DRAFT ENVIRONMENTAL IMPACT STATEMENT

FOR THE

"VILLAS AT BRIERWOOD AND BRIERWOOD SQUARE" PLANNED UNIT DEVELOPMENT

A PROPOSED

"ACTIVE ADULT LIFESTYLE COMMUNITY"

IN THE

TOWN OF HAMBURG, ERIE COUNTY, NEW YORK

PROJECT SPONSOR: VANDERBILT PROPERTIES, INC.

PREPARED BY: METZGER CIVIL ENGINEERING, PLLC

IN CONJUNCTION WITH : EmpireGeo Services, Inc. - Evans, Mechwart, Hambleton &Tilton, Inc. - Leader Professional Services, Inc. SRF Associates - TECsmith - TVGA Consultants - and - Wetlands Investigation, Co.

DRAFT ENVIRONMENTAL IMPACT STATEMENT

for

Proposed Project: "Villas at Brierwood" and "Brierwood Square"

Project Location: Town of Hamburg, Erie County, New York
Southeast Quadrant of
Southwestern Boulevard and Amsdell Road

Project Sponsor / Applicant: Vanderbilt Properties, Inc.

SEQR Lead Agency: Town of Hamburg Town Board
Town of Hamburg Town Hall
S6100 South Park Avenue
Hamburg, New York 14075

Contact: Town of Hamburg Planning Department,
Andrew C. Reilly, P.E., AICP
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TECsmith
TVGA Consultants
Wetlands Investigation, Co.

Date of Acceptance by the SEQR Lead Agency: ________________

Comments Must Be Received By: ______________________

4/19/2007

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"Villas at Brierwood" and "Brierwood Square"

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1.0 Executive Summary

Pursuant to 6 NYCRR Part 617, State Environmental Quality Review (SEQR), the Town of Hamburg Town Board, as SEQR Lead Agency, has required that the project sponsor “Vanderbilt Properties” prepare a Draft Environmental Impact Statement (DEIS). The purpose of the DEIS is to assess the potential environmental impacts associated with the proposed Planned Unit Development named “Villa’s at Brierwood” and “Brierwood Square”. The DEIS has been submitted to the Town of Hamburg as SEQR Lead Agency for coordinated review by all involved agencies.

The project site is located on a property that is partially bounded by Southwestern Boulevard, Amsdell Road and Pleasant Avenue, on the east side of Southwestern Boulevard in the Town of Hamburg, Erie County, New York. The proposed project involves the rezoning of approximately 43 acres of land from R-A (Residential Agriculture) to PUD (Planned Unit Development) and the construction of an Active Adult Lifestyle Community (“Villas at Brierwood”) consisting of 150 condominiums and 25,410 +/- square feet of retail/office space (“Brierwood Square”). In addition, an amendment to the Town of Hamburg’s 2010 Comprehensive Plan is required. The Comprehensive Plan would be amended to remove several properties with frontage on Amsdell Road and three properties with frontage on Southwestern Boulevard north of Amsdell Road from the Lakeview Overlay District.

The project sponsor has gone to great lengths in the project planning phase in order to minimize any adverse impacts on the environment and to maximize the benefits to the community and neighborhood. This DEIS assesses these potential impacts and benefits as well as how the project complements the goals and objectives outlined in the Town’s 2010 Comprehensive Plan – even though the project requires re-zoning of the property and amendment to the Comprehensive Plan.

One of the goals of the Town’s 2010 Comprehensive Plan is to “provide a diverse living environment for its people”. With the growing demographic of people over 60-years old in the Town, the project sponsor has identified the need for an Active Adult Lifestyle Community. This type of residential community is different than much of the other housing in the Town and is tailored to the lifestyle of this growing population. It is very popular in other areas of the country. By providing this unique housing option in the Town, current residents seeking this type of lifestyle would be likely to stay in the community with their family and friends.

The project sponsor has undertaken several studies to address impacts associated with the development. Engineering and Scientific investigations have been reviewed and the proposed site plan has been revised several times to incorporate the conclusions and recommendations of the studies and investigations. These Engineering and Scientific investigations are included in Appendix D of this DEIS.

Adverse environmental impacts are inevitable with any type of development. In preparing this DEIS, it has been concluded that adverse environmental impacts could result from this project. However, through careful and thoughtful implementation of the mitigation measures identified in this document, adverse environmental impacts can be eliminated or at least minimized. Furthermore, this environmental review process has identified positive impacts that this project would have on the environment and community.

The “Villas at Brierwood” and “Brierwood Square” will be an asset to the Community by providing a unique Active Adult Lifestyle living environment for its retired residents and those approaching retirement, while maintaining the character of the neighborhood and preserving natural open spaces, wooded and wetland areas. In addition, the “Villas at Brierwood” and “Brierwood Square” will increase the tax revenue base with no adverse impacts on public infrastructure (e.g., roads, sewers, municipal water supply), on schools, or on emergency services.

2.0 Introduction

The Town of Hamburg Town Board, as Lead Agency, has required the preparation of a Draft Environmental Impact Statement (DEIS) pursuant to 6 NYCRR Part 617, State Environmental Quality Review (SEQR). The purpose of the DEIS is to evaluate the potential impacts of the proposed project.

The proposed project involves the rezoning of approximately 43 acres of land from R-A (Residential Agriculture) to PUD (Planned Unit Development) and the construction of an Active Adult Lifestyle Community ("Villas at Brierwood") consisting of 150 condominiums and 25,410 +/- square feet of retail/office space ("Brierwood Square"). The project site is located on Southwestern Boulevard, approximately 900 feet south of Amsdell Road, in the Town of Hamburg, Erie County, New York. The proposed project includes highway access and roadway improvements, the creation of an on-site storm water management system, water system improvements, site lighting, landscaping and parking for +/- 125 vehicles in the "Brierwood Square" development in addition to the individual parking spaces at the condominiums to support the proposed use. This action requires the rezoning of approximately 43 acres of land, as well as an amendment to the Town of Hamburg Comprehensive Plan. An amendment would be required because this parcel of land is located in what is defined in the 2010 Comprehensive Plan as the Lakeview Area, in which residential re-zonings will only be considered for extenuating circumstances to preserve important features or "for use, and not increased density". By definition, a PUD is a higher density use than a permitted use in the R-A zoning district.

However, the 2010 Comprehensive Plan identifies the following goals and objectives in which the proposed project will help achieve:

- "The Town will encourage balanced growth to provide for a diverse living environment for its people, at all income levels, that builds upon past development and creates a safe environment for the future:
  - Provide for adequate buffering of future development.
  - Accommodate a variety of residential housing types in the community."

This project will fill a void in the types of housing available to Active Adults approaching retirement age and those who are already retired and looking to downsize and stay in the community.

- "The Town will promote the full utilization of public facilities and services through the orderly development of future growth:
  - Encourage the "infilling" of appropriate vacant developable areas by directing future growth into lands with adequate public services."

The project sponsor spent nearly 2 years researching properties within the Town that would be suitable for this type of project. There was no place in Town within the proper zoning for this type of development. The proposed location is well suited for this type of development as it provides a transition between the commercial and denser residential areas to the north of Amsdell Road to the less dense Lakeview Area. Public services are essentially readily available to the site without encouraging future sprawl and thereby protecting the character of the community.

- "The natural resources of the Town will be protected by respecting the development limitations of environmentally sensitive areas and preserving their integrity."

Although this project is not located within an identified environmentally sensitive area, the project sponsor has made special effort to avoid development within an existing wetland area and preserve a large area of natural open space. In addition, the Active Adult Lifestyle Community will be "clustered" in that the residentially used areas will be more dense in order to leave vast areas of open space and buffering; a theme consistent with this type of housing and lifestyle.

The project will also have economic benefits to the entire community as tax revenue generated by the development is expected to be well in excess of any initial and/or maintenance costs incurred by the Town. This development will ultimately be a great asset to the community with minimal environmental impacts.

3.0 State Environmental Quality Review (SEQR) Process & Chronology

When the State Environmental Quality Review Act (SEQR) became law in 1975, New York became the twenty-second state to enact an environmental review law. SEQR provides a process for the consideration of potential environmental impacts in the early planning stages of actions. By incorporating a systematic interdisciplinary approach to environmental review, impacts can be identified and projects can be modified, as needed, to avoid or minimize potential adverse impacts to the environment.

All discretionary decisions of a state, regional or local agency to approve, fund or directly undertake an action that may affect the environment are subject to review under the SEQR. SEQR, as implemented by 6 NYCRR Part 617, requires the consideration of environmental factors in the early stages of planning, review and decision-making processes of state, regional and local agencies. The intent of SEQR is that a balance of social, economic and environmental factors is incorporated into the planning and decision-making process.

3.1 Project Classification and Lead Agency Designation

In accordance with 6 NYCRR, Part 617 of the SEQR implementing regulations, the Town of Hamburg Town Board (the Town) classified the Project as an Unlisted action for the purposes of environmental review, based on a determination that the proposed action would involve the construction of 148 residential units and the physical alteration of less than 10 acres of land for commercial use. Due to the magnitude of the project and the interpretation of the Type I action list (requires the amendment of the Comprehensive Plan), the Town will conservatively treat this as a Type I action. This threshold for a Type 1 action is set forth in 6 NYCRR Part 617.4(b). The SEQR regulations require the lead agency to conduct a Coordinated Environmental Review for all Type 1 actions. Therefore, on July 11, 2006 the Hamburg Town

Board initiated a Coordinated Review of the proposed action to request Lead Agency designation and to solicit comments from all Involved and Interested Agencies.

In accordance with Part 617.7, upon receipt and review of all agency comments, the Environmental Assessment Form and other application materials submitted by the project sponsor, the Town considered the potential environmental impacts of the proposed project and determined that this action may result in significant impacts to the environment and that a Draft Environmental Impact Statement (DEIS) must be prepared. The Town of Hamburg Town Board issued a Positive Declaration to this effect on December 11, 2006.

3.2 Purpose of the Scoping Process

It is the responsibility of the SEQR Lead Agency to organize and conduct scoping. The purpose of the scoping process is to identify the relevant environmental issues to be addressed in a Draft Environmental Impact Statement (DEIS). These issues are determined based on a full review of the Environmental Assessment Form (EAF), Parts 1 and 2, the Positive Declaration, the site plan application and accompanying site plan, and comments received from Involved and Interested Agencies and the general public.

The objectives of project scoping are to:

1 Identify/confirm significant environmental issues;

2 Eliminate insignificant or irrelevant issues;

3 Identify limits or extent of impact analysis;

4 Identify the range of reasonable alternatives to be addressed; and

5 Identify potential mitigation measures.

On December 14, 2006, the project sponsor submitted a draft Scoping document to the Town. As part of the DEIS process, and in accordance with SEQR Part 617.8, the Town Planning Board and Town Board conducted a Public Scoping Meeting on January 3, 2007 at the Hamburg Town Hall. The Town received numerous comments, as well as comment letters, related to the potential impacts of the proposed project. These comments were considered in the development of this Final Scoping Document.

The scoping session was conducted in order to gather public and agency input regarding the topics and methodology of study for the DEIS. The public scoping process ensures that the DEIS will be a concise, accurate and complete document upon which all Involved Agencies can base their individual decisions regarding the proposed project. By including the public, as well as other agencies in the scoping process, the SEQR lead agency can obtain additional information and specialized knowledge that may reduce the likelihood of additional issues arising during the public review period for the DEIS. It is the responsibility of the Town of Hamburg Town Board, as SEQR Lead Agency (with the assistance of the Planning Board), to complete the scoping process, issue the Final Scoping document and oversee the completion of the DEIS.

3.3 SEQR Review Agencies

In the SEQR process, there are three types of agencies: the Lead Agency, Involved Agencies and Interested Agencies. The Lead Agency is the one agency amongst all of the Involved Agencies that has the responsibility under SEQR to coordinate the environmental review process for the proposed action. The Town of Hamburg Town Board was designated as the Lead Agency for this action because this Board has the primary jurisdiction over the rezoning of the site. Through the Coordinated Review process, other agencies, including the Hamburg Planning Board, were provided the opportunity to submit comments on the proposed action and concur with the designation of the Town Board as the Lead Agency.

Involved Agencies are agencies that have jurisdiction to fund, approve or directly undertake an action. Known Involved Agencies for the proposed action include:

1. New York State Department of Environmental Conservation
2. New York State Department of Transportation
3. Erie County Health Department
4. Erie County Department of Public Works
5. Erie County Sewer District
6. Erie County Water Authority
7. Town of Hamburg Highway Department
8. Town of Hamburg Water and Sewer Department
9. Town of Hamburg Building Inspector
10. Hamburg Town Board
11. Town of Hamburg Zoning Board of Appeals
12. Hamburg Town Attorney
13. Erie County Dept. of Environment & Planning

Interested Agencies are agencies that do not have (at the time of the environmental review) permitting, funding or approval jurisdiction directly related to the proposed action, but may desire to participate in the review process because of their expertise or concern regarding the action. Interested Agencies also include agencies that may have jurisdiction over a permit or approval related to the action in the future. For this project, Interested Agencies include, but may not be limited to:

1. Lakeshore Volunteer Fire Company
2. Hamburg Traffic Safety Advisory Board
3. Hamburg Conservation Advisory Board

4.1 Project Description

The proposed "Villas at Brierwood" project site is generally located in the southeast quadrant of the Southwestern Boulevard (NYS Route 20) and Amsdell Road (Erie County Road No. 122) intersection, in the Town of Hamburg, in southwestern Erie County, New York. Currently the 43.38± acre project site consists of two parcels of vacant land that do not have assigned street addresses, but are identified by SBL numbers 182.00-4-13.1 and 182.00-4-19 (See Appendix A - Tax Map). This land consists primarily of abandoned farm fields with a 6± acre wooded area located along the northern half of the eastern boundary; and a 2.52± acre Federal Wetland area located within the northern section of the wooded area. The non-wooded portions of the site consist mainly of grasses and scrub vegetation. An existing drainage ditch runs from the south towards the north along the common boundary line of the aforementioned parcels to an intermittent stream which traverses the northern end of the site from east to west.

The visual setting of the project site is generally rural residential. The view from within the project area encompasses large vacant fields surrounded by woods and/or hedgerows on the north, south and east sides. The streetscapes on the bordering roadways consist of a mixture of single-family homes, attached single-family homes, and mixed commercial uses including office, retail, a fire hall and various small businesses.

The proposed project is designed to complement the surrounding land uses. There are three components to the proposed development, as shown on the “Concept Plan for Villas at Brierwood and Brierwood Square” in Appendix A and generally described as follows: 1) A 39± acre condominium area with 150 ranch-style condominium units for an Active Adult Lifestyle Community with a clubhouse and swimming pool, 12.18 acres of natural/open/green space, Three stormwater detention ponds totaling 1.85+/- acres, a nature trail for the recreational enjoyment of residents, and protection of the existing 2.5± acre wetland area; 2) Retail and office space, which will provide a variety of use types and services for the convenience of the residents of the "Villas at Brierwood" and the surrounding neighborhood; and 3) Three single-family residential home sites (two, 0.275+/- acre lots fronting Pleasant Avenue at the southeast corner of the project site and one 0.38+/- acre lot fronting Amsdell Road at the northeast corner of the project site.) The Active Adult Lifestyle Community will be clustered in that the residentially used areas will be densified in order to be able to leave the vast areas of open space and buffering; a theme consistent with this type of housing and lifestyle. The perimeter of the entire project will be a green space buffer. A variety of evergreen trees will be planted along the perimeter of the project in a natural fashion to augment the existing hedgerows and woodlands comprised of mature deciduous trees that surround the project site. The evergreens will enhance the landscape screening, especially in the winter time, and will provide noise and wind abatement in the project area. The evergreen plantings will add diversity to the trees in the project area.

The green space buffer around the perimeter of the site includes approximately 3.75 +/- acres of woodland, of which 2.52 acres are the existing federal wetlands. Most of the green space buffer area is located on the east side of the project site which borders a large woodland area that extends into several properties east of the site. A 100-foot wide green space buffer extends south from the woodland along a tree line to the rear of the residences on Pleasant Avenue. A 50-foot wide green space buffer extends across the entire southern boundary. In addition, a 30-foot wide buffer will extend along the eastern boundary of the site and between the condominium area and the retail/office space portion of the project.

The existing site is currently accessed directly from Southwestern Boulevard with no clear lane. Access to the proposed project site will be from the frontage on Southwestern Boulevard about 1/4 mile south of the intersection of Southwestern Boulevard and Amsdell Road. Separate driveways will be provided for the condominium and office/retail areas. A single 26-foot wide driveway will be provided for access into the condominium area, with a curb cut along the driveway for access into the office/retail area. Primary access to the office/retail area from outside the Villas area will be provided by a single driveway directly from Southwestern Boulevard. Secondary emergency Access to and from the condominium area is provided using the primary entrance into the office/retail area and proceeding through the drive aisles to the rear of the office/retail area.

The on-site traffic flow is accommodated by a 26-foot wide loop road and driveways to each condominium unit. The internal road system is interconnected with no dead ends offering the best available emergency response routes. The Villas portions of the development will be linked to the “Brierwood Square” area by sidewalks for pedestrian circulation.

Each of the condominium units includes a two car garage, as well as a driveway capable of accommodating two more vehicles. Off-street parking is provided at the clubhouse. The retail/office space is designed to provide the necessary parking, loading and stacking areas as required by the Town of Hamburg.

The stormwater management system will be designed to collect, treat and attenuate stormwater runoff from the developed site. Collection of stormwater runoff will be accomplished by conveying overland flows to a storm sewer system consisting of catch basins, manholes and piping to carry the stormwater to the wet detention ponds. The on-site wet detention ponds will receive, treat and attenuate stormwater runoff flows prior to being discharged into the existing cross property drainageway.

The following is a list of agencies and anticipated approvals required for the proposed "Villas at Brierwood" project:

- Town of Hamburg approvals include:
  - Town Board
    - rezoning
    - amendment to the Town’s 2010 Comprehensive Plan
    - site plan approval
  - Town Planning Board
    - rezoning recommendation
    - site plan approval
- Erie County Department of Health
  - Approvals for water and sewer extensions
  - Realty Subdivision approval
- Erie County Water Authority
  - Waterline extension and service approval
- Erie County Department of Public Works, Division of Highways
  - Right-of-way work permits for Amsdell Road and Pleasant Avenue;

single-family home lot driveways

- Other Local Agencies
  - None
- Other Regional Agencies
  - Erie County Department of Planning - recommendation under General Municipal Law 239-m
- State Agencies
  - New York State Department of Health - backflow preventer approval
  - NYSDEC Approvals for sanitary sewer extensions; and Stormwater General Permit - Phase 2 SPDES
  - NYSDOT - Highway Work Permit, Driveway Permit
- Federal Agencies
  - None

It is not anticipated that any variances will be required or requested.

A Homeowners Association will be established for the Active Adult Lifestyle Community for the ownership of all common areas. Residents will own their own homes and land beneath. The retail/office space area will be privately owned.

4.2 General Environmental Setting

The following chapter describes the environmental setting of the proposed "Villas at Brierwood" project site. This chapter provides a detailed description of the project site and the surrounding environment. The information set forth in this chapter is based upon on-site inspections, review of available reports, maps, photographs, tax records, engineering feasibility, scientific studies and discussions with the state and local agencies that have jurisdiction over the project. The information is provided to ensure a sufficient understanding of the impacts of the proposed action and project alternatives, and how they affect the environment.

4.2.1 General Geography, Geology and Topography of the Study Area

The project site is located in the Town of Hamburg in southwestern Erie County, New York. The population within a 1-mile and a 5-mile radius is 3,018 and 32,532 respectively. The site will be accessed from frontage on Southwestern Boulevard about ¼ mile south of the intersection of Southwestern Boulevard and Amsdell Road. The site is comprised of two parcels of vacant land that have no street addresses. They are identified by SBL numbers 182.00-4-13.1 and 182.00-4-19. Combined they occupy 43.38 ± acres. (See Appendix A – Tax Map)

The project site is located on the southern portion of the Erie Lake Plain only a couple miles northwest of the Portage Escarpment, which is the northern boundary of the Alleghany Plateau. The land in the project area is relatively flat with slopes ranging from 4% to less than 1%. The site slopes north by northwest from the highest elevation of 770 feet on the southeast corner at Pleasant Avenue down to an elevation of 735 feet at the point where the intermittent stream merges with the storm water drainage ditch on the southeast side of Southwestern

Boulevard. When you proceed north of the intermittent stream, the elevation rises again to an elevation of 745 feet at Amsdell Road. (See Appendix A- USGS Topography Map, Eden, NY Quadrangle; Project Site Topographic Survey Map by Genzel Land Surveying; Physiographic Sketch Map of WNY)

The intermittent stream is the natural drainage way for the project site. The western portion of the intermittent stream was deepened and straightened to follow the property boundaries many years ago, probably in the 30's at the same time the WPA constructed the ditch which runs north/south between the two farm fields that comprise the project site. This ditch eventually merges with the intermittent stream at its northern end.

The bedrock underlying the project site is part of the Levanna Shale Formation. The Levanna Formation is a middle Devonian Age shale that was deposited approximately 375 million years ago. Glacial till was deposited over the bedrock when the area was covered and uncovered by several advances and retreats of glacial ice during the ice age that began approximately 300,000 years ago and ended about 10,000 years ago. Lacustrine clay and silt was deposited on top of the glacial till by glacial Lake Warren, which occupied the project area 11,000 to 12,000 years ago.

The soil profiles in the project area have evolved from the lake laid clay and silt deposits and are the outcome of thousands of years of weathering. There are two shale bedrock layers in the project area. Depth to the upper layer of the weathered black shale bedrock ranges from 1 to 12 feet at the project site. This upper layer of black shale, which ranges from 2 to 9 feet in depth, is highly weathered easily rippable using a large backhoe equipped with rock teeth. The lower layer of shale is grey colored and much harder. The excavation of this harder grey layer of shale bedrock may require the use of a backhoe equipped with a hydraulic/pneumatic breaker that can loosen the bedrock prior to excavation (See Appendix D- Geotechnical Engineering Report for more information).

4.2.2 Surrounding Land Uses

The land which surrounds the project site supports a variety of uses. North of the project is a mixture of commercial and office space, single-family homes, town homes and Brierwood Country Club.

East of the project site on both Amsdell Road and Pleasant Avenue, there are single-family homes along the roads with vacant land behind them.

West of the site there are single-family homes on the east side of Southwestern Boulevard. The west side of Southwestern Boulevard is a woodlot. Further west are residential subdivisions and Frontier Middle School on the south side of Amsdell Road.

On the south side of the site there are single-family homes on both sides of Pleasant Avenue. These homes are built on deep lots, especially the ones on the south side of Pleasant, which back up to the New York State Thruway. South of the Thruway, there are single-family homes intermingled with farmland and vacant lands, which support emerging woodlands. There is also a small commercial area located around the intersection of Pleasant Avenue and

Southwestern Boulevard.

The project site is located in a transition area between mixed residential, commercial/ office and recreational land uses to the north and west, and residential homes on large lots intermingled with woodlands, farm land and abandoned farm land to the south and east of the site. There is an aerial photograph of the project area showing the location of the proposed project site and a zoning map of the project area in Appendix B.

4.2.3 Zoning

The project site is located in a Residential-Agricultural District (R-A District). This zoning classification allows for a variety of uses including single-family homes, agricultural and horticultural pursuits, veterinarian hospitals and community facilities such as hospitals, churches, cemeteries, schools, libraries, museums, fire stations and golf courses. The density of residential development is limited in an R-A District by the requirement that each single-family lot must be at least 2 acres in size.

The proposed “Villas at Brierwood” project will require the rezoning of the 43-acre site to Planned Unit Development (PUD) to accommodate the mixture of condominiums and retail/office space designed to serve the surrounding neighborhood and local area. According to Hamburg Code, Article XIX, a PUD “shall be mixed to provide a multi-use neighborhood and a variety of use types and services that are coordinate within a designated area, subject to approved concept and development plans for the entire area.” Article XIX also states:

1. The minimum designated area for a PUD shall not be less than 25 acres.

2. The clustering and grouping of permitted uses are encouraged along with flexibility of lot size requirements to provide innovations of design and uses for the protection of open space or recreation features or the creation of community features that will enhance both public and private development.

The site plan of the “Villas at Brierwood” encompasses all of the above PUD zoning objectives. The site is 43 ± acres, which is large enough to accommodate multi-use neighborhoods by blending the ranch-style condominiums with retail and office space. “Brierwood Square” (the retail and office space area) will provide a variety of use types and services for the convenience of the residents of the “Villas at Brierwood” and the surrounding neighborhood. The site plan also protects 5.85+/- acres of natural space composed of woodland and meadows located on the northeastern portion of the project site. The natural open space also includes a nature trail for the recreational enjoyment of residents. In addition, a 1.21+/- acre landscaped open space is positioned around the main retention pond in the center of the project site.

4.2.4 Utilities

Water

The project site has no water service currently. There is water available from the Erie County Water Authority at two locations at the proposed site. A water main could be brought from under Southwestern Boulevard from an existing 8-inch water line on the western side of Southwestern Boulevard. This water main would require the extension of an existing water district or the formation of a new water district, and could service both the commercial buildings on Southwestern Boulevard and the “Villas at Brierwood.” In addition, there is a 12-inch waterline that crosses the project site’s frontage on Amsdell Road. This waterline could potentially service the condominiums at the “Villas at Brierwood” but not the “Brierwood Square” portion of the project site.

Sanitary Sewer

There is not sanitary sewer service at the site. A preliminary sanitary sewer feasibility study was conducted by TVGA consultants in June of 2006. TVGA concluded that there were two possible routes to access the manholes on the northwest corner of Southwestern Boulevard and Amsdell Road without a force main. The second option “Layout #2” outlined in the TVGA study will be the route for the sanitary sewer service for the project. By routing the sanitary sewer east on Amsdell Road and then south into the project, we can assure that the sewer service will not be extended south on Southwestern Boulevard further into the Lakeview District.

Unless an out of district user agreement is utilized, to acquire sanitary sewer service at the project site it will be necessary to extend Erie County Sewer District #3. In order to provide sewers to the site, the project sponsor will be required to make extensive inflow and infiltration repairs to the old and deteriorating sanitary sewer system in the vicinity of the project site. The project sponsor will be making a major capital expenditure to correct and improve the local sanitary sewer system. The Town of Hamburg and Erie County are requiring that the sponsor repair inflow and infiltration leakage equal to four times (4x) the flow volume generated at the proposed “Villas at Brierwood” and “Brierwood Square.” These repairs will help improve sewer service for current customers’ tributary to the county lift station on Rogers Road. (See Appendix D- Sanitary Sewer Feasibility Study for “Villas at Brierwood,” Hamburg, NY by TVGA for more information)

Electricity

New York State Electric and Gas is the electrical service provider for the project area. The electrical services will be installed underground. A letter from the NYSEG Electric Field Planner for the Hamburg area acknowledging intention to provide service for the “Villas at Brierwood” is included in Appendix C.

Cable

Time Warner will install and provide underground cable television service at the proposed “Villas at Brierwood.” They will also offer high–speed internet. A letter acknowledging Time Warner ability to provide cable TV and internet service is included in Appendix C.

Natural Gas

National Fuel has an existing gas main on Southwestern Boulevard that will supply natural gas for the project. A letter indicating that National Fuel will install gas lines and meters and provide natural gas for the proposed “Villas at Brierwood” is included in Appendix C.

4.2.5 Site Drainage

Existing Site Drainage

The project site slopes from the highest elevation of 770 feet at Pleasant Avenue in a northwest direction, to the lowest elevation of 735 feet where the intermittent stream flows under Southwestern Boulevard. The elevation rises again on the north side of the intermittent stream to an elevation of 745 feet at Amsdell Road. The slopes range from 1 to 4 percent. The majority of the site, however, has slopes between 2 and 3 percent.

Wanakah Creek, an intermittent stream which provides the natural drainage for the project site, has been designated "Lake Erie Tributary #E8" and has a NYSDEC Class 3 water quality rating, crosses the property from east to west near the northern boundary. It eventually merges with the ditch on the east side of Southwestern Boulevard. From that point, the water flows through a 30" culvert pipe under Southwestern Boulevard. The intermittent stream eventually flows into a storm drain in a residential neighborhood between Amsdell and Roberts roads near Wayside Drive. From that point, the water travels through a storm sewer to Lake Erie.

The site consists of two separate farm parcels. A ditch, which runs northward and drains into the intermittent stream, was hand dug between the two parcels by the WPA in the 1930's. The ditch originates at the southern property boundary and extends north where it eventually merges with the intermittent stream at one of the property corners. The stream is channelized from that point and runs northeast along the property boundary to Southwestern Boulevard. The intermittent stream and the ditch were observed regularly from March through November of 2006 and after all major rain events. The intermittent stream flows after major rain events particularly in spring when the water table is high and the adjacent wetlands are saturated; however, there is little to no water in the ditch during these periods (see photos of intermittent stream and ditch in Appendix B). There are no other ditches feeding into this ditch from the south or from the two farm fields which are located on either side of the ditch. Two of the homes on Pleasant Avenue direct a small volume of storm water into the ditch. The ditch stops short of Pleasant Avenue between these two homes.

Another drainage swale along the west end of the south property line captures off-site drainage from other neighboring single-family residential properties to the south (along Pleasant Avenue), then it turns north at the west property line and conveys the flow down to an existing 15-inch elliptical culvert at Southwestern Boulevard. This stormwater also ends up in the NYSDEC Lake Erie Tributary number E8 after joining up with the roadside ditch of Southwestern Boulevard.

Presently, all water from the proposed project site flows into the intermittent stream which crosses the site at its lowest elevation along the northern boundary. The natural drainage is sufficient to prevent inundation from surface water in winter through early spring when perched water tables are high, and after periods of heavy precipitation at any time of the year for the entire site except for the 2.5 acres of wooded wetlands adjacent to the intermittent stream. In contrast, the wetland area is saturated to the surface or inundated with water in winter and early spring, and after periods of heavy precipitation at any time of the year (see photos of intermittent stream and ditch in Appendix B).

Present Flooding or Drainage Problems On-Site or in the Surrounding Area

As reported by the Town of Hamburg Engineering Department, there are no known drainage problems with the project site or adjacent properties. The only drainage issue reported is that the existing NYSDOT drainage culverts under Southwestern Boulevard are partly plugged, which is a NYSDOT Maintenance issue. The proposed project will not exacerbate this issue as the amount of post development stormwater runoff will not exceed that which occurs today in the pre-developed state.

Proposed Stormwater Management System

The stormwater management system will be designed to collect, treat and attenuate stormwater runoff from the developed site. Collection of stormwater runoff will be accomplished by conveying overland flows to a storm sewer system consisting of catch basins, manholes and piping to carry the stormwater to the wet detention ponds. The on-site wet detention ponds will receive, treat and attenuate stormwater runoff flows. The ponds and outlet control structures will be designed, in accordance with the New York State Department of Environmental Conservation's "New York State Stormwater Management Design Manual", to provide the required Water Quality Volume and sufficient storage to attenuate and release stormwater from the developed site at discharge rates not exceeding the pre-developed rates for the following conditions:

- Channel Protection Volume Requirements: 24-Hour Extended Detention of the 1-year/24-hour post development peak runoff.
- Overbank Flood Requirements: Attenuate 10-year post development peak discharge to 10-year pre-development peak discharge.
- Extreme Flood Requirements: Attenuate 100-year post development peak discharge to 100-year pre-development peak discharge.

4.2.6 Transportation

A detailed Traffic Impact Study (TIS) for the Villas at Brierwood and Brierwood Square development has been prepared by SRF & Associates (SRF). The full TIS is included in Appendix D of this DEIS. All available traffic studies were reviewed. A summary of the existing conditions from the TIS is presented below.

The proposed development is located along the south side of Southwestern Blvd west of Amsdell Road. The site is currently vacant. The study area consists of three existing intersections surrounding the proposed site. The lands adjacent to the proposed development consist primarily of commercial and residential type uses. Major traffic generators along Route 20 consist of retail stores, banks, and offices.

The study area roadway system identified for investigation includes the portion of Route 20 between Pleasant Avenue to the west and Rogers Road to the east. Three (3) existing intersections are studied in detail in this report and are as follows:

1. NYS Route 20/Pleasant Avenue (unsignalized)

2. NYS Route 20/Amsdell Road (signalized)

3. NYS Route 20/Rogers Road (signalized)

Southwestern Blvd (NYS Route 20) is owned and maintained by NYSDOT within the vicinity of the project. The highway is functionally classified as an east/west urban principal arterial highway with a posted speed limit of 50 mph in the vicinity of the site. According to the most recent traffic volume data collected by NYSDOT in 2005, the annual average daily traffic (AADT) along Route 20 between Amsdell Road and Route 75 is 22,808 vehicles per day (vpd).

Rogers Road (CR 464) is a north-south roadway that provides a connection between Lakeshore Road (NYS Route 5) to the north and Pleasant Avenue (CR 122) to the south. The posted speed limit in the vicinity of the study area is 35 mph.

Amsdell Road (CR 122) is a north-south roadway that provides a connection between Lakeshore Road (NYS Route 5) to the north and Pleasant Avenue (CR 133) to the south. The posted speed limit in the vicinity of the study area is 35 mph.

The Niagara Frontier Transportation Authority (NFTA) provides public transportation throughout the greater Buffalo Niagara Metropolitan area. There are currently no bus routes that service the study area.

Turning movement count data were obtained by SRF during the weekday AM and PM and Saturday midday peak hours at all of the study area intersections over the following dates January 13, 17 & 18 and March 3, 2007. These time frames were selected since they represent the greatest combination of traffic on the adjacent highways of use for the site. The peak hour traffic periods generally occurred between 7:15 to 8:15AM, 4:00 to 5:00PM and 12:15 to 1:15PM.

Capacity analysis is a technique used for determining a measure of effectiveness for a section of roadway and/or intersection based on the number of vehicles during a specific time period. The measure of effectiveness used for the capacity analysis is referred to as a Level of Service (LOS). Six Levels of Service are defined for analysis purposes. They are assigned letter designations, from "A" to "F", with LOS "A" representing operating conditions with the least time delay. LOS “F” is the least desirable operating condition where longer delays are experienced by motorists. Traffic analysis software, Synchro, which is based on procedures and methodologies contained in the HCM 2000, was used to analyze operating conditions at study area intersections. The intersection capacity analysis results are shown in the table below and discussed in detail in the TIS.

INTERSECTION CAPACITY ANALYSIS RESULTS

INTERSECTION	***EXISTING CONDITIONS***		
	AM	***PM***	***SAT***
NYS Route 20/Rogers Road (S)			
Eastbound - NYS Route 20	A	A	A
Westbound - NYS Route 20	A	A	A
Northbound - Rogers Road	B	B	A
Southbound - Rogers Road	B	B	B
Overall LOS / Delay in sec/veh	**A(7.3)**	**A(6.9)**	**A(6.2)**
NYS Route 20/Amsdell Road (S)			
Eastbound - NYS Route 20	A	A	A
Westbound - NYS Route 20	A	A	A
Northbound - Amsdell Road	A	B	A
Southbound - Amsdell Road	B	B	A
Overall LOS / Delay in sec/veh	**A(7.1)**	**A(7.6)**	**A(6.5)**
NYS Route 20/Pleasant Ave. (U)			
Eastbound Left - NYS Route 20	A	A	A
Westbound Left - NYS Route 20	A	A	A
Northbound - Pleasant Ave.	C	C	C
Southbound - Pleasant Ave.	C	D	C

Based on discussions with NYSDOT an investigation of existing accidents is not provided given the completion of NYSDOT construction project. This will significantly change the operational and safety characteristics rendering historical accident information not meaningful.

There are currently no sidewalks for pedestrian use along the roadways adjacent to the project site. Existing hiking trails and bicycle trails are located within 1- mile of the project site as indicated in Appendix A – page 29 "Trailway Opportunities" map. The proposed project will have sidewalks between the "Villa's at Brierwood" and "Brierwood Square".

4.2.7 Community and Emergency Services

Recreational Facilities

The "Town of Hamburg Open Space and Recreation Plan", dated April 1994, identifies existing parks and recreation areas as well as trailway opportunities in the Town. Copies of maps from that document are included in Appendix A. The "Existing Parks and Recreation Areas" map shows that the nearest Town Park Recreation Area is located approximately ¾ of a mile south of the proposed project site however it is separated by the New York State Thruway. The "Trailway Opportunities" map shows that the nearest hiking trail is approximately 1-mile south of the proposed project site; and the nearest bicycle route/trail is located approximately 0.6 miles to the north (along Rogers Road). Although these facilities will be available to the residents of the proposed "Villa's at Brierwood" it is not anticipated that there will be an impact to the existing recreational facilities given the demographic of the residents (i.e., 45-80+ years of age) and the types of recreational facilities being provided at the "Villa's at Brierwood".

Police Protection

The proposed site is under the jurisdiction of three police agencies. The primary police agency is the Town of Hamburg Police Department located at S6100 South Park Avenue, Hamburg, NY. The New York State Police station in Boston will dispatch a patrol unit for emergencies to the project area if the Hamburg police department requests their assistance. The Erie County Sheriff's Department will also respond to back up the Hamburg police if requested.

Fire Protection & Ambulance Service

Lake Shore Volunteer Fire Company provides emergency response for fires and medical emergencies. When a medical emergency is reported to 911 in the project area, both the Lake Shore Volunteer Fire Company is notified to dispatch an ambulance manned with paramedics as well as Rural Metro Ambulance to ensure the fastest response possible. When a non-emergency incident is reported to 911, Lake Shore Volunteer Fire Company is notified. If Lake Shore Volunteer Fire Company fails to respond to the call within eight minutes, a Rural Metro Ambulance would also be dispatched. Lake Shore Volunteer Fire Company operates a sub-station located at the southeast corner of Amsdell Road and Southwestern Boulevard that is less than ¼ mile from the proposed entrance to the "Villas at Brierwood." Due to the close proximity of the Lake Shore Volunteer Fire Company, future residents of the "Villas at Brierwood" can expect a timely and professional response to any fire or medical emergency situation that may arise.

Hospitals

Mercy Hospital of Buffalo, located at 565 Abbott Road, is the closest major hospital to the proposed site.

In addition, Erie County Medical Center, Buffalo General Hospital, Millard Fillmore Gates Circle Hospital and Women's and Children's Hospital of Buffalo are all within easy driving distance.

Emergency ambulance service for the project area may deliver patients to any of the above hospitals depending on severity and type of injury and requests from the patient's doctor.

4.2.8 Visual Setting

The visual setting of the project site is rural residential. The view from within the project area encompasses large vacant fields surrounded by woods and/or hedgerows on the north, south and east sides. Partially obscured backs of a few homes on Pleasant Avenue are visible through the southern hedgerow in winter time when there is no foliage on the plants.

The view of the northern portion of the west side is composed of the traffic on Southwestern Boulevard and the wooded wetlands on the other side. Also visible are single-family homes, garages and a couple of long, single-story mink rearing buildings that are abandoned and rapidly deteriorating located at 5681 Southwestern Boulevard. The view from within the site of the southern portion of the western boundary is dense woodland.

The streetscapes on Pleasant Avenue, Amsdell Road and the east side of Southwestern Boulevard south of the project site are residential. Pleasant Avenue and Southwestern Boulevard are lined with single-family homes on large lots. Amsdell Road east of the project has single-family homes on both sides of the street; however, Amsdell Road west of Southwestern Boulevard is a mixture of single-family homes and attached single-family housing. Southwestern Boulevard north of Amsdell Road is occupied by mixed commercial uses including office, retail and various small businesses.

The view from the residences on Pleasant Avenue is a deciduous hedgerow that will block the view of the buildings and noise from the project. There are three home sites that border the southeast corner of the project site where the hedgerow is not wide enough to completely screen their view of the project site. Evergreen trees will be planted where the project borders these three home sites to augment the deciduous trees and provide a denser landscape barrier. The project site plans include two single-family homes to be built on Pleasant Avenue. This area currently is vacant road frontage overgrown with weeds and shrubs.

The scene from Amsdell Road is an open meadow with sapling and shrubs, becoming dense in areas. Behind this meadow, the tall trees of the wood lot form a backdrop for the view.

An extensive photograph section with a map of the site displaying photo locations and directions can be viewed in Appendix B.

