	.95	.95		.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	860	
Potential Capacity: (pcph)	508	
Movement Capacity: (pcph)	508	
Prob. of Queue-Free State:	0.94	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	878	
Potential Capacity: (pcph)	654	
Movement Capacity: (pcph)	654	
Prob. of Queue-Free State:	0.86	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.82	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1304	
Potential Capacity: (pcph)	186	
Major LT, Minor TH Impedance Factor:	0.82	
Adjusted Impedance Factor:	0.82	
Capacity Adjustment Factor due to Impeding Movements	0.82	
Movement Capacity: (pcph)	153	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	51	153 >	205	28.4	1.7	D	28.4
NB R	29	508 >					
WB L	92	654		6.4	0.5	B	1.2

Intersection Delay = 1.9 sec/veh

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	601	
Potential Capacity: (pcph)	687	
Movement Capacity: (pcph)	687	
Prob. of Queue-Free State:	0.32	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		978
Potential Capacity: (pcph)		586
Movement Capacity: (pcph)		586
Prob. of Queue-Free State:		0.85

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	1573	
Potential Capacity: (pcph)	130	
Major LT, Minor TH Impedance Factor:	0.85	
Adjusted Impedance Factor:	0.85	
Capacity Adjustment Factor due to Impeding Movements	0.85	
Movement Capacity: (pcph)	110	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	62	110		68.5	2.3	F	21.9
WB R	470	687		15.8	5.3	C	
NB L	88	586		7.2	0.5	B	0.8

Intersection Delay = 5.2 sec/veh

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Old East Neck Road (E-W) Old South Path
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst................... Greg B
Date of Analysis.......... 12/16/99
Other Information......... Build Conditions: AM Peak Period (8:00-9:00 AM)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	1	0	> 1	1	0	> 1	< 0
Stop/Yield			N			N						
Volumes	1	181	78	6	216	46	11	19	35	76	175	3
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	232	227
Potential Capacity: (pcph)	1056	1062
Movement Capacity: (pcph)	1056	1062
Prob. of Queue-Free State:	0.96	1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	273	275
Potential Capacity: (pcph)	1271	1268
Movement Capacity: (pcph)	1271	1268
Prob. of Queue-Free State:	0.99	1.00
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)		1700
Major LT Shared Lane Prob. of Queue-Free State:	0.99	1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	514	507
Potential Capacity: (pcph)	586	591
Capacity Adjustment Factor due to Impeding Movements	0.99	0.99
Movement Capacity: (pcph)	582	587
Prob. of Queue-Free State:	0.96	0.66

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	560	494
Potential Capacity: (pcph)	502	548
Major LT, Minor TH Impedance Factor:	0.65	0.96
Adjusted Impedance Factor:	0.73	0.97
Capacity Adjustment Factor due to Impeding Movements	0.73	0.93
Movement Capacity: (pcph)	365	509

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	13	365 >	477	8.1	0.1	B	
NB T	22	582 >					5.7
NB R	41	1056		3.5	0.0	A	
SB L	88	509 >					
SB T	202	587 >	564	13.2	3.4	C	13.2
SB R	3	1062 >					
EB L	1	1268		2.8	0.0	A	0.0
WB L	7	1271		2.8	0.0	A	0.1

Intersection Delay = 4.4 sec/veh

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Streets: (N-S) Old East Neck Road (E-W) Old South Path
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst.................. Greg B
Date of Analysis.......... 12/16/99
Other Information......... Build Conditions: PM Peak Period (5:00-6:00 PM)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	1	0	> 1	1	0	> 1	< 0
Stop/Yield			N			N						
Volumes	0	282	89	4	337	148	10	56	57	20	34	0
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	344	355
Potential Capacity: (pcph)	927	915
Movement Capacity: (pcph)	927	915
Prob. of Queue-Free State:	0.93	1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	391	511
Potential Capacity: (pcph)	1116	979
Movement Capacity: (pcph)	1116	979
Prob. of Queue-Free State:	1.00	1.00
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)		1700
Major LT Shared Lane Prob. of Queue-Free State:	1.00	1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	859	750
Potential Capacity: (pcph)	386	441
Capacity Adjustment Factor due to Impeding Movements	1.00	1.00
Movement Capacity: (pcph)	384	439
Prob. of Queue-Free State:	0.83	0.91