4.2.9 Background Noise Levels

Noise is an incremental variation of atmospheric pressure produced by vibrating surfaces or by turbulent air flow. Though sound can be measured in commonly recognized units such as pounds per square inch, established practice uses decibels as the standard unit of measure. The decibel scale takes into account both pitch and loudness. Subjective interpretation is most easily achieved by comparison to well known levels of sound. Table 2.3 provides some examples of typical sound levels expressed in decibels (dBA):

Table 2.3

10 dBA	20 dBA	30 dBA	40 dBA	50 dBA	60 dBA	70 dBA	80 dBA	90 dBA	110 dBA
Threshold of Hearing	Rural Night	Soft Whisper	Rural Daytime	Suburban Daytime	Normal Speech	Shouting	Urban Daytime	Jack Hammer	Rock Band

The existing background noise levels on the majority of the project site area are consistent with the rural daytime decibel level shown on the table above. These levels of background noise are consistent with the character of the surrounding neighborhood. The background noise level is louder (60 decibels or greater) in the area of the project site near Southwestern Boulevard due to the traffic.

4.2.10 Solid Waste Management

There is no waste produced at the project site. There are no structures or residents on the site and all farming operations ceased 4 years ago.

There are three waste disposal companies that offer trash pickup service to the residents and businesses in the project area that can also service the proposed project. The following list summarizes the final disposition of solid wastes handled by the three waste disposal companies:

Waste Management

Solid waste is disposed at Waste Management's landfill located at 10860 Olean Road, Chaffee, NY. Recycled waster is processed at Waste Management's recycling facility in Syracuse, NY.

Natural Environment, Inc.

Solid waste is disposed at the Covanta "Energy from Waste Incineration Center" located at 100 Energy Boulevard, Niagara Falls, NY. The incinerator process produces steam which is used to power turbines that generate electricity. The electricity is sold to Niagara Mohawk Power Corp, and directly to large industrial facilities. Recycled materials are processed at NEI's recycling facility located in Ontario County, NY.

Allied Waste Services of North America, LLC (formerly BFI)

Solid waste collected by Allied is also disposed of at the Covant "Energy from Waste Incineration Center" in Niagara Falls, NY. Recycled waste materials are processed at Allied recycling center located in Kenmore, NY.

4.2.11 Site Ecology

Plant Communities

The project site is a combination of old field vegetation and woodland. Approximately 34 acres of the site are abandoned farm fields which support a mixture of common pasture grasses and legumes and a variety of weeds which commonly invade old abandoned farm fields.

In addition to the old field vegetation growing on the abandoned farm fields, there is a wooded area that is approximately six (6) acres in size located on the central portion of the western boundary. The six acres of woodland on the project site are part of a wood lot which covers over 30 acres of land stretching across several properties located east of the site. The woodland plant community is primarily composed of Shagbark Hickory, Basswood, White Ash, Green Ash, Sugar Maple and Red Maple. Hop-Hornbeam, American-Hornbeam and Slippery

Elm are also present to a lesser degree. Tables listing the common plant species in each plant community can be found in the wetland delineation in Appendix D. An aerial photo showing the existing vegetation in the project area is included in Appendix B.

Soils

There are five soil phases on the project site. Approximately 45% of the site is covered by Churchville silt loam and another 25% is covered by Hornell silt loam. The remainder of the site is covered by Manlius shaly silt loam, Orpark silty clay loam and Lyons silt loam.

Lyons silt loam is a poorly drained, and classified as a hydric, soil. Lyons silt loam occupies a thin strip of land in depressional areas on both sides of the intermittent stream. The Churchville silt loam, Hornell silt loam and Orpark silty clay loam are all somewhat poorly drained soils. These soils make up the majority of the abandoned farm fields.

Manlius soils are well drained soils and do not, under normal conditions, contain hydric inclusions. Manlius soils occupy an area in the southern portion of the abandoned farm fields and projects slightly into the south portion of the wood lot.

A soil phase map of the project site and a brief description of each soils important properties can be found in the wetland delineation in Appendix D.

Animal Wildlife

Wildlife observed during several site visits between March, 2006 and February, 2007 included white-tailed deer, woodchuck, eastern cottontail rabbit, gray squirrel, field mouse and meadow vole. Fox, skunks, raccoons and weasels are also likely inhabitants of wooded areas in the vicinity of the project site.

Birds observed during visits to the project area include crow, house sparrow, cardinal, blue jay, starling, gold finch, chickadee, mourning dove, woodcock, downy woodpecker and read-tailed hawk. Wild turkey and ruffed grouse were not observed; however, they also are likely inhabitants of the project area.

4.2.12 Cultural and Archeological Resources

A request for a project review for the proposed “Villas at Brierwood” was submitted to the New York State Office of Parks, Recreation and Historic Preservation Field Services Bureau. Material submitted included Archeological Map, Topography Map, Site Plan, Site Photographs and photos of all buildings over 50 years of age that are located on adjoining properties with a photo location and direction map, a long form EAF and tax maps and records for the building over 50 years old.

The New York State office of Historic Preservation reviewed archaeological records and National and State Registers of Historic Places for the project site and vicinity. Ruth L. Pierpont, Director of the NYS Historic Preservation office responded by letter on December 7, 2006 in which they indicated that the proposed “Villas at Brierwood” project “will have no impact upon cultural resources in or eligible for inclusion in the State and National Register of Historic

Places." Ms. Pierpont's response letter is included in Appendix C, page

.

4.2.13 Surface Water, Floodplains and Wetlands

The only surface water on the project site is the intermittent stream that is the natural drainage way for the project area. The intermittent stream, commonly referred to as Wanakah Creek, has been designated Lake Erie Tributary E-8 by the NYSDEC. The DEC has also classified the water quality in Tributary E-8 as Class C water. Classification C is for waters supporting fisheries and suitable for non-contact activities. Class C streams are not "protected streams" and are not subject to the stream protection provisions of the Protection of Waters regulations of New York State. This stream flows during springtime and after periods of heavy precipitation. The stream conducts little or no water in hot, dry weather during the summer months. There is also a ditch that runs north/south between the two parcels that comprise the site. This ditch only holds water in winter and early springtime when the water table is perched. It also holds water from runoff after periods of very heavy precipitation.   An aerial photograph and a Lake Erie Tributary Map and water classification key provided by the NYSDEC Water Regulatory Division can be found in Appendix A.

There is a 2.5 acre wetland area adjacent to and on the south side of the intermittent stream along the eastern boundary of the project site. The original site plan has been altered to protect the wetland area. The entire wetland delineation study for the "Villas at Brierwood" is included in Appendix D.

There are no floodplains on or in close proximity to the project site. A map indicating the 100-year floodplain locations in the project area is included in Appendix A.

4.3 Impact Assessment

4.3.1 Impact on Land

Currently the existing site does not contain any impervious area (i.e., buildings, sidewalks, paved areas). Under the proposed plan approximately 49% of the site will be covered with buildings, pavement and sidewalks. The remaining 51% will consist of natural buffers, open water, existing wetland area, open space and lawn/landscaped areas. The impact to the existing ditch which runs along the common property line of the two existing parcels of land will be minimized by incorporating it into the open space areas. Approximately 900-feet of the 1300-foot long ditch will remain open, while the remaining 400-feet will be filled in and piped into the proposed storm sewer system.   The perimeter of the entire project will be a green space buffer. A variety of evergreen trees will be planted along the perimeter of the project in a natural fashion to augment the existing hedgerows and woodlands comprised of mature deciduous trees that surround the project site. The evergreens will enhance the landscape screening, especially in the winter time, and will provide noise and wind abatement in the project area. The evergreen plantings will add diversity to the trees in the project area, and supply cover and nesting habitat for wildlife.

Of the 43.38 +/- acres that will comprise the project site, 12.18+/- acres will be green space. Green space will occupy 28% of the total acreage at the proposed project site*. Softscape will comprise 47% of the project site**. The green space buffer around the perimeter of the site includes approximately 3.75 +/- acres of woodland, of which 2.52 acres are federal wetlands. Most of the green space buffer area is located on the east side of the project site which borders a large woodland area that extends into several properties east of the site. A 100-foot wide green space buffer extends south from the woodland along a tree line to the rear of the residences on Pleasant Avenue. A 50-foot wide green space buffer extends across the entire southern boundary. In addition, a 30-foot wide buffer will extend along the eastern boundary of the site and between the condominium area and the retail/office space portion of the project.

The wooded green space in the northeast portion of the property includes a 5.85+/- acre area with a nature trail intended for the recreational use of the future residents of the “Villas at Brierwood”. Conversion of this natural open space to a public conservation easement is under review by the Town of Hamburg Conservation and Recreation Boards.

All landscaping, including buffers and open green space, will be designed by a landscape architect to meet the stringent landscape requirements of the Southwestern Boulevard Overlay District. All green space will ultimately be owned and maintained by the homeowner’s association of the “Villas at Brierwood” except the green space on the retail/office portion of the site, which will be maintained by the owners of the retail office portion of the site. (See Site Plan and Aerial Land Use Plan, Appendix B)

* Green space includes all project areas not devoted to buildings, pavement and sidewalks, storm water detention facilities and common space lawns.

** Softscape includes all project area that is not devoted to buildings, pavement and sidewalks or storm water detention facilities.

The proposed grading design will minimize the impacts to the existing land to the extent possible while accommodating the proposed development by following the natural lay of the land.

The project will be developed in phases to minimize the impact on land at any given time, generally as follows:

- Installation of temporary erosion and sediment controls in accordance with the New York State Guidelines for Erosion and Sediment Control. This will include such measures as: a stabilized construction entrance, silt fencing on all areas downstream of proposed disturbance;
- Installation of temporary construction fencing to protect the wetlands, other open space areas and vegetation that will remain undisturbed;
- Clearing and grubbing;
- Removal and stockpiling of topsoil;
- Earthwork/rough grading;

- Pond Construction;
- Installation of utilities;
- Drop inlet protection to be provided at all proposed catch basins;
- Excavation and construction of the roadway;
- Seeding and landscaping of areas along the roadway;
- Building construction;
- Seeding and landscaping of individual units; and
- Removal of temporary erosion and sediment controls upon "final stabilization".

Special site conditions that may have an impact on construction include two shale bedrock layers in the project area. Depth to the upper layer of the weathered black shale bedrock ranges from 1 to 12 feet at the project site. This upper layer of black shale, which ranges from 2 to 9 feet in depth, is highly weathered, easily rippable using a large backhoe equipped with rock teeth. The lower layer of shale is grey-colored and much harder. The excavation of this harder grey layer of shale bedrock may require the use of a backhoe equipped with a hydraulic/pneumatic breaker that can loosen the bedrock prior to excavation. (See Appendix D - Geotechnical Engineering Report for more information.) However, project components have been modified to minimize the need for rock removal. The Villas units will not be constructed with basements which will limit such rock removal for their construction to shallow foundation excavation. During design, infrastructure depth will be minimized in areas where rock is located as well.

Phasing of the project will be dictated by the real estate market, however it is anticipated that the project will be developed in four phases. As shown on the “Concept Plan for Villas at Brierwood and Brierwood Square” in Appendix A, the first phase will likely include nine (9) of the condominium buildings (Numbers 1- 7, 37, and 38) the equivalent of 36-units, the Clubhouse, the three (3) proposed stormwater management ponds, and the proposed nature trail. It is expected that the subsequent three phases will be of similar size to the first (i.e., nine condominium buildings built in each phase). At this point it is estimated that full build-out of the Villas portion of the project would occur within 3-5 years following the commencement of the initial construction which is expected within the 2007 construction season. However, construction of the five (5) Retail/Office buildings that comprise make up “Brierwood Square” will be constructed on an as needed basis (i.e., upon securing tenants to lease the retail/office space).

With the proposed plan to develop the project in phases, the amount of land disturbance will be kept to a minimum at any given time. Temporary and permanent erosion and sediment control measures will be installed to limit the amount of sediment buildup in on-site and downstream waterways. The proposed stormwater management ponds will provide mitigation for the amount of increased runoff from the developed site by limiting the amount of runoff from the site to the pre-developed flow rates. Disturbance of wetland areas are typically a concern, however the proposed project was designed around the existing wetland area, thereby preserving the wetland areas in their entirety. To avoid clear cutting of mature trees, the proposed plan incorporates natural buffers and open spaces, where these trees will remain in place. A major portion of all wooded areas will be preserved by employing these design principals. One of the open space areas is designed to preserve the existing south to north ditch and associated vegetation. Rock excavation is another potential concern on the project site that is being avoided to the maximum extent possible by constructing the condominium buildings with slab-on-grade foundation systems and minimizing deep infrastructure in high bedrock areas.

4.3.2 Impact on Stormwater, Sewer and Water Systems

4.3.2.1 Impact on Stormwater:

Existing Site Drainage

Wanakah Creek, an intermittent stream which provides the natural drainage for the project site, has been designated "Lake Erie Tributary #E8" and has a NYSDEC Class 3 water quality rating, crosses the property from east to west near the northern boundary. It eventually merges with the ditch on the east side of Southwestern Boulevard. From that point, the water flows through a 30" culvert pipe under Southwestern Boulevard. The intermittent stream eventually flows into a storm drain in a residential neighborhood between Amsdell and Roberts roads near Wayside Drive. From that point, the water travels through a storm sewer to Lake Erie.

The project site slopes from the highest elevation of 770 feet at Pleasant Avenue in a northwest direction, to the lowest elevation of 735 feet where the intermittent stream flows under Southwestern Boulevard. The elevation rises again on the north side of the intermittent stream to an elevation of 745 feet at Amsdell Road. The slopes range from 1 to 4 percent. The majority of the site, however, has slopes between 2 and 3 percent.

The site consists of two separate farm parcels. A ditch, which runs northward and drains into the intermittent stream, was hand dug between the two parcels by the WPA in the 1930's. The ditch originates at the southern property boundary and extends north where it eventually merges with the intermittent stream at one of the property corners. The stream is channelized from that point and runs northeast along the property boundary to Southwestern Boulevard. The intermittent stream and the ditch were observed regularly from March through November of 2006 and after all major rain events. The intermittent stream flows after major rain events particularly in spring when the water table is high and the adjacent wetlands are saturated; however, there is little to no water in the ditch during these periods (see photos of intermittent stream and ditch in Appendix B). There are no other ditches feeding into this ditch from the south or from the two farm fields which are located on either side of the ditch. Two of the homes on Pleasant Avenue direct a small volume of storm water into the ditch. The ditch stops short of Pleasant Avenue between these two homes.

Another drainage swale along the west end of the south property line captures off-site drainage from other neighboring single-family residential properties to the south (along Pleasant Avenue), then it turns north at the west property line and conveys the flow down to an existing 15-inch elliptical culvert at Southwestern Boulevard. This stormwater also ends up in the

NYSDEC Lake Erie Tributary number E8 after joining up with the roadside ditch of Southwestern Boulevard

Presently, all water from the proposed project site flows into the intermittent stream which crosses the site at its lowest elevation along the northern boundary. The natural drainage is sufficient to prevent inundation from surface water in winter through early spring when perched water tables are high, and after periods of heavy precipitation at any time of the year for the entire site except for the 2.5 acres of wooded wetlands adjacent to the intermittent stream. In contrast, the wetland area is saturated to the surface or inundated with water in winter and early spring, and after periods of heavy precipitation at any time of the year (see photos of intermittent stream and ditch in Appendix B).

Present Flooding or Drainage Problems On-Site or in the Surrounding Area

As reported by the Town of Hamburg Engineering Department, there are no known drainage problems with the project site or adjacent properties. The only drainage issue reported is that the existing NYSDOT drainage culverts under Southwestern Boulevard are partly plugged, which is a NYSDOT Maintenance issue. The proposed project will not exacerbate this issue as the amount of post development stormwater runoff will not exceed that which occurs today in the pre-developed state.

Proposed Site Drainage

The proposed project will not have an adverse impact on the drainage/stormwater management systems in the area. Any potential degradation of stormwater quality will be mitigated by an on site Stormwater Management System that will be designed in accordance with the New York State Department of Environmental Conservation's (NYSDEC's) State Pollution Discharge Elimination System (SPDES) new Phase II stormwater regulations (available on the NYSDEC's website). In essence, these regulations address the quality and quantity of stormwater discharges from project sites that disturb more than one acre of land. The water quality regulations require that stormwater runoff be treated to remove sediments and other pollutants washed off of impervious surfaces such as pavements, sidewalks, and rooftops. The water quantity requirements basically state that the rate of stormwater runoff from the developed site cannot be any greater than the rate of stormwater runoff from the pre-developed site. There are various methods to achieve these requirements as outlined in the NYSDEC's Stormwater Management Design Manual (also available on the NYSDEC's website). The proposed project will employ stormwater detention ponds and outlet control structures to achieve both stormwater quality and quantity requirements.

4.3.2.2 Impact on Sewer System:

The route for the proposed sanitary sewer system to serve the project starts with a connection to an existing sewer manhole located at the northwest corner of Southwestern Boulevard and Amsdell Road, then crosses under Southwestern Boulevard towards the east and heads easterly down Amsdell Road, then crosses Amsdell Road to the south at the proposed project site (Refer to Appendix D – Sanitary Sewer Feasibility Study for "Villas at Brierwood, Hamburg, NY" by TVGA, Layout #2). The sanitary sewer from the proposed project will flow down to the existing sewer manhole at Southwestern Boulevard and Amsdell Road. From there the sanitary sewer will flow through an existing Town of Hamburg sewer line (10-inches in diameter, which was oversized in anticipation of future development in the area) in a northwesterly direction through the adjacent subdivisions and golf course to a manhole at Cloverbank Road. It then goes through an existing 8-inch Town of Hamburg sanitary sewer line in a westerly direction where it discharges into the Erie County Trunk Sewer (24-inch diameter) which parallels the railroad tracks. This Trunk Sewer carries the flow to the County's sanitary sewer lift station on Rogers Road.

Unless an out of district user agreement is utilized, to acquire sanitary sewer service at the project site it will be necessary to extend Erie County Sewer District #3. There are problems in the existing downstream Erie County sewer system with Inflow and Infiltration (I&I) of groundwater into the sanitary sewers during wet weather conditions. These excessive flows create pumping problems at the existing Rogers Road lift station. The proposed project will have a positive impact on this situation as the project sponsor will be participating in making extensive inflow and infiltration repairs to the old and deteriorating sanitary sewer system in the vicinity of the project site. The project sponsor will be making a major capital expenditure to correct and improve the local sanitary sewer system. The Town of Hamburg and Erie County are requiring that the sponsor repair inflow and infiltration leakage equal to four times (4x) the flow volume generated at the proposed "Villas at Brierwood" and "Brierwood Square." These repairs will help improve sewer service for current customers' tributary to the county sanitary sewer lift station on Rogers Road.

The anticipated wastewater generated from the "Villas at Brierwood" will be approximately 30,000 gallons per day (200 gpd/unit x 150 units), plus an additional 2600 gpd for "Brierwood Square", but as noted above, this flow volume will actually create less of a demand on the existing sanitary sewer system since the project includes the elimination of extraneous I&I flows currently plaguing the system.

4.3.2.3 Impact on Water System:

Erie County Water Authority provides public water to the area. Existing water mains are located along the west side of Southwestern Boulevard; along the south side of Amsdell Road, and along Pleasant Avenue. Currently there is no water service to the proposed project site. It is anticipated that the existing 8-inch water line just south of the proposed project site on the west side of Southwestern Boulevard will be extended a short distance north and then turn southeasterly under Southwestern Boulevard to provide water service to the project site. Basically there are two different pressure zones that serve the immediate area. The waterline extension along Southwestern Boulevard has been suggested by the Erie County Water Authority since it is served by the pressure zone that provides a constant and strong fire fighting and domestic service capacity. As required by the New York State Department of Health, a backflow preventer will be installed to protect the public water supply from any potential contamination from private water systems. Hydrant Flow Tests were conducted by the Erie County Water Authority in March 2007 which indicates that there is adequate water supply to serve the proposed development (i.e., Available flows and pressures are sufficient to meet both potable water and fire flow demands). The water demand for the "Villas at Brierwood" is anticipated to be 30,000 gallons per day (200 gpd/unit x 150 units), plus an additional 2600 gpd for “Brierwood Square”. The required fire flow for the “Villas at Brierwood” is 750 gallons per minute, based on residential structures spaced at 50-feet apart per the Insurance Service Office (ISO). The proposed project will not have an adverse impact on the municipal potable water system.

4.3.3 Impact on Aesthetic Resources

The construction of the “Villas at Brierwood” will permanently change the aesthetic characteristics from an open meadow to a beautifully landscaped neighborhood business center and ranch-style condominium community

When entering the project, residents will pass by a half-acre lake and “Brierwood Square” neighborhood business center. “Brierwood Square” will be landscaped around the entire perimeter. The front and side will have lawns, shade trees and shrubs. The parking area for the business center will include islands with shade trees and a gazebo in the center of one of the islands surrounded by lawn, shade trees and flower beds. In the rear of the business center there will be a small lake and evergreen plantings to screen the condominiums that are adjacent to the business center.

The green space surrounding the lake by the entrance road will have lawns. In front of the lake by the entrance road, there will be a painted, carved wood sign mounted on a stone wall. This will be surrounded by a colorful flowers and shrub beds. The sign will be mounted low and will not block the view of the lake and surrounding landscape. This sign will be illuminated by ground-mounted landscape lights that will point away from Southwestern Boulevard and neighboring properties. At the west side of the lake, there is a mature stand of several white pines and a spruce tree that will be preserved. In addition, on the west side of the lake between Mr. Peters’ home at 5681 Southwestern Boulevard and the lake, a variety of evergreen trees will be planted to augment the existing stand of pines. These will be positioned so that they will mature into a natural-looking landscape buffer and backdrop for the lake. “Brierwood Square” will have separate entrance to Southwestern Boulevard. Signage for “Brierwood Square” will be placed on a small landscaped island between the entrance and exit lanes at this entrance. Pictures of the type of signs proposed can be viewed in Appendix B.

As you pass by the lake, there are plans for a decorative entrance to the condominiums. This entrance will simulate a cobblestone bride with a traditional-style stone post and rail look including lantern-styled lamps. A picture of the faux bridge is included in Appendix B.

Inside the condominium portion of the site, all areas other than roadways and the shared driveways will be planted and maintained as lawns. Professionally designed and maintained foundation plantings will be planted on all sides of the 4-unit structures. Ornamental and shade trees will be planted along the streets and between and behind units where appropriate.

To produce a visually pleasing streetscape, the 4-unit ranch-style buildings are designed with recessed garages that are on the sides of the buildings and accessed by shared driveways. Four parking spaces per residence are provided in the garages and shared driveways, so there is no need to park on the street. Cultured stone and radius windows combined with gabled rooflines add to the traditional ambience of the structures. These architectural features are included on the fronts, backs and sides of each building so that they are attractive when viewed from any angle. Photographs of the condominium buildings are included in Appendix B.

A community "clubhouse" with a patio and pool overlooking a one-acre lake are planned for the residents' recreational use. The clubhouse and the patio/pool area are surrounded by an ornamental landscape to further augment their classic design. Pictures of a clubhouse from an existing community can be viewed in Appendix B.

The perimeter of the entire project will be a green space buffer. A variety of evergreen trees will be planted along the perimeter of the project in a natural fashion to augment the existing hedgerows and woodlands comprised of mature deciduous trees that surround the project site. The evergreens will enhance the landscape screening, especially in the winter time, and will provide noise and wind abatement in the project area. The evergreen plantings will add diversity to the trees in the project area, and supply cover and nesting habitat for wildlife.

Of the 43.38 +/- acres that will comprise the project site, 12.18+/- acres will be green space. Green space will occupy 28% of the total acreage at the proposed project site*. Softscape will comprise 47% of the project site**. The green space buffer around the perimeter of the site includes approximately 3.75 +/- acres of woodland, of which 2.52 acres are federal wetlands. Most of the green space buffer area is located on the east side of the project site which borders a large woodland area that extends into several properties east of the site. A 100-foot wide green space buffer extends south from the woodland along a tree line to the rear of the residences on Pleasant Avenue. A 50-foot wide green space buffer extends across the entire southern boundary. In addition, a 30-foot wide buffer will extend along the eastern boundary of the site and between the condominium area and the retail/office space portion of the project.

The wooded green space in the northeast portion of the property includes a 5.85+/- acre area with a nature trail intended for the recreational use of the future residents of the "Villas at Brierwood". Conversion of this natural open space to a public conservation easement is under review by the Town of Hamburg Conservation and Recreation Boards.

All landscaping, including buffers and open green space, will be designed by a landscape architect to meet the stringent landscape requirements of the Southwestern Boulevard Overlay District. All green space will ultimately be owned and maintained by the homeowner's association of the "Villas at Brierwood" except the green space on the retail/office portion of the site, which will be maintained by the owners of the retail office portion of the site. (See Site Plan and Aerial Land Use Plan, Appendix B)

* Green space includes all project areas not devoted to buildings, pavement and sidewalks, storm water detention facilities and common space lawns.

** Softscape includes all project area that is not devoted to buildings, pavement and sidewalks or storm water detention facilities.

"Brierwood Square" has undergone many site plan and architectural revisions before arriving at the current design concept. Parking on the Southwestern Boulevard side has been minimized. A 50-foot landscaped setback buffer will soften the view of the entrance and front buildings. In addition, the entrance will have a small landscape island with an unobtrusive sign. These design features will make the project aesthetically pleasing to passing motorists. Sketches of several site plan revisions to “Brierwood Square” can be found in Appendix A. In addition, the proposed Retail/Office Buildings have been improved to provide more of a “traditional neighborhood / village” character than typical Commercial/Retail/Office buildings. Evolutions of the Front Elevations of the proposed Retail/Office buildings are included in Appendix B.

The lighting standards are of a traditional design to match the architecture of the project. The same standards will be used at the “Villas at Brierwood” and “Brierwood Square” to provide continuity in appearance. The parking areas in “Brierwood Square” are generally blocked from outside view by the positioning of the buildings. The lighting standards only 12 feet in height will be used to illuminate the site. The 12-foot light standard height, combined with the proper lamps, will prevent projection of light onto adjoining properties. Several site plan revisions, architectural renditions, and an example of the proposed type of lighting standard and signs for the project may be viewed in Appendix B.

Photographs were taken of views from not only Southwestern Boulevard, but all angles, including views to and from surrounding residential areas. Aerial photographs and photos of the surrounding roadways were also taken. Also, a landscape plan designed to buffer the homes on Pleasant Avenue is included. In addition, the landscape designer produced sketches of this landscape buffer to show naturalized screening effect for the homes on Pleasant Avenue and one home located next to the project on Southwestern Boulevard. Letters from the residents in close proximity to the site on Pleasant Avenue and Southwestern Boulevard approving the naturalized landscape buffer and project design are included in Appendix C. These photos, landscape design and sketches can be viewed in Appendix B.

4.3.4 Impacts on Transportation

A detailed Traffic Impact Study (TIS) for the “Villas at Brierwood” and “Brierwood Square” development has been prepared by SRF & Associates (SRF). The New York State Department of Transportation (NYSDOT) reviewed and approved a preliminary submission including existing traffic volumes, trip generation and trip distribution projections. Correspondence from NYSDOT is included in the TIS Appendix. The full TIS is included in Appendix D of this DEIS. A summary of the TIS is presented below.

The proposed development is located along the south side of Southwestern Blvd west of Amsdell Road. The site is currently vacant. The study area consists of three existing intersections surrounding the proposed site. The lands adjacent to the proposed development consist primarily of commercial and residential type uses. Major traffic generators along Route 20 consist of retail stores, banks, and offices.

The study area roadway system identified for investigation includes the portion of Route 20 between Pleasant Avenue to the west and Rogers Road to the east. Three (3) existing intersections are studied in detail in this report and are as follows:

1. NYS Route 20/Pleasant Avenue (unsignalized)
2. NYS Route 20/Amsdell Road (signalized)

3. NYS Route 20/Rogers Road (signalized)

Southwestern Blvd (NYS Route 20) is owned and maintained by NYSDOT within the vicinity of the project. The highway is functionally classified as an east/west urban principal arterial highway with a posted speed limit of 50 mph in the vicinity of the site. According to the most recent traffic volume data collected by NYSDOT in 2005, the annual average daily traffic (AADT) along Route 20 between Amsdell Road and Route 75 is 22,808 vehicles per day (vpd).

Rogers Road (CR 464) is a north-south roadway that provides a connection between Lakeshore Road (NYS Route 5) to the north and Pleasant Avenue (CR 122) to the south. The posted speed limit in the vicinity of the study area is 35 mph.

Amsdell Road (CR 122) is a north-south roadway that provides a connection between Lakeshore Road (NYS Route 5) to the north and Pleasant Avenue (CR 133) to the south. The posted speed limit in the vicinity of the study area is 35 mph.

Turning movement count data were obtained by SRF during the weekday AM and PM and Saturday midday peak hours at all of the study area intersections over the following dates January 13, 17 & 18 and March 3, 2007. These time frames were selected since they represent the greatest combination of traffic on the adjacent highways of use for the site. The peak hour traffic periods generally occurred between 7:15 to 8:15 AM, 4:00 to 5:00 PM and 12:15 to 1:15 PM.

The proposed development is located along the south side of Southwestern Blvd west of Amsdell Road and includes 150 condominium units and 25,410± s.f. of retail space. The TIS evaluated an earlier site plan that showed 148 condominium units and 28,000 s.f. of retail space. The decrease in retail space more than offsets the two additional condominium units therefore the actual future operating conditions are likely to be better than those identified in the TIS.

Access to the site will be provided via the two new access points on Southwestern Boulevard located approximately 885± feet (east site drive) and 1,275± feet (west site drive) west of Amsdell Road. The primary access to the site will be provided via the west site drive. The east site drive will be mainly used for the proposed retail space and as a means of emergency ingress and egress. There are no plans to access the site from Pleasant Av. Single family homes will be built on the projects frontage on Pleasant Av. The roads will be private and owned and maintained by the homeowners association. They have been desingned to Town of Hamburg public road standards and will meet all standards for emergency vehicle access.

Delivery vehicles for the commercial uses will access the site via the main driveway for the commercial portion of the site. The actual number of delivery vehicles will vary depending on the tenants of the retail buildings. Very few, if any, semi-trucks are anticipated. Most, if not all, of the deliveries will be made with smaller trucks. Conflicts between residents and delivery vehicles will be minimal.

Pedestrian access will be provided from the residential to commercial portions of the site via sidewalks. Within the community pedestrians and bicyclists will travel along the side of the road (between buildings and club house) or on the nature trail. The speed limit throughout the residential development will be posted at 15 mph. Yield to Pedestrian signs will be used where appropriate throughout the development to enhance pedestrian safety. Bicyclists will use the wide shoulders provided along Southwestern Boulevard. A bike lane will be provided from Southwestern Blvd. along the entrance road to Brierwood Square and the Villa's at Brierwood.

Children that reside at the "Villa's" will wait for school buses on Southwestern Boulevard. James Ciulis, who is the head bus driver for the Frontier School District, was contacted regarding bus stop locations. He stated that it is against Frontier Central School District's policy to allow school buses on private roads. He also indicated that other children living in the homes along Southwestern Boulevard are also picked up by school buses in front of their homes on Southwestern Boulevard.

Four parking spaces are provided for each condominium unit, two inside the garage and two outside the garage. Snow storage will be provided at the sides and back of the condominium driveways. Sufficient snow storage is also provided within the commercial portion of the site.

The volume of traffic generated by a site is dependent on the intended land use and size of the development. Trip generation can be defined as an estimate of the number of trips generated by a specific building or land use. These trips represent the volume of new traffic added to the roadways due to the proposed development.

The volume of site-generated traffic at the proposed access drive has been estimated based on data contained in the Trip Generation manual. All trip generation calculations are included in Appendix A2 of this report. Table I shows the total site generated trips for the weekday AM, weekday PM and Saturday midday peak hours for the proposed development.

TABLE I: SITE GENERATED TRAFFIC VOLUMES

DESCRIPTION	***AM PEAK***		***PM PEAK***		***SAT PEAK***	
	ENTER	***EXIT***	***ENTER***	***EXIT***	***ENTER***	***EXIT***
Total Residential Trips (148 Condominium units)	12	59	56	27	46	39
Total Retail Trips (28,000± s.f. Shopping Center)	18	11	50	55	72	67

It is noted that the trip generation used in this analysis is based on ITE data for condominiums. The actual proposed development is likely to generate fewer trips than projected since the target resident is older adults without families. This conclusion is based on data supplied by the developer for three similar developments. Data from the similar development is included the TIS Appendix.

Capacity analysis is a technique used for determining a measure of effectiveness for a section of roadway and/or intersection based on the number of vehicles during a specific time period. The measure of effectiveness used for the capacity analysis is referred to as a Level of Service (LOS). Six Levels of Service are defined for analysis purposes. They are assigned letter designations, from "A" to "F", with LOS "A" representing operating conditions with the least time delay. LOS "F" is the least desirable operating condition where longer delays are experienced by motorists. Traffic analysis software, Synchro, which is based on procedures and methodologies contained in the HCM 2000, was used to analyze operating conditions at study area intersections. The intersection capacity analysis results are shown on the next page and discussed in detail in the TIS.

The TIS addresses the traffic impact that can be expected from the proposed Villas at Brierwood and Brierwood Square Site in the Town of Hamburg. It has been shown that the transportation network can adequately accommodate the projected traffic volumes and resulting impacts to study area intersections. The following list summarizes recommendations to be considered as a result of this development:

1. Provide both site drives on Route 20 with one exiting lane (combined left/right turn lane) and one entering lane.

2. The proposed site drives exiting the proposed development shall be stop-controlled at its intersection with Route 20.

INTERSECTION CAPACITY ANALYSIS RESULTS

INTERSECTION	***EXISTING CONDITIONS***			***BACKGROUND CONDITIONS***			***FULL DEVELOPMENT CONDITIONS***		
	AM	***PM***	***SAT***	***AM***	***PM***	***SAT***	***AM***	***PM***	***SAT***
NYS Route 20/Rogers Road (S)									
Eastbound - NYS Route 20	A	A	A	A	A	A	A	A	A
Westbound - NYS Route 20	A	A	A	A	A	A	A	A	A
Northbound - Rogers Road	B	B	A	B	B	B	B	B	B
Southbound - Rogers Road	B	B	B	B	B	B	B	B	B
Overall LOS / Delay in sec/veh	**A(7.3)**	**A(6.9)**	**A(6.2)**	**A(8.3)**	**A(8.0)**	**A(7.2)**	**A(8.5)**	**A(8.2)**	**A(7.5)**
NYS Route 20/Amsdell Road (S)									
Eastbound - NYS Route 20	A	A	A	A	A	A	A	A	A
Westbound - NYS Route 20	A	A	A	A	A	A	A	A	A
Northbound - Amsdell Road	A	B	A	B	B	A	B	B	B(10.1)
Southbound - Amsdell Road	B	B	A	B	B	B	B	B	B
Overall LOS / Delay in sec/veh	**A(7.1)**	**A(7.6)**	**A(6.5)**	**A(7.5)**	**A(8.3)**	**A(7.2)**	**A(7.7)**	**A(8.5)**	**A(7.3)**
NYS Route 20/East Site Dr. (U)									
Westbound Left - NYS Route 20	NA			NA			A	A	A
Northbound - East Site Drive	NA			NA			B	B	B
NYS Route 20/West Site Dr. (U)									
Westbound Left - NYS Route 20	NA			NA			A	A	A
Northbound - West Site Drive	NA			NA			B	B	C
NYS Route 20/Pleasant Ave. (U)									
Eastbound Left - NYS Route 20	A	A	A	A	A	A	A	A	A
Westbound Left - NYS Route 20	A	A	A	A	A	A	A	A	A
Northbound - Pleasant Ave.	C	C	C	C	D	C	C	D	D
Southbound - Pleasant Ave.	C	D	C	C	F(57.2)	E	C	F(65.5)	E

4.3.5 Impacts on Energy

New York State Electric and Gas has indicated in a letter dated February 21, 2007 from Sharon Zulawski, Electric Field Planner for NYSEG, that they will supply electricity to the site. Existing services may need to be upgraded to provide electricity to the site. The need to upgrade, if any, will not be determined until the site plan is completed and approved. A copy of the letter form NYSEG is included in Appendix C.

National Fuel has indicated in an e-mail from Daniel Smith, New Service Representative, dated February 8, 2007, that they will supply natural gas to the project site. The gas will be supplied by a main line, which is located on Southwestern Boulevard. A copy of the e-mail from National Fuel can be found in Appendix C.

Impact on energy will be minimized by adhering to Energy Star guidelines. Energy Star certified products and specifications will be employed in the construction of the buildings. Energy Star is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy directed at saving us all money and protecting the environment through energy efficient products and practices. Employing Energy Star products and practices in the design and construction of the "Villa's at Brierwood" will provide 30 to 50% greater energy efficiency than required by New York State code.

4.3.6 Noise Impacts

The "Villas at Brierwood" condominiums will generate noise levels that will not exceed the current background noise level. The current background noise level is approximately 40 dBA to 50 dBA. Impacts of background noise generated by residents of the condominiums will further be reduced by the existing mature tree line/hedgerow which will partially block sound transmission between the condominiums and the adjoining residential properties. In addition, evergreen trees will be planted to augment the existing tree line/hedgerow. As the evergreens mature, they will provide increasing noise abatement.

"Brierwood Square" will also generate noise levels consistent with the surrounding background noise levels. These levels (60 dBA or greater) are somewhat higher than those of the condominium portion of the project due to the proximity to Southwestern Boulevard. Potential background noise levels for "Brierwood Square" have been minimized by site plan revisions. These revisions include dividing the total square footage of leasable space into 5 buildings rather than 2 large buildings. By doing this, the size of the HVAC units and the background noise levels they generate will be reduced proportionally. The buildings and trees in "Brierwood Square" will screen the "Villa's" from traffic noise on Southwestern Boulevard.

The types of businesses that "Brierwood Square" is designed to accommodate will not require trash compactors, and they will not be used on the site. This eliminates another possible source of background noise.

Trucks will not be allowed to idle while making their deliveries to tenants of "Brierwood Square". This policy will mitigate another potential source of background noise.

The site plan for the project includes approximately a one-acre open space with a ½-acre pond and landscape plantings to reduce noise transmission from "Brierwood Square" and the entrance road traffic to the home directly south of the project site on Southwestern Boulevard. The site has been planned so that only two of the 4-unit condominium buildings are directly adjacent to "Brierwood Square." Evergreens will be planted on the 30-foot green space buffer between the condominium buildings and "Brierwood Square" to provide a visual and noise buffer.

4.3.7 Impacts on Public Health and Safety

The "Villa's at Brierwood" and "Brierwood Square" will have little to no effect on the health of local residents.

The storm water detention ponds are designed so that the water they contain will not become stagnant. They will allow storm water to pass through the system at a predetermined rate which meets New York State water quality standards.

Proper grading and landscape maintenance will prevent the establishment of emergent aquatic vegetation (e.g. cattails, etc.) around the shorelines. It is these shallow pond shorelines that can become overgrown with emergent aquatic vegetation and cause a reduction of water circulation, eventually leading to stagnation. Stagnant areas are where mosquitoes reproduce. By properly controlling the weed growth, you virtually eliminate mosquito-breeding areas.

The ponds also are not positioned in any of the wooded areas so they will receive direct sunlight all day long. Mosquitoes require shaded areas to breed and live in, they become desiccated and die from direct sunlight.

The safest and most effective control for cattails and other emergent aquatic vegetation is to cut them down near the roots and well below the water surface during the fall or winter when they are dormant. The ponds in Western New York will generally have high water during the springtime. The high water which covers the cattails for 3-4 weeks will drown them. Cattail roots receive oxygen through the leaves that are above the water line. If the water level stays above the leaves for 3 to 4 weeks, the roots drown and the cattails are effectively killed. This method of aquatic emergent weed control is recommended by the Cornell University Extension Service. They recommend this method because it is highly effective and doesn't require herbicides.

If water levels do not reach normal levels due to spring drought, especially in consecutive years, it could become necessary to use herbicides. If herbicides are necessary, a pest control technician licensed by the NYSDEC in the aquatic week category would recommend and perform the proper herbicide application according to New York State law.

Rodents will be excluded from human food sources by proper trash storage and removal. Residents of the "Villa's" will be provided with heavy-duty trash receptacles with secure lids. The homeowners' association will contract trash pick up services with one of the local waste control companies referenced in section 4.2.10 of the EIS. The companies will supply rodent-proof trash receptacles for food waste. The homeowners' association will require that the residents keep their trash receptacles in the garages with the tops on. They will be prohibited from leaving trash outdoors. Residents will also be required to place trash out for the evening before pickup at the earliest.

The tenants at “Brierwood Square” will be provided rodent-proof trash dumpsters. The scheduling of pickup and dumpster size will be coordinated so dumpsters will not be overfilled. The tenants and their employees will be required to keep dumpster lids and/or sliding doors shut at all times through a clause in their lease agreement. The local trash companies will help determine dumpster sizes and pickup schedules when we identify the type of businesses that will be easing portions of “Brierwood Square.” There will also be trash receptacles for public use placed on walkways outside the building. Dumpster size and positioning will be determined when the types of businesses leasing at “Brierwood Square” are identified. Licensed pest control technicians will recommend and perform rodent control measures at “Brierwood Square” and throughout the project site as necessary.

The vehicular speed limit in the “Villa’s at Brierwood” will be 15 miles per hour. There will be speed limit signs as you enter the “Villa’s”. Signs stating that vehicles must yield for pedestrians will also be placed on the entrance road and near the clubhouse.

4.3.8 Impacts on Growth and Character of Community and Neighborhood

The project sponsor has gone to great lengths in the project planning phase in order to minimize any adverse impacts and to maximize the benefits to the Growth and Character of Community and Neighborhood. This section discusses these potential impacts and benefits as well as how the project complements the goals and objectives outlined in the Town’s 2010 Comprehensive Plan – even though the project requires re-zoning of the property and amendment to the Comprehensive Plan.

4.3.8.1 Impacts to Existing and Surrounding Land Uses

If the Comprehensive Plan was updated and the project approved for construction, the impacts to existing and surrounding land uses would include a slight increase in traffic in the project area and loss of open space, wildlife habitat and rural views for passing motorists on Southwestern Blvd. and from the rear yards a few homes that border the site. The proposed project will not have any adverse impacts on current agricultural activities adjacent to and/or nearby this property. As the subject property does not lie upstream of any known agricultural uses. It also is not close enough to present the usual converse neighbor complaint issues that can sometimes arise from new residential uses being constructed adjacent to active agricultural operations. Existing Pleasant Avenue agricultural operations will not be impacted since there will not be a connection from the proposed development to Pleasant Avenue.

Although the “Villas at Brierwood” will permanently change the aesthetic characteristics from an open meadow to a beautifully landscaped neighborhood business center and ranch-style condominium community it allows for a nice transition from the commercial and denser residential areas to the north of Amsdell Road to the less dense Lakeview Area. There will be no associated increase in development pressure on areas south of the proposed site in the Lakeview Overlay District because the sewers will be private and accessed from Amsdell Rd. and will not be extended down Southwestern Blvd. Furthermore, the generalized land use and zoning in the vicinity is similar to the proposed project. The large Brierwood PUD is located northwest of the site; large commercial zoning areas exist to the north and south (Southwestern and Pleasant) of the site.

The proposed development has been designed to minimize adverse impacts by incorporating lush landscaping, preserving natural features, and limiting the types of uses for the Retail/Office area. The perimeter of the site will be improved to lessen the impacts to adjacent properties by providing a green space buffer around the project site. A variety of evergreen trees will be planted along the perimeter of the project in a natural fashion to augment the existing hedgerows and woodlands comprised of mature deciduous trees that surround the project site. The evergreens will enhance the landscape screening, especially in the winter time, and will provide noise and wind abatement in the project area. The evergreen plantings will add diversity to the trees in the project area, and supply cover and nesting habitat for wildlife. In addition, important natural features will be preserved in accordance with the Comprehensive Plan include 6 acres of natural open space with a walking trail and Wanakah creek with 2.5 acres of contiguous wetlands.

Through site plan revisions the impacts to surrounding residences from the Retail/Office Space (a.k.a. “Brierwood Square”) are minimized by the following:

- Dividing the total square footage of leasable space into 5 buildings rather than 2 large buildings. By doing this, the size of the HVAC units and the background noise levels they generate will be reduced proportionally. The buildings and trees in “Brierwood Square” will screen the “Villa’s” from traffic noise on Southwestern Boulevard.

- The types of businesses that “Brierwood Square” is designed to accommodate will not require trash compactors, and they will not be used on the site. This eliminates another possible source of background noise.

- Trucks will not be allowed to idle while making their deliveries to tenants of “Brierwood Square”. This policy will mitigate another potential source of background noise.

Potential uses for the Retail/Office Space component of the proposed Planned Unit Development will be similar to those allowed under zoning classifications for Local Retail Business District (C-1) and/or Neighborhood Commercial General Residence District (NC). Examples of these uses include:

- Minor retail sales serving the day-to-day convenience shopping needs of the surrounding neighborhood;

- Personal service establishments;

- Eating or drinking establishments;

- Medical and/or Dental buildings; and

- Other administrative, professional or executive offices;

4.3.8.2 Property Rezoning and Comprehensive Plan Amendment

It is necessary to re-zone the 43-acre project site from Residential-Agricultural zoning to Planned Unit Development (PUD) zoning in order to accommodate the mixture of condominiums and retail/office space designed to serve the surrounding neighborhood and local area. The Town of Hamburg Planning Department prepared a Rezoning Report which concluded that the Town's 2010 Comprehensive Plan would need to be updated to remove the project site, three properties to the north of the site (all fronting on Southwestern Blvd.) and those properties on the other side of Southwestern Blvd. that have frontage on Amsdell from the Lakeview Overlay District. This Rezoning Report can be found in Appendix D.

The proposed project complements the Town's goals and objectives as outlined in the 2010 Comprehensive Plan, as discussed below, thereby warranting the necessary property rezoning and Comprehensive Plan Amendment.

One of the Town's goals is to provide a diverse living environment for its residents. The proposed Active Adult Lifestyle Community is different than much of the other housing in the Town and it would accommodate a growing demographic of people over 60-years old in the Town. An extensive property search concluded that there were no other parcels available within the Town to support such a project. Although the subject property is shown in the 2010 Comprehensive Plan as part of the Lakeview Area, it is not really a part of the true Lakeview Neighborhood as there is a physical separation of space between these areas, therefore would not impact the characteristics of that neighborhood. This project "use" clearly addresses the need for this type of housing in the community and is the reason for the rezoning and not the density. The site could certainly be proposed with a much higher density, if that was the motivating factor.

Also, consistent with the Comprehensive Plan is the fact that sanitary sewer lines will not be extended along Southwestern Boulevard further south into the Lakeview Area, thereby controlling potential sprawl into that area. The proposed sanitary sewer will be private and will not permit any other connections into the Lakeview Area. The route for the proposed private sewer system will connect to an existing sewer manhole located at the northwest corner of the Southwestern Boulevard and Amsdell Road intersection, cross under Southwestern Boulevard towards the east and head easterly down Amsdell Road and cross Amsdell Road to the south at the proposed project site (Refer to Appendix D – Sanitary Sewer Feasibility Study for "Villas at Brierwood, Hamburg, NY" by TVGA, Layout #2).

In addition, there are few environmental limitations on this property and no important lands were identified in the Town's Open Space and Recreation Plan. Larger areas of sensitive land (i.e., Local Wildlife Habitat and Management Areas) are located further south of the proposed project site.

4.3.8.3 Emergency Services

The Town of Hamburg Police Dept., Lakeshore Volunteer Fire Co., and Rural Metro Ambulance service were contacted and presented with a copy of the proposed site plan.

There will be an increase in demand for services from this proposed project as well as other housing projects in the Hamburg area. The emergency service providers have indicated in letters included in Appendix C of this DEIS that they have the ability to respond to any emergency situation.

The private roadway that will access the proposed project has been designed to the Town of Hamburg Code for publicly dedicated roads and meets all emergency vehicle access requirements. The internal roadway has been designed to accommodate emergency vehicles accessibility and maneuverability throughout the site. Reasonable and customary emergency vehicle turning radii have been incorporated into the geometric design of the site. Through site plan revisions secondary Emergency Access has been provided to the condominium area using the primary entrance into the office/retail area and proceeding through the drive aisles to the rear of the office/retail area. This access supplements and supplants the main “Villas at Brierwood” entrance in the event of obstruction.

4.3.8.4 Economic Impacts

Community Employment

It is estimated that the proposed project will support the equivalent of 108 full-time jobs during construction. Following construction it is estimated that 70 full-time jobs will be generated from the additional Retail/Office Space. Additionally, Full-time property service jobs such as Landscaping and snowplowing will be created for both the Condominium and Retail/Office Space areas.

Impact on Existing Senior Housing, Schools and Taxes

Currently within the Town of Hamburg there are approximately 527 rental units of subsidized senior/retirement housing. Although the proposed 150 unit condominium development (i.e., The Villas at Brierwood) will become home to some retired people, it will not be subsidized senior/retirement housing and the residents will be owners. This style of residence is classified as an Active Adult Lifestyle Community.

The Retail/Office Space will not receive a reduced tax assessment. The 150 condominium units will be subject to a reduced tax assessment levy, however when compared to the 18 single-family homes that could be built on the property under the existing zoning (See Appendix A – Concept Plans A and B for Permissible Land Use in Existing R-A Zoning) the proposed project would result in a much better tax balance situation. The School Impact analysis (on the following pages) shows that the proposed project (i.e., Villas at Brierwood w/ Brierwood Square) would result in a Net Benefit of $360,219. to the Frontier School District, while the Typical Single-Family housing in the existing R-A Zoning District would result in a Net Loss of $24,900. to the School District.

Regarding Town and County taxes, the proposed project would have less of an impact on tax burden shared by the community than that of the 18-Lot Single-Family residential subdivision in that the infrastructure (i.e., road, sanitary sewer, and waterlines) will be privately owned and maintained. The proposed project will generate Town and County Tax Revenue, while not increasing the amount of infrastructure to be maintained by the Town. In a typical Single-Family Residential Subdivision the roads, sewers, and waterlines are dedicated to the Town which increases maintenance costs and ultimately the tax burden to the community. Similar to the School District Tax Benefits discussed above, the proposed project would generate more Town and County Tax revenue than the 18-Lot Single-Family residential subdivision allowed by the current zoning.

SCHOOL IMPACT

Villas @ Brierwood w/Brierwood Square

Number of new homes	150
Additional children from Villas @ Brierwood (see note 1)	3
Total Real Estate Value (see note 2)	$31,000,000.
Real Estate Value per Pupil	$10,333,333.
Annual Cost to Educate Additional Children (see note 3)	$ 24,081.
Taxable Real Estate Value (see note 4)	$17,500,000.
Additional Tax Revenue Generated for Schools (see note 5)	
($21.96/1000 of Taxable Value)	$ 384,300.
Cost to Educate Additional Children (from above)	-$ 24,081.
Net Benefit to Schools (see note 6)	$ 360,219.

Typical Single Family (R-A Zoning District)

Number of New Homes	18
Additional Children to the District (see note 7)	13
Total Real Estate Value (see note 8)	$5,400,000.
Real Estate Value per Pupil	$ 415,385.
Annual Cost to Educate Additional Children (see note 3)	$ 104,351.
Taxable Real Estate Value	
$5,400,000. x .67 (Hamburg equalization rate)	$3,618,000.
Additional Tax Revenue Generated for Schools	
($21.96/$1,000 of taxable value)	$ 79,451.
Cost to Educate Additional Children (from above)	-$ 104,351.
Net Loss to Schools (see note 6)	-$ 24,900.

Notes:

1. Due to its Active Adult Lifestyle theme, each Epcon condominium (Villas @ Brierwood home) is presumed to generate .02 students/unit, which is the national average for Epcon Communities.
2. 150 units @ $190,000./unit = $28,500,000. plus an additional $2,500,000. in commercial real estate (full market value) = $31,000,000.
3. The annual adjusted expense per student in the Frontier School District is $8027. as provided by Mr. Jim Palanero of the Frontier School District business office.
4. Mr. Robert Hutchinson, Town of Hamburg assessor, performed a preliminary analysis of the taxable value for the condominiums using the income approach - this is the approach that NYS Law requires for determining taxable value of condominiums. Based on his analysis, the taxable values were determined to be in the range of $95,000.-$110,000. per unit. Say $100,000./unit for this project (Villas @ Brierwood) @ 150 units = $15,000,000. plus an additional $2,500,000. in commercial real estate (full market value) = $17,500,000.
5. Frontier School District tax rate = $21.96/$1000. of taxable real estate value.
6. Additional tax revenue generated for schools - annual cost to educate additional children.
7. The calculations above assume that each single-family home produces .7 school age children. *Rutgers University - NYS Averages.*
8. The single family home data is based on average home values of $300,000.

4.3.9 Impacts on Plants and Animals

The proposed project will occupy approximately 31 acres of open space. 28 of the 31 acres that will be lost are abandoned from fields, and 3 acres are woodland.

The 28 acres of abandoned farm land support a mixture of common pasture grasses and legumes, and a variety of weeds which commonly invade abandoned farm fields. These are not valuable or endangered plant species growing in the abandoned fields. The plant species growing in the abandoned field provides little food or cover for wildlife.

Three acres of deciduous woodland will be lost on the eastern side of the project site; however, 2.6 acres of green space north of the intermittent stream is reverting to deciduous woodland. This area is part of the recreational green space area that will be left natural. This area, over time, will become mature deciduous woodland and will replace all but .4 acres of the woodland lost to construction of the project. In addition, a variety of evergreen tree species are being planted around the perimeter of the site.

The woodland areas provide shelter and food for wildlife. The evergreens that will be planted will provide shelter for small animals and nesting habitat for birds.

The intermittent stream will be preserved and will provide a water source for wildlife. The 1.85 acres of retention ponds will also provide water for wildlife. More information on Plants and Animals on the project site can be found in Site Ecology, Section 4.2.11 of the EIS.

The New York State Natural Heritage Program reviewed their records of rare or endangered plant or animal species in the project area. They found no records of rare or endangered species in the project area. A letter from the NYS Natural Heritage Program summarizing their findings is included in Appendix C.

4.3.10 Impacts on Recreation

The impact on recreation is related to the age characteristics and recreational interests of the population. The age of the future residents will range from 45 to 80+ years of age. According to the Age Characteristics Table from the "Town of Hamburg Open Space and Recreation Plan, April 1994, page 16" (reproduced on the next page) the population of the 35-44 age group increased nearly 37.4% between 1980 and 1990. Those people are now around 52-61 years old. The Age Characteristics Table also shows the population of people 60+ years of age increased 43% between 1980 and 1990. Those people are now 77+ years old. This trend of increased populations of people approaching retirement or already retired continues. People are living longer and more active lifestyles.

The residents of the proposed "Villa's at Brierwood" will have little to no impact on Town of Hamburg recreation facilities. They do not participate in organized sports and will not require the use of town sports fields (i.e., baseball diamonds, soccer fields, etc.). However it should be noted that golfing is a popular leisurely activity within this demographic. It is likely that many of the residents in the proposed "Villa's at Brierwood" would either belong to or join local golf clubs and may even utilized public courses within the Town and region.

Age Characteristics

Age Group	1980	1990	Change
0-4	3585	3605	- 2.0
5-9	4128	3911	- 217.0
10-14	4903	3646	- 1257.0
15-19	4913	3712	- 1201.0
20-24	4127	3493	- 634.0
25-29	4339	4019	- 320.0
30-34	4543	4503	- 40.0
35-44	6314	8673	+ 2359.0
45-54	5795	5844	+ 49.0
55-59	2898	2453	- 445.0
60-64	2486	2583	+ 97.0
65-74	3370	4391	+ 1021.0
75-84	1447	3404	+ 1957.0
85+	422	702	+ 280.0
Totals	53,270	54,942	+ 1672.0 or 3% increase in population

Source: "Town of Hamburg Open Space and Recreation Plan, April 1994"

The "Town of Hamburg Open Space and Recreation Plan" identifies existing parks and recreation areas as well as trailway opportunities in the Town. Copies of maps from that document are included in Appendix A. The "Existing Parks and Recreation Areas" map shows that the nearest Town Park Recreation Area is located approximately ¾ of a mile south of the proposed project site however it is separated by the New York State Thruway. The "Trailway Opportunities" map shows that the nearest hiking trail is approximately 1-mile south of the proposed project site; and the nearest bicycle route/trail is located approximately 0.6 miles to the north (along Rogers Road). Since the proposed "Villa's at Brierwood" is not contiguous to these hiking and bicycle trails there is no ability to connect these facilities to the proposed project site. The "Villa's at Brierwood" residents are most likely to use the nature trails proposed on-site as part of the development rather than traveling by vehicle to the existing hiking trails shown on the "Trailway Opportunities" map.

The residents of a Lifestyle Community are provided with a large clubhouse that includes an outdoor patio, swimming pool, and a modern fitness center with a variety of exercise machines available for their use. The clubhouse also serves as a social center for the community and provides a place for people to get together to play cards, billiards, chess and other passive recreational games. Residents can also use the clubhouse for parties or to watch sports events with friends. Pictures of an existing clubhouse and amenities can be viewed in Appendix B.

The proposed "Villa's at Brierwood" will also include a nature trail located in a 5.85 acre natural green space area in the northeastern portion of the site. The project sponsor has offered to convert this area to a public conservation easement with public access from Amsdell Road. The Town of Hamburg Recreation and Conservation Board are reviewing this concept and will make their recommendations to the Hamburg Town Board on this issue.

The project sponsor will ask to have the recreation fees waived because of the active and passive recreational facilities to be built on the site for the use of the residents, in addition to the construction of the open space nature trail for the public to enjoy as well as the future residents of the "Villa's."

4.4 Mitigations

This section is a short summary of the modifications made to the project design in order to mitigate the impacts related to the construction of the project. These impacts and mitigations are discussed in greater detail in Section 4.2 "General Environmental Settings," and 4.3 "Impact Assessment" of this Environmental Impact Statement.

To mitigate the impacts to the land the proposed project will be developed in phases which will limit the amount of land disturbance any given time. Temporary and permanent erosion and sediment control measures will be installed to limit the amount of sediment buildup in on-site and downstream waterways. The proposed stormwater management ponds will provide mitigation for the amount of increased runoff from the developed site by limiting the amount of runoff from the site to the pre-developed flow rates. Disturbance of wetland areas are typically a concern, however the proposed project was designed around the existing wetland area, thereby preserving the wetland areas in their entirety. To avoid clear cutting of mature trees, the proposed plan incorporates natural buffers and open spaces, where these trees will remain in place. A major portion of all wooded areas will be preserved by employing these design principals. One of the open space areas is designed to preserve the existing south to north ditch and associated vegetation. Rock excavation is another potential concern on the project site that is being avoided to the maximum extent possible by constructing the condominium buildings with slab-on-grade foundation systems and minimizing deep infrastructure in high bedrock areas.

Any potential degradation of stormwater quality as well as control of post developed runoff rates will be mitigated by an on site Stormwater Management System that will be designed in accordance with the New York State Department of Environmental Conservation's (NYSDEC's) State Pollution Discharge Elimination System (SPDES) new Phase II stormwater regulations.

There are no adverse impacts to sanitary sewer system or to the municipal potable water system associated with the proposed project. In fact, as part of the proposed project the project sponsor will be making a major capital expenditure to correct and improve the current inflow and infiltration problems in the existing local sanitary sewer system. These problems occur in wet weather conditions and create pumping problems at the existing Rogers Road lift station.

In order to mitigate the project's impacts on aesthetic resources, the project sponsor has included a 5.85 natural open space and a landscaped green buffer around the entire perimeter of the project. The signs and light standards will be decorative and in keeping with the traditional architecture of the project. A landscaped lake at the entrance and a faux bridge was included in the design for aesthetics.

The condominium buildings have four side architectural accents such as stone work, cathedral windows, gabled roofs, and recessed side loading garages. Parking spots for the "Villa's" visitors are located in the recessed area in front of the garages.

The majority of the trees on the project site have been preserved. With the addition of the evergreen landscape buffers and shade trees throughout the project, there will be a greater number and more variety of trees on the site after the project is complete than are presently on the site. Foundation plantings are planned for all sides of the buildings.

"Brierwood Square" was revised several times to achieve a traditional neighborhood look.

The traffic impact that can be expected from the proposed "Villas at Brierwood and Brierwood Square" is insignificant. The traffic impact study (TIS), included in Appendix D, shows that the transportation network can adequately accommodate the projected traffic volumes and resulting impacts to study area intersections. However the proposed plan does incorporate recommendations from the TIS as follows:

- Provide both site drives on Route 20 with one exiting lane (combined left/right turn lane) and one entering lane.

- The proposed site drives exiting the proposed development shall be stop-controlled at its intersection with Route 20.

To conserve energy resources and to help the residents save money, Energy Star products and practices will be employed in the design and construction of the project.

Mitigation of noise generation at the project site will include smaller commercial buildings with smaller HVAC units that produce less background noise. Trash compactors will not be allowed. Large delivery trucks will not be allowed to idle while making deliveries. Green landscape buffers with evergreen trees will be planted along the deciduous tree line/hedgerows to lessen noise transmission from inside or outside the project boundaries.

To mitigate any negative impacts on public health, the storm water detention lakes are designed and will be properly maintained to eliminate shaded stagnant water where mosquitoes could breed. To accomplish this, ponds are located in direct sunlight. The inlets and outflows will allow the water to flow slowly through the lakes. This flow also helps to eliminate stagnation. Cultural emergent aquatic weed control practices will be employed to control cattail growth on the pond edges. This will also eliminate shading and stagnation, and will prevent mosquitoes from breeding.

To control rodents, the homeowners' association will enact stringent rules on the storage and pick up of garbage produced by its residents. The leases of the tenants and "Brierwood Square" will also include clauses requiring the proper handling of garbage produced. Licensed pest control technicians will employ appropriate and safe prevention techniques.

The efforts to mitigate adverse impacts on the growth and character of the community and neighborhood include: Placing limitations on the types of uses for the Retail/Office space; Lush Landscaped Buffers between the proposed development and the surrounding properties; and Routing proposed sanitary sewer lines down Amsdell Road to the project site and not extending them along Southwestern Boulevard further south into the Lakeview Area, thereby controlling potential sprawl into that area.

In order to alleviate impacts on plants and animals, the project has been designed to preserve green space buffer and a 5.85 acre natural open space which includes over 3 acres of mature woodland. In addition, to replace the lost woodland habitat, the 2.6 acres north of the intermittent stream will be allowed to grow naturally and revert to woodland. The natural plant community successions are already well underway in this area. Over an acre of ash saplings, as tall as 15 feet, are already established. There are also dogwood, rose and buckthorn shrubs in this area which provide food for wildlife.

Also, the extensive evergreen tree buffer in addition to shade and ornamental trees, (approximately 300 total), that will be planted on site will increase the overall number and provide a greater variety of trees for human enjoyment as well as wildlife food and shelter.

To mitigate impacts on the Town of Hamburg's recreational facilities, a clubhouse with a patio and pool will be built for the residents of the "Villa's." This will include a modern fitness center, billiard table and card tables. There will also be a lounge area for socializing.

Discussions have begun with the Town of Hamburg Recreation and Conservation Boards regarding the conversion of the 5.85+/- acre natural open space into a conservation easement with public access from Amsdell Road. A nature trail is also planned for this open space which could be used by town residents as well as the residents of the "Villa's."

4.5 Project Alternatives

To assess the environmental impacts the following alternatives were considered: 1) No Action Alternative, 2) Various alternatives based on permissible land uses for the existing zoning classification of Residential-Agricultural District (R-A District), 3) Development of the proposed project on a different parcel located within the Town of Hamburg, and 4) Design Alternatives for the proposed project.

4.5.1 No Action Alternative

The No Action Alternative evaluates the potential adverse and beneficial impacts that would result in the reasonable, foreseeable future if the proposed action was not undertaken. Significant potential adverse impacts for not developing the project site include: 1) The need for an Active Adult Lifestyle Community within the area would not be addressed which would potentially result in people moving out of the Town and away from their families; Taxes collected on vacant property are significantly less than those for developed parcels; and Future Development plans for the property could have greater environmental impacts (e.g., See

Appendix A: Hospital Concept Plan - an allowed use under current zoning). The potential benefit to the No Action Alternative is that the land would remain undeveloped and continue to provide wildlife habitat for some uncertain period of time.

4.5.2 Alternatives for Permissible Land Uses under the Current Zoning

Conceptual plan alternatives were formulated to assess the potential environmental impacts if the subject property were developed in accordance with the existing Residential-Agricultural District (R-A District) zoning classification. The current R-A District zoning classification allows for a variety of uses including single-family homes, agricultural and horticultural pursuits, veterinarian hospitals and community facilities such as hospitals, churches, cemeteries, schools, libraries, museums, fire stations and golf courses. This section focuses on single-family home development on the subject property.

Two Concept Plans were prepared for Single-Family homes (Concept Plan A and B) as shown in Appendix A. These plans are based on the following minimum requirements for Single-Family Residential lots in an R-A District:

Minimum Lot Area = 2-acres

Minimum Lot Width @ Bldg. Line = 200-feet

Minimum Lot Width @ Front Line = 100-feet

Right-of-Way Width = 70-feet, with 28-foot wide pavement

Concept Plan A consists of 16 lots (minimum 2-acres each). Access to 14 of the 16 lots would be from a new loop road off of Pleasant Avenue. The other two lots are frontage lots along Southwestern Boulevard. The plan also shows one additional Single-Family Lot with frontage along Amsdell Road. This lot would require an area variance. Development of this plan would have the following adverse impacts: Almost all of the 6-acre wooded area would be cleared; it would require filling the wetland area in its entirety or at least a large portion thereof with off-site mitigation. As can be seen in section 4.3.8 - Impact On Existing Senior Housing, Schools and Taxes, an as-of-right use would result in a tax drain whereby the money spent on providing public services to that project would exceed the amount of property taxes generated; the infrastructure, specifically road system, would undoubtedly be public, necessitating town maintenance. As an aside, the large lot sizes make this type of development cost prohibitive.

Concept Plan B consists of 17 lots (minimum 2-acres each). Ingress/Egress for the Single-Family Residential Subdivision under this plan would be provided by a roadway connection to both Pleasant Avenue and Southwestern Boulevard. This plan also shows one additional Single-Family Lot with frontage along Amsdell Road. This lot would require an area variance. Development of this plan would have the following adverse impacts: The existing drainage ditch that currently runs from south to north through the proposed lots 1, 6, 8 and 10 on this plan would be filled in. Some of the existing wetland area would be filled in. As can be seen in section 4.3.8 - Impact On Existing Senior Housing, Schools and Taxes, an as-of-right use would result in a tax drain whereby the money spent on providing public services to that project would exceed the amount of property taxes generated; the infrastructure, specifically road system, would undoubtedly be public, necessitating town maintenance. As an aside, the large lot sizes make this type of development cost prohibitive.

While the as-of-right 16 and 17 Lot Single Family Subdivision options above are not necessarily the most economically beneficial uses of the property, they do offer some benefit. Since these options are an allowed use under the existing zoning, rezoning of the property would not be required. The 2010 Comprehensive Plan would not need to be amended as a subdivision would be consistent with the future land use projections currently called for in the town’s master plan. The neighborhood would also maintain a rural residential character.

4.5.3 Alternative for Community Facilities Allowed by the Existing Zoning

A variety of community facilities such as hospitals, churches, cemeteries, schools, libraries, museums, fire stations and golf courses could be undertaken on the proposed project site as allowed by the existing zoning. As there are churches, schools, libraries, fire stations, and golf courses within close proximity to the project site, a conceptual plan for a Hospital was developed.

Concept Plan C (in Appendix A) shows a potential layout for a Hospital. Development of this plan would have the following adverse impacts: The existing drainage ditch that currently runs from south to north would be filled in; A significant portion of the existing 6-acre wooded area would be cleared and replaced with parking; the use would be wholly inconsistent with the existing residential uses in the area; the neighborhood would see the traffic volumes significantly higher than what would be generated by other uses; noise in the form of truck deliveries and ambulance sirens would result.

This type of land use is very unlikely, but it to would provide some benefits to the community. Close emergency medical care would be available to the surrounding area; creation of many new jobs.

Based on the close proximity of the project site to existing area hospitals (i.e., Mercy Hospital of Buffalo; Erie County Medical Center, Buffalo General Hospital, and Women's and Children's Hospital of Buffalo) and with the recent discussions about closing some of the area hospitals it is unlikely that another hospital would be developed in the foreseeable future.

4.5.4 Development of this project on a different parcel located in the Town of Hamburg

Without the requested PUD rezoning on the subject parcel, the project would require a site zoned R-3. The sponsor could only identify five vacant parcels zoned R-3 (see Appendix A, pages 23-27). A total community size of 120 units or greater is necessary to keep clubhouse and homeowners association fees affordable. Most of the residents in this type of community are retired or will retire while living in the community as such many of the residents will be on a fixed income for a portion of the time that they live in the community and therefore overall cost and affordability will determine the success of this type of venture. With all these factors in perspective and the realization that at any site we would be required to provide stormwater detention and green space it became apparent that a minimum land area of 30 + acres would be necessary to develop a community.

Of the five vacant parcels with R-3 only one meets the acreage requirement, and two others had almost 30 acres each of useable land.

The largest parcel is 90+ acres and is located on Camp Rd. at the railroad tracks. The parcel was eliminated for this type of community do to excessive noise from train traffic and environmental concerns. To access the property a bridge, over a ravine with a creek and wetland at the bottom, would need to be constructed. The cost of access would add too much to overall project infrastructure costs. In addition the property is owned by a builder/developer who intends to develop the property.

The second largest site was a 38 acre parcel on Big tree Rd. between the Thruway and South Park Av. Of the 38 acres a minimum 8-10 acres are undevelopable due to flood plain and wetlands. The useable space was less than required and the owner was asking over $30,000 per usable acre. This site would add too much land cost for a community of this type.

The third location that was considered is the west end of the property owned by the Erie Community College South Campus. This site contained approximately 30 useable acres. However it was decided that the area was too noisy and congested with traffic to provide the proper atmosphere for a retirement community. Land cost at this location was also prohibitive.

Following an extensive land search the sponsor finally came to the conclusion that a rezoning would be required to build a community in Hamburg. Also the project did not require the high density of the R-3 district which allows 10 to 12 units per acre. So a search was undertaken for a parcel of land 35 acres or greater in a logical location that could access sewers. Literally dozens of properties were considered.

The property was chosen because it had access to sewers and fronted on a major highway that could handle traffic and could be developed without entrances to residential streets. It was also large enough to leave 28% of the parcel as green space. In addition there were only six homes (four on Pleasant Ave. and two on Southwestern Blvd.) that would be within 300 feet of any buildings on the proposed site plan. Of the six homes two have a thick stand of trees to buffer it from the community.

It became apparent that any other site would require rezoning and would disrupt the surrounding areas to a greater degree than the presently proposed site. Most available sites were either further south in Lakeview or in the South Central Hamburg Overlay District which is another area where the Town Master Plan refers to retaining the rural character and also requires 2 acre lots.

4.5.5 Project design alternatives

The proposed action consists of a Planned Unit Development (PUD) which incorporates an Active Adult Lifestyle Community (a.k.a., "Villas at Brierwood") and a retail/office area (a.k.a., "Brierwood Square"). Through the planning process the proposed plan has been enhanced to minimize impacts to the existing land (i.e., increased open space, reconfigured building layout to avoid filling wetlands and minimize clear cutting of wooded areas), improved traffic and pedestrian safety (i.e., modified roadway widths and centerline geometry, modified location of entrances into the condominium and retail/office areas as well as provided secondary/emergency access to the condominium area through the office/retail area, and added sidewalks and a nature/walking trail for recreational enjoyment), and improve visual impacts through architectural and land use/site design, including significant landscaping and buffering. Early design concepts had a higher density with as many as 172 condominium units. Some had upwards of 36,000 square feet of commercial plaza space in two large buildings. C-2 type uses were also considered. Other alternate concepts actually considered an entrance onto Amsdell Road.

Clearly the project sponsor has considered the potential impacts of such alternatives weighing them against the obvious increased profitability and has made conscious decisions to minimize the potential impacts through project changes. These changes are reflected in the project design Concept Site Plans included in Appendix A, pages 9-12. The earliest version is shown on page 9, with subsequent revisions shown on pages 10-12.

4.6 Temporary and Short-term Impacts

The temporary and short-term impacts associated with the project are generally limited to the construction period. Additional traffic due to delivery of construction materials will occur on Southwestern Boulevard. It is not anticipated that construction vehicles will be traveling through the adjacent residential neighborhoods along Pleasant Avenue and Amsdell Road. Noise levels during construction will be higher than typical background noise levels in the area. To minimize the impact this has on the surrounding neighborhood, construction activities will be limited to certain hours of the day (e.g., 8:00am – 6:00pm). Construction activities can raise a significant amount of dust. The contractor will be required to employ dust control measures to minimize the amount of dust raised into the air. Downstream water quality can be impacted during construction operations. To address this, the contractor will be required to install and maintain Temporary Erosion and sediment control measures in accordance with a Stormwater Pollution Prevention Plan that will be prepared for the project as required by the NYSDEC.

4.7 Cumulative Impacts

Cumulative impacts are addressed by analyzing a background condition that includes all nearby approved developments and an appropriate background growth rate. Construction of the proposed Villas at Brierwood and Brierwood Square is expected to be completed within 2 years. The Town of Hamburg was contacted to discuss current projects within the project study area that are currently under construction and/or approved. The following developments are approved/under construction in the study area: Wellington Woods Subdivision that consists of 54 single family residential units near the Lakeview Road/Lakeshore Road intersection, Treehaven Subdivision that consists of 90 single family residential units and 43 patio homes near the Route

5/Lakeshore Road intersection, the Woodstream Estates Subdivision that consists of 85 single family residential units to the north of the site along Rogers Road (south of Cloverbank Road), and the Wal★Mart Supercenter development at the Route 20/Rogers Road intersection. Traffic volumes related to all of these developments were included in the background traffic conditions during the development of the Traffic Impact Study. To account for normal increases in background traffic growth, including any unforeseen developments in the project study area, a growth rate of 1.0% per year has been applied to the existing traffic volumes in the study area for the two year build-out period.

The background condition, including all of the above developments and growth rate, was analyzed and the capacity analysis results are included in section 4.3.4 of this DEIS. In addition, the future conditions with the proposed development traffic added to the background traffic is also analyzed and included in section 4.3.4.

The analyses indicate that all of the study area intersections will operate at acceptable levels of service (LOS) under both the background and full development conditions. In addition, the proposed development will not result in any significant changes in LOS between the background and full development conditions.

4.8 Adverse Environmental Impacts That Cannot Be Avoided / Irreversible and Irretrievable Commitment of Resources

Adverse environmental impacts/ irreversible and irretrievable commitment of resources are inevitable with any type of development project. Even though the project sponsor has carefully planned out the Active Adult Lifestyle Community and focused on providing large amounts of green and natural open spaces for the recreational enjoyment of its residents, typical of this type of development, there are some unavoidable environmental impacts associated with this project.

These unavoidable impacts/ irreversible and irretrievable resources include:

- Loss of vacant land (abandoned farm fields) in the Residential-Agricultural District (R-A District) zoning classification;
- Loss of approximately 21 out of 43 acres of open space and some wildlife habitat. However, the project maximizes open space and preserves nearly 6 acres of natural open space / wildlife habitat, including 2.5+/- acres of existing federal wetlands. Furthermore the majority of treed portions of the site are being preserved under this plan; and
- Increased traffic volumes, although determined not to be significant.

4.9 Growth Inducing Impacts

The potential Comprehensive Plan amendment as discussed section 4.3.8.2 would include removing the project site and three properties to the north of the site (all fronting on

Southwestern Boulevard) and those properties on the opposite side of Southwestern Boulevard that have frontage on Amsdell from the Lakeview Overlay District. This amendment will not significantly alter the development patterns in the area due to the fact that public sewers are not being extended into the Lakeview Overlay District. The sanitary sewer will be extended across Southwestern Boulevard onto Amsdell Road and not physically extended along Southwestern Boulevard. Furthermore, as previously noted in section 4.3.8.2, the sewers throughout the "Villa's at Brierwood" will be private sewers preventing future public extensions past the property. Extension of this type of infrastructure typically encourages development; however the proposed sanitary sewer and waterline extensions will be made to serve the proposed project and does not support future sprawl. Also as mentioned before, the project site is shown in the 2010 Comprehensive Plan as part of the Lakeview Area, it is not really a part of the true Lakeview Neighborhood as there is a physical separation of space between these areas, therefore would not impact the characteristics of that neighborhood.

The "Villas at Brierwood" and "Brierwood Square" will be an asset to the Community by providing a unique Active Adult Lifestyle living environment for its retired residents and those approaching retirement, while maintaining the character of the neighborhood. In addition, the "Villas at Brierwood" and "Brierwood Square" will increase the tax revenue base with no adverse impacts on public infrastructure (roads, sewers, municipal water supply), on schools, or on emergency services.