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	721	762
Potential Capacity: (pcph)	405	383
Major LT, Minor TH Impedance Factor:	0.90	0.83
Adjusted Impedance Factor:	0.93	0.87
Capacity Adjustment Factor due to Impeding Movements	0.93	0.81
Movement Capacity: (pcph)	375	308

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	12	375 >	383	11.8	0.8	C	
NB T	65	384 >					8.2
NB R	66	927		4.2	0.1	A	
SB L	23	308 >					
SB T	40	439 >	380	11.4	0.6	C	11.4
SB R	0	915 >					
EB L	0	979		3.7	0.0	A	0.0
WB L	4	1116		3.2	0.0	A	0.0

Intersection Delay = 1.6 sec/veh

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Eschbacher Engineering
532 Broad Hollow Road
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Ph: (516) 249-8822

Streets: (N-S) Wolfhill Road (E-W) Entrance/Exit WB NSP
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst.................. Greg B
Date of Analysis.......... 5/25/99
Other Information......... No-Build Conditions: AM Peak Period (7:45 - 8:45AM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	< 0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	264	594			546	296				5		266
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	625	
Potential Capacity: (pcph)	668	
Movement Capacity: (pcph)	668	
Prob. of Queue-Free State:	0.54	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		887
Potential Capacity: (pcph)		648
Movement Capacity: (pcph)		648
Prob. of Queue-Free State:		0.53

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	1634	
Potential Capacity: (pcph)	120	
Major LT, Minor TH Impedance Factor:	0.53	
Adjusted Impedance Factor:	0.53	
Capacity Adjustment Factor due to Impeding Movements	0.53	
Movement Capacity: (pcph)	63	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	6	63		63.1	0.2	F	10.9
WB R	308	668		9.9	2.6	B	
NB L	306	648		10.4	2.6	C	3.2

Intersection Delay = 2.9 sec/veh

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Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Wolf Hill Road (E-W) Entrance/Exit WB NSP
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... No-Build Conditions: PM Peak Period (5:00 - 6:00PM)
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	< 0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	76	571			766	163				53		406
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	601	
Potential Capacity: (pcph)	687	
Movement Capacity: (pcph)	687	
Prob. of Queue-Free State:	0.32	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		978
Potential Capacity: (pcph)		586
Movement Capacity: (pcph)		586
Prob. of Queue-Free State:		0.85

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	1573	
Potential Capacity: (pcph)	130	
Major LT, Minor TH Impedance Factor:	0.85	
Adjusted Impedance Factor:	0.85	
Capacity Adjustment Factor due to Impeding Movements	0.85	
Movement Capacity: (pcph)	110	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	62	110		68.5	2.3	F	21.9
WB R	470	687		15.8	5.3	C	
NB L	88	586		7.2	0.5	B	0.8

Intersection Delay = 5.2 sec/veh

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Streets: (N-S) Wolfhill Road   (E-W) Entrance/Exit EB NSP
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... Build Conditions: AM Peak Period (7:45 - 8:45AM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 <	0	0 >	1	0	0 >	0 <	0	0	0	0
Stop/Yield			N			N						
Volumes		722	30	371	219		158		54			
PHF		.95	.95	.95	.95		.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		231
Potential Capacity: (pcph)		1058
Movement Capacity: (pcph)		1058
Prob. of Queue-Free State:		0.94

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	792	
Potential Capacity: (pcph)	719	
Movement Capacity: (pcph)	719	
Prob. of Queue-Free State:	0.40	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.31	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		1398
Potential Capacity: (pcph)		164
Major LT, Minor TH Impedance Factor:		0.31
Adjusted Impedance Factor:		0.31
Capacity Adjustment Factor due to Impeding Movements		0.31
Movement Capacity: (pcph)		50

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	183	50 >	66	*	23.5	F	*
EB R	63	1058 >					
SB L	430	719		12.2	4.1	C	7.7

Intersection Delay = 187.4 sec/veh

* The calculated value was greater than 999.9.