APPENDIX A

MAPS & SITE PLANS

TABLE OF CONTENTS

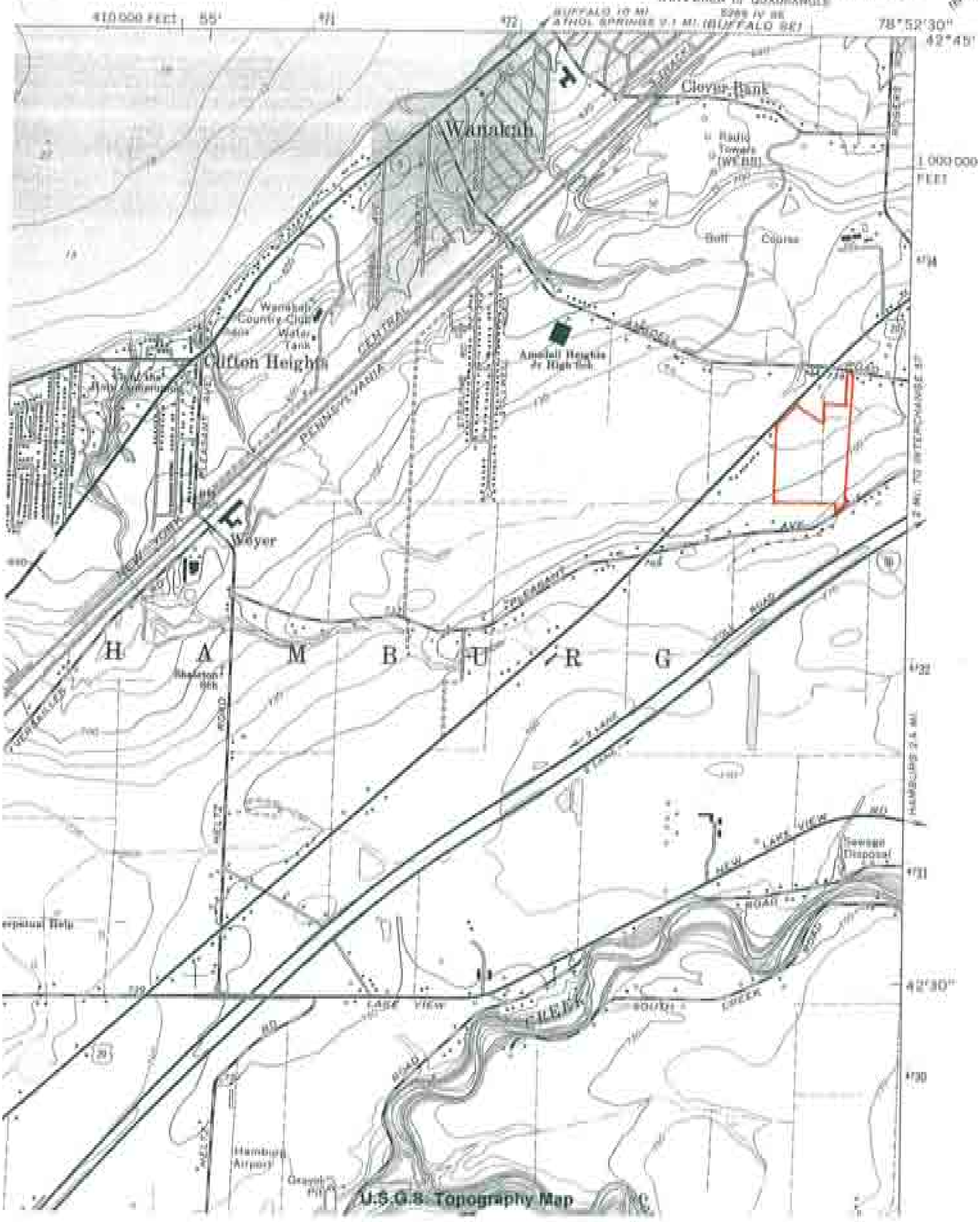
APPENDIX A
MAPS & SITE PLANS

Current Site Plan
#1

REI Data Inc. reidi.propertyinfo.com - Map Name: maps/ERIE/144889/182_00.tif

Tax Map
#2

EDEN QUADRANGLE
NEW YORK–ERIE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NW/4 EDEN 15' QUADRANGLE



U.S.G.S. Topography Map

BOUNDARY /TOPOGRAPHIC AND UTILITY SURVEY

Project Site Topographic Survey Map #4

Sheet 2 of 2

PROJECT: BOUNDARY SURVEY OF SBL NO. 182.00-4-13.1 SBL NO. 182.00-4-16

GENZEL LAND SURVEYING, P.C.
7033 COLE ROAD COLDEN, NEW YORK 14033
505 EAST 20TH STREET CHEYENNE WY 82001
PH: (716) 887-3730 FAX: (716) 887-8733 EMAIL: JGENZEL@AOL.COM

PROJECT:	0683
DATE:	09/11/09
SURVEYOR:	JAG
DRAWN BY:	JAG

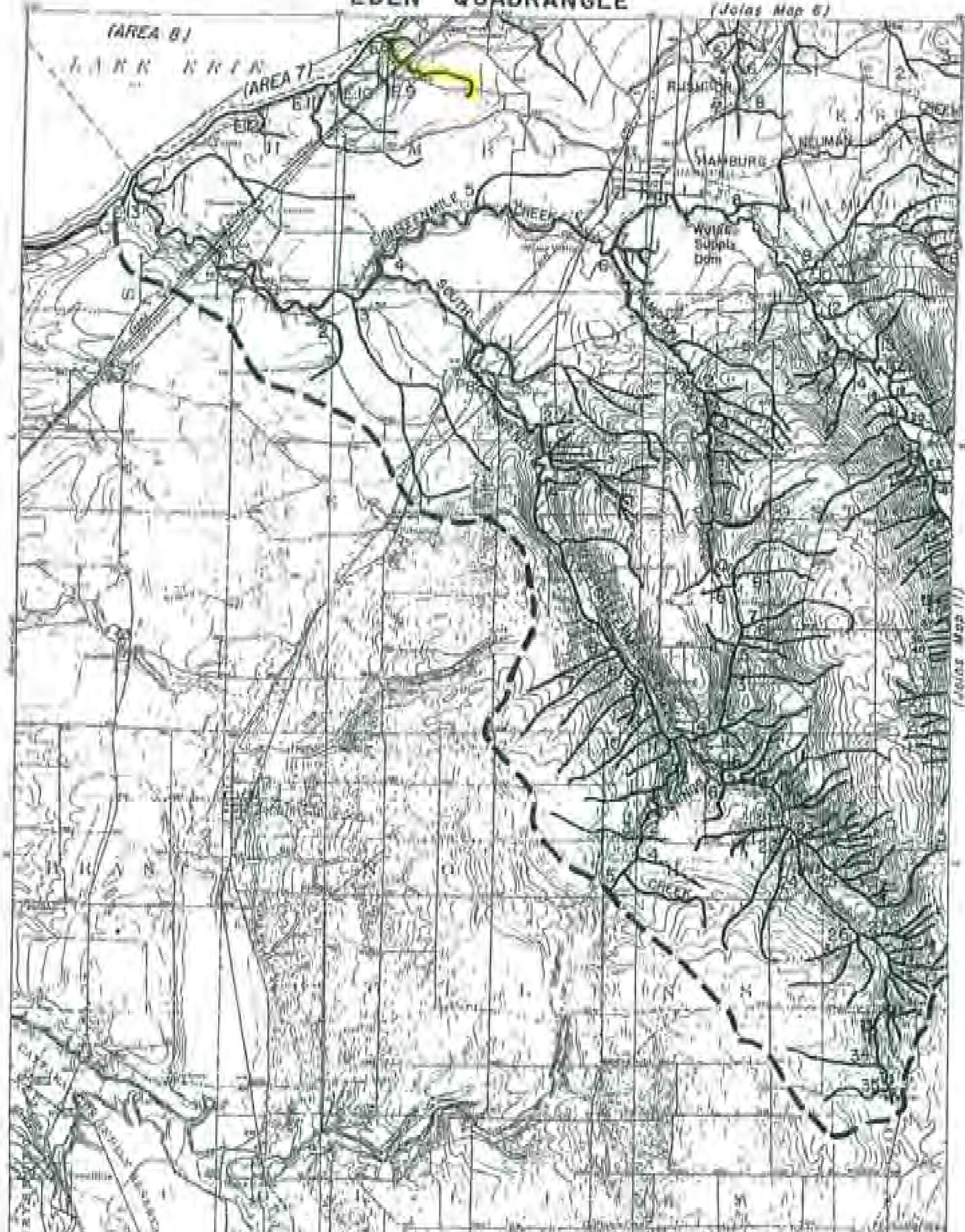
From U. S. Geol. Surv., Niagara

. Physiographic Sketch Map of the General Region in Which the Ni
Floral Area Is Located

Physiographic Sketch Map

Aerial Photo With Key - N.Y.S.D.E.C.

EDEN QUADRANGLE

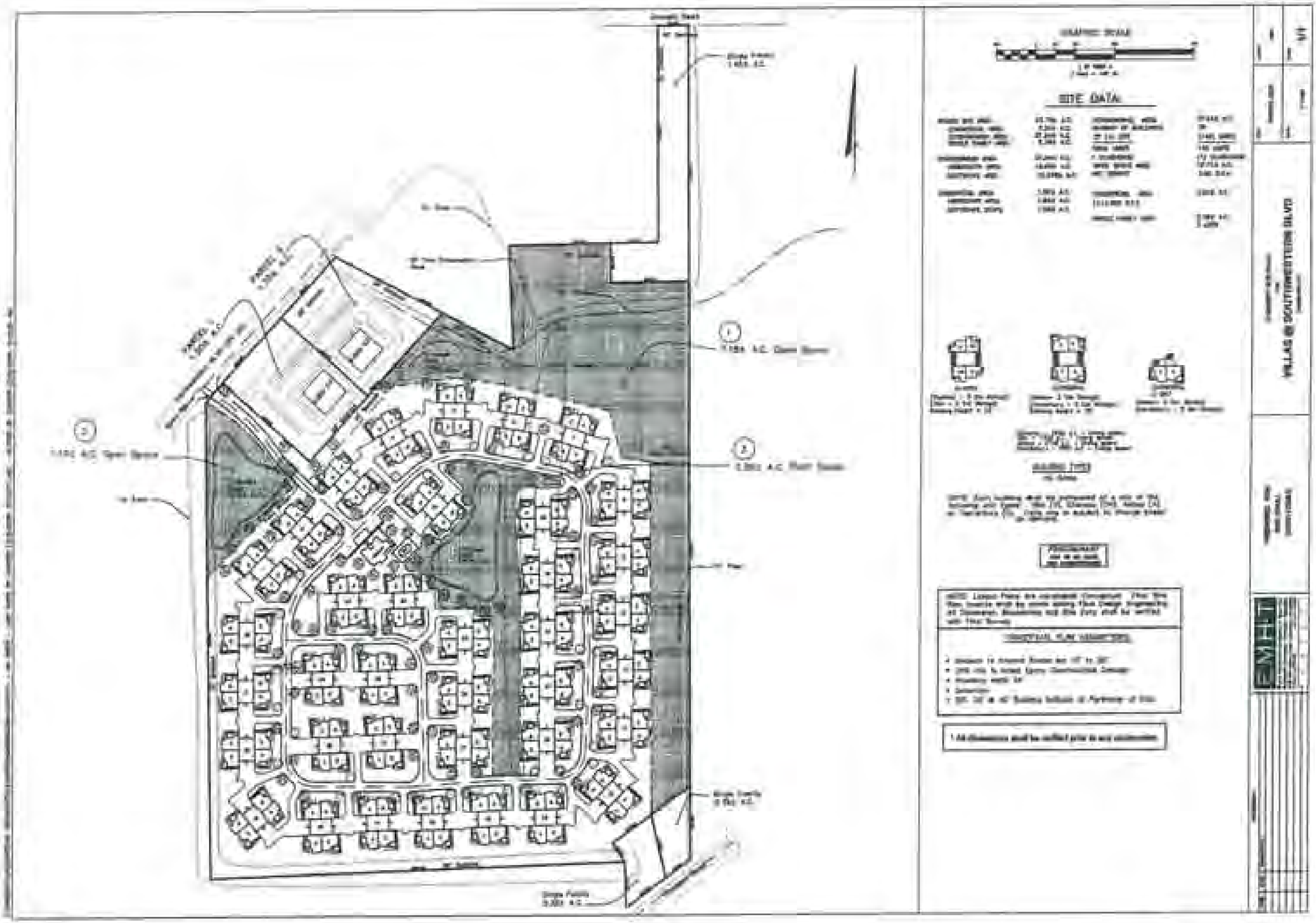


MAP 10

N.Y.S.D.E.C. Lake Erie Tributary Map
10, Eden Quadrangle

Item No.	Waters Index Number	Name	Description	Map Ref. No.	Class	Standards
231	E-2-2 portion as described	Trib. of Smoke Creek	Enters from south approximately 0.7 mile due north of Webster Corner. From mouth to outlet of P 80 easterly of Freeman Ponds. Near junction of E. Freeman Road and E. Quaker Street, Orchard Park.	7	C	C
232	E-2-2 portion as described including P 80, P 81 and tribs.	Trib. of Smoke Creek	From outlet of P 80, easterly of Freeman Ponds P 80 and P 81 to source.	7, 11	C	C
233	E-2-3, 4, 5, 6, 7, 8 and tribs.	Tribs. of Smoke Creek	Enter above Orchard Park, East Aurora Road (Big Tree Road).	7, 11	C	C
234	E-3 portion as described	Rush Creek	Enters Lake Erie from approximately 1.1 miles south of City of Lackawanna-Hamburg town line. From mouth to a point ½ mile above mouth.	8	B	B
235	E-3 portion as described and tribs.	Rush Creek	From ½ mile above mouth to source.	8, 10	C	C
236	E-4, 5, 6, 7, 8, 9, 10, 11, 12 and tribs.	Tribs. of Lake Erie	Enter from east and southeast between Rush Creek and Eighteenmile Creek.	8, 10	C	C
237	E-13 portion as described	Eighteenmile Creek	Enters Lake Erie from southeast at Evans-Hamburg town line. From mouth to Village of Hamburg water supply dam.	10	B	B(T)
238	E-13 portion as described	Eighteenmile Creek	From Village of Hamburg water supply dam to trib. 41	10, 11	A	A
239	E-13 portion as described	Eighteenmile Creek	From trib. 41 to source.	11	A	A(T)
240	E-13-1, 2, 3 and tribs	Tribs. of Eighteenmile Creek	Enter between mouth and Eden-Hamburg town line.	10	C	C
241	E-13-4 portion as described	South Branch Eighteenmile Creek	Enters Eighteenmile Creek from east approximately 0.3 mile above Eden-Hamburg town line. From mouth to Church Road	10	B	B(T)
241a	E-13-4 portion as described including P 83	South Branch Eighteenmile Creek	From Church Road to trib. 23.	10	B	B
242	E-13-4 portion as described including P 84	South Branch Eighteenmile Creek	From trib. 23 to source.	10	C	C(TS)
243	E-13-4-1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 and tribs.	Tribs. of South Branch Eighteenmile Creek	Enter between mouth and a point approximately 0.2 mile above North Collins-Eden town line.	10	B	B
244	E-13-4-13 and tribs.	Jennings Creek	Enters South Branch Eighteenmile Creek from south approximately 0.3 mile above North Collins-Eden town line.	10	B	B
245	E-13-4-14, 15, 16, 17, 18, 19, 20, 21, 22 and tribs.	Tribs. of South Branch Eighteenmile Creek	Enter South Branch Eighteenmile Creek between a point approximately 0.3 mile above North Collins-Eden town line and New Oregon.	10	B	B
246	E-13-4-23 and tribs.	Trib. of South Branch Eighteenmile Creek	Enters from east at Langford Road, New Oregon.	10	B	B

N.Y.S.D.E.C. Lake Erie Tributary Map Key



Site Plan Revisions #9

Site Plan Revisions
#10

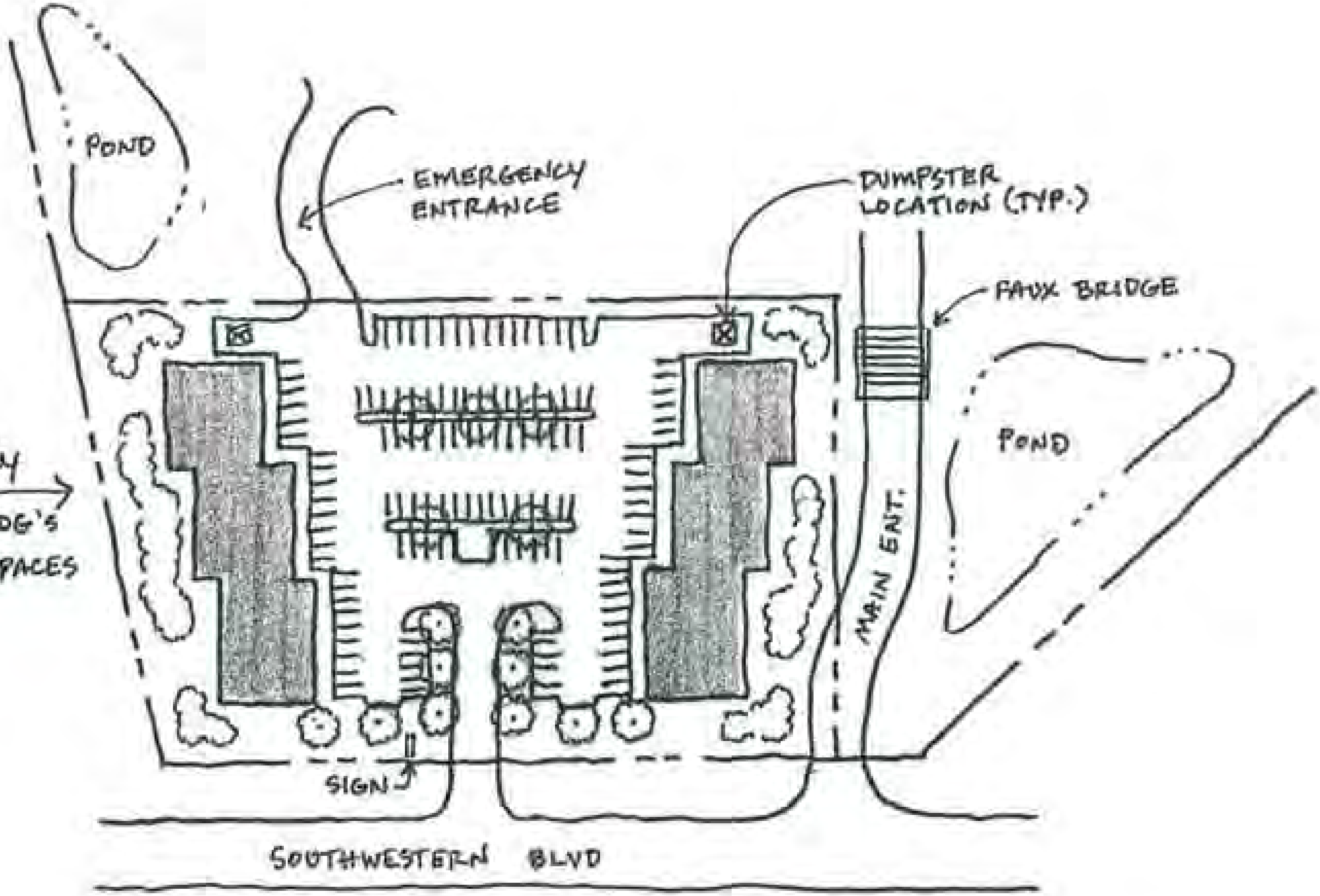
Site Plan Revisions
#11

Site Plan Revisions #12

"Brierwood Square" Site Layout Concept Sketches – B

COMMERCIAL AREA SUMMARY

- 28,000 SF BLDG'S
- 127 PARKING SPACES



NORTH

SCALE: 1" = 100'

PREPARED BY:

LAUER-MANGUSO ASSOC. ARCH

[illegible]N. 26, 2007

EXHIBIT 'B'

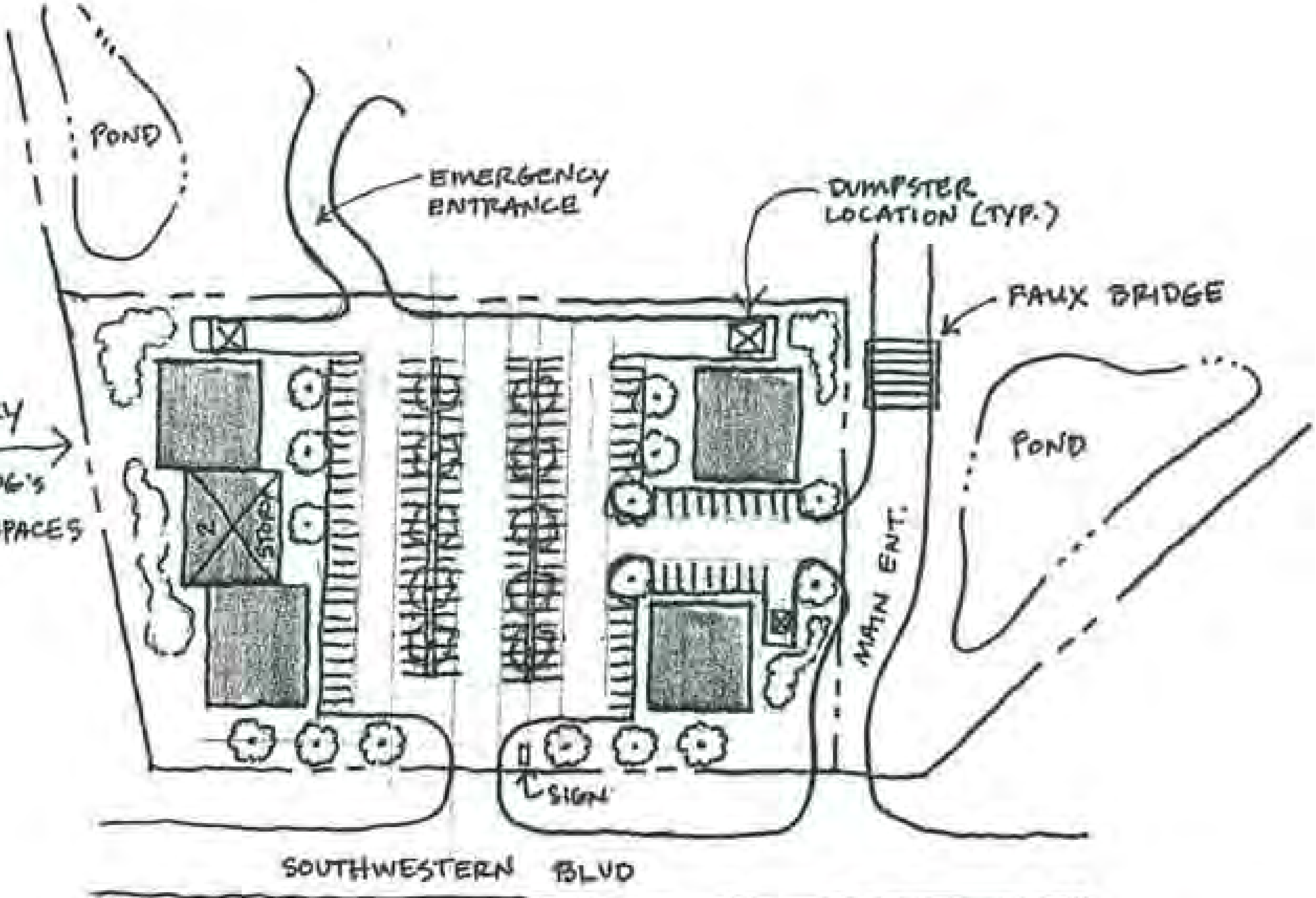
VILLAS AT BRIERWOOD

HAMBURG, NY

"Brierwood Square" Site Layout
Concept Sketches – C

COMMERCIAL AREA SUMMARY

- 25,000 SF BLDG'S
- 148 PARKING SPACES



NORTH
SCALE : 1" = 100'
PREPARED BY :
LAUER - MANGUSO ASSOC. ARCH.
JAN. 26, 2007

EXHIBIT 'C'

VILLAS AT BRIERWOOD
HAMBURG, NY

"Brierwood Square" Site Layout
Concept Sketches – D

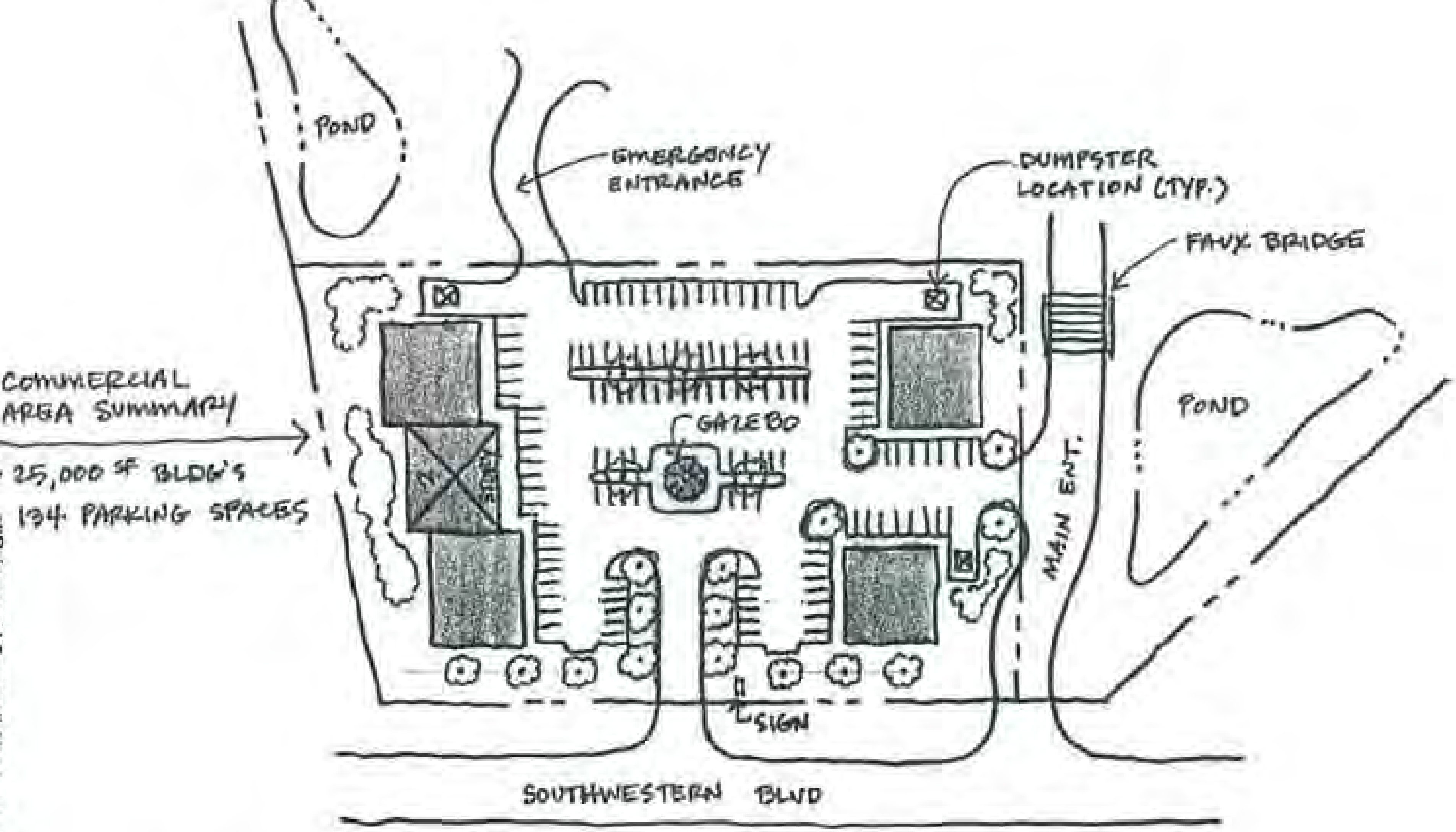
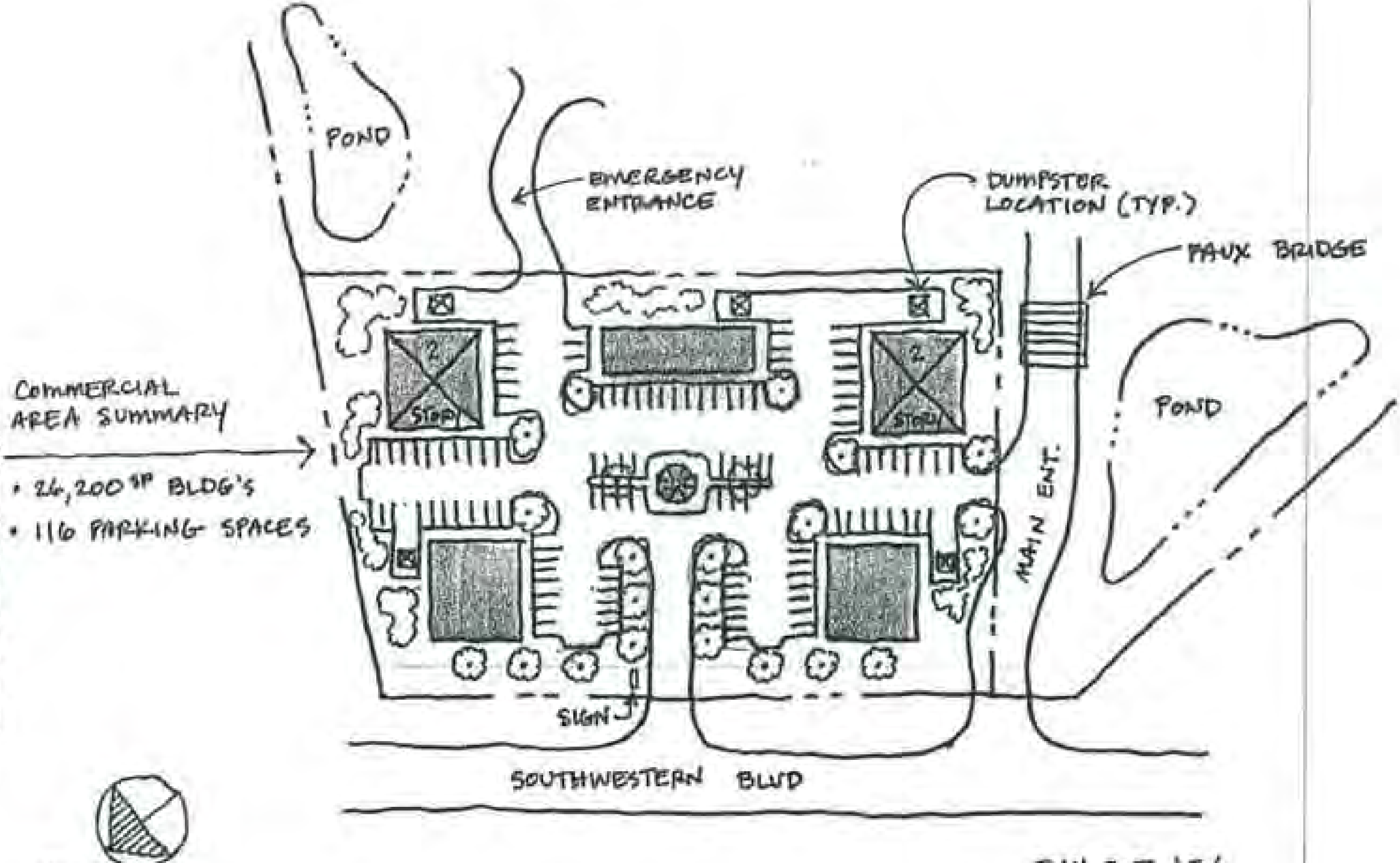


EXHIBIT 'D'

VILLAS AT BRIERWOOD
HAMBURG, NY

NORTH
SCALE: 1" = 100'
PREPARED BY:
LAUER-MANGUSO ASSOC. ARCH.
JAN. 26, 2007

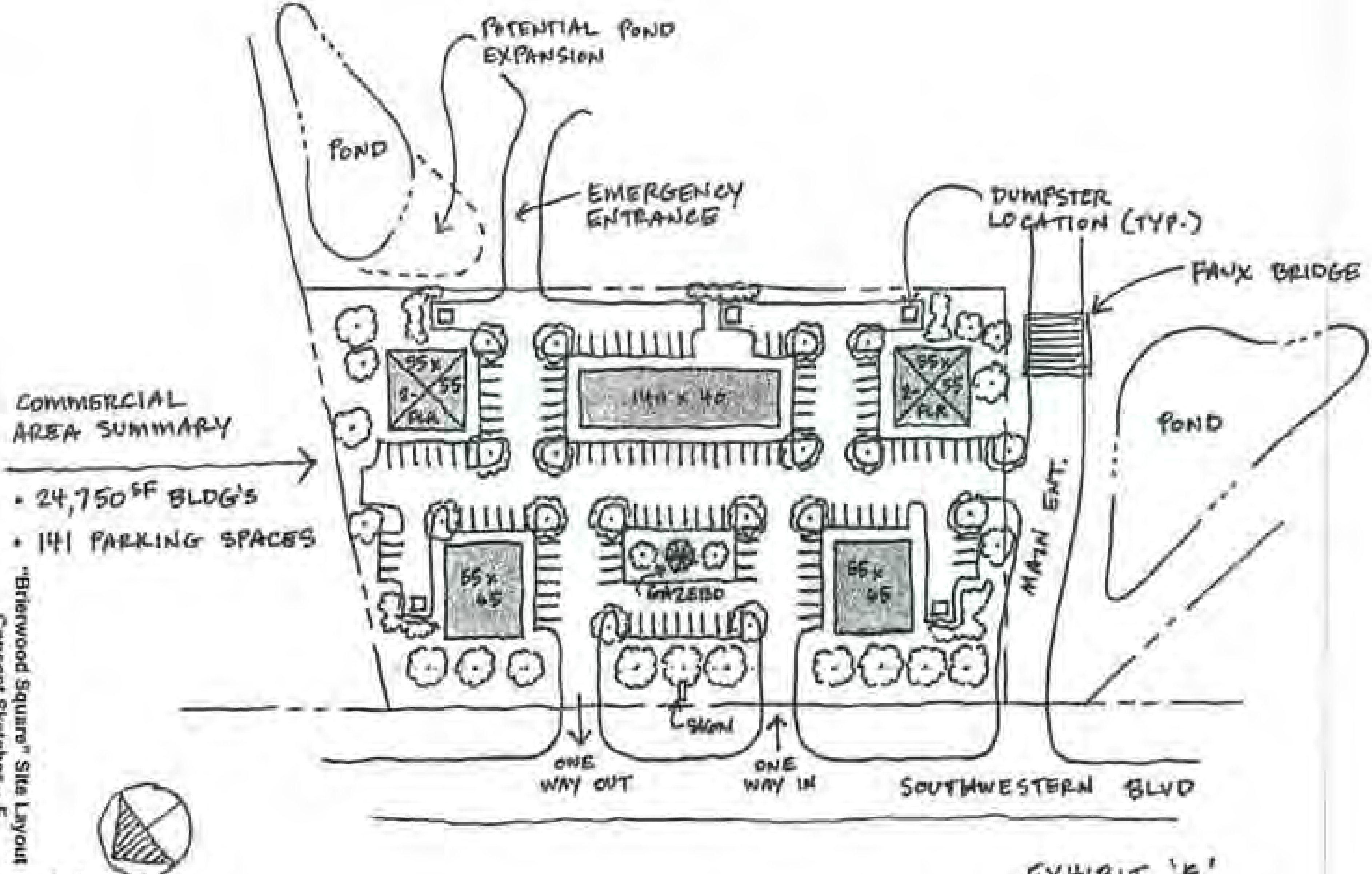


"Brierwood Square" Site Layout Concept Sketches - E

NORTH
SCALE: 1" = 100'
PREPARED BY:
LAUER-MANGUSO ASSOC. ARCH.
JAN. 26, 2007

EXHIBIT 'E'

VILLAS AT BRIERWOOD
HAMBURG, NY



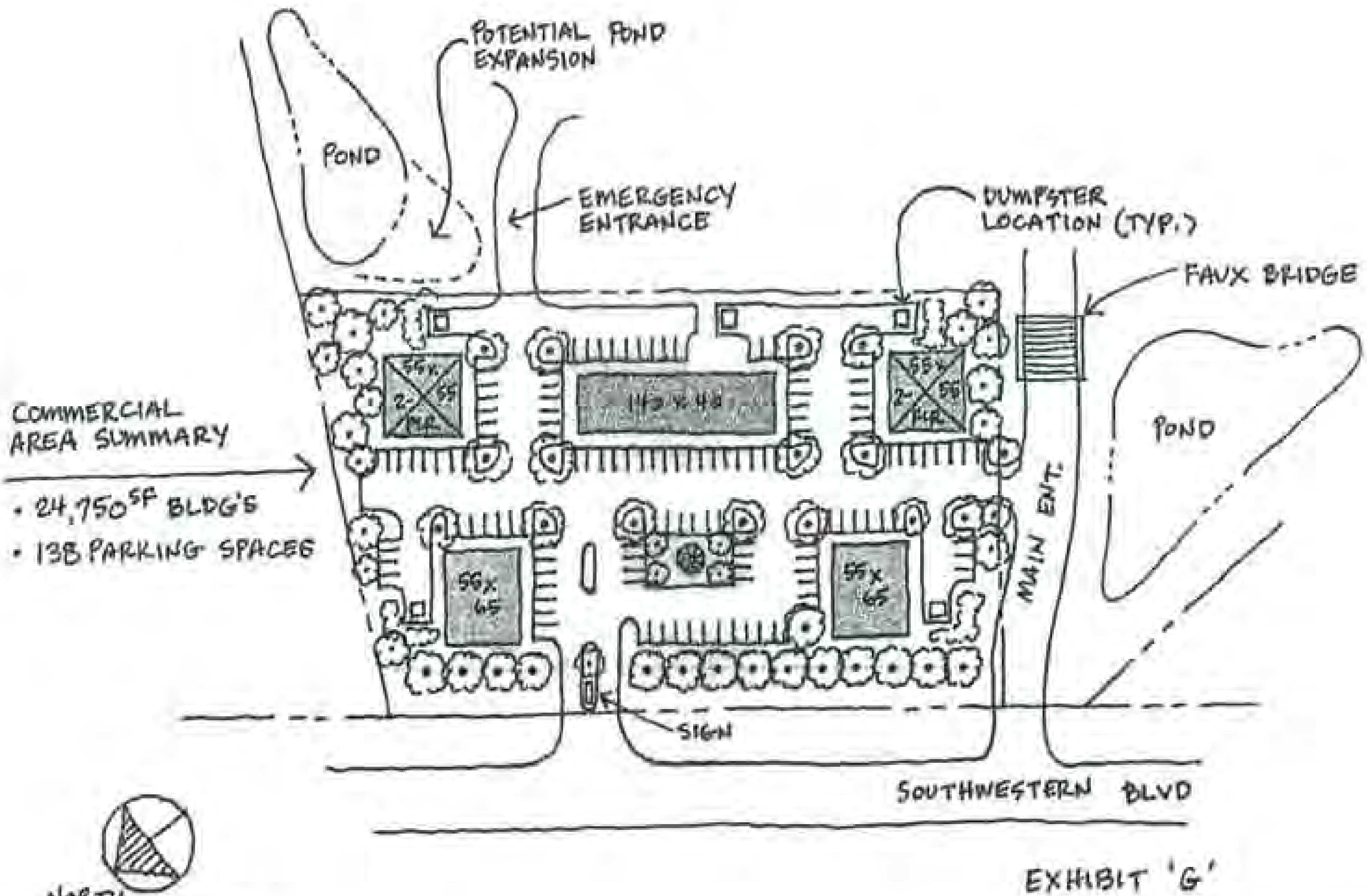
"Brierwood Square" Site Layout Concept Sketches – F

NORTH
SCALE: 1" = 100'
PREPARED BY:
LAUER-MANGUSO ASSOC. ARCH.
FEB. 8, 2007

EXHIBIT 'F'

VILLAS AT BRIERWOOD
HAMBURG, NY

"Brierwood Square" Site Layout
Concept Sketches – G



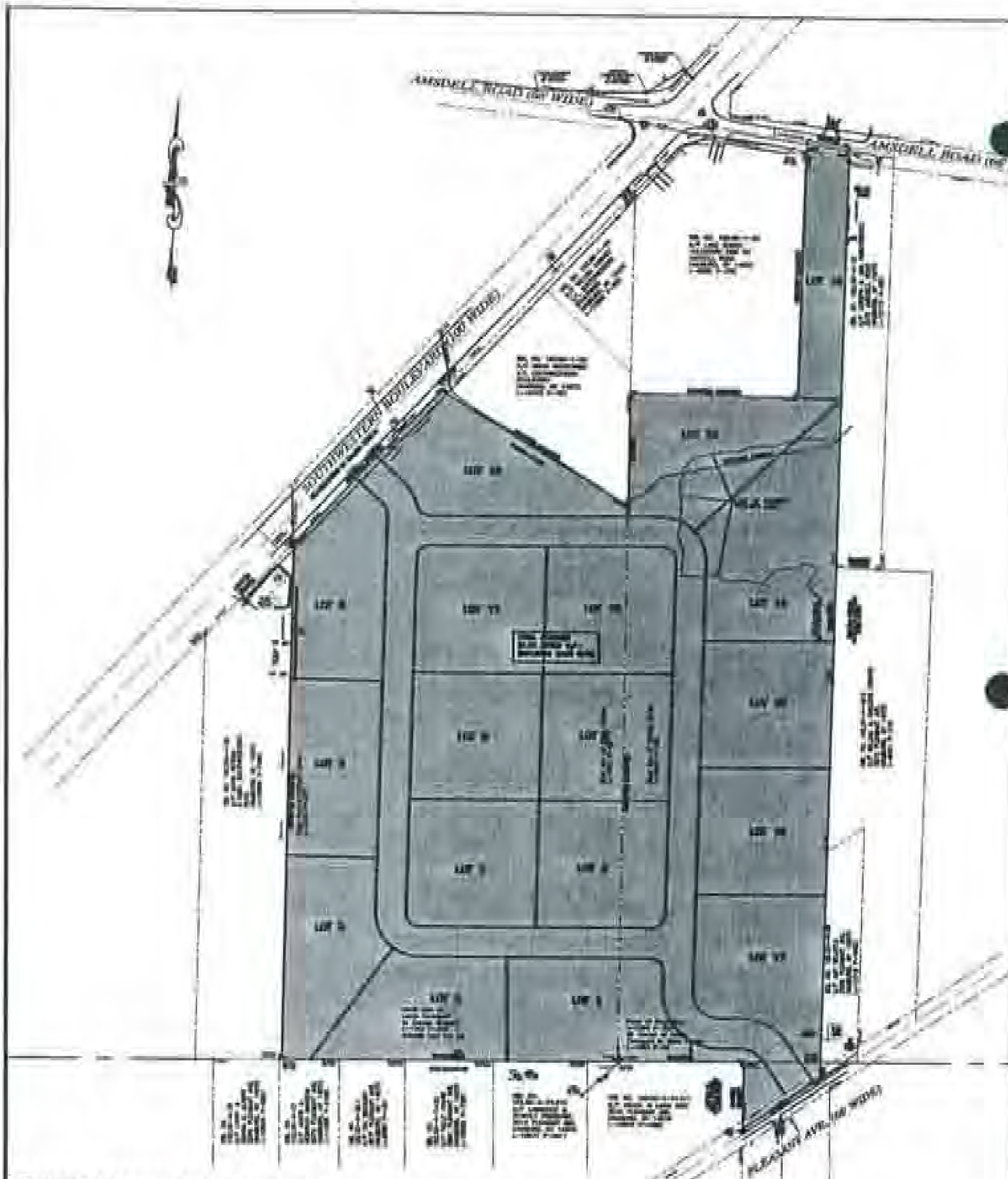
SCALE: 1" = 100'
PREPARED BY:
LAUER-MANGUSO ASSOC. ARCH.
FEB. 28, 2007

EXHIBIT 'G'

VILLAS AT BRIERWOOD
HAMBURG, NY

METZGER CIVIL ENGINEERING, PLLC	SCALE: 1" = 300'	PERMISSIBLE LAND USE IN EXISTING R-A ZONING
	DATE: 3-15-07	
	JOB NO: M-0621	CONCEPT PLAN – A SINGLE-FAMILY RESIDENTIAL SUBDIVISION (2 AC. LOT MIN.)
	DESIGNED BY: PCC/MJM	

#19



METZGER CIVIL ENGINEERING, PLLC	SCALE:	1" = 300'	PERMISSIBLE LAND USE IN EXISTING R-A ZONING
	DATE:	3-15-07	
	JOB NO:	M-0621	CONCEPT PLAN - B SINGLE-FAMILY RESIDENTIAL SUBDIVISION (2 AC. LOT MIN.)
	DESIGNED BY: PCC/MJM		

#2a

METZGER CIVIL ENGINEERING, PLLC	SCALE: 1" = 300'	PERMISSIBLE LAND USE IN EXISTING R-A ZONING
	DATE: 3-15-07	
	JOB NO: M-0621	CONCEPT PLAN - C HOSPITAL
	DESIGNED BY: PCC/MJM	

#21

Erie County, NY

GIS IMS Viewer

Villa's at Brierwood- 100 yr. Flood Plain;

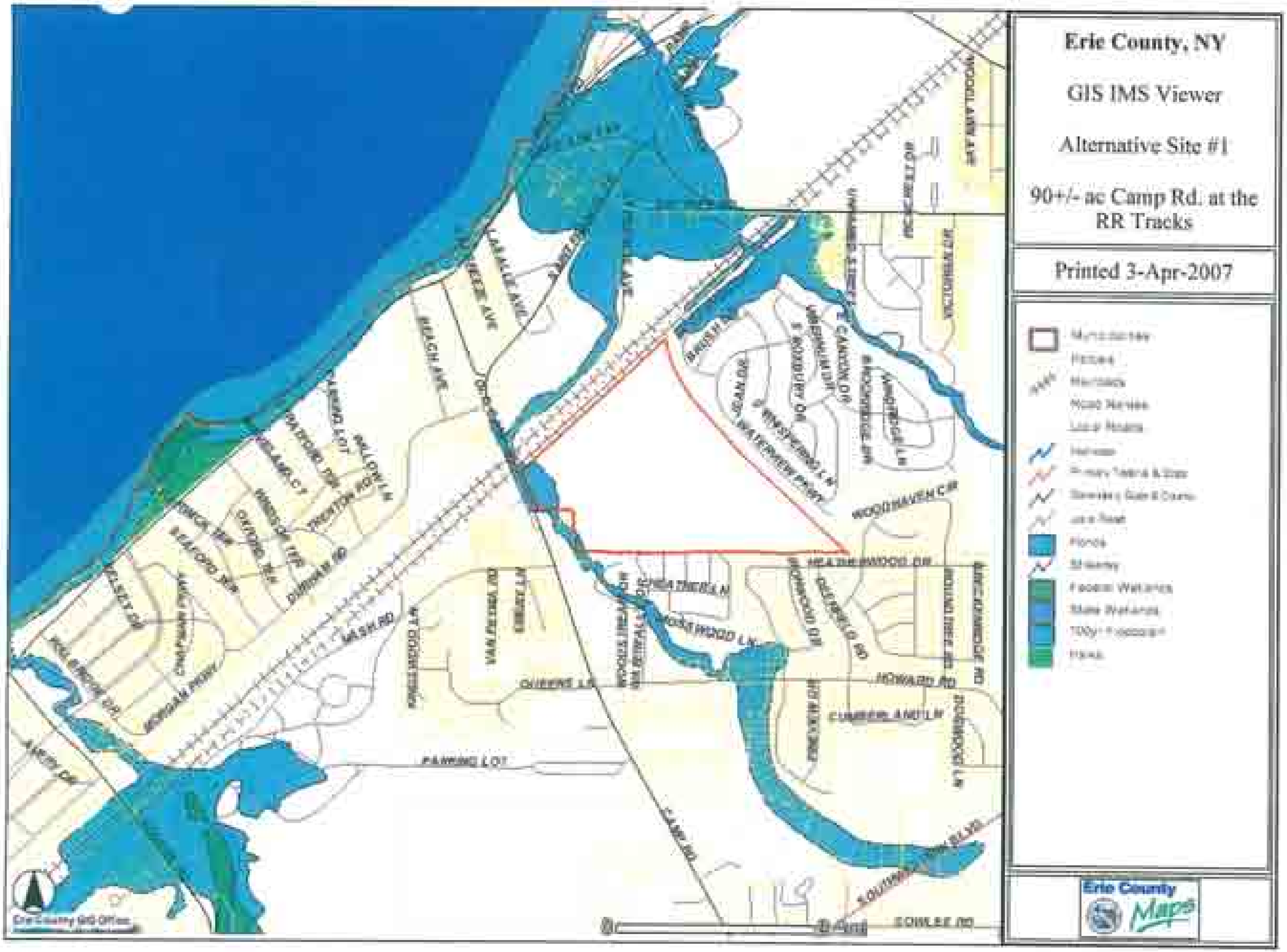
NYS Freshwater Wetland& National Wetland Inventory Maps

Printed 26-Mar-2007

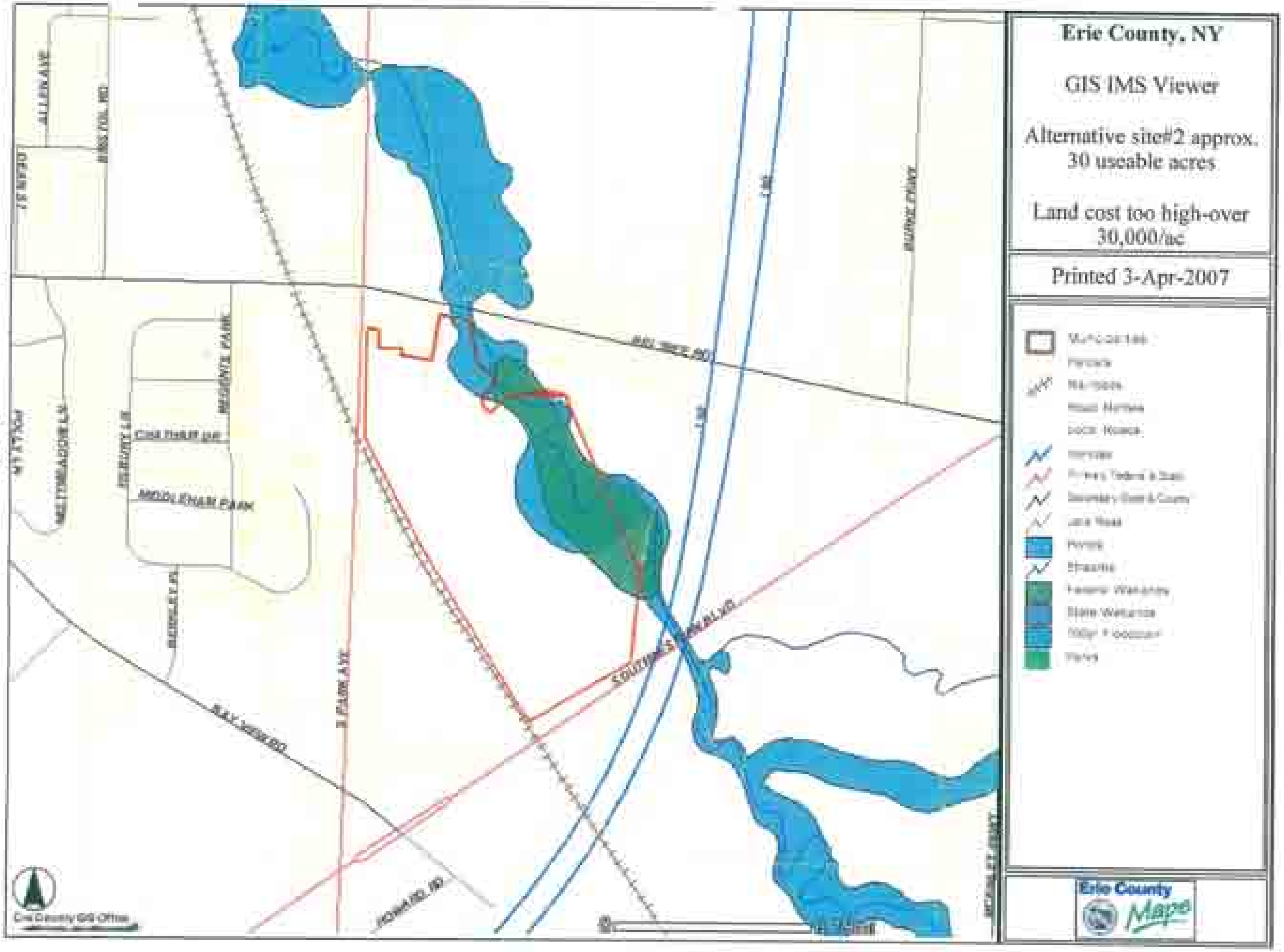
Flood Plain Map #22

Alternative Project Sites
Researched Within The Town of Hamburg

#23

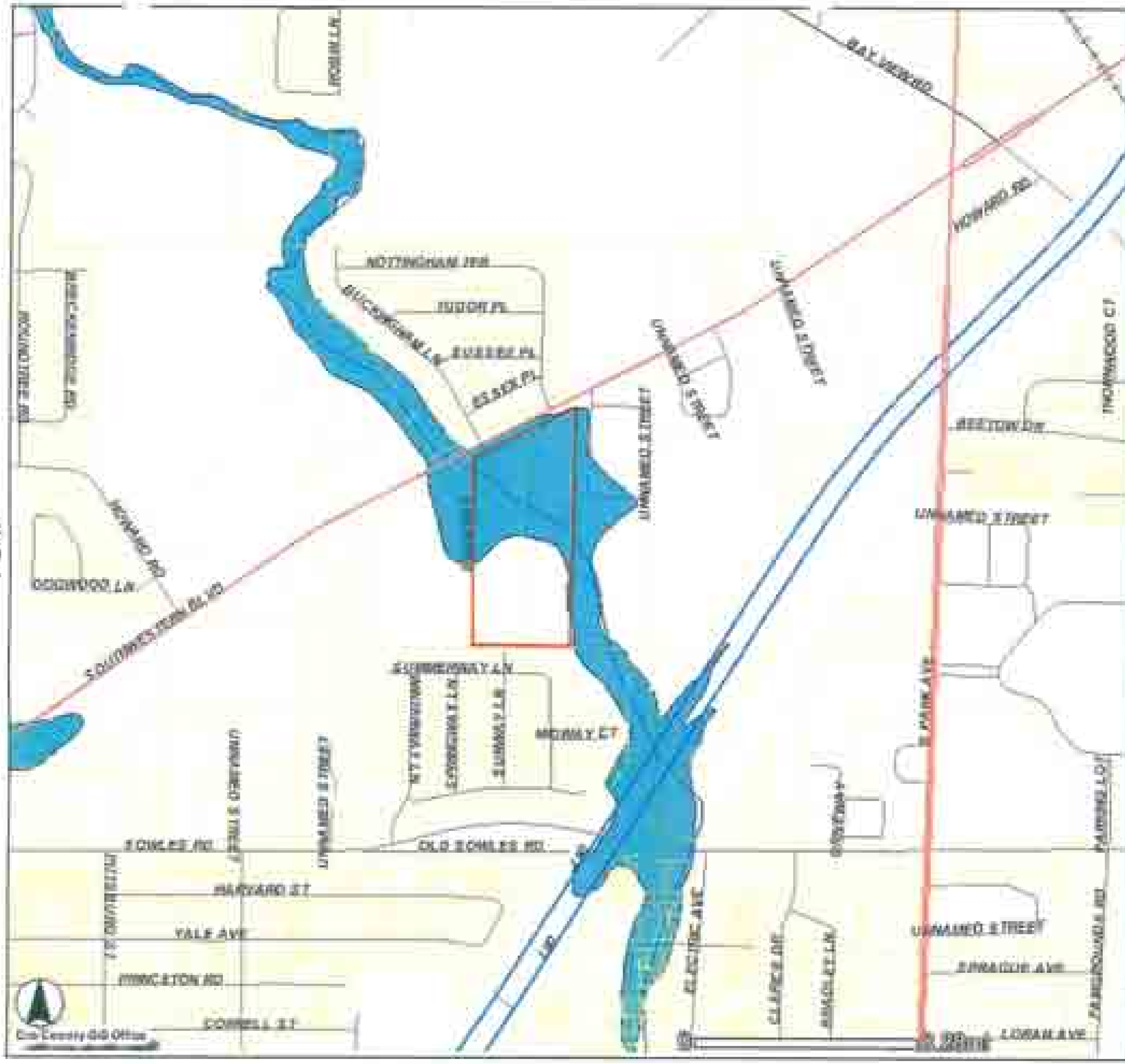

Erie County, NY
GIS IMS Viewer
Alternative Site #1
90+/- ac Camp Rd. at the RR Tracks
Printed 3-Apr-2007
CAMP RD
WOODHAVEN CIR
HEATHERWOOD DR
HOWARD RD
CUMBERLAND LN
PARKING LOT
SOWLES RD
DURHAM RD
BEACH AVE
Erie County Maps

#24


Erie County, NY
GIS IMS Viewer
Alternative site#2 approx. 30 useable acres
Land cost too high-over 30,000/ac
Printed 3-Apr-2007
BIG TREE RD
S PARK AVE
SOUTHWESTERN BLVD
BAY VIEW RD
MIDDLEHAM PARK
Erie County Maps

#25


Erie County, NY
GIS IMS Viewer
Alternative site #3- approx. 30 acres
location to commercial and noisy
Printed 3-Apr-2007
SOUTHWESTERN BLVD
MARILYN DR
PENHURST ST
LEHIGH ST
SAYBROOK RD
LINDSEY LN
Erie County Maps



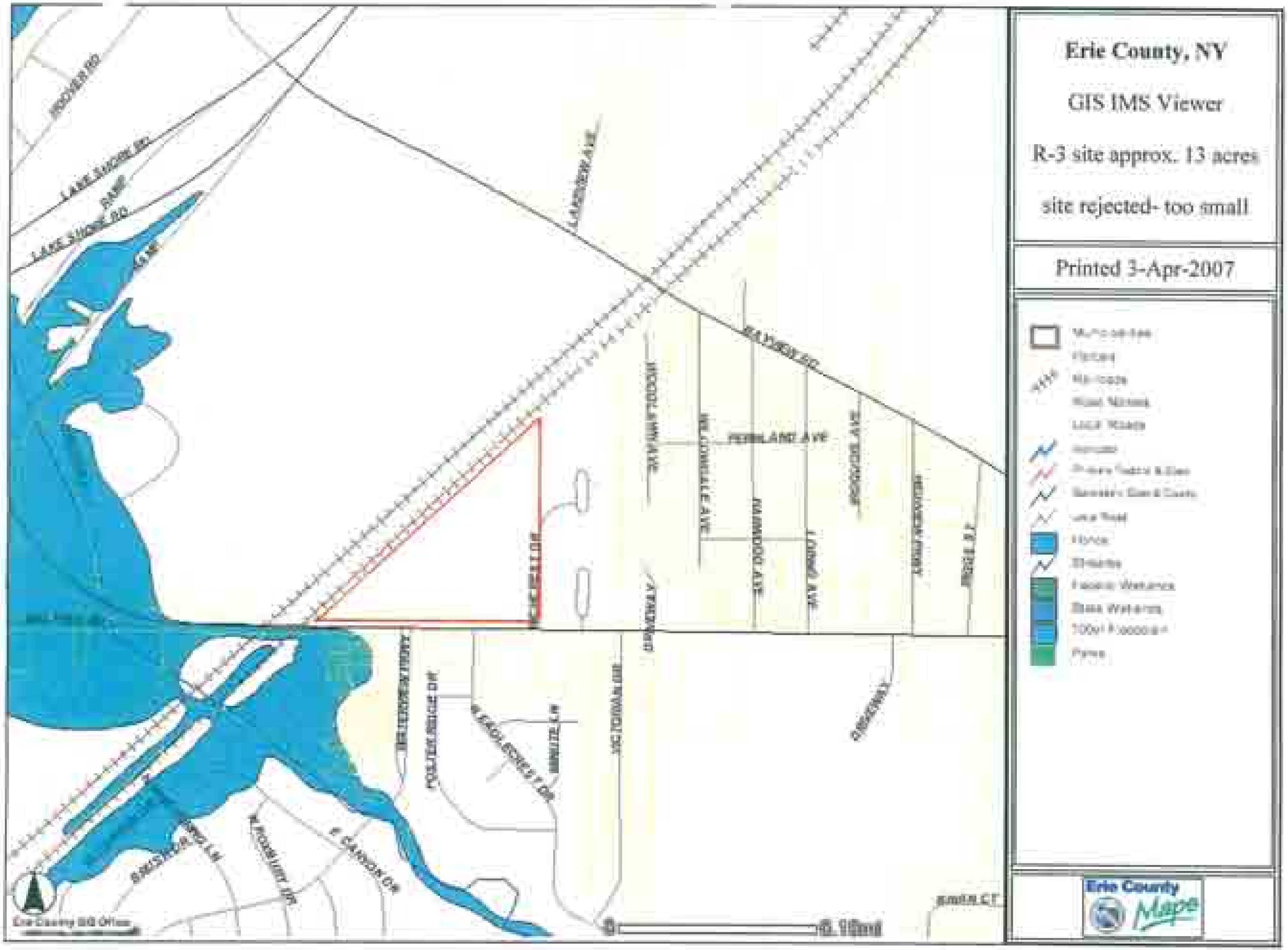
Erie County, NY

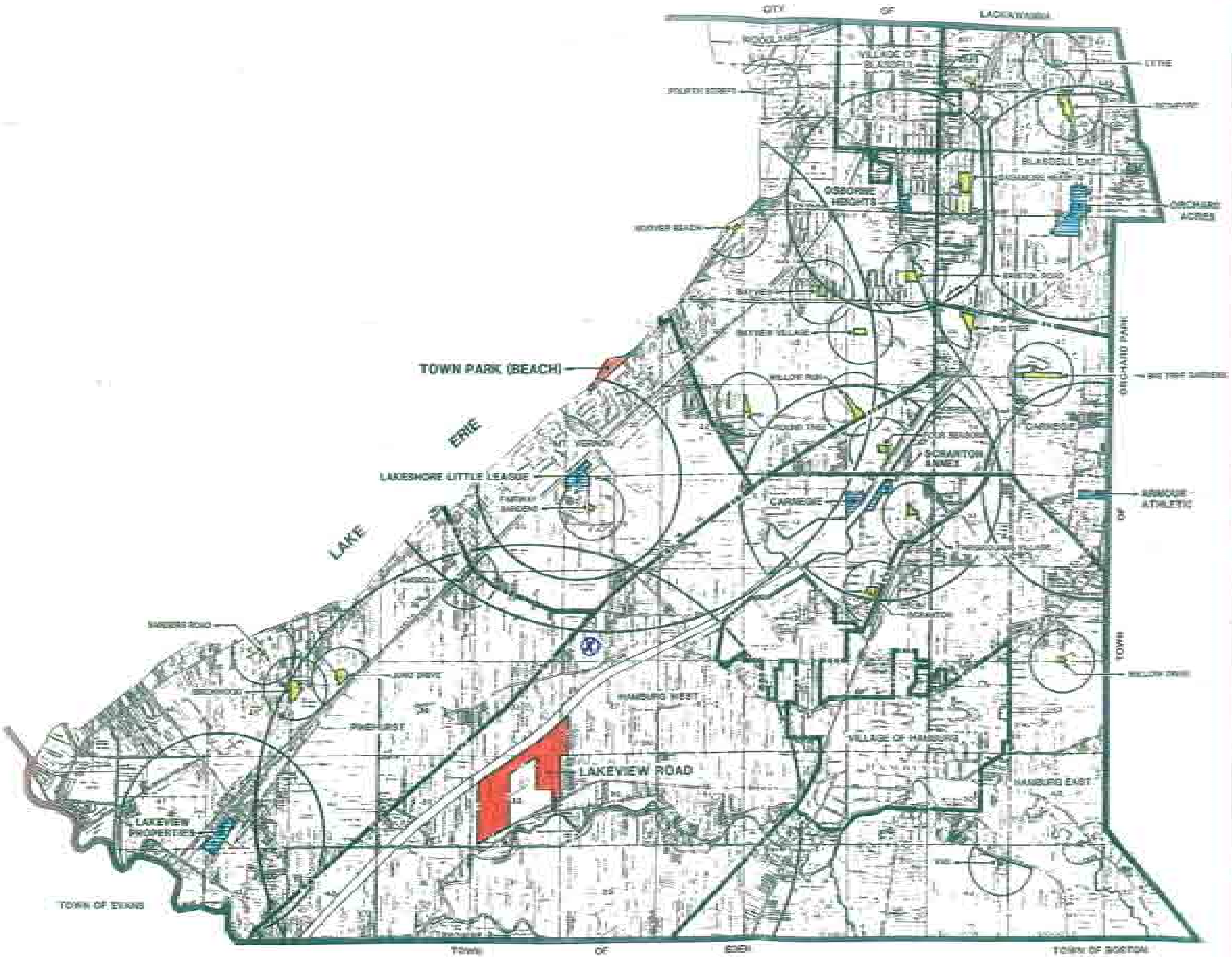
GIS IMS Viewer

R-3 site excluded only 21 acres of which 1/2 is floodplain

Printed 3-Apr-2007

Erie County Maps


Erie County, NY
GIS IMS Viewer
R-3 site approx. 13 acres
site rejected- too small
Printed 3-Apr-2007
HOOVER RD
LAKE SHORE RD
RAMP
LAKE SHORE RD
LAKEVIEW AVE
BAYVIEW RD
FERNLAND AVE
WOODLAWN AVE
LOCUST ST
GREENWAY
VICTORIAN DR
POLLER RIDGE DR
W EAGLECREST DR
WHITE LN
E CANYON DR
SWAN CT
Erie County GIS Office
Erie County Maps



TOWN OF
HAMBURG

OPEN SPACE AND RECREATION PLAN

EXISTING PARKS AND RECREATION AREAS

NEIGHBORHOOD/CENSUS TRACT BOUNDARIES

TOWN PARK RECREATION AREAS

NEIGHBORHOOD DISTRICT RECREATION AREAS

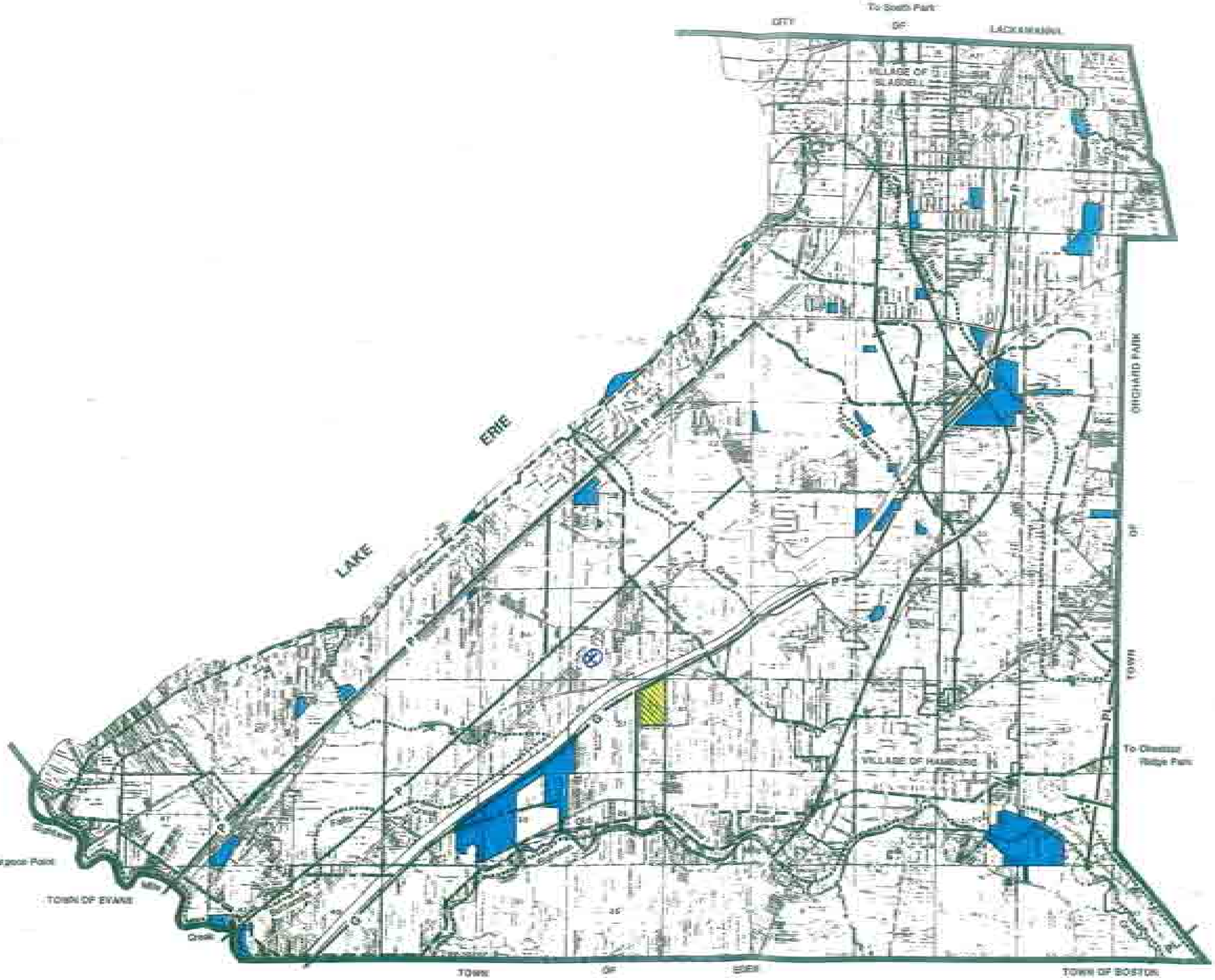
NEIGHBORHOOD PLAYGROUNDS AND MINI-PARKS

⊗ VICINITY OF PROPOSED PROJECT

NORTH

SCALE 1" = 2000'

Prepared by:
Frederick J. Holman and Associates
Landscape Architects and Planners
5550 Main St., Williamsville, New York 14221
and
Davies Planning and Research Services
15 Tennyson Ave., Buffalo, New York 14216



TOWN OF

HAMBURG

OPEN SPACE AND RECREATION PLAN

TRAILWAY OPPORTUNITIES

EXISTING TOWN FACILITIES

- Parks and Recreation Areas
- Conservation Areas

EXISTING RIGHTS OF WAY

- —P— Power Line
- —G— Gas Line
- —PL— Pipe Line
- Erie/Lackawanna Railroad
- B & S Railroad

EXISTING AND PROPOSED TRAIL USE

- Hiking Trail
- Bicycle Route/Trail
- Snowmobile Trail

⊗ VICINITY OF PROPOSED PROJECT

NORTH

SCALE 1" = 2000'

Prepared by:
Frederick J. Holman and Associates
Landscape Architects and Planners
5550 Main St., Williamsville, New York 14221
and
Davies Planning and Research Services
15 Tennyson Ave., Buffalo, New York 14216