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Streets: (N-S) Wolfhill Road (E-W) Entrance/Exit EB NSP
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... Build Conditions: PM Peak Period (5:00 - 6:00PM)
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	< 0	0	> 1	0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes		353	45	440	414		261		185			
PHF		.95	.95	.95	.95		.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		436
Potential Capacity: (pcph)		833
Movement Capacity: (pcph)		833
Prob. of Queue-Free State:		0.74

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	419	
Potential Capacity: (pcph)	1082	
Movement Capacity: (pcph)	1082	
Prob. of Queue-Free State:	0.53	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.37	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		1294
Potential Capacity: (pcph)		189
Major LT, Minor TH Impedance Factor:		0.37
Adjusted Impedance Factor:		0.37
Capacity Adjustment Factor due to Impeding Movements		0.37
Movement Capacity: (pcph)		69

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	303	69 >	111	*	51.6	F	*
EB R	215	833 >					
SB L	509	1082		6.2	2.8	B	3.2

Intersection Delay = 454.1 sec/veh

* The calculated value was greater than 999.9.

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Streets: (N-S) Wolfhill Road (E-W) Entrance/Exit WB NSP
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... Build Conditions: AM Peak Period (7:45 - 8:45AM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1 <	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	264	596			568	300				5		284
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	627	
Potential Capacity: (pcph)	666	
Movement Capacity: (pcph)	666	
Prob. of Queue-Free State:	0.51	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		914
Potential Capacity: (pcph)		629
Movement Capacity: (pcph)		629
Prob. of Queue-Free State:		0.51

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	1661	
Potential Capacity: (pcph)	116	
Major LT, Minor TH Impedance Factor:	0.51	
Adjusted Impedance Factor:	0.51	
Capacity Adjustment Factor due to Impeding Movements	0.51	
Movement Capacity: (pcph)	60	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	6	60		66.6	0.2	F	11.5
WB R	329	666		10.6	2.9	C	
NB L	306	629		11.0	2.8	C	3.4

Intersection Delay = 3.1 sec/veh

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Wolf Hill Road (E-W) Entrance/Exit WB NSP
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... Build Conditions: PM Peak Period (5:00 - 6:00PM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1 <	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	76	576			790	167				53		438
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	606	
Potential Capacity: (pcph)	683	
Movement Capacity: (pcph)	683	
Prob. of Queue-Free State:	0.26	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		1008
Potential Capacity: (pcph)		567
Movement Capacity: (pcph)		567
Prob. of Queue-Free State:		0.84

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	1606	
Potential Capacity: (pcph)	124	
Major LT, Minor TH Impedance Factor:	0.84	
Adjusted Impedance Factor:	0.84	
Capacity Adjustment Factor due to Impeding Movements	0.84	
Movement Capacity: (pcph)	105	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	62	105		74.8	2.4	F	24.9
WB R	507	683		18.9	6.4	C	
NB L	88	567		7.5	0.6	B	0.9

Intersection Delay = 6.1 sec/veh

APPENDIX

HCS Analysis Worksheets

Site Driveways

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Old East Neck Road (E-W) Site Driveway
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... Build Conditions: AM Peak Period (7:45-8:45 AM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 <	0	0	> 1	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		54	1	39	242					1		33
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10						1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	58	
Potential Capacity: (pcph)	1294	
Movement Capacity: (pcph)	1294	
Prob. of Queue-Free State:	0.97	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	58	
Potential Capacity: (pcph)	1609	
Movement Capacity: (pcph)	1609	
Prob. of Queue-Free State:	0.97	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.97	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	354	
Potential Capacity: (pcph)	660	
Major LT, Minor TH Impedance Factor:	0.97	
Adjusted Impedance Factor:	0.97	
Capacity Adjustment Factor due to Impeding Movements	0.97	
Movement Capacity: (pcph)	638	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	1	638		5.7	0.0	B	3.0
WB R	39	1294		2.9	0.0	A	
SB L	45	1609		2.3	0.0	A	0.3