APPENDIX B

PHOTOS & SKETCHES

APPENDIX B
PHOTOS & SKETCHES

Aerial Land Use and Photo Locator
#1

3

1

4

2

7

5

8

6

11

9

12

10

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14

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18

21

23

24

22

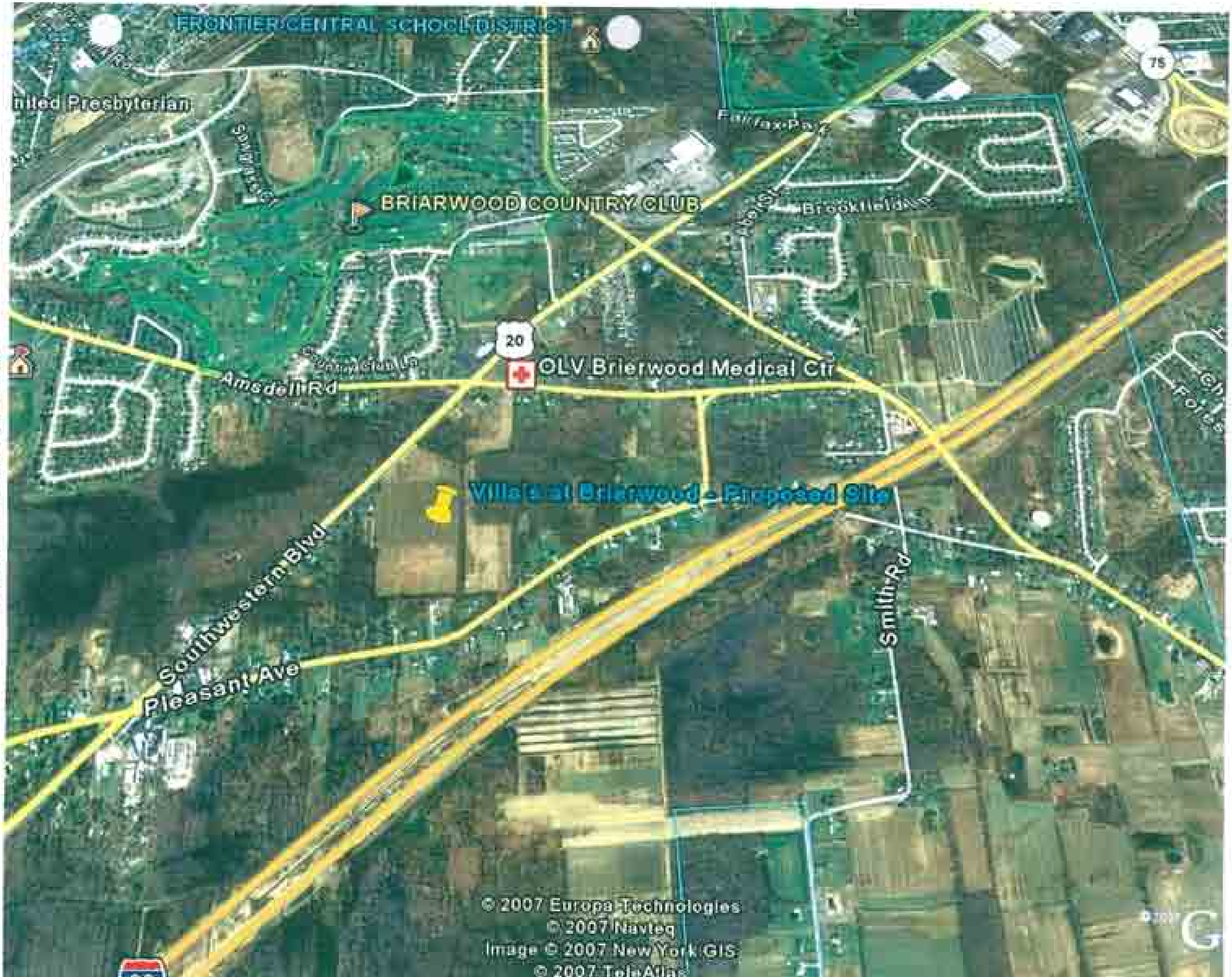
28

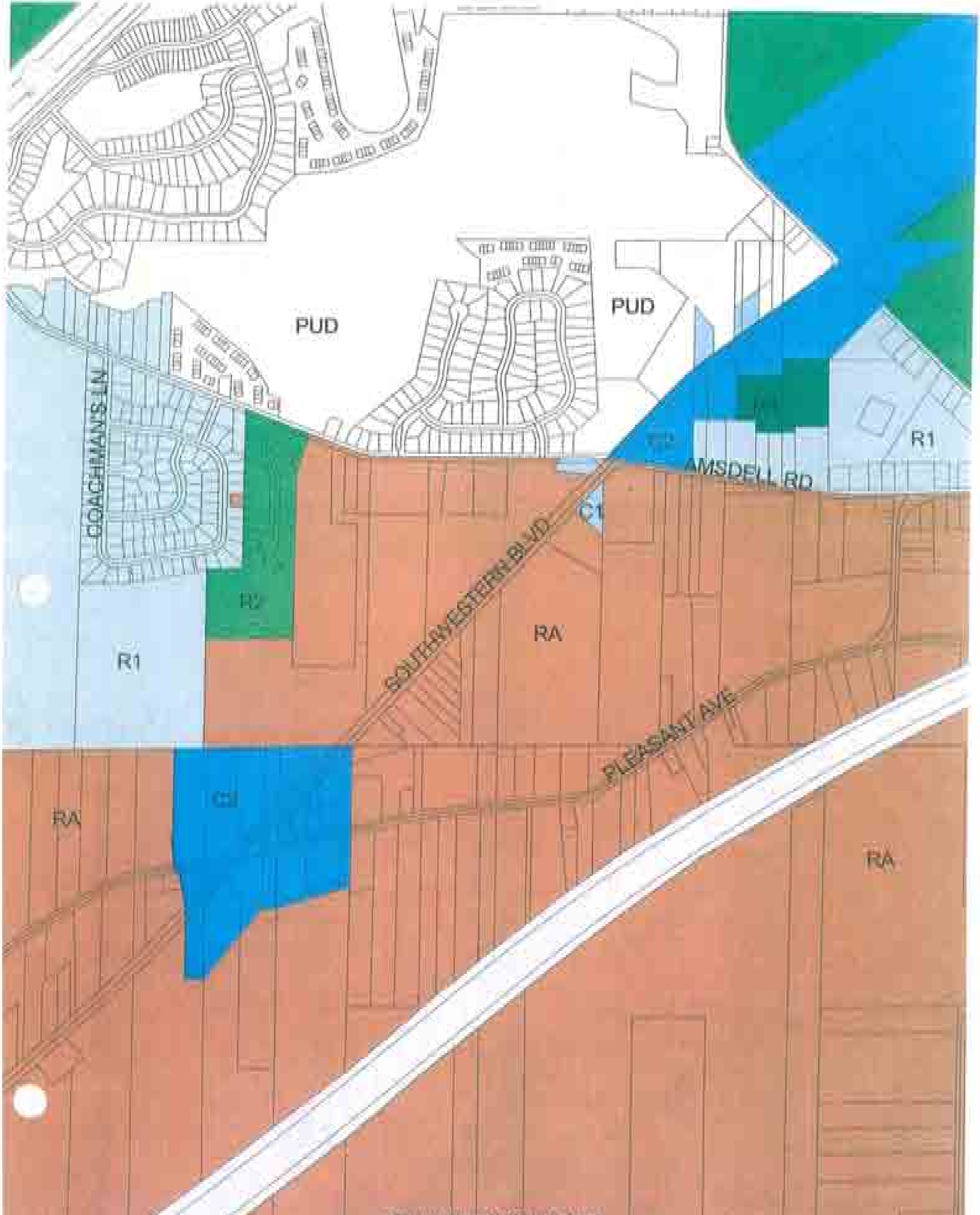
25

27

26

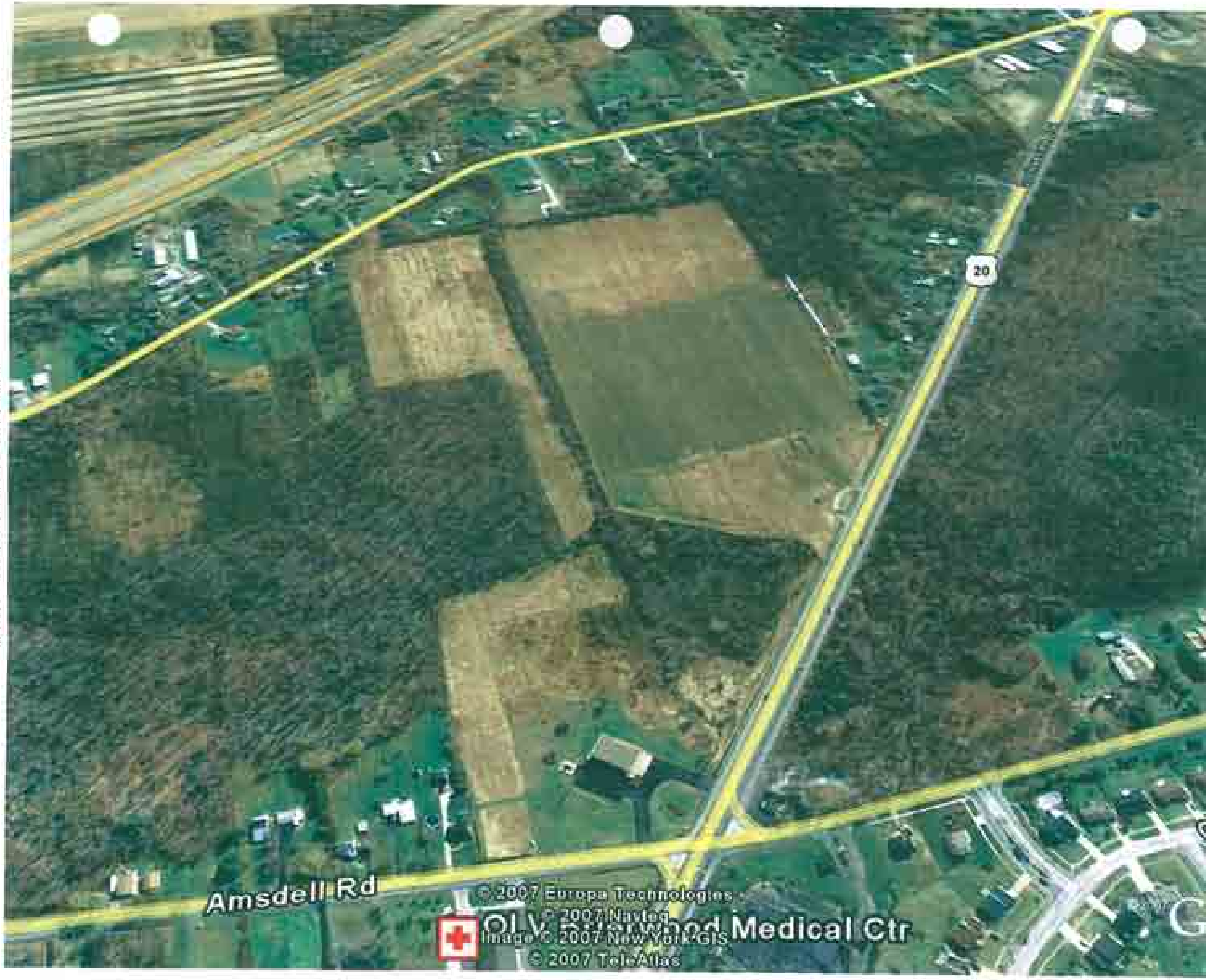
Aerial Photo of Project Site Area #9





Zoning Map of Project Area
#10

Aerial Photo of Existing Vegetation in Project Area



#12

Bridge 09/13/04

EPCON

#13

Classic Stone Exterior – Cathedral II Building 12/31/05

EPCON

Interior of Condominiums
#14

Interior of Condominiums
#15

Clubhouse & Amenities
#16

Clubhouse & Amenities
#17

DATE: 9-16-09
OPTION: 03
JOB # P07020

140' x 40' OFFICE BUILDING
VILLAS AT BRIERWOOD
HAMBURG, NEW YORK

1 STORY OFFICE BUILDING
VILLAS AT BRIERWOOD
HAMBURG, NEW YORK

#18A

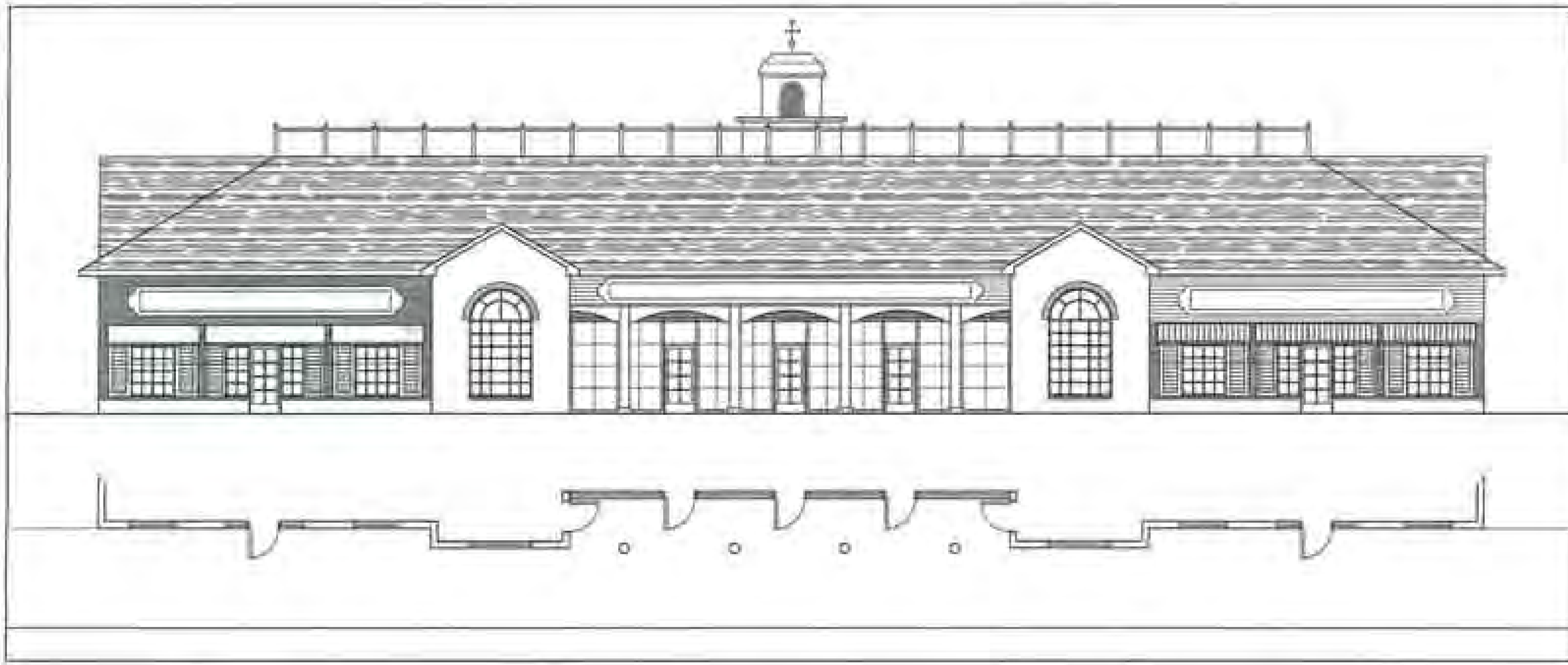
DATE: 3-15-07
OPTION: 03
JOB # P07030

2 STORY OFFICE BUILDING
VILLAS AT BRIERWOOD
HAMBURG, NEW YORK

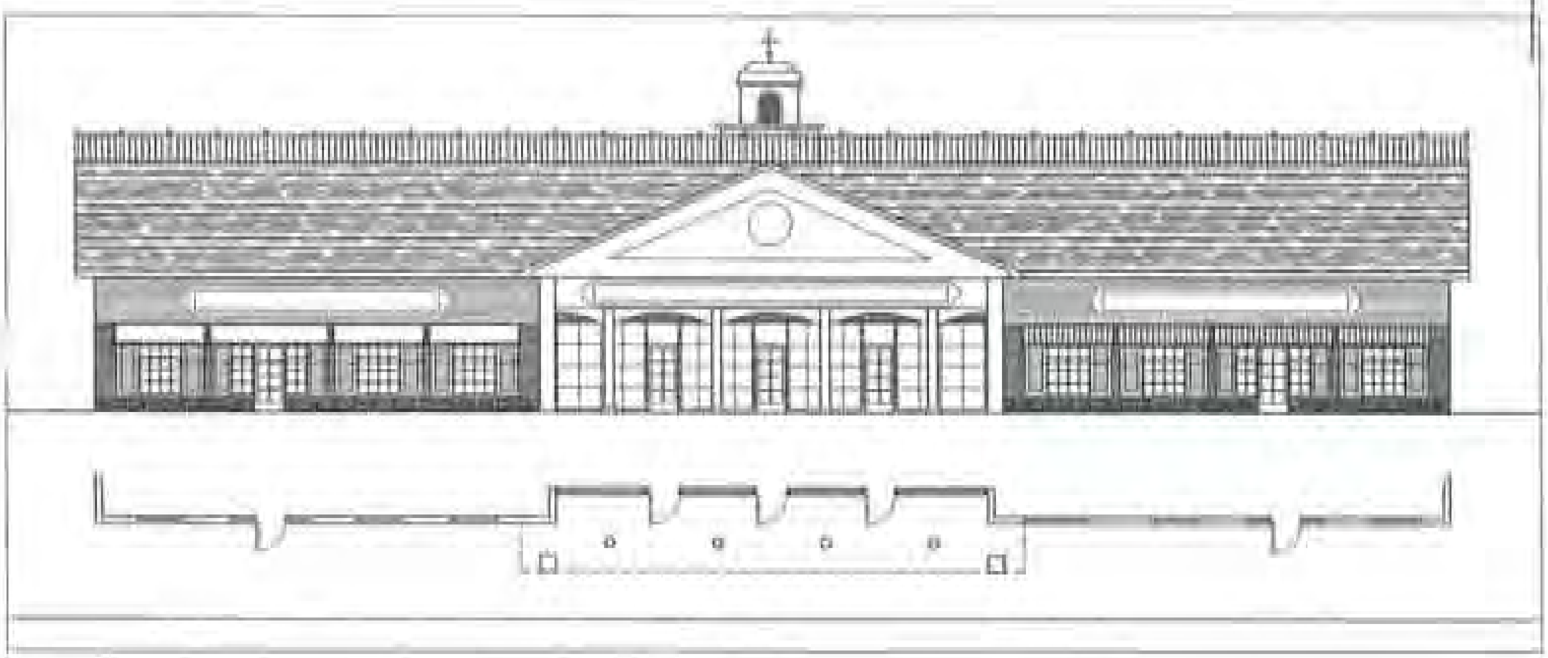
DATE: 3-6-07
OPTION: 02
JOB # P07020

140' x 40' OFFICE BUILDING
VILLAS AT BRIERWOOD
HAMBURG, NEW YORK

V 614



#19B



#19C

DATE: 5-8-07
OPTION #3
JOB # P07020

TWO STORY OFFICE BUILDING
VILLAS AT BRIERWOOD
HAMBURG, NEW YORK

#5D

TWO STORY OFFICE BUILDING
VILLAS AT BRIERWOOD
HAMBURG, NEW YORK

#9E

ONE STORY OFFICE BUILDING
VILLAS AT BRIERWOOD
HAMBURG, NEW YORK

#196

DATE: 5-8-07
OPTION: 02
JOB # P07020

ONE STORY OFFICE BUILDING
VILLAS AT BRIERWOOD
HAMBURG, NEW YORK

#154

#19I

Proposed Type of Sign for
"Brierwood Square"

ARCHITECTURAL
AREA
LIGHTING

ALN 610
Dundee

The Dundee luminaire is a classic design combined with state of the art reflectors for superior lighting performance. Illuminate your streets without the glare of a refractor type lens. The optical system reduces glare and directs more light to the ground, rather than your eyes. The reflector system is completely gasketed to keep out insects and contaminents that can reduce the operating efficiency of the fixture.

The careful detailing of the castings and the glass chimney lend an authentic look to the fixture. A solid top or luminous dome top is available.

ALN 610 DB1-4F14 WDM

ALN 610HS/LD DB8 4812

Picture of Proposed Light Standards
#21

Channelized Segment of Intermittent Stream (Wanakah Creek) between Southwestern Boulevard & North/South Ditch in summer - #22

North/South Ditch near intersection with Intermittent Stream (Wanakah Creek) after rain storm in summer #22

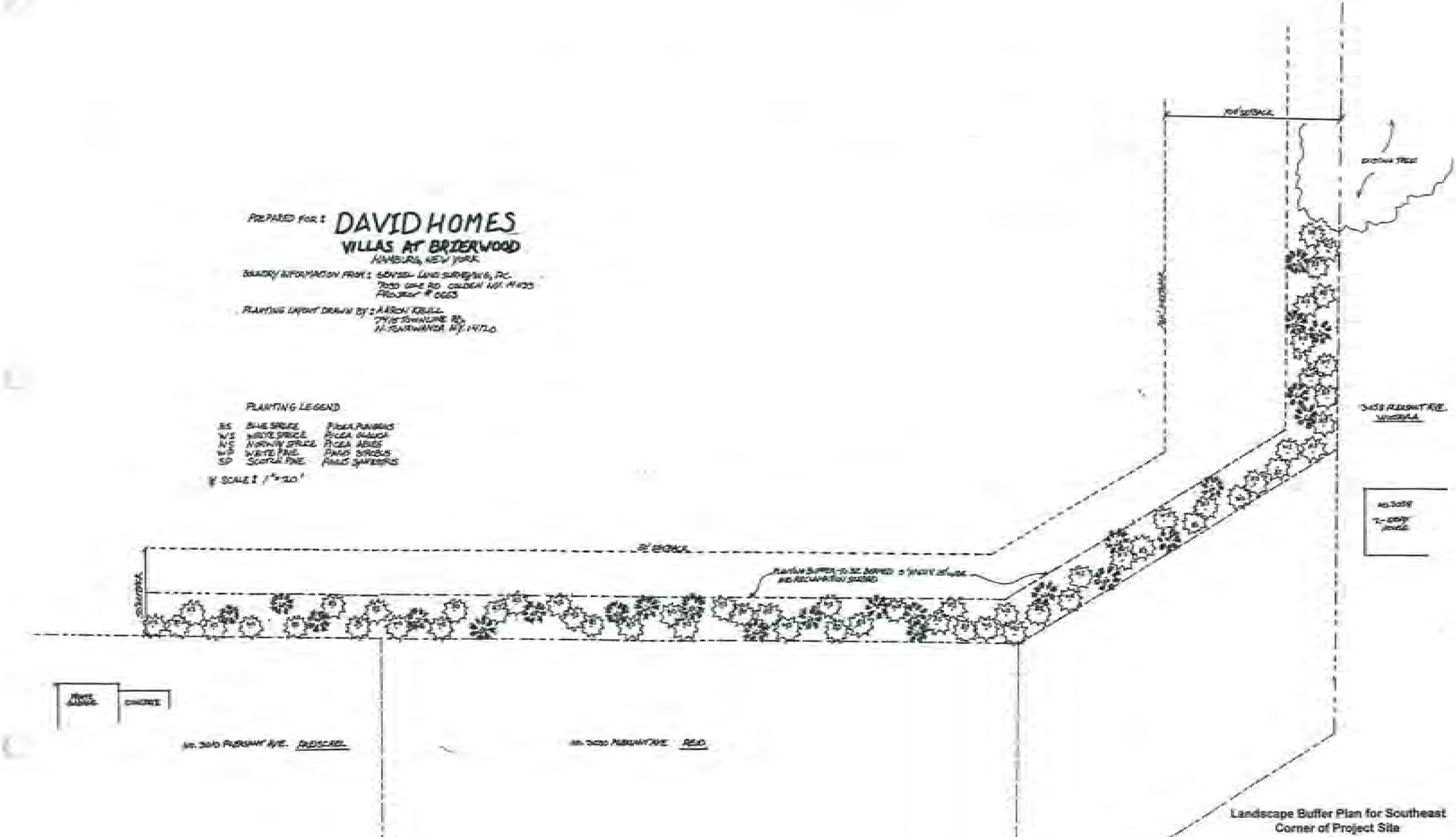
Note: Ernesto brought over 2" of rain to the site on 9/2/2006. There were several rain events the previous week that brought an additional 2" of rain to the project site.

Storm Drainage Ditch on southeast side of Southwestern Blvd. between project site and 30" culver under Southwestern Blvd. the morning after Ernesto - #23

Channelized segment of Intermittent Stream (Wanakah Creek) between Southwestern Blvd. and North/South Ditch the morning after Ernesto - #23

North/South Ditch near intersection with Intermittent Stream (Wanakah Creek) the morning after Tropical Storm Ernesto - #24

Intermittent Stream (Wanakah Creek) in wetland area swollen with water the morning after Tropical Storm Ernesto - #24



Landscape Buffer Plan for Southeast
Corner of Project Site
#25

View of 3058 Pleasant Avenue from Project Site

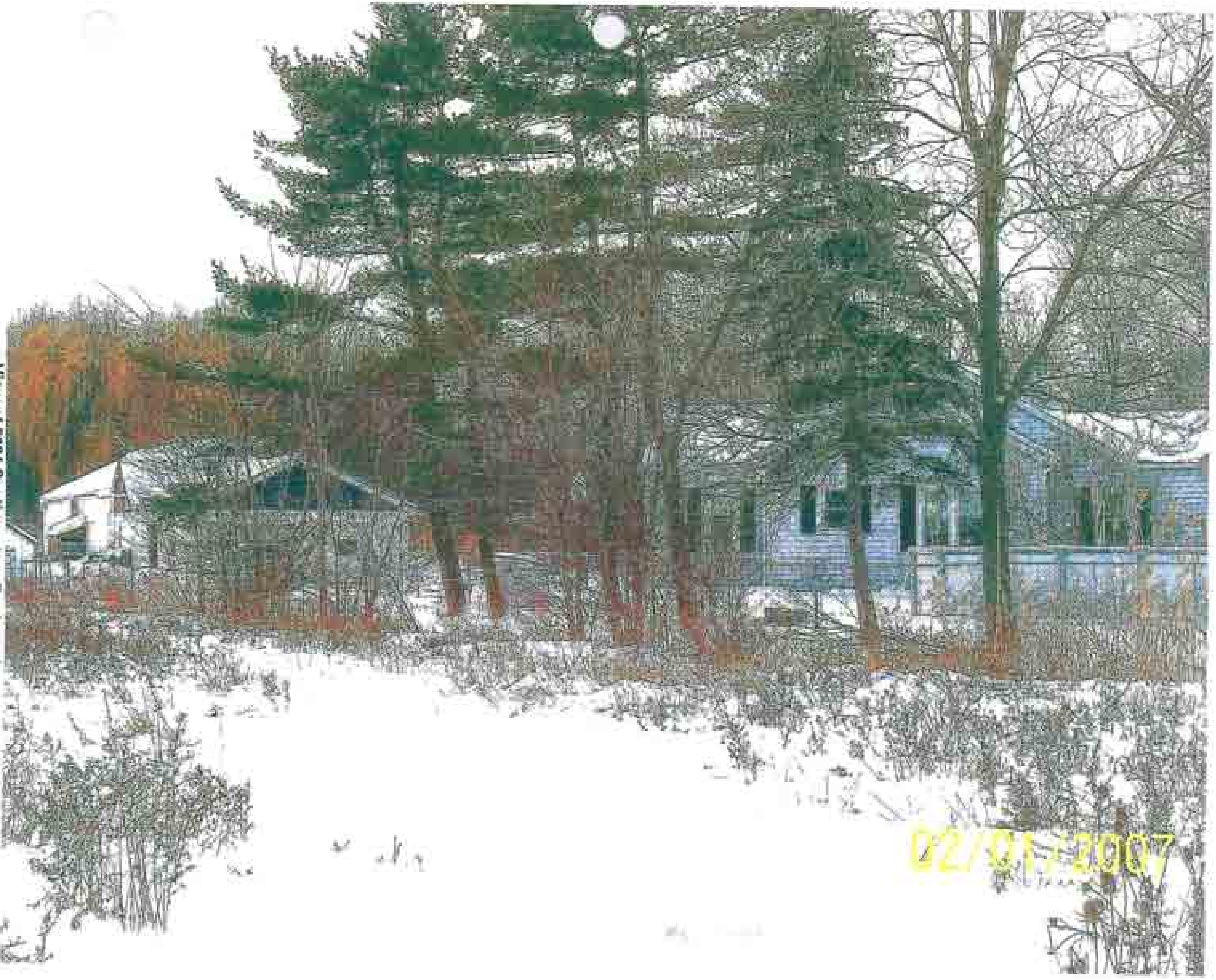
Landscape Buffer Sketch View of 3058
Pleasant Avenue from Project Site

View of 3030 Pleasant Avenue from
Project Site

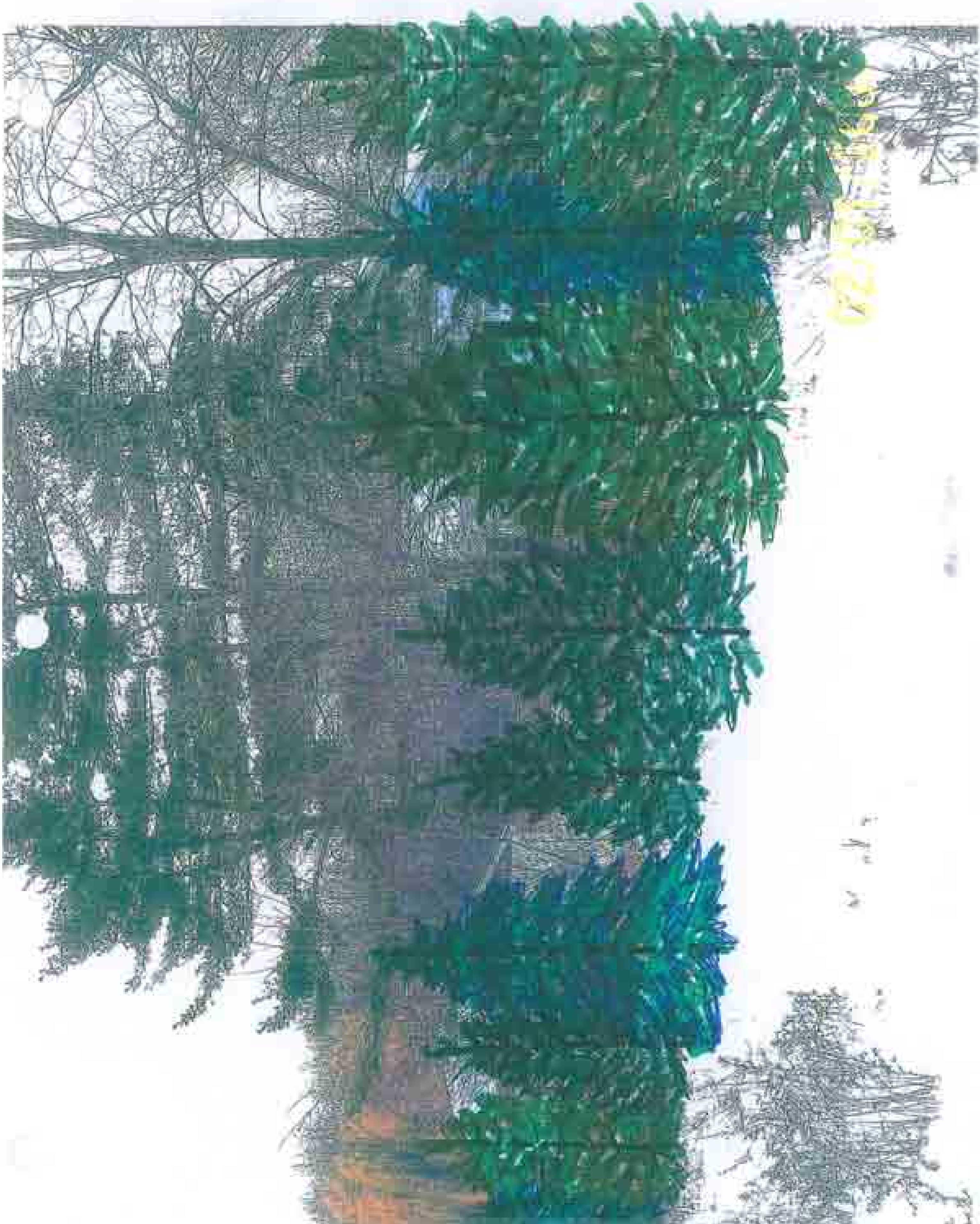
Landscape Buffer Sketch View of 3030
Pleasant Avenue from Project Site

View of 3010 Pleasant Avenue from
Project Site

Landscape Buffer Sketch View of 3010
Pleasant Avenue from Project Site
#14



View of 5681 Southwestern Boulevard
from Project Site



Landscape Buffer Sketch View of 9881
Southwestern Boulevard from
Project Site

APPENDIX C

LETTERS

APPENDIX C
LETTERS

Erik 7/20/06 11 pages

New York State Department of Environmental Conservation
Division of Environmental Permits, Region 9
270 Michigan Avenue, Buffalo, New York, 14203-2999
Phone: (716) 851-7165 • **FAX:** (716) 851-7168
Website: www.dec.state.ny.us

Denise M. Sheehan
Commissioner

July 14, 2006

RECEIVED

JUL 20 2006

Mr. Andrew Reilly
Town of Hamburg Planning Department
S-6100 South Park Avenue
Hamburg, New York 14075

Dear Mr. Reilly:

SEQR LEAD AGENCY DESIGNATION
VANDERBILT PROPERTIES, INC.
PLANNED UNIT DEVELOPMENT -
SOUTHWESTERN BOULEVARD
TOWN OF HAMBURG, ERIE COUNTY

This is to acknowledge receipt of your July 11, 2006 letter which requested SEQR Lead Agency status for the Town of Hamburg Planning Board regarding the above noted proposal to rezone property on Southwestern Boulevard from R-A to PUD. Though this Department does not have jurisdiction over the Town's decision regarding zoning, we offer the following comments for the related proposal to perform construction on the site.

1. Please be aware that if the project requires Sewer Extension Approval, the Erie County Health Department, 95 Franklin Street, Buffalo, New York 14202, which acts as our agent, will be the approving agency. Information concerning Sewer Extension Approval can be obtained by contacting the Erie County Health Department at 716/858-7762.

2. Since project activities will involve land disturbance of over 1 acre, the project sponsor is required to obtain a State Pollutant Discharge Elimination System General Permit (GP-02-01) for Stormwater Discharge from Construction Activities. A Notice of Intent (NOI) is required to be sent to NYSDEC, Bureau of Water Permits, 625 Broadway, Albany, New York 12233-3505, telephone: 518/402-8111 and approved before construction commences. The General Permit GP-02-01 and NOI form are available on the Department's website at www.dec.state.ny.us. We have included the NOI form with a copy of this letter to the project sponsor.

   This General Permit requires the project sponsor (operator) and all contractors and subcontractors to control stormwater runoff according to the Stormwater Pollution Prevention Plan, which is to be developed prior to filing NOI and prior to commencement of the project.

Mr. Andrew Reilly
July 14, 2006
Page 2

3. We have noted the presence of hydric soil in the proximity of the proposed location for a .25 acre pond. This may indicate the presence of federally regulated wetlands. The project sponsor should contact the United States Department of the Army, Corps of Engineers (COE) Buffalo District Office, telephone: 716/879-4330, concerning COE regulatory jurisdiction to ensure that the project will not involve federally regulated wetlands or any other approval from that agency. If Federal wetlands are involved, the COE may require Water Quality Certification from DEC.

We concur that the Town of Hamburg Planning Board should act as SEQR Lead Agency, as the environmental impacts of the proposal are primarily of local significance.

Thank you for providing this office the opportunity to review the proposed project. If you have any questions, please feel free to contact Ms. Denise Matthews or me at 716/851-7165.

Respectfully,

David S. Denk
Deputy Permit Administrator

DCM:vam

cc: Honorable Patrick Hoak, Supervisor, Town of Hamburg
[redacted]

RECEIVED
MAY 22 2006

Erie County Water Authority

3030 Union Road • Cheektowaga, New York 14227-1097
716-684-1510 • FAX 716-684-3937

Fax 5/22/06

May 19, 2006

Mr. Erik Krull
~~Vanderbilt~~ Properties, Inc.
P.O. Box 945
Hamburg, NY 14075

Re: The Villas at Brierwood
Southwestern Blvd & Amsdell Rd
Town of Hamburg
ECWA Proj. No. 199300482

Dear Mr. Krull:

We are in receipt of your recent letter regarding the availability of water service to the proposed 148 unit condominium development located at Southwestern Blvd. and Amsdell Road in the Town of Hamburg. We offer the following:

A water main does not cross the frontage of the property along Southwestern Blvd. It is your responsibility to pay for a water main extension before service can be granted.

It will be your Engineer's responsibility to determine if there is sufficient flow and pressure to support your project.

Water service to this project would be provided as a "Master Metered" Domestic Service and a Private Fire Protection Service or as a "Master Metered" Combination Service. All "on site" water facilities will be private.

Backflow prevention is for all services. A complete backflow package must be submitted to our Engineering Department for review and approval.

Cost for service connections are as follows:

3/4" - 1"	$1150.00
1 ½" - 2"	$1900.00
4" and Larger	At Cost

Letter from Erie County Water Authority

Cost of the watermain extension and service connections 4" and larger will be estimated by Erie County Water Authority's Engineering Department.

Erie County Water Authority reserves the right to refuse water service if providing such service is detrimental to existing customers. In addition, if your project has an adverse effect on existing customer's water service, it will be your responsibility to correct the situation.

Since the proposed project is a private development, prior to approval of the new service, documentation must be provided that you have complied with the Erie County Health department's requirement that a Special Improvement District, Transportation Corporation, or Home Owners Association be formed for the continued operation and maintenance of the water facilities within your proposed project. For further information contact the Erie County Health Department, 95 Franklin St., Buffalo, NY 14202. Inquiries should be directed to Mr. John R. Finster, Senior Public Health Engineer, phone number 716-858-7762.

Please feel free to contact Mr. S. Alan Strycharz, Civil Engineer, at 685-8251 if you have any questions.

Sincerely yours,

ERIE COUNTY WATER AUTHORITY

Wesley C. Dust, P.E.
Executive Engineer

WCD/mjm
cc: R. Rosenberry
S. A. Strycharz
S. D'Amico
J. Finster, Erie County Health Department
G. Kapsiak, Town of Hamburg
P:\TOWN\P9300482\Letter39.wpd

TOWN OF HAMBURG
ENGINEERING DEPARTMENT

6100 South Park Avenue • Hamburg, New York 14075 • (716) 649-6111, Ext. 2350 • Fax (716) 649-2322
ail: engineering@townofhamburgny.com

TO: Planning Board

FROM: Engineering Dept.

DATE: 4/5/06

SUBJ: 4/5/06 PLANNING BOARD WORK SESSION AGENDA
Vanderbilt Properties, Southwestern Blvd. near Amsdell Road
Proposed Rezoning RA to PUD.

The following are review comments on the above-referenced rezoning application dated 3/10/06:

(1) We have not received an acceptable survey and legal description for the project.

(2) The site is not located within a water district. A water district extension may be required for the project (if a public watermain extension is necessary to service the site).

(3) The Erie County Water Authority (ECWA) should be contacted to determine if there is adequate pressure and flow to service the site.

(4) The site is not located in a sanitary sewer district. A sewer district extension will be required to service the site. A downstream sewer capacity analysis is necessary to be performed in compliance with NYSDEC requirements.

(5) The parcel is located within the Southwestern Overlay District.

(6) Storm water detention will be required for the development.

(7) A secondary access roadway to the condominium area should be provided.

Gerard M. Kapsiak, P.E.

Gerard M. Kapsiak, P.E.
Town Engineer

Richard J. Lardo

Richard J. Lardo
Principal Engineer

Letter from Town of Hamburg Engineer

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189

518-237-8643

December 07, 2006

Erik J. Krull
David Homebuilders, Inc.
P.O. Box 945
Hamburg, New York 14075

Re: DEC
Villas at Brierwood
Southwestern Boulevard (Rt. 20),
Town of Hamburg, Erie County
06PR06360

Dear Mr. Krull:

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Parks, Recreation and Historic Preservation Law, Section 14.09.

Based upon this review, it is the OPRHP's opinion that your project will have No Impact upon cultural resources in or eligible for inclusion in the State and National Registers of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Ruth L. Pierpont

Ruth L. Pierpont
Director

Letter from New York State Office of
Parks, Recreation and
Historic Preservations
#4

New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **FAX:** (518) 402-8925

March 8, 2007

Erik Krull
Lifestyle Communities
PO Box 945
Hamburg, NY 14075

Dear Mr. Krull:

In response to your recent request, we have reviewed the New York Natural Heritage Program databases with respect to an Environmental Assessment for the proposed Project #2, 24-acre Condo Project, Deerwood, site as indicated on the map you provided, located in the City of North Tonawanda, Niagara County.

> We have no records of known occurrences of rare or state-listed animals or plants, significant natural communities, or other significant habitats, on or in the immediate vicinity of your site.

The absence of data does not necessarily mean that rare or state-listed species, natural communities or other significant habitats do not exist on or adjacent to the proposed site. Rather, our files currently do not contain any information which indicates their presence. For most sites, comprehensive field surveys have not been conducted. For these reasons, we cannot provide a definitive statement on the presence or absence of rare or state-listed species, or of significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

This response applies only to known occurrences of rare or state-listed animals and plants, significant natural communities and other significant habitats maintained in the Natural Heritage Data bases. Your project may require additional review or permits; for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, at the enclosed address.

Sincerely,
Tara Seoane
Tara Seoane, Information Services
New York Natural Heritage Program

Enc.
cc: Reg. 9, Wildlife Mgr.

Letter from New York Natural Heritage Program
#6

Lake Shore Volunteer Fire Co., Inc.
4591 Lake Shore at Rogers Rd.
Hamburg, N.Y. 14075

March 27, 2007

Eric Krull
C/O David Homes
PO Box 945
Hamburg, NY 14075

Re: Brierwood Square
Villas at Brierwood

Dear Eric:

This letter is in response to your request regarding the above matter.

I have reviewed the latest site plans dated February 2007. I concur with the proposed changes to the main entrance and the emergency entrance into the Brierwood Square parking lot.

If you have any questions, please call me at 818-4479.

Thank you.

Sincerely,

Paul C. Wil

Paul C. Wilson
Chief

Letter from Lakeshore Volunteer Fire Company, Inc.
#6

Department of Police
Town of Hamburg
S6100 South Park Avenue
Hamburg, New York 14075
Phone: (716) 648-5111
Fax: (716) 646-6707

Joseph Coggins
Chief of Police

Carmen Kerner
Assistant Chief of Police

March 29, 2007

Mr. Erik Krull
Lifestyle Communities, Inc
PO Box 945
Hamburg, New York 14075

Per your request, a review of your proposal and site plan for "Villa's at Brierwood" was made by the Administrative Staff of the Town of Hamburg Police Department. During the course of the examination it was offered that the proposed site location would be in close proximity to the WalMart project on Southwestern Boulevard and Rogers Road, thereby making a meaningful projection of combined demand for public safety services quite complex at this time.

Respectfully,

Joseph Coggins

Joseph Coggins
Chief of Police

#7

Rural/Metro® Medical Services
60 Years of Serving Others

PAK 3/28/07
Attn: Eric

March 20, 2007

MAR 2 1 2007

Eric Krull
Lifestyle Communities Inc
P.O. Box 945
Hamburg, New York 14075

Dear Mr. Krull:

Rural/Metro Medical Services contracts with municipalities and healthcare facilities throughout Erie and Niagara County. Our emergency medical responders are highly trained professionals and provide pre-hospital medical care to those in need.

Our South Area Operations are headquartered in the Town of Hamburg at Scranton Fire Hall. Ambulances are dispatched from this location to areas throughout Southern Erie County including the entire Town of Hamburg. Ambulances are posted at various locations throughout the Town in an effort to minimize response time.

In reviewing your site plan for the proposed development we are satisfied that the two entrances from Southwestern Boulevard will allow for prudent emergency access.
At any given point of the day, we are confident that we can service the Villa's at Brierwood and Brierwood Square by providing timely, professional, medical care to the resident's and businesses located therein.

Sincerely,

Jay Smith

Jay Smith
Public Affairs Manager

481 William Gaiter Parkway Buffalo, New York 14215
Phone (716) 882-8400 Fax (716) 887-8379
www.ruralmetrowny.com

#8

Erik Krull

From: "Daniel Smith" <SmithD2@natfuel.com>
To: <Erik@Davidhomes.com>
Sent: Thursday, February 08, 2007 4:20 PM
Subject: Vilas At Brierwood

Erik,

National Fuel can provide gas to your proposed development "Villas At Brierwood." Upon reciept of your final plot plan I will submit it to our engineering department to develope a piping design. The main challange will be getting services to the units furthest away from our main line. Our goal is to put the least amount of line in the ground as possible. We will look at installing one service line and a two meter bar for each two units.

If you have any questions please call me at 667-5503

Dan Smith
New Service Representative

NYSEG

FAX:
Erik 2/23/07

February 21, 2007

FEB 2 ? 2007

Erik Krull
Lifestyles Communities Inc.
PO Box 945
Hamburg, NY 14075

RE: Villas at Brierwood
Hamburg, NY

Dear Mr. Krull:

In response to your request, NYSEG will be the electric utility provider as per our franchise agreement with the Town of Hamburg.

If you have any questions, please call me at 649-5556 ext 276.

Sincerely,

Sharon A. Zulawski

Sharon A. Zulawski
Electric Field Planner

150 Erie Street | Lancaster, N.Y. 14086 1998

www.nyseg.com

TIME WARNER CABLE

February 22, 2007

Lifestyles Communities, Inc.
P.O. Box 945
Hamburg, NY 14075

Dear Mr. Krull:

Thank you for considering Time Warner Cable.

Time Warner Cable is the franchised cable company in the town of Hamburg. We presently have cable facilities on Southwestern Boulevard and Amsdell Road. Any extension required to service residential homes will be directly coordinated with the other utility companies involved.

A survey will need to be completed to assess any costs that would be involved in providing service to commercial buildings.

I have included some brochures that highlight the services Time Warner Cable offers.

If you have any questions or concerns, please feel free to contact me at 686-4466.

Pamela Graci

Pamela Graci
Senior Field Coordinator

Letter from Time Warner Cable

verizon

Outside Plant Engineering
65 Franklin St
Room 601
Buffalo, NY 14202

FEB 0 2 2007

January 31, 2007

Vanderbilt Properties / Lifestyle Communities
Erik Krull
PO Box 945
Hamburg, NY 14075

Re: Proposed development, Villas at Brierwood-Hamburg, New York

Dear Erik,

Per your request, this letter verifies that Verizon can adequately supply telephone facilities for the proposed location above once an appropriate utility easement has been secured.

To provide service in a timely manner it is necessary that Verizon Engineering be informed of the construction schedule and any change in plans. With the potential of other growth and churn in our network it may be necessary to re-evaluate capacity issues upon receipt of a firm construction schedule.

I am looking forward to this undertaking, and if you should have any questions or concerns please contact me at 716-840-8630.

Sincerely,

Keith D. Hennessy
Engineer
716-840-8630

Letter from Verizon
#12

To whom it may concern, 3-22-07

We have met on two occasions with Eric Krull of Vanderbilt Properties. In these meetings he presented a landscape plan for a buffer between our home and his proposed building project.

We do have reservations for this project, however do find the buffer Acceptable.

Sincerely

Bruce Reid

Linda Reid

Letter from Neighbors on Pleasant Avenue
#13

DRAFT ENVIRONMENTAL IMPACT STATEMENT - APPENDIX D: STUDIES

FOR THE

"VILLAS AT BRIERWOOD AND BRIERWOOD SQUARE" PLANNED UNIT DEVELOPMENT

A PROPOSED

"ACTIVE ADULT LIFESTYLE COMMUNITY"

IN THE

TOWN OF HAMBURG, ERIE COUNTY, NEW YORK

PROJECT SPONSOR: VANDERBILT PROPERTIES, INC.

PREPARED BY: METZGER CIVIL ENGINEERING, PLLC

IN CONJUNCTION WITH : EmpireGeo Services, Inc. - Evans, Mechwart, Hambleton &Tilton, Inc. - Leader Professional Services, Inc.
SRF Associates - TECsmith - TVGA Consultants - and - Wetlands Investigation, Co.

DRAFT ENVIRONMENTAL IMPACT STATEMENT

APPENDIX D
STUDIES

for

Proposed Project: "Villas at Brierwood" and "Brierwood Square"

Project Location: Town of Hamburg, Erie County, New York
Southeast Quadrant of
Southwestern Boulevard and Amsdell Road

Project Sponsor / Applicant: Vanderbilt Properties, Inc.

SEQR Lead Agency: Town of Hamburg Town Board
Town of Hamburg Town Hall
S6100 South Park Avenue
Hamburg, New York 14075

Contact: Town of Hamburg Planning Department,
Andrew C. Reilly, P.E., AICP
Phone: 716-649-2023

Prepared By: EmpireGeo Services, Inc.
Evans, Mechwart, Hambleton &Tilton, Inc.
Leader Professional Services, Inc.
Metzger Civil Engineering, PLLC
SRF Associates
TECsmith
TVGA Consultants
Wetlands Investigation, Co.

APPENDIX D
STUDIES

APPENDIX D – SECTION 1

SEQR Full Environmental Assessment Form

"PART 2 AND PART 3 TO BE INSERTED BY THE TOWN OF HAMBURG PLANNING DEPARTMENT"

State Environmental Quality Review

FULL ENVIRONMENTAL ASSESSMENT FORM

Purpose: The full EAF is designed to help applicants and agencies determine, in an orderly manner, whether a project or action may be significant. The question of whether an action may be significant is not always easy to answer. Frequently, there are aspects of a project that are subjective or unmeasurable. It is also understood that those who determine significance may have little or no formal knowledge of the environment or may not be technically expert in environmental analysis. In addition, many who have knowledge in one particular area may not be aware of the broader concerns affecting the question of significance.

The full EAF is intended to provide a method whereby applicants and agencies can be assured that the determination process has been orderly, comprehensive in nature, yet flexible enough to allow introduction of information to fit a project or action.

Full EAF Components: The full EAF is comprised of three parts:

Part 1: Provides objective data and information about a given project and its site. By identifying basic project data, it assists a reviewer in the analysis that takes place in Parts 2 and 3.

Part 2: Focuses on identifying the range of possible impacts that may occur from a project or action. It provides guidance as to whether an impact is likely to be considered small to moderate or whether it is a potentially-large impact. The form also identifies whether an impact can be mitigated or reduced.

Part 3: If any impact in Part 2 is identified as potentially-large, then Part 3 is used to evaluate whether or not the impact is actually important.

THIS AREA FOR <u>LEAD AGENCY</u> USE ONLY

DETERMINATION OF SIGNIFICANCE – Type 1 and Unlisted Actions

Identify the Portions of EAF completed for this project: ☐ Part 1 ☐ Part 2 ☐ Part 3

Upon review of the information recorded on this EAF (Parts 1 and 2 and 3 if appropriate), and any other supporting information, and considering both the magnitude and importance of each impact, it is reasonably determined by the lead agency that:

☐ A. The project will not result in any large and important impact(s) and, therefore, is one which will not have a significant impact on the environment, therefore **a negative declaration will be prepared.**

☐ B. Although the project could have a significant effect on the environment, there will not be a significant effect for this Unlisted Action because the mitigation measures described in PART 3 have been required, therefore **a CONDITIONED negative declaration will be prepared.***

☐ C. The project may result in one or more large and important impacts that may have a significant impact on the environment, therefore **a positive declaration will be prepared.**

*A Conditioned Negative Declaration is only valid for Unlisted Actions

____
Name of Action

____
Name of Lead Agency

____
Print or Type Name of Responsible Officer in Lead Agency

____
Title of Responsible Officer

____
Signature of Responsible Officer in Lead Agency

____
Signature of Preparer (If different from responsible officer)

website

____
Date

PART 1--PROJECT INFORMATION
Prepared by Project Sponsor

NOTICE: This document is designed to assist in determining whether the action proposed may have a significant effect on the environment. Please complete the entire form, Parts A through E. Answers to these questions will be considered as part of the application for approval and may be subject to further verification and public review. Provide any additional information you believe will be needed to complete Parts 2 and 3.

It is expected that completion of the full EAF will be dependent on information currently available and will not involve new studies, research or investigation. If information requiring such additional work is unavailable, so indicate and specify each instance.

Name of Action Southwestern Blvd. Planned Unit Development

Location of Action (include Street Address, Municipality and County)

42+/- acres on Southwestern Blvd. , Hamburg, NY SBL # 182.00-4-19 & 182.00-4-13.1

Name of Applicant/Sponsor Vanderbilt Properties, Inc.

Address PO Box 945

City / PO Hamburg State NY Zip Code 14075

Business Telephone (716) 691-6900

Name of Owner (if different) Estate of Wilfred H. Jones

Address 141 Crescent Av.

City / PO Hamburg State NY Zip Code 14075-6540

Business Telephone (716) 649-4910

Description of Action:

Rezoning of 42+/- acres of on Southwestern Blvd. from a Residential - Agriculture District to a Planned Unit Development District to accommodate the construction 148 ranch style condominiums and 12,000 sq. ft. of Neighboorhood Commercial and three single family homes.

Please Complete Each Question--Indicate N.A. if not applicable

A. SITE DESCRIPTION

Physical setting of overall project, both developed and undeveloped areas.

1. Present Land Use: ☐ Urban ☐ Industrial ☐ Commercial ☐ Residential (suburban) ☑ Rural (non-farm) ☑ Forest ☐ Agriculture ☐ Other ____________

2. Total acreage of project area: 42.72+/- acres.

APPROXIMATE ACREAGE	PRESENTLY	AFTER COMPLETION
Meadow or Brushland (Non-agricultural)	35 acres	4.5 acres
Forested	7 acres	3.5 acres
Agricultural (Includes orchards, cropland, pasture, etc.)	____ acres	____ acres
Wetland (Freshwater or tidal as per Articles 24,25 of ECL)	____ acres	____ acres
Water Surface Area	0 acres	1.75 acres
Unvegetated (Rock, earth or fill)	____ acres	____ acres
Roads, buildings and other paved surfaces	0 acres	20 acres
Other (Indicate type) lawns & landscaping	____ acres	12.25 acres

3. What is predominant soil type(s) on project site?

   a. Soil drainage: ☑ Well drained 10 % of site ☑ Moderately well drained 85 % of site. ☑ Poorly drained 5 % of site

   b. If any agricultural land is involved, how many acres of soil are classified within soil group 1 through 4 of the NYS Land Classification System? ________ acres (see 1 NYCRR 370).

4. Are there bedrock outcroppings on project site? ☐ Yes ☒ No

   a. What is depth to bedrock 5ft. +/- (in feet)

5. Approximate percentage of proposed project site with slopes:

   ☑ 0-10% 100 % ☐ 10- 15% ____% ☐ 15% or greater ____%

6. Is project substantially contiguous to, or contain a building, site, or district, listed on the State or National Registers of Historic Places? ☐ Yes ☒ No

7. Is project substantially contiguous to a site listed on the Register of National Natural Landmarks? ☐ Yes ☒ No

8. What is the depth of the water table? 6 -10ft (in feet)

9. Is site located over a primary, principal, or sole source aquifer? ☐ Yes ☒ No

10. Do hunting, fishing or shell fishing opportunities presently exist in the project area? ☐ Yes ☒ No

11. Does project site contain any species of plant or animal life that is identified as threatened or endangered? ☐ Yes ☒ No

According to:

Identify each species:

12. Are there any unique or unusual land forms on the project site? (i.e., cliffs, dunes, other geological formations?

☐ Yes ☒ No

Describe:

13. Is the project site presently used by the community or neighborhood as an open space or recreation area?

☐ Yes ☒ No

If yes, explain:

14. Does the present site include scenic views known to be important to the community? ☐ Yes ☒ No

15. Streams within or contiguous to project area:

There is a small intermittent stream which runs from east to west along the north side of the woodlot through the Open Space and ultimately across Southwestern Blvd.

a. Name of Stream and name of River to which it is tributary

The intermittent stream is not a tributary to any other water course. Sheet #66 of "Soil Survey of Erie County NY" indicates that this intermittent stream terminates in a "Drainage End" between Amsdell Rd. and Roberts Rd. near Wayside Dr. in a residential neighborhood. From that point the water travels through a storm sewer to Lake Erie

16. Lakes, ponds, wetland areas within or contiguous to project area:

There are no natural lakes or ponds or mapped Federal or NYS wetlands on the project site. There will be a full wetland delineation performed this spring as soon the growing season begins.

b. Size (in acres):

17. Is the site served by existing public utilities? ☐ Yes ☒ No

a. If YES, does sufficient capacity exist to allow connection? ☐ Yes ☐ No

b. If YES, will improvements be necessary to allow connection? ☒ Yes ☐ No

18. Is the site located in an agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☒ No

19. Is the site located in or substantially contiguous to a Critical Environmental Area designated pursuant to Article 8 of the ECL, and 6 NYCRR 617? ☐ Yes ☒ No

20. Has the site ever been used for the disposal of solid or hazardous wastes? ☐ Yes ☒ No

B. Project Description

1. Physical dimensions and scale of project (fill in dimensions as appropriate).

a. Total contiguous acreage owned or controlled by project sponsor: 42.72± acres.

b. Project acreage to be developed: 34.72 acres initially; ________ acres ultimately.

c. Project acreage to remain undeveloped: 8 acres.

d. Length of project, in miles: .3 (if appropriate)

e. If the project is an expansion, indicate percent of expansion proposed. _____ %

f. Number of off-street parking spaces existing 0 ; proposed 120

g. Maximum vehicular trips generated per hour: 85+ (upon completion of project)?

h. If residential: Number and type of housing units:

	One Family	Two Family	Multiple Family	Condominium
Initially	151			
Ultimately				

i. Dimensions (in feet) of largest proposed structure: 35' height; 89 width; 131 length.

j. Linear feet of frontage along a public thoroughfare project will occupy is? 496 ft.

2. How much natural material (i.e. rock, earth, etc.) will be removed from the site? ______ tons/cubic yards.

3. Will disturbed areas be reclaimed ☒ Yes ☐ No ☐ N/A

a. If yes, for what intended purpose is the site being reclaimed?

Open space, lawns, landscaping and retention ponds

b. Will topsoil be stockpiled for reclamation? ☒ Yes ☐ No

c. Will upper subsoil be stockpiled for reclamation? ☒ Yes ☐ No

4. How many acres of vegetation (trees, shrubs, ground covers) will be removed from site? 20 acres.

5. Will any mature forest (over 100 years old) or other locally-important vegetation be removed by this project?

☐ Yes ☒ No

6. If single phase project: Anticipated period of construction: 36 months, (including demolition)

7. If multi-phased:

a. Total number of phases anticipated 1 (number)

b. Anticipated date of commencement phase 1: Aug month 2006 year, (including demolition)

c. Approximate completion date of final phase: _____ month _____ year.

d. Is phase 1 functionally dependent on subsequent phases? ☐ Yes ☒ No

8. Will blasting occur during construction? ☐ Yes ☒ No

9. Number of jobs generated: during construction 105 ; after project is complete

10. Number of jobs eliminated by this project 0 .

11. Will project require relocation of any projects or facilities? ☐ Yes ☒ No

If yes, explain:

12. Is surface liquid waste disposal involved? ☐ Yes ☒ No

a. If yes, indicate type of waste (sewage, industrial, etc) and amount

b. Name of water body into which effluent will be discharged

13. Is subsurface liquid waste disposal involved? ☒ Yes ☐ No Type sewage

14. Will surface area of an existing water body increase or decrease by proposal? ☐ Yes ☒ No

If yes, explain:

15. Is project or any portion of project located in a 100 year flood plain? ☐ Yes ☒ No

16. Will the project generate solid waste? ☒ Yes ☐ No

a. If yes, what is the amount per month? 16 tons

b. If yes, will an existing solid waste facility be used? ☒ Yes ☐ No

c. If yes, give name BFI ; location Chaffee, NY

d. Will any wastes not go into a sewage disposal system or into a sanitary landfill? ☐ Yes ☒ No

a. If yes, explain:

17. Will the project involve the disposal of solid waste? ☐ Yes ☒ No

a. If yes, what is the anticipated rate of disposal? ______ tons/month.

b. If yes, what is the anticipated site life? ______ years.

18. Will project use herbicides or pesticides? ☒ Yes ☐ No

19. Will project routinely produce odors (more than one hour per day)? ☐ Yes ☒ No

20. Will project produce operating noise exceeding the local ambient noise levels? ☐ Yes ☒ No

21. Will project result in an increase in energy use? ☒ Yes ☐ No

If yes, indicate type(s)

Electricity and Natural Gas

22. If water supply is from wells, indicate pumping capacity ______ gallons/minute.

23. Total anticipated water usage per day 29,600 gallons/day.

24. Does project involve Local, State or Federal funding? ☐ Yes ☒ No

If yes, explain:

25. Approvals Required:

	Yes	No	Type	Submittal Date
City, Town, Village Board	☒	☒	Town Board- Rezoning	March 13,2006
			Town Board- sewer dist.	
			and possibly water dist.	
City, Town, Village Planning Board	☒	☐	Preliminary Plat	
			Final Plat	
City, Town Zoning Board	☐	☐		
City, County Health Department	☒	☐	Dept. Enviro. and Planing -	
			sewer extension	
Other Local Agencies	☐	☐		
Other Regional Agencies	☐	☐		
State Agencies	☒	☐	DEC-SPDES Gen. Permit #	
			GP-02-01.	
			NYS OPRHP- archaeology	
Federal Agencies	☐	☐		

C. Zoning and Planning Information

1. Does proposed action involve a planning or zoning decision? ☒ Yes ☐ No

If Yes, indicate decision required:

☒ Zoning amendment ☐ Zoning variance ☐ New/revision of master plan ☐ Subdivision

☐ Site plan ☐ Special use permit ☐ Resource management plan ☐ Other

2. What is the zoning classification(s) of the site?

Residetial-Agriculture District

3. What is the maximum potential development of the site if developed as permitted by the present zoning?

21 single family homes

4. What is the proposed zoning of the site?

Planned Unit Development District

5. What is the maximum potential development of the site if developed as permitted by the proposed zoning?

6. Is the proposed action consistent with the recommended uses in adopted local land use plans? ☒ Yes ☐ No

7. What are the predominant land use(s) and zoning classifications within a ¼ mile radius of proposed action?

Residential- Agriculture zoning to east and west and south of the site. This area is comprised of single family homes and abandoned farm land and wood lots.

Planned Unit Development and Commercial 2 and Residential to the north of the site. This area is mixed use including office space, town homes, commercial and single family detached.

8. Is the proposed action compatible with adjoining/surrounding land uses with a ¼ mile? ☒ Yes ☐ No

9. If the proposed action is the subdivision of land, how many lots are proposed? __________

a. What is the minimum lot size proposed? __________

10. Will proposed action require any authorization(s) for the formation of sewer or water districts? ☒ Yes ☐ No

The project would require extending current sewer and water districts or being accepted as out of district users.

11. Will the proposed action create a demand for any community provided services (recreation, education, police, fire protection?

☒ Yes ☐ No

a. If yes, is existing capacity sufficient to handle projected demand? ☒ Yes ☐ No

12. Will the proposed action result in the generation of traffic significantly above present levels? ☐ Yes ☒ No

a. If yes, is the existing road network adequate to handle the additional traffic. ☐ Yes ☐ No

D. Informational Details

Attach any additional information as may be needed to clarify your project. If there are or may be any adverse impacts associated with your proposal, please discuss such impacts and the measures which you propose to mitigate or avoid them.

E. Verification

I certify that the information provided above is true to the best of my knowledge.

Applicant/Sponsor Name Vanderbilt Properties Date 2/15/06

Signature Earl J. Krull

Title Land Manager

If the action is in the Coastal Area, and you are a state agency, complete the Coastal Assessment Form before proceeding with this assessment.

APPENDIX D – SECTION 2

POS Declaration

"TO BE INSERTED BY THE TOWN OF HAMBURG PLANNING DEPARTMENT"

APPENDIX D – SECTION 3

Scoping Assessment

SCOPING DOCUMENT
DRAFT ENVIRONMENTAL IMPACT STATEMENT

<u>Proposed Project:</u>

Villas at Brierwood

<u>Project Location:</u>

Hamburg, Erie County, New York

<u>Project Sponsor / Applicant:</u>

Vanderbilt Properties, Inc.

<u>Lead Agency:</u>

Town of Hamburg Town Board
Town of Hamburg Town Hall
S6100 South Park Avenue
Hamburg, New York

December 14, 2006
Revised February 12, 2007

SCOPING DOCUMENT
DRAFT ENVIRONMENTAL IMPACT STATEMENT

PROPOSED VILLAS AT BRIERWOOD
TOWN OF HAMBURG, ERIE COUNTY, NEW YORK

Positive Declaration Issued: 12/11/06

Public Scoping Session Held: 1/03/07

Comments Accepted Through: 1/17/07

Final Scope Accepted:

Contact Person: Andrew C. Reilly, P.E., AICP
Hamburg Planning Department

Appendix	Description
A	Lead Agency Designation and Positive Declaration

1.0 INTRODUCTION

The Town of Hamburg Town Board, as Lead Agency, has required the preparation of a Draft Environmental Impact Statement (DEIS) pursuant to 6 NYCRR Part 617, State Environmental Quality Review (SEQR). The purpose of the DEIS is to evaluate the potential impacts of the proposed project.

This draft Scoping document has been prepared in accordance with the requirements of 6 NYCRR Part 617 and is intended for use by the Town of Hamburg Town Board, as SEQR Lead Agency, for the environmental review of the pending action. This document provides a general description of the proposed action, an overview of the SEQR process and an outline of the potential environmental impacts that have been identified through the scoping process and which must be addressed in the DEIS.

2.0 SITE LOCATION AND DESCRIPTION OF PROPOSED ACTION

The proposed project involves the rezoning of approximately 42 acres of land from R-A (Residential Agriculture) to PUD (Planned Unit Development) and the construction of an active adult lifestyle community consisting of 148 condominiums and +/- 20,000 square feet of commercial space. The project site is located on Southwestern Boulevard, approximately 700 feet south of Amsdell Road, in the Town of Hamburg, Erie County, New York. The proposed project includes highway access and roadway improvements, the creation of an on-site storm water management system, water system improvements, site lighting, landscaping and parking for +/- 150 vehicles to support the proposed use. This action requires the rezoning of approximately 42 acres of land, as well as an amendment to the Town of Hamburg Comprehensive Plan. An amendment would be required because this parcel of land is located in what is defined in the 2010 Comprehensive Plan as the Lakeview Area, in which residential rezonings will only be considered for extenuating circumstances to preserve important features or for use, and not increased density. By definition, a PUD is a higher density use than a permitted use in the R-A zoning district.

3.0 STATE ENVIRONMENTAL QUALITY REVIEW (SEQR) PROCESS

When the State Environmental Quality Review Act (SEQR) became law in 1975, New York became the twenty-second state to enact an environmental review law. SEQR provides a process for the consideration of potential environmental impacts in the early planning stages of actions. By incorporating a systematic interdisciplinary approach to environmental review, impacts can be identified and projects can be modified, as needed, to avoid or minimize potential adverse impacts to the environment.

All discretionary decisions of a state, regional or local agency to approve, fund or directly undertake an action that may affect the environment are subject to review under the SEQR. SEQR, as implemented by 6 NYCRR Part 617, requires the consideration of environmental factors in the early stages of planning, review and decision-making processes of state, regional and local agencies. The intent of SEQR is that a balance of social, economic and environmental factors is incorporated into the planning and decision-making process.

3.1 Project Classification and Lead Agency Designation

In accordance with 6 NYCRR, Part 617 of the SEQR implementing regulations, the Town of Hamburg Town Board (the Town) classified the Project as an Unlisted action for the purposes of environmental review, based on a determination that the proposed action would involve the construction of 148 residential units and the physical alteration of less than 10 acres of land for commercial use. Due to the magnitude of the project and the interpretation of the Type I action list (requires the amendment of the Comprehensive Plan), the Town will conservatively treat this as a Type I action. This threshold for a Type 1 action is set forth in 6 NYCRR Part 617.4(b). The SEQR regulations require the lead agency to conduct a Coordinated Environmental Review for all Type 1 actions. Therefore, on July 11, 2006 the Hamburg Town Board initiated a Coordinated Review of the proposed action to request Lead Agency designation and to solicit comments from all Involved and Interested Agencies.

In accordance with Part 617.7, upon receipt and review of all agency comments, the Environmental Assessment Form and other application materials submitted by the project sponsor, the Town considered the potential environmental impacts of the proposed project and determined that this action may result in significant impacts to the environment and that a Draft Environmental Impact Statement (DEIS) must be prepared. The Town of Hamburg Town Board issued a Positive Declaration to this effect on December 11, 2006.

3.2 Purpose of the Scoping Process

It is the responsibility of the SEQR Lead Agency to organize and conduct scoping. The purpose of the scoping process is to identify the relevant environmental issues to be addressed in a Draft Environmental Impact Statement (DEIS). These issues are determined based on a full review of the Environmental Assessment Form (EAF), Parts 1 and 2, the Positive Declaration, the site plan application and accompanying site plan, and comments received from Involved and Interested Agencies and the general public.

The objectives of project scoping are to:

1. Identify/confirm significant environmental issues;
2. Eliminate insignificant or irrelevant issues;
3. Identify limits or extent of impact analysis;
4. Identify the range of reasonable alternatives to be addressed; and
5. Identify potential mitigation measures.

On December 14, 2006, the project sponsor submitted a draft Scoping document to the Town. As part of the DEIS process, and in accordance with SEQR Part 617.8, the Town Planning Board and Town Board conducted a Public Scoping Meeting on January 3, 2007 at the Hamburg Town Hall. The Town received numerous comments, as well as comment letters, related to the potential impacts of the proposed project. These comments were considered in the development of this Final Scoping Document.

The scoping session was conducted in order to gather public and agency input regarding the topics and methodology of study for the DEIS. The public scoping process ensures that the DEIS will be a concise, accurate and complete document upon which all Involved Agencies can base their individual decisions regarding the proposed project. By including the public, as well as other agencies in the scoping process, the SEQR lead agency can obtain additional information and specialized knowledge that may reduce the likelihood of additional issues arising during the public review period for the DEIS. It is the responsibility of the Town of Hamburg Town Board, as SEQR Lead Agency (with the assistance of the Planning Board), to complete the scoping process, issue the Final

Scoping document and oversee the completion of the DEIS.

3.3 SEQR Review Agencies

In the SEQR process, there are three types of agencies: the Lead Agency, Involved Agencies and Interested Agencies. The Lead Agency is the one agency among all of the Involved Agencies that has the responsibility under SEQR to coordinate the environmental review process for the proposed action. The Town of Hamburg Town Board was designated as the Lead Agency for this action because this Board has the primary jurisdiction over the rezoning of the site. Through the Coordinated Review process, other agencies, including the Hamburg Planning Board, were provided the opportunity to submit comments on the proposed action and concur with the designation of the Town Board as the Lead Agency.

Involved Agencies are agencies that have jurisdiction to fund, approve or directly undertake an action. Known Involved Agencies for the proposed action include:

1. New York State Department of Environmental Conservation
2. New York State Department of Transportation
3. Erie County Health Department
4. Erie County Department of Public Works
5. Erie County Sewer District
6. Erie County Water Authority
7. Town of Hamburg Highway Department
8. Town of Hamburg Water and Sewer Department
9. Town of Hamburg Building Inspector
10. Hamburg Town Board
11. Town of Hamburg Zoning Board of Appeals
12. Hamburg Town Attorney
13. Erie County Dept. of Environment & Planning

Interested Agencies are agencies that do not have (at the time of the environmental review) permitting, funding or approval jurisdiction directly related to the proposed action, but may desire to participate in the review process because of their expertise or concern regarding the action. Interested Agencies also include agencies that may have jurisdiction over a permit or approval related to the action in the future. For this project, Interested Agencies include, but may not be limited to:

1. Lakeshore Volunteer Fire Company
2. Hamburg Traffic Safety Advisory Board
3. Hamburg Conservation Advisory Board

4.0 CONTENT OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)

Section 671.9(b) of the SEQR implementing regulations outlines the minimum content that should be included in a Draft Environmental Impact Statement. The minimum subject areas expected to be included in the DEIS for this project are described below.

1. Cover Sheet and Table of Contents

2. Executive Summary

3. Introduction
   - Description of the Proposed Action

- Project Location and Setting
- Conformance with the Comprehensive Plan
- Purpose and Objectives of the Proposed Project
- Public Benefits and Need for the Proposed Projects

4 SEQR Process and Chronology

5 Project Description
- Design and Layout
- Architectural Design
- Site Design and Infrastructure
- Landscaping, Signage and Parking
- Required Permits and Approvals

1 General Environmental Setting of the Project Site and Study Area
- Local and Regional Geographic and Topographic Setting
- Localized Land Use
- Zoning Requirements and other Land Use Regulations
- Socio-economic Conditions
- Community Character
- Public Utilities
- Site Drainage and Stormwater Management
- Traffic, Transportation and Pedestrian Circulation
- Community Services
- Aesthetic Resources
- Noise and Air Quality
- Solid Waste Management

1 Assessment of Significant Environmental Impacts
- Potential Impacts on Each of the Elements examined under the Existing Conditions Section
- Impacts of the Proposed Action on the Use and Conservation of Energy

2 Proposed Mitigation Measures

3 Project Alternatives
- No Action
- Project Design in Conformance with all Existing Zoning Requirements
- Reduced Size and Scale of Development
- Alternative Sites for the Proposed Action

4 Temporary and Short-term Impacts

5 Cumulative Impacts

6 Adverse Environmental Impacts That Cannot Be Avoided

7 Irreversible and Irretrievable Commitment of Resources

8 Growth Inducing Impacts

9 References

10 Appendix

4.1 Project Description

This section of the DEIS should include a detailed description of what is being proposed for development on the project site. This description should be detailed enough to provide reference and sufficient project understanding for the reader to review subsequent sections of the DEIS. All aspects of site development should be discussed, including:

- Existing conditions of the site (vegetation, structures, etc.)
- Existing views in the area
- Proposed buildings and lot coverage
- Potential uses for the commercial buildings
- Site amenities
- Parking, loading and stacking areas
- On-site traffic and pedestrian circulation
- Storm water management facilities
- Roadway access (existing and proposed)
- Landscaping
- Approvals and variances needed
- Types of residential structures, and common areas
- Ownership type (condo, Homeowners Assoc., etc

An 11" by 17" copy of the site plan should be included in this section of the DEIS to provide the reader with a visual interpretation of the project to enable a better understanding of what is being proposed by the project sponsor.

4.2 General Environmental Setting of the Project Site and Study Area

The existing conditions section should present a detailed discussion of each subject area to provide for a sufficient understanding of the impacts of the proposed action and project alternatives and how they affect the environment. Emphasis should be placed on the following:

1 Understanding that the project site is vacant land, provide an overview of the general geographic, geologic and topographic setting of the study area.

2 Describe the land uses in, and community character of, the surrounding area.

3 Provide an outline of the existing zoning, proposed zoning and zoning requirements for the project site. Analysis should address compliance of the proposed project with relevant zoning and subdivision requirements.

4 Identify the various public utilities that are supplied to the site, including public water supply, wastewater disposal, electricity, telephone, cable and natural gas.

5 Describe the existing means of site drainage and stormwater management on the project site. What are the existing drainage patterns in the area, and are there any flooding or drainage problems on the site or in the surrounding area at present?

6 Provide a detailed description and full analysis of existing traffic patterns and transportation conditions, including pedestrian circulation patterns. Information on existing intersection operations, levels of service and existing vehicle trips to and from the site should be included in this analysis. Counts that are as recent as possible should be used. Accident data should be

provided, as well as information regarding what sources of public transportation currently service this site. The GBNRTC should be contacted to obtain all existing traffic data and studies completed for this area.

7 Identify the various community and emergency services for this site, including police, fire, ambulance and hospitals.

8 Describe the existing visual setting for the study area and the project site. Existing photographs of the area should be included, as well as existing views from surrounding residential areas and from Southwestern Boulevard.

9 Describe existing noise conditions in the study area.

10 Provide information on existing solid waste management and disposal practices and services for the site and surrounding area.

11 Provide information on the existing ecology of the site. The Town of Hamburg Conservation Advisory Board should be contacted.

12 Provide information on the cultural and archeological resources on the site.

13 Provide information regarding surface water, including floodplains and wetlands.

4.3 Impact Assessment

4.3.1 Impact on Land

Describe the impacts to the project site (paved, building and landscaped areas) and compare them to existing conditions of the property.

Describe construction procedures (demolition, disposal, blasting, etc.) and special conditions that will affect this construction (rock, groundwater, etc.).

Discuss the proposed phasing of this project. How many phases are anticipated and how long is it anticipated to take to achieve full build-out of the project?

Potential Mitigations: Phasing conditions, avoidance of problem areas.

4.3.2 Impact on Water

Describe the project's impact on the drainage/storm water management system in the area. Provide a plan and engineering report that meets the State's stormwater requirements (SPDES) and the Town of Hamburg's requirements. Contact the Town Engineer to discuss these issues. Address the impacts of the project on existing downstream drainage conditions.

Provide water demand figures and wastewater generation numbers, and describe the potential impacts to the existing water and sewer systems in the area. Do sufficient capacities exist in these systems to handle this project? Work with the Town of Hamburg and Erie County DEP on the sewer issue (I and I and downstream capacity).

Illustrate all improvements to the site and offsite.

Potential Mitigations: Construction of stormwater facilities that will reduce the impact to downstream areas, improvements to downstream structures, alternative/new technology stormwater control structures and improvements to water and sewer systems.

4.3.3 Impact on Aesthetic Resources

Describe the potential impacts to the aesthetic quality of the project site and study area. Provide descriptions of proposed landscaping, including location, types of plantings and how the amount of greenspace corresponds to zoning requirements. How will site development, in terms of building placement and parking, impact aesthetic resources? How will the site be landscaped to improve visual quality? How much landscaping is being proposed (overall percentage of greenspace) and what type? Where will it be placed? How much land will be preserved as buffers and how will it be controlled? Provide green space calculations showing how much land will be set aside for buffers, landscaping, recreation areas, etc.

Describe proposed signage associated with the project. What type and how much signage is being proposed for this action? What would be the visual impacts of the proposed signage?

Options for the look of the proposed commercial buildings along Southwestern Boulevard should be explored. What is being proposed to make the buildings aesthetically pleasing to the passing motorist? Consider alternative building design styles or features for the buildings. Provide photographic examples of design alternatives.

Provide before and after views from not only Southwestern Boulevard but from all angles, including views to and from the surrounding residential areas.

Provide a lighting plan that illustrates proposed lighting fixtures' locations and wattage.

Potential Mitigations: Location of commercial buildings, landscaping (including landscaped berms), architecture of commercial buildings and condominiums, alternative signage, relocation of some of the proposed commercial parking, maintaining buffers to the surrounding residential uses and other methodologies to improve the appearance of the site, as well as types of lighting and the use of shielded lighting.

4.3.4 Impacts on Transportation

Provide a complete analysis of potential traffic and transportation impacts. The increased number of residential as well as commercial vehicles will likely result in greater impacts to the adjacent roadway system and local traffic patterns. Complete a Traffic Impact Study (TIS) in accordance with NYSDOT requirements (contact NYSDOT). Provide projections from the ITE manual, but also provide counts from existing lifestyle communities resembling the proposed project. Provide information on proposed trip generation and distribution, intersection operations, site access and cross access (particularly any changes being proposed) and pedestrian safety. Roadways of concern include: Southwestern Boulevard (NYS Route 20), Amsdell Road, Rogers Road and Pleasant Avenue. All analysis should use the most recent available traffic counts.

Intersections to be studied include the following:

1. Southwestern Boulevard: intersections with
2. Amsdell Road
3. Pleasant Avenue

4 Rogers Road
5 New entrance road

Traffic impact analysis must also consider impacts to pedestrian and bicyclists' safety and access.

Discuss whether any connection of the proposed project to Pleasant Avenue is currently proposed and if there is any possibility of a connection to Pleasant Avenue in the future.

Discuss whether an emergency means of ingress and egress is proposed.

The impact of commercial traffic to the site should be addressed. How many commercial vehicles would visit this site for deliveries on a daily/weekly basis? How would they access the site? Are there potential conflicts with internal circulation patterns of the project between residential traffic and potential commercial deliveries?

Investigate different methods of improving traffic in the area, and consider the following in the analysis:

Are these private road systems, and if so will they meet all standards for emergency vehicle access and how will school age children be handled (Bus pick-up)? How will travel between the commercial and residential areas be accomplished?

Potential Mitigations: Modifications to signage, signals and roadways (proposed and existing). Mitigations must address impacts to State, County and local Town roadways.

Pedestrian safety mitigations should not only include sidewalks (which may or may not be preferable in certain locations) but should also consider improved shoulders and the possibility of walkways or trails.

4.3.5 Impacts on Energy

Provide information illustrating that the existing electric and gas systems will have capacity to accommodate this proposed project.

4.3.6 Noise Impacts

Provide a discussion of potential noise sources, such as vehicular activity, mechanical equipment such as HVAC units and trash compactors, and others.

Potential Mitigations: Not allowing commercial vehicle to idle, Site plan layout.

4.3.7 Impacts on Public Health and Safety

Describe how the safety of local residents in the surrounding areas will be affected by this project. How will issues such as rodents and insects be addressed? If the stormwater detention ponds are located on site, how will mosquitoes be controlled?

Potential Mitigations: Transportation improvements, stormwater facility alternatives, dumpster types and locations, etc.

4.3.8 Impacts on Growth and Character of Community of Neighborhood

Provide an analysis of potential impacts to existing and surrounding land uses in the study area. Describe how land use on the project site will change or be impacted and how that may affect the surrounding neighborhood.

Describe how activities on the project site, such as the location of the proposed commercial buildings, potential truck deliveries, odors, noise, etc. will impact surrounding residences. How will the perimeter of the site be improved to lessen the impacts of site development?

Taking into consideration the existing Town of Hamburg Comprehensive Plan, zoning and existing land use patterns, how would the project, if the Comprehensive Plan were amended to allow its approval, affect the surrounding neighborhood and future development in the area? Work with the Town Planning Dept. to describe how the Comprehensive Plan would be amended to accommodate this project and the justification for this amendment.

Discuss what extenuating circumstances are mandated by the Comprehensive Plan that would warrant this rezoning. Additionally, explain which "important features" that are mandated by the Comprehensive Plan would be preserved if this project is undertaken.

Given the Comprehensive Plan's mandate that "any rezonings should only be considered for use and not increased density", explain how the proposed rezoning for this project would be justified. In addition, explain whether and/or how the proposed increase in density resulting from this project would be consistent with the goals and objectives for the Lakeview Area as described in the Comprehensive Plan.

The Town of Hamburg Comprehensive Plan states that the extension of sewers in the Lakeview Area is not to be promoted. Discuss why the Town of Hamburg should consider extending the sewer in this area for this particular project, given the Comprehensive Plan's recommendation.

Describe how community services will be impacted by the proposed action. Will the project create greater demands for police and other emergency services? Can the existing services handle this demand? Will fire trucks and other emergency vehicles have adequate access to the site and sufficient room to maneuver? The various emergency service agencies should be contacted to determine potential impacts and service capacity.

Fully describe the employment issues relating to the construction of the Villas at Brierwood.

Provide an analysis of the number of currently approved units for senior/retirement housing within the Town of Hamburg. Additionally, discuss what impacts may be expected to the public resulting from the reduced tax assessment levied on the condominiums proposed as opposed to single-family homes that could be built on the property under existing zoning. What, exactly, is the disparity in tax rates and/or tax revenues between the proposed condominiums and single-family R-A housing?

Provide information regarding what possible uses are being considered for the commercial areas on the site.

Discuss what impact this project, if constructed, will have on current agricultural activities adjacent to and/or nearby this property, particularly along Pleasant Avenue.

Applicant must provide an assessment of the overall growth-inducing aspects of the project. This assessment may be provided in the separate section on Growth Inducing Impact (see 4.7, below).

Potential Mitigations: As discussed in this section and other sections. Placing limitations on what commercial uses will be allowed in the PUD commercial areas.

4.3.9 Impacts on Plants and Animals

Describe the potential impacts of the proposed project on plants and animals currently existing on the subject parcel. Provide an analysis of the types of plants and animals that are currently found on the property and what construction activities might be employed to minimize the impact.

Potential Mitigations: Site layout and conservation areas.

4.3.10 Impacts on Recreation

Describe the proposed recreation areas and facilities associated with the project that will be available for use by the residents of the Villas at Brierwood.

4.4 Proposed Mitigation Measures

The proposed action may result in impacts to the surrounding community that could be mitigated through site design alterations or other mitigative measures. The DEIS should include a discussion of all anticipated impacts and how they will be mitigated to reduce or eliminate potential impacts to the surrounding community from site development. Mitigations are discussed in Section 4.3, but should be formalized in this section.

4.5 Project Alternatives

The following alternatives to the proposed action will be considered (site plans for each proposed alternative shall be provided):

1. No Action Alternative – an evaluation of the potential adverse and beneficial impacts that would result in the reasonable, foreseeable future if the proposed action was not undertaken.
2. Project Design in Conformance with all Existing Zoning Requirements – provide an assessment of potential impacts if the site were developed in accordance with the existing zoning.
3. Development of site with a different mix of uses – the existing zoning allows other reasonable uses that could be undertaken on this site. An evaluation of other potential development scenarios should be presented.
4. Development of this project on a different parcel located in the Town of Hamburg – provide an analysis of the other locations considered and an explanation of why other locations were not chosen.
5. Project design alternatives

The description and evaluation of the alternatives should be at a level of detail sufficient to permit a comparable assessment of potential impacts. All project alternatives should be analyzed in a fashion similar to the proposed action in terms of potential environmental impacts and mitigation.

A discussion of the use of another potential site for undertaking the proposed action should be provided.

4.6 Cumulative Impacts

The impacts of the proposed action must be considered in relation to other projects proposed in the vicinity. An analysis of cumulative traffic impacts, at the very least, must be presented.

4.7 Growth Inducing Impacts

This project could potentially result in significant impacts on the growth and character of the surrounding neighborhood and community as a whole. A careful and well reasoned analysis of the possible growth inducing aspects of this project must be presented. How will the potential Comprehensive Plan amendment alter the development patterns in the area.

5.0 INFORMATION TO BE INCLUDED IN THE APPENDIX FOR THE DEIS

The main body of the DEIS shall provide sufficient detail to enable the reader to understand, interpret and evaluate the existing conditions, potential impacts, mitigation measures and alternative project scenarios. The Appendix shall contain back-up studies and technical reports that supplement and support the narrative in the DEIS. The methodologies and results of the studies and technical reports shall be summarized and explained in the main body of the DEIS. The reader should not be forced to move from one section to another to understand the information being presented. Only site-specific documents that are not readily available to the public should be included as appendices to the DEIS. The following are examples of documents to be included in the Appendix:

1. Environmental Assessment Form Parts 1 and 2 and Positive Declaration
2. Scoping Document
3. Site Plan for proposed action and each alternative being evaluated
4. Traffic Impact Study and correspondence
5. Storm water Management Report and drainage calculations
6. Correspondences with Involved and Interested Agencies
7. All other studies and reports

APPENDIX D – SECTION 4

Traffic Impact Study

Traffic Impact Study
for the proposed

Villas at Brierwood and Brierwood Square

Town of Hamburg, New York

March 2007

Project No. 27005

Prepared For:

Lifestyle Communities, Inc.
PO Box 945
Hamburg, New York 14075

Prepared By:

SRF ASSOCIATES
WWW.SRFA.NET
Traffic Engineering & Planning Consultants

3495 Winton Place
Building E, Suite 110
Rochester, New York 14623

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1. Special Report 209: Highway Capacity Manual. Transportation Research Board. National Research Council, Washington, DC: 2000.

2. Trip Generation, Seventh Edition. Institute of Transportation Engineers. Washington, DC: 2003.

3. Trip Generation Handbook: An ITE Proposed Recommended Practice. Institute of Transportation Engineers. Washington, DC: 2001.

4. A Policy on Geometric Design of Highways and Streets. The American Association of State Highway Transportations Officials (AASHTO). Washington, DC: 2001.

5. Traffic Volume Report. NYSDOT. Albany, New York: 2004.

6. Highway Sufficiency Ratings. NYSDOT. Albany, New York: 2002.

7. New York State Manual of Uniform Traffic Control Devices (MUTCD), aka Official Compilation: Codes, Rules, and Regulations of the State of New York 17 Transportation (B). Secretary of State, State of New York. The West Group: 2005.

8. New York State Department of Transportation Traffic Data Viewer. 2007. Retrieved from https://www.nysdot.gov/portal/page/portal/divisions/engineering/applications/traffic-data-viewer.htm

EXECUTIVE SUMMARY

OVERVIEW

The purpose of this report is to identify the potential traffic impacts associated with the proposed Villas at Brierwood and Brierwood Square development in the Town of Hamburg, Erie County, New York. This report investigates the existing and projects the future weekday AM, PM and Saturday midday peak hour travel conditions at the proposed site access drives and adjacent intersections affected by the development. The operating characteristics of the proposed access points and impacts to the adjacent roadway network are identified.

The proposed Villas at Brierwood and Brierwood Square development will consist of approximately 148 condominium units and 28,000± s.f. of retail space and will be located along the south side of Southwestern Blvd west of Amsdell Road. Access to the site will be provided via two new access points on Southwestern Boulevard located approximately 885± feet (east site drive) and 1,275± feet (west site drive) west of Amsdell Road. The site is currently vacant.

The operating characteristics of the site drives and impacts to the adjacent roadway network are identified. The study area consists of three existing intersection (NYS Route 20 with Rogers Road, Amsdell Road and Pleasant Avenue). A comprehensive inventory of the existing roadway network operations was developed and peak period traffic volume data were collected by SRF & Associates (SRF).

The Town of Hamburg was contacted to discuss current projects within the project study area that are currently under construction and/or approved planned developments. To account for normal increases in background traffic growth, a growth rate of 1.0% per year was applied to the existing traffic volumes for the duration of the study (2 years). Site generated traffic volumes for the proposed development are projected and distributed to the network based on existing travel patterns, population centers, and existing highway conditions. The operating characteristics of the proposed access point and impacts to the adjacent roadway network are identified and recommendations are provided to minimize any capacity or safety concerns.

CONCLUSIONS AND RECOMMENDATIONS

This report addresses the traffic impact that can be expected from the proposed Villas at Brierwood and Brierwood Square Site in the Town of Hamburg as described in this report. It has been shown that the transportation network can adequately accommodate the projected traffic volumes and resulting impacts to study area intersections. The following list summarizes recommendations to be considered as a result of this development:

1. Provide both site drives on Route 20 with one exiting lane (combined left/right turn lane) and one entering lane.
2. The proposed site drives exiting the proposed development shall be stop-controlled at its intersection with Route 20.

I. *INTRODUCTION*

The purpose of this report is to identify the potential traffic impact associated with the proposed Villas at Brierwood and Brierwood Square development on the south side of Southwestern Boulevard west of the Amsdell Road intersection in the Town of Hamburg, Erie County, New York. The operating characteristics of the proposed access points and impacts to the adjacent roadway network are identified.

In an effort to define traffic impact, this analysis determines the extent of existing traffic conditions, projects background traffic flow including area growth and nearby developments, and projects changes in traffic flow due to operation of the proposed facility.

II. *PROJECT LOCATION AND STUDY AREA*

The proposed site is bounded by NYS Route 20 to the north and residential lands to the east, west, and south in the Town of Hamburg, Erie County, New York. The site is currently vacant. Access to the proposed Villas at Brierwood and Brierwood Square is proposed via two new access points on Route 20. The site location is illustrated in **Figure 1 – Site Location and Study Area** (all figures are included in Section XI, at the end of this report).

The study area consists of three existing intersections surrounding the proposed site. The lands adjacent to the proposed development consist primarily of commercial and residential type uses. Major traffic generators along Route 20 consist of retail stores, banks, and offices.

III. *STUDY AREA HIGHWAY SYSTEM*

The study area roadway system identified for investigation includes the portion of Route 20 between Pleasant Avenue to the west and Rogers Road to the east. Three (3) existing intersections are studied in detail in this report and are as follows:

1. NYS Route 20/Pleasant Avenue (unsignalized)
2. NYS Route 20/Amsdell Road (signalized)
3. NYS Route 20/Rogers Road (signalized)

The lane geometry at each of the study intersections is depicted in **Figure 2**.

Southwestern Blvd (NYS Route 20) is owned and maintained by NYSDOT within the vicinity of the project. The highway is functionally classified as an east/west urban principal arterial highway with a posted speed limit of 50 mph in the vicinity of the site. According to the most recent traffic volume data collected by NYSDOT in 2005, the annual average daily traffic (AADT) along Route 20 between Amsdell Road and Route 75 is 22,808 vehicles per day (vpd).

Rogers Road (CR 464) is a north-south roadway that provides a connection between Lakeshore Road (NYS Route 5) to the north and Pleasant Avenue (CR 122) to the south. The posted speed limit in the vicinity of the study area is 35 mph.

Amsdell Road (CR 122) is a north-south roadway that provides a connection between Lakeshore Road (NYS Route 5) to the north and Pleasant Avenue (CR 133) to the south. The posted speed limit in the vicinity of the study area is 35 mph.

IV. *EXISTING TRAFFIC CONDITIONS*

A. *Peak Intervals for Analysis*

Given the functional characteristics of the corridor and the land use proposed for the site (mixed use residential and retail development), the peak hours selected for analysis are the weekday AM, weekday PM and Saturday midday peaks. The combination of site traffic and adjacent through traffic produces the greatest demand during these time periods.