Intersection Delay = 0.5 sec/veh

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY   11747-3609
Ph: (516) 249-8822

Streets: (N-S) Old East Neck Road   (E-W) Site Driveway
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... Build Conditions: PM Peak Period (4:45-4:45 PM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 <	0	0 >	1	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		242	1	59	46					1		48
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10						1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	256	
Potential Capacity: (pcph)	1027	
Movement Capacity: (pcph)	1027	
Prob. of Queue-Free State:	0.95	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	256	
Potential Capacity: (pcph)	1294	
Movement Capacity: (pcph)	1294	
Prob. of Queue-Free State:	0.95	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.95	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	366	
Potential Capacity: (pcph)	650	
Major LT, Minor TH Impedance Factor:	0.95	
Adjusted Impedance Factor:	0.95	
Capacity Adjustment Factor due to Impeding Movements	0.95	
Movement Capacity: (pcph)	615	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	1	615		5.9	0.0	B	3.8
WB R	56	1027		3.7	0.0	A	
SB L	68	1294		2.9	0.0	A	1.6

Intersection Delay = 0.9 sec/veh

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Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Old South Path (E-W) East Site Driveway
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... Build Conditions: AM Peak Period (8:00-9:00 AM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 <	0	0 >	1	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		244	75	7	288					75		7
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10						1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	296	
Potential Capacity: (pcph)	980	
Movement Capacity: (pcph)	980	
Prob. of Queue-Free State:	0.99	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	336	
Potential Capacity: (pcph)	1186	
Movement Capacity: (pcph)	1186	
Prob. of Queue-Free State:	0.99	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.99	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	606	
Potential Capacity: (pcph)	472	
Major LT, Minor TH Impedance Factor:	0.99	
Adjusted Impedance Factor:	0.99	
Capacity Adjustment Factor due to Impeding Movements	0.99	
Movement Capacity: (pcph)	468	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	87	468		9.4	0.7	B	9.0
WB R	8	980		3.7	0.0	A	
SB L	8	1186		3.1	0.0	A	0.1

Intersection Delay = 1.1 sec/veh

HCS: Unsignalized Intersections   Release 2.1g   OL@ESDPB.HC0   Page 1

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Old South Path   (E-W) East Site Driveway
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... Build Conditions: PM Peak Period (5:00-6:00 PM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 <	0	0	> 1	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		472	120	12	340					104		10
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10						1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	560	
Potential Capacity: (pcph)	720	
Movement Capacity: (pcph)	720	
Prob. of Queue-Free State:	0.98	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	623	
Potential Capacity: (pcph)	865	
Movement Capacity: (pcph)	865	
Prob. of Queue-Free State:	0.98	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.98	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	931	
Potential Capacity: (pcph)	306	
Major LT, Minor TH Impedance Factor:	0.98	
Adjusted Impedance Factor:	0.98	
Capacity Adjustment Factor due to Impeding Movements	0.98	
Movement Capacity: (pcph)	300	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	120	300		19.8	1.9	C	18.5
WB R	12	720		5.1	0.0	B	
SB L	14	865		4.2	0.0	A	0.1

Intersection Delay = 2.0 sec/veh

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Old South Path (E-W) West Site Driveway
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... Build Conditions: AM Peak Period (8:00-9:00 AM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	< 0	0	> 1	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		244	6	7	288					6		8
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10						1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	260	
Potential Capacity: (pcph)	1022	
Movement Capacity: (pcph)	1022	
Prob. of Queue-Free State:	0.99	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	263	
Potential Capacity: (pcph)	1285	
Movement Capacity: (pcph)	1285	
Prob. of Queue-Free State:	0.99	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.99	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	570	
Potential Capacity: (pcph)	495	
Major LT, Minor TH Impedance Factor:	0.99	
Adjusted Impedance Factor:	0.99	
Capacity Adjustment Factor due to Impeding Movements	0.99	
Movement Capacity: (pcph)	491	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	7	491		7.4	0.0	B	5.2
WB R	9	1022		3.6	0.0	A	
SB L	8	1285		2.8	0.0	A	0.1

Intersection Delay = 0.2 sec/veh

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Old South Path (E-W) West Site Driveway
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst.................. Greg B
Date of Analysis.......... 5/25/99
Other Information......... Build Conditions: PM Peak Period (5:00-6:00 PM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	< 0	0 >	1	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		472	10	12	340					9		9
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10						1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	502	
Potential Capacity: (pcph)	771	
Movement Capacity: (pcph)	771	
Prob. of Queue-Free State:	0.99	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	508	
Potential Capacity: (pcph)	982	
Movement Capacity: (pcph)	982	
Prob. of Queue-Free State:	0.99	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.98	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	874	
Potential Capacity: (pcph)	330	
Major LT, Minor TH Impedance Factor:	0.98	
Adjusted Impedance Factor:	0.98	
Capacity Adjustment Factor due to Impeding Movements	0.98	
Movement Capacity: (pcph)	324	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	10	324		11.5	0.0	C	8.1
WB R	10	771		4.7	0.0	A	
SB L	14	982		3.7	0.0	A	0.1

Intersection Delay = 0.2 sec/veh

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

Streets: (N-S) Carman Road (E-W) Site Driveway
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... Build Conditions: AM Peak Period (7:45-8:45 AM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	0	0	1 <	0	1	0	1	0	0	0
Stop/Yield			N			N						
Volumes	8	305			365	4	12		20			
PHF	.95	.95			.95	.95	.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		386
Potential Capacity: (pcph)		883
Movement Capacity: (pcph)		883
Prob. of Queue-Free State:		0.97

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		388
Potential Capacity: (pcph)		1120
Movement Capacity: (pcph)		1120
Prob. of Queue-Free State:		0.99
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:		0.99

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		715
Potential Capacity: (pcph)		408
Major LT, Minor TH Impedance Factor:		0.99
Adjusted Impedance Factor:		0.99
Capacity Adjustment Factor due to Impeding Movements		0.99
Movement Capacity: (pcph)		404

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	14	404		9.2	0.0	B	6.1
EB R	23	883		4.2	0.0	A	
NB L	9	1120		3.2	0.0	A	0.1

Intersection Delay = 0.3 sec/veh

===

Eschbacher Engineering
532 Broad Hollow Road
Melville, NY 11747-3609
Ph: (516) 249-8822

===

Streets: (N-S) Carman Road   (E-W) Site Driveway
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst................... Greg B
Date of Analysis.......... 5/25/99
Other Information......... Build Conditions: PM Peak Period (5:00-6:00 PM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	0	0	1 <	0	1	0	1	0	0	0
Stop/Yield			N			N						
Volumes	24	348			212	12	7		13			
PHF	.95	.95			.95	.95	.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		230
Potential Capacity: (pcph)		1059
Movement Capacity: (pcph)		1059
Prob. of Queue-Free State:		0.99

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		236
Potential Capacity: (pcph)		1323
Movement Capacity: (pcph)		1323
Prob. of Queue-Free State:		0.98
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:		0.97

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		620
Potential Capacity: (pcph)		463
Major LT, Minor TH Impedance Factor:		0.97
Adjusted Impedance Factor:		0.97
Capacity Adjustment Factor due to Impeding Movements		0.97
Movement Capacity: (pcph)		451

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	8	451		8.1	0.0	B	5.1
EB R	15	1059		3.4	0.0	A	
NB L	28	1323		2.8	0.0	A	0.2

Intersection Delay = 0.3 sec/veh