B. *Existing Traffic Volume Data*

Weekday AM (7:00-9:00am), weekday PM (4:00-6:00pm) and Saturday midday (11:30-1:30pm) peak traffic counts were collected by SRF & Associates (SRF) at the study area intersections identified above.

Weekday AM and PM peak hour volumes at all of the study area intersections were collected on January 17 and 18, 2007. Saturday midday peak hour volumes at the NYS Route 20/Rogers Road and NYS Route 20/Pleasant Avenue intersections were collected on January 13 and March 3, 2007, respectively. Saturday midday peak hour volumes at the NYS Route 20/Amsdell Road intersection was obtained from a Traffic Impact Study completed by SRF for the proposed Wal*Mart Supercenter in June 2006.

The peak hour traffic periods generally occurred between 7:15 to 8:15 AM, 4:00 to 5:00 PM and 12:15 to 1:15 PM. The existing peak hour volumes are depicted in **Figure 3**.

Existing Average Daily Traffic (ADT) information was obtained from the New York State Department of Transportation (NYSDOT) *Traffic Volume Report 2004 and NYSDOT Traffic Data Viewer Website*. **Figure 4** illustrates the ADT volumes on the study roadways.

C. *Field Observations at Study Area Intersections*

All intersections included in the project area were observed during all three peak intervals to assess existing traffic operating conditions at each intersection. Signal timing information was collected, at the previously identified signalized intersections, to determine peak hour phasing plans and phase durations during each interval. This information was used to support and/or calibrate capacity analysis models described in detail later in this report.

D. *Existing Accident Investigation*

Based on discussions with NYSDOT an investigation of existing accidents is not provided given the completion of NYSDOT construction project. This will significantly change the operational and safety characteristics rendering historical accident information not meaningful.

V. *FUTURE AREA DEVELOPMENT AND LOCAL GROWTH*

Construction of the proposed Villas at Brierwood and Brierwood Square is expected to be completed within 2 years. The Town of Hamburg was contacted to discuss current projects within the project study area that are currently under construction and/or approved. The following developments are approved/under construction in the study area: Wellington Woods Subdivision that consists of 54 single family residential units near the Lakeview Road/Lakeshore Road intersection, Treehaven Subdivision that consists of 90 single family residential units and 43 patio homes near the Route 5/Lakeshore Road intersection, the Woodstream Estates Subdivision that consists of 85 single family residential units to the north of the site along Rogers Road (south of Cloverbank Road), and the Wal★Mart Supercenter development at the Route 20/Rogers Road intersection. Traffic volumes related to all of these developments were included in the background traffic conditions.

To account for normal increases in background traffic growth, including any unforeseen developments in the project study area, a growth rate of 1.0% per year has been applied to the existing traffic volumes in the study area for the two year build-out period. The background traffic volumes are depicted in **Figure 5**.

VI. *PROPOSED DEVELOPMENT*

A. *Description*

The proposed development is located along the south side of Southwestern Blvd west of Amsdell Road and includes 148 condominium units and 28,000± s.f. of retail space. The site is currently vacant.

Access to the site will be provided via the two new access points on Southwestern Boulevard located approximately 885± feet (east site drive) and 1,275± feet (west site drive) west of Amsdell Road. The primary access to the site will be provided via the west site drive. The east site drive will be mainly used for the proposed retail space.

B. Site Traffic Generation

The next step in the evaluation is to determine the additional traffic attributable to the development as defined, vehicle trips entering and exiting the site. Trip Generation, 7th Edition is used as a reference for this information. The trip rate for the peak hour of the generator may or may not coincide in time or volume with the trip rate for the peak hour of adjacent street traffic. Volumes generated during the peak hour of adjacent street traffic, in this case, the weekday AM, weekday PM and Saturday midday peaks, represent a more critical volume when analyzing the capacity of the system; those intervals will provide the basis of this analysis.

The volume of traffic generated by a site is dependent on the intended land use and size of the development. Trip generation can be defined as an estimate of the number of trips generated by a specific building or land use. These trips represent the volume of new traffic added to the roadways due to the proposed development.

The volume of site-generated traffic at the proposed access drive has been estimated based on data contained in the Trip Generation manual. All trip generation calculations are included in Appendix A2 of this report. Table I shows the total site generated trips for the weekday AM, weekday PM and Saturday midday peak hours for the proposed development.

TABLE I: SITE GENERATED TRAFFIC VOLUMES

DESCRIPTION	AM PEAK		PM PEAK		SAT PEAK	
	ENTER	EXIT	ENTER	EXIT	ENTER	EXIT
Total Residential Trips (148 Condominium units)	12	59	56	27	46	39
Total Retail Trips (28,000± s.f. Shopping Center)	18	11	50	55	72	67

It is noted that the trip generation used in this analysis is based on ITE data for condominiums. The actual proposed development is likely to generate fewer trips than projected since the target resident is older adults without families. This conclusion is based on data supplied by the developer for three similar developments.

C. Site Traffic Distribution

The cumulative effect of site traffic on the transportation network is dependent on the origins and destinations of that traffic and the location of the access drives serving the site.

The proposed arrival/departure distribution of traffic to be generated at this site is considered a function of several parameters, including the following:

- Population centers in the area
- Existing highway network
- Existing traffic conditions and controls
- Travel patterns on Rogers Road and Amsdell Road
- Site access drive locations

Figure 6 shows the anticipated trip distribution pattern percentages for the proposed development and **Figure 7** illustrates the peak hour site generated traffic based on those percentages for the weekday AM, weekday PM and Saturday midday peak hour periods.

D. *Projected Full Development Traffic Volumes*

The projected full development design hour traffic volumes were developed for each peak by combining the background traffic conditions (Figure 5), and projected site generated volumes (Figure 7) to yield the total traffic conditions expected at full development. **Figure 8** shows the total weekday AM, PM and Saturday midday peak hour volumes anticipated for the proposed development.

VII. *OPERATIONAL ANALYSES*

Capacity analysis is a technique used for determining a measure of effectiveness for a section of roadway and/or intersection based on the number of vehicles during a specific time period. The measure of effectiveness used for the capacity analysis is referred to as a Level of Service (LOS). Levels of Service are calculated to provide an indication of the amount of delay that a motorist experiences while traveling along a roadway or through an intersection. Since the most amount of delay to motorists usually occurs at intersections, the capacity analysis specifically focuses on intersections.

Six Levels of Service are defined for analysis purposes. They are assigned letter designations, from "A" to "F", with LOS "A" representing operating conditions with the least time delay. LOS "F" is the least desirable operating condition where longer delays are experienced by motorists. Suggested ranges of service capacity and an explanation of Levels of Service are included in the Appendix.

The standard procedure for capacity analysis of signalized and unsignalized intersections is outlined in the 2000 Highway Capacity Manual (HCM 2000). Traffic analysis software, SYNCHRO (Build 614), which is based on procedures and methodologies contained in the HCM 2000, was used to analyze operating conditions at study area intersections. The procedure yields a Level of Service (LOS) based on the HCM 2000 as an indicator of how well intersections operate. Existing operating conditions during the peak study periods are evaluated to determine a basis for comparison with the projected future conditions. Existing operating conditions are documented in the field and modeled using traffic analysis software. The traffic analysis models are calibrated based on the actual field observations.

Table II indicates the level of service results for existing, background and full development conditions for the proposed Villas at Brierwood and Brierwood Square. The discussion following the table summarizes the existing, background, and full development conditions.

TABLE II
INTERSECTION CAPACITY ANALYSIS RESULTS

INTERSECTION	*EXISTING CONDITIONS*			*BACKGROUND CONDITIONS*			*FULL DEVELOPMENT CONDITIONS*		
	AM	*PM*	*SAT*	*AM*	*PM*	*SAT*	*AM*	*PM*	*SAT*
NYS Route 20/Rogers Road (S)									
Eastbound - NYS Route 20	A	A	A	A	A	A	A	A	A
Westbound - NYS Route 20	A	A	A	A	A	A	A	A	A
Northbound - Rogers Road	B	B	A	B	B	B	B	B	B
Southbound - Rogers Road	B	B	B	B	B	B	B	B	B
Overall LOS / Delay in sec/veh	**A(7.3)**	**A(6.9)**	**A(6.2)**	**A(8.3)**	**A(8.0)**	**A(7.2)**	**A(8.5)**	**A(8.2)**	**A(7.5)**
NYS Route 20/Amsdell Road (S)									
Eastbound - NYS Route 20	A	A	A	A	A	A	A	A	A
Westbound - NYS Route 20	A	A	A	A	A	A	A	A	A
Northbound - Amsdell Road	A	B	A	B	B	A	B	B	B(10.1)
Southbound - Amsdell Road	B	B	A	B	B	B	B	B	B
Overall LOS / Delay in sec/veh	**A(7.1)**	**A(7.6)**	**A(6.5)**	**A(7.5)**	**A(8.3)**	**A(7.2)**	**A(7.7)**	**A(8.5)**	**A(7.3)**
NYS Route 20/East Site Dr. (U)									
Westbound Left - NYS Route 20	NA			NA			A	A	A
Northbound - East Site Drive	NA			NA			B	B	B
NYS Route 20/West Site Dr. (U)									
Westbound Left - NYS Route 20	NA			NA			A	A	A
Northbound - West Site Drive	NA			NA			B	B	C
NYS Route 20/Pleasant Ave. (U)									
Eastbound Left - NYS Route 20	A	A	A	A	A	A	A	A	A
Westbound Left - NYS Route 20	A	A	A	A	A	A	A	A	A
Northbound - Pleasant Ave.	C	C	C	C	D	C	C	D	D
Southbound - Pleasant Ave.	C	D	C	C	F(57.2)	E	C	F(65.5)	E

The northbound approach at NYS Route 20/Amsdell Road intersection experienced relatively minor decreases in levels of service as a result of the proposed Villas at Brierwood and Brierwood Square development that are related to borderline conditions (i.e. the delay was approaching thresholds that define differences in the letter designations for level of service). No LOS changes are projected at the Route 20/Rogers Road intersection. All approaches at these two intersections as well as the overall intersection are projected to operate at LOS "B" or better without any mitigation.

The remaining intersections are discussed in detail below.

NYS Route 20 / Pleasant Avenue

The NYS Route 20/Pleasant Avenue intersection currently operates at an average LOS ("C" or better) on all approaches during all peak periods with the exception of the southbound approach which currently operates at LOS "D" during the PM peak hour. All approaches are projected to operate at an average LOS "C" of better during all peaks under background and full development conditions with the exception of northbound and southbound approaches during the PM and SAT peak periods. The northbound and southbound approaches are projected to operate at LOS "D" and "F" under background and full development conditions during the PM peak hour, LOS "C" and "E" under background condition during the SAT peak hour and LOS "D" and "E" under full development condition during the SAT peak hour.

No changes in LOS are anticipated on any of the approaches between the background and full development conditions during all peak periods with the exception of northbound approach during the SAT peak which declines in LOS from "C" to "D" during the SAT peak. This is a result of a borderline condition and the actual change in delay is 1.5 seconds per vehicle. Traffic volumes using this intersection are relatively low and do not meet warrants for installation of a traffic signal. No improvements are warranted or recommended at this intersection.

Route 20 / East Site Drive

The proposed east site drive on Route 20 is projected to operate at LOS "B" or better on all approaches during all peaks under full development condition. No improvements are warranted or recommended at this site drive.

Route 20 / West Site Drive

The proposed west site drive on Route 20 is projected to operate at LOS "C" or better on all approaches during all peaks under full development condition. No improvements are warranted or recommended at this site drive.

VIII. LEFT TURN LANE WARRANTS

Volume warrants for westbound left turn lanes at the two site drives on Route 20 were investigated using the Transportation Research Board's NCHRP Report 279, Intersection Channelization Design Guide, 1985. Provisions for left turn lane facilities should be established where traffic volumes are high enough and safety considerations are sufficient to warrant the additional lane.

Although both site drives on Route 20 meet warrants that indicate the need for left turn treatment, the left turn volumes are relatively low. Given the context of the area (i.e. similar land use with no left turn treatments at White Oak Way/Hackberry Drive which is 2 miles west of the proposed site), and the low left turn volumes, no left turn treatments are recommended at this time.

IX. SIGHT DISTANCE INVESTIGATION

Sight distances were investigated at the proposed site drives along Route 20. Sight distance is provided at intersections to allow drivers to perceive the presence of potentially conflicting vehicles. This should occur in sufficient time for a motorist to stop or adjust their speed, as appropriate, to avoid a collision at the intersection. Sight distance is also provided at intersections to allow the drivers of stopped vehicles a sufficient view of the intersecting highway to anticipate and avoid potential incidents. If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions. To enhance traffic operations, intersection sight distances that exceed stopping sight distances are desirable along the major road.

A Policy on Geometric Design of Highways and Streets (AASHTO "Green Book") was used as a reference to establish the required stopping sight distance and desirable intersection sight distance for the proposed site drive.

Required stopping distances and desirable intersection sight distances are based on the design speed for a given section of roadway; generally the design speed is the posted speed limit plus 5 mph. In this case, the posted speed limit along Route 20 in the vicinity of the site is 50 mph. Hence a design speed of 55 mph was used. The required stopping distance and desirable intersection sight distance based on the design speed are shown in Table III.

TABLE III
SIGHT DISTANCE REQUIREMENTS AND MEASUREMENTS

INTERSECTION	Desirable Intersection Sight Distance for Left Turn from Stop (ft)	Required Stopping Sight Distance (ft)	Available Sight Distance (ft) to the:	
			Left	Right
Proposed East Site Dr. @ Route 20	610'	495'	>1000'	>1000'
Proposed West Site Dr. @ Route 20	610'	495'	>1000'	>1000'

The available sight distance from the proposed site drives on Route 20 exceed the minimum intersection sight distance and stopping sight distance at the design speed.

X. *CONCLUSIONS AND RECOMMENDATIONS*

This report addresses the traffic impact that can be expected from the proposed Villas at Brierwood and Brierwood Square Site in the Town of Hamburg as described in this report. It has been shown that the transportation network can adequately accommodate the projected traffic volumes and resulting impacts to study area intersections. The following list summarizes recommendations to be considered as a result of this development:

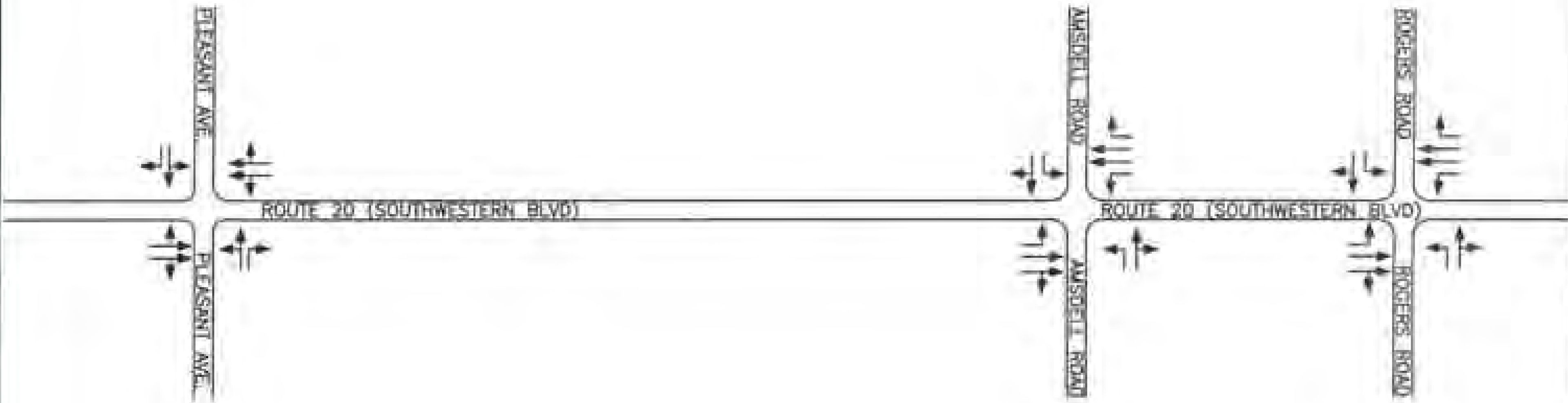
1. Provide both site drives on Route 20 with one exiting lane (combined left/right turn lane) and one entering lane.

2. The proposed site drives exiting the proposed development shall be stop-controlled at its intersection with Route 20.

XI. *FIGURES*

Figures 1 through 8 are included on the following pages.

FIGURE 1 - SITE LOCATION AND STUDY AREA



KEY

N

NOT TO SCALE

FIGURE 2

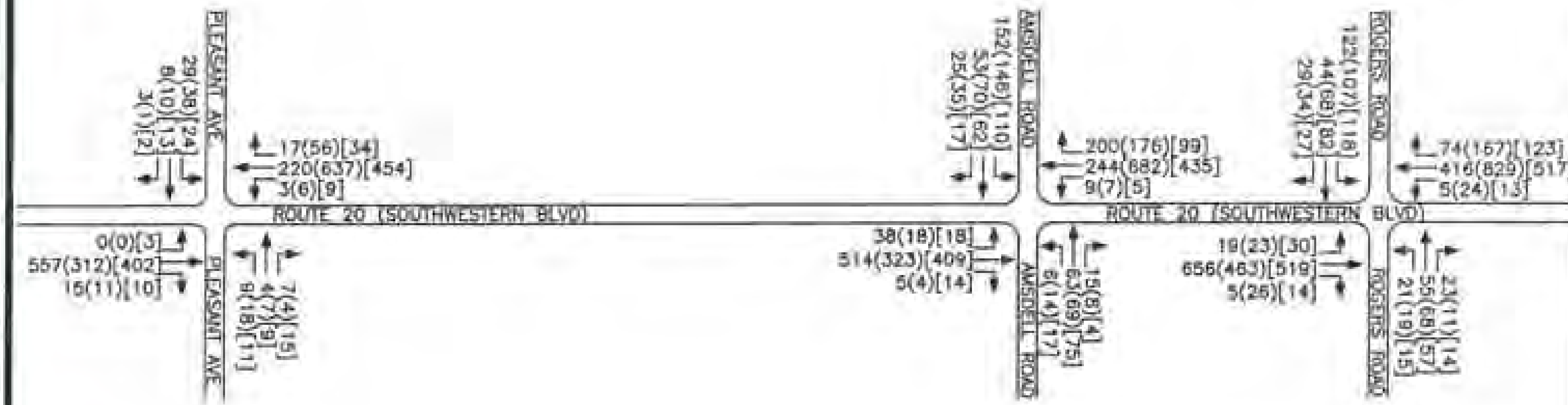
EXISTING LANE GEOMETRY

PROPOSED VILLAS AT BRIERWOOD, HAMBURG, N.Y.

SRF ASSOCIATES

WWW.SRFA.NET

Traffic Engineering & Planning Consultants



KEY

N

NOT TO SCALE

00(00)[00] = AM(PM)[SAT]

FIGURE 3

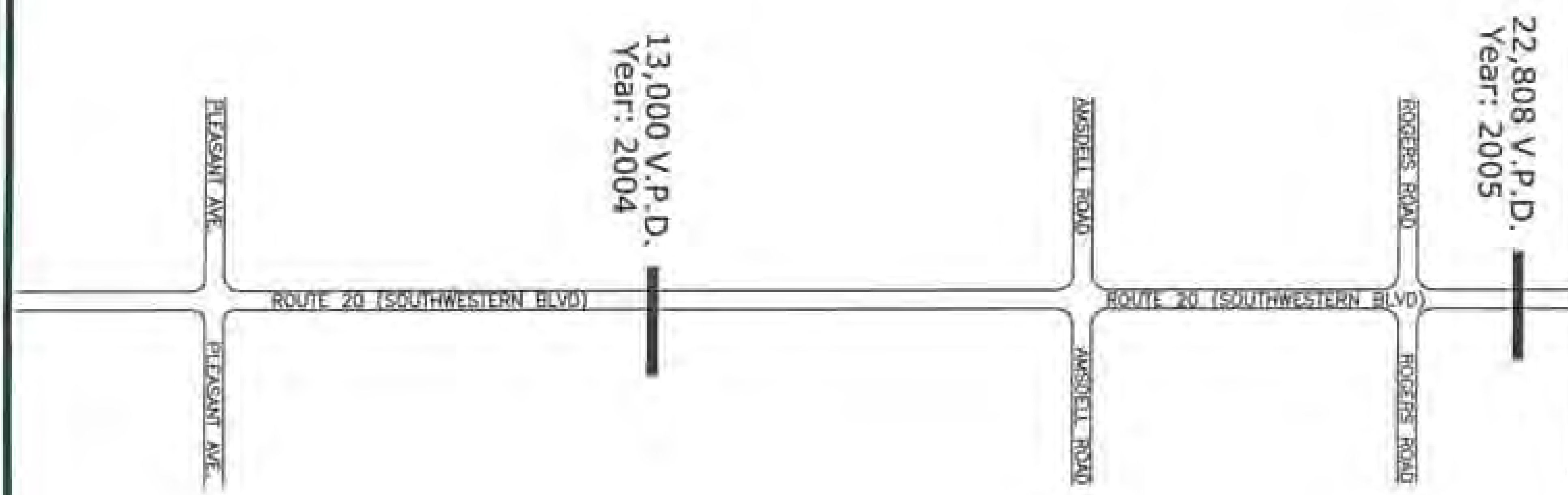
PEAK HOUR VOLUMES
EXISTING CONDITIONS

PROPOSED VILLAS AT BRIERWOOD, HAMBURG, N.Y.

SRF ASSOCIATES

WWW.SRFA.NET

Traffic Engineering & Planning Consultants



KEY

N

NOT TO SCALE

Note: All counts by NYSDOT

FIGURE 4

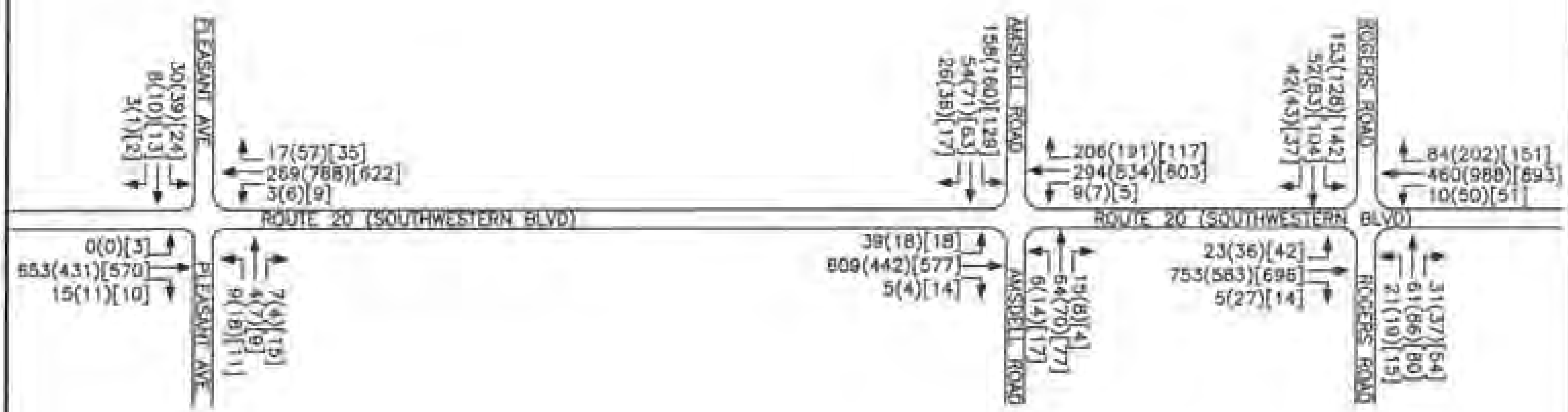
AVERAGE DAILY TRAFFIC VOLUMES

PROPOSED VILLAS AT BRIERWOOD, HAMBURG, N.Y.

SRF ASSOCIATES

WWW.SRFA.NET

Traffic Engineering & Planning Consultants



KEY

N

NOT TO SCALE

00(00)[00] = AM(PM)[SAT]

FIGURE 5

PEAK HOUR VOLUMES
BACKGROUND CONDITIONS

PROPOSED VILLAS AT BRIERWOOD,
HAMBURG, N.Y.

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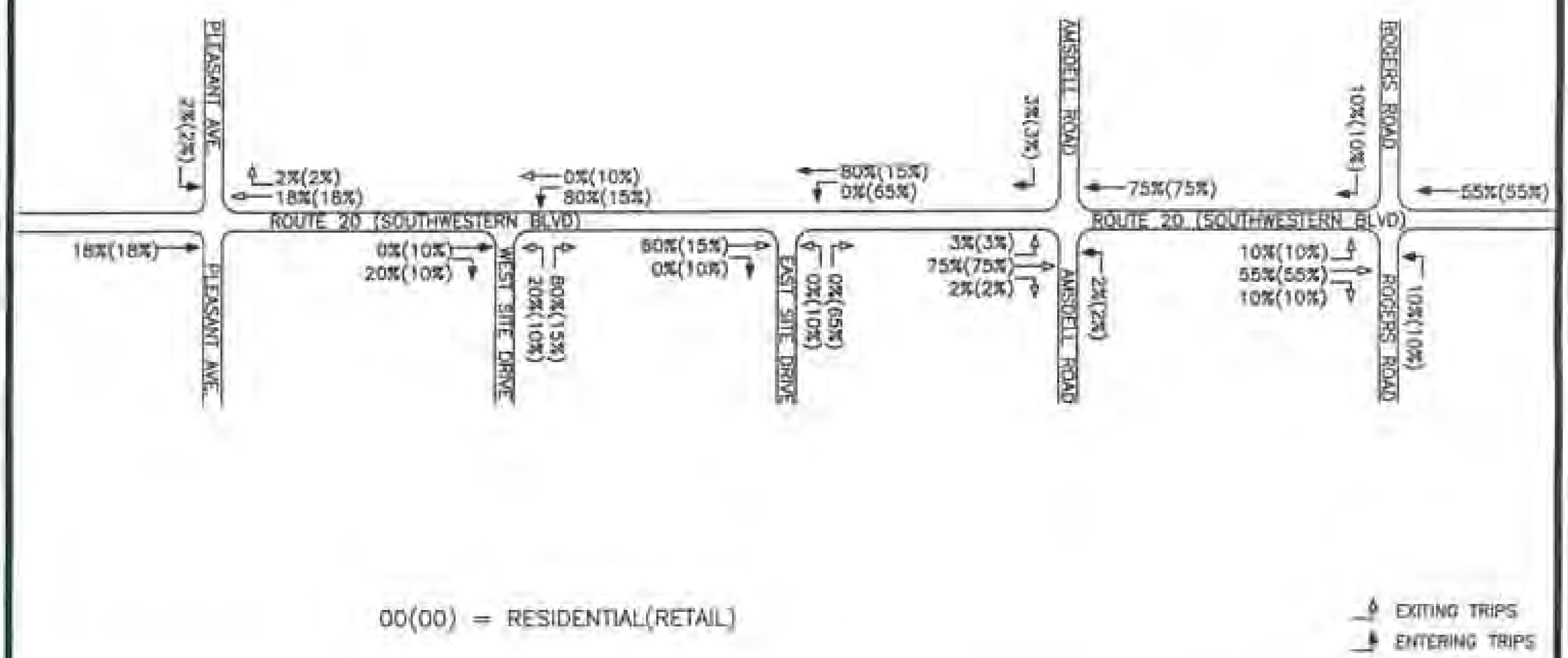

KEY

N

NOT TO SCALE

FIGURE 6

PROPOSED PEAK HOUR TRIP DISTRIBUTION

PROPOSED VILLAS AT BRIERWOOD, HAMBURG, N.Y.

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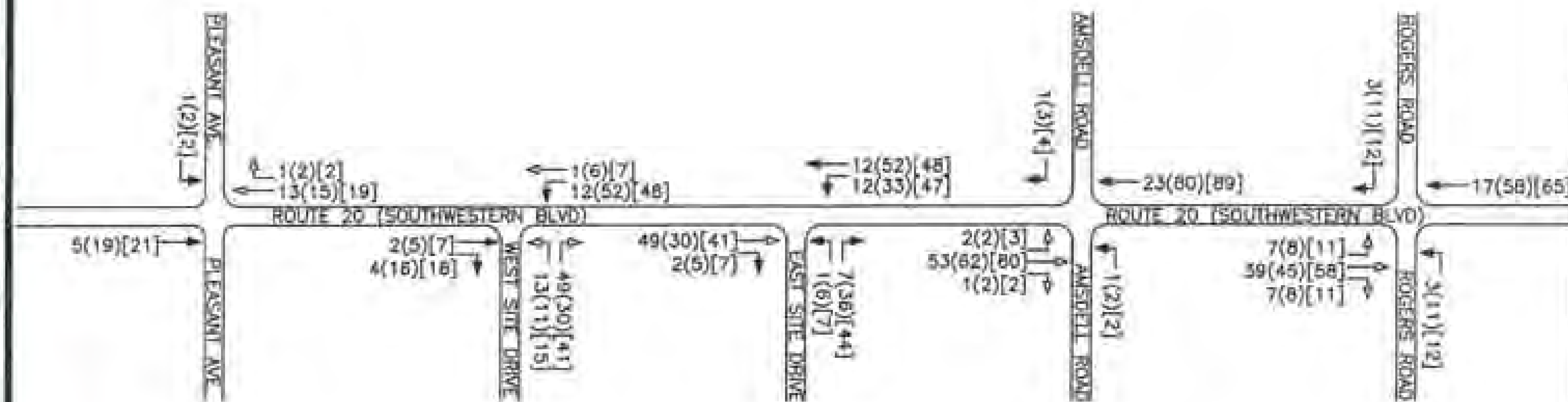

KEY

N

NOT TO SCALE

00(00)[00] = AM(PM)[SAT]

FIGURE 7

PEAK HOUR VOLUMES
SITE GENERATED TRIPS

PROPOSED VILLAS AT BRIERWOOD, HAMBURG, N.Y.

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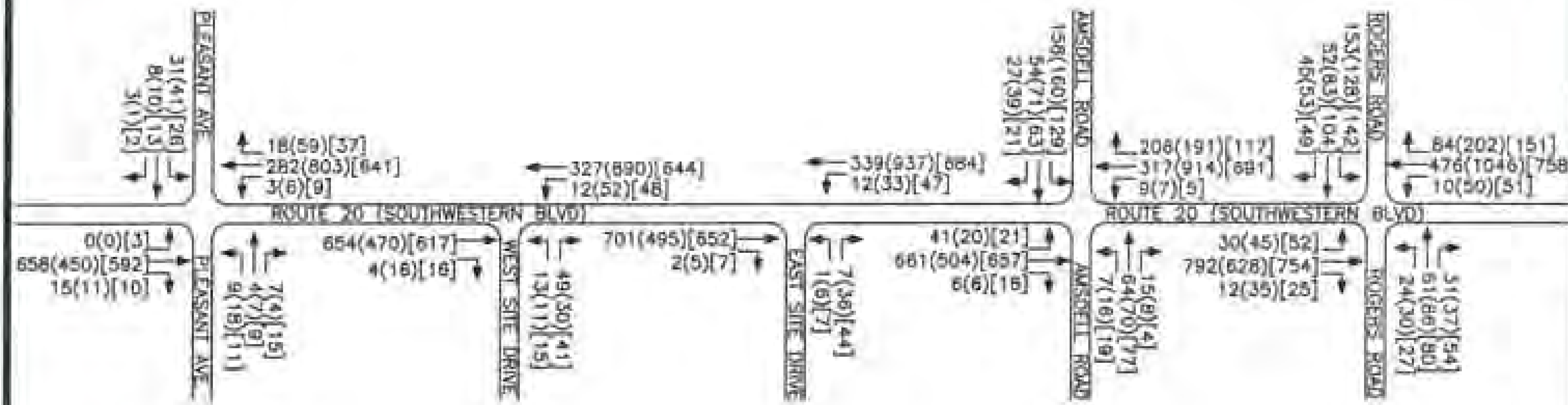

KEY

N

NOT TO SCALE

00(00)[00] = AM(PM)[SAT]

FIGURE 8

PEAK HOUR VOLUMES
FULL DEVELOPMENT CONDITIONS

PROPOSED VILLAS AT BRIERWOOD, HAMBURG, N.Y.

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APPENDICES

A1

Collected Traffic Volume Data

SRF & ASSOCIATES
3490 Winton Place, Bldg E, Suite 110
Rochester, NY 14623

File Name : Route20.Amsdell.AM
Site Code : 27005222
Start Date : 1/18/2007
Page No : 1

Start Time	Amsdell Road Southbound Right	Thru	Left	Peds	Route 20 Westbound Right	Thru	Left	Peds	Amsdell Road Northbound Right	Thru	Left	Peds	Route 20 Eastbound Right	Thru	Left	Peds	Int. Total
07:00 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
07:15 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
07:30 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
08:00 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
08:15 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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08:45 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Grand Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Apprch %	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Total %	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Unshifted	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% Unshifted	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bank 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% Bank 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

APPENDIX
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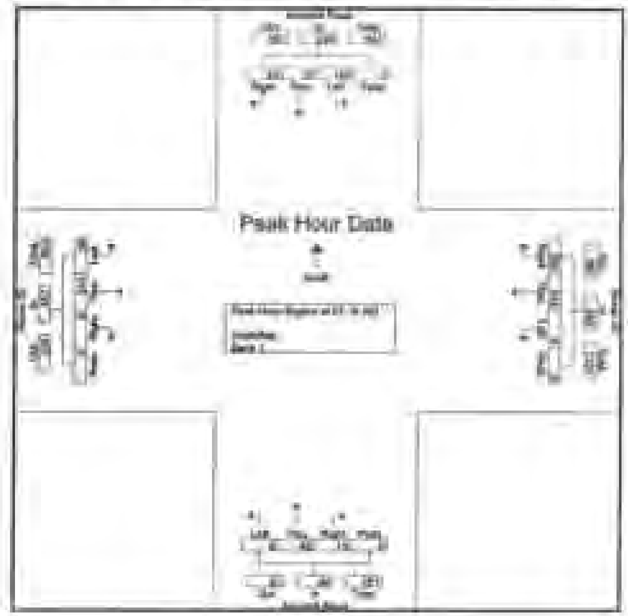
SRF & ASSOCIATES
3490 Winton Place, Bldg E, Suite 110
Rochester, NY 14623

File Name : Route20.Amsdell.AM
Site Code : 27005222
Start Date : 1/18/2007
Page No : 2

Start Time	Amsdell Road Southbound Right	Thru	Left	Peds	App. Total	Route 20 Westbound Right	Thru	Left	Peds	App. Total	Amsdell Road Northbound Right	Thru	Left	Peds	App. Total	Route 20 Eastbound Right	Thru	Left	Peds	App. Total	Int. Total
07:15 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
07:30 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
07:45 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
08:00 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total Volume	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% App. Total	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]		
PHF	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



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File Name : Route20.Arnsdell.PM
Site Code : 27005111
Start Date : 1/17/2007
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Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Grand Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Apprch %	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Total %	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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File Name : Route20.Arnsdell.PM
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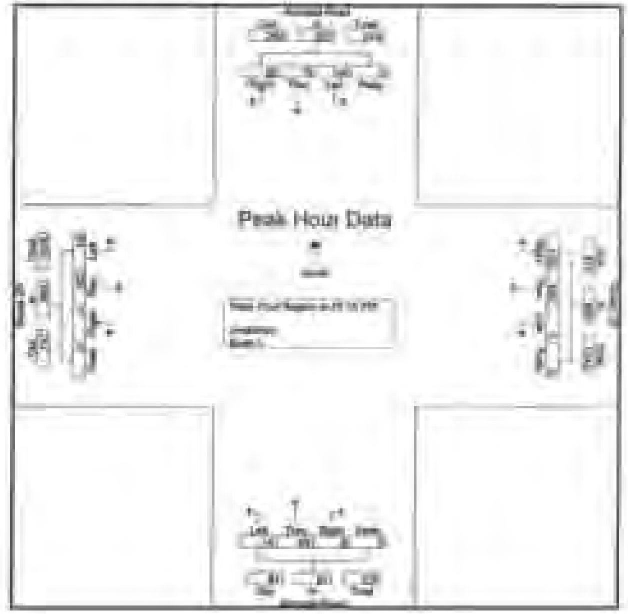
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
[illegible]																					
[illegible]																					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total Volume	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% App. Total	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]		
PHF	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



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File Name : Route20.Amsdell.SAT
Site Code : 00026078
Start Date : 10/22/2005
Page No : 1

Groups Printed- Unshifted

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Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
11:30 AM	8	20	40	0	21	100	0	0	1	16	[illegible]	0	7	104	4	0	[illegible]
11:45 AM	[illegible]	[illegible]	[illegible]	0	32	97	0	0	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	0	[illegible]
Total	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	0	[illegible]
12:00 PM	6	15	30	0	34	104	[illegible]	0	6	11	[illegible]	0	4	[illegible]	[illegible]	0	[illegible]
12:15 PM	3	15	21	0	30	[illegible]	[illegible]	0	[illegible]	17	[illegible]	0	[illegible]	[illegible]	[illegible]	0	[illegible]
12:30 PM	6	17	14	0	20	130	[illegible]	0	1	27	1	0	4	104	4	0	[illegible]
12:45 PM	4	13	28	0	26	109	1	0	[illegible]	17	[illegible]	0	[illegible]	[illegible]	[illegible]	0	[illegible]
Total	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	0	[illegible]
01:00 PM	[illegible]	18	[illegible]	0	30	111	0	0	[illegible]	[illegible]	[illegible]	0	1	[illegible]	[illegible]	0	[illegible]
01:15 PM	3	[illegible]	28	0	24	116	1	0	[illegible]	21	[illegible]	0	[illegible]	[illegible]	[illegible]	0	[illegible]
Grand Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	37	0	[illegible]	[illegible]	[illegible]	0	[illegible]
Apprch %	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.0	[illegible]	[illegible]	[illegible]	0.0	[illegible]	[illegible]	[illegible]	0.0	
Total %	[illegible]	[illegible]	[illegible]	0.0	[illegible]	[illegible]	[illegible]	0.0	[illegible]	[illegible]	[illegible]	0.0	[illegible]	[illegible]	[illegible]	0.0	

APPENDIX
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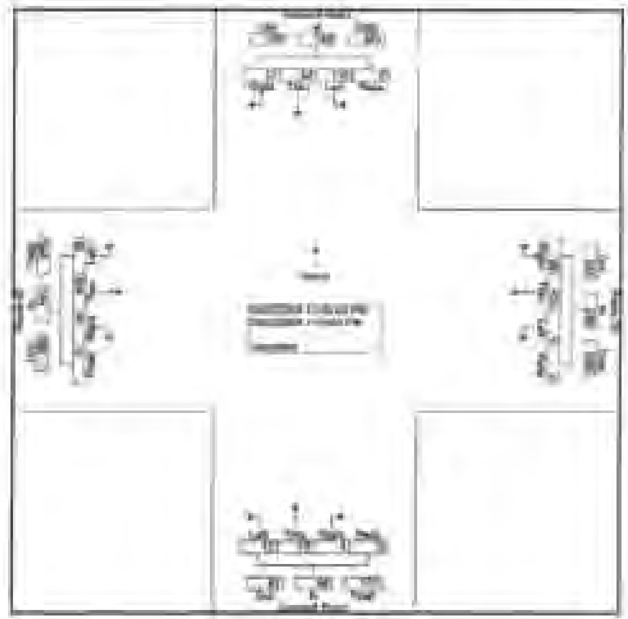
	Amsdell Road Southbound					Route 20 Westbound					Amsdell Road Northbound					Route 20 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 11:30 AM to 01:15 PM - Peak 1 of 1																					
Intersection 12:30 PM																					
Volume	17	82	[illegible]	0	[illegible]	[illegible]	[illegible]	2	0	[illegible]	6	73	17	0	[illegible]	16	[illegible]	[illegible]	0	[illegible]	[illegible]
Percent	[illegible]	[illegible]	[illegible]	0.0		[illegible]	[illegible]	[illegible]	0.0		[illegible]	[illegible]	[illegible]	0.0		[illegible]	[illegible]	[illegible]	0.0		
01:15 Volume	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	1	0	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]
Peak Factor																					[illegible]
High Int.	01:00 PM					01:15 PM					01:15 PM					12:30 PM					
Volume	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	
Peak Factor					[illegible]					[illegible]					[illegible]					[illegible]	



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File Name : Route20.PleasantAM
Site Code : 00270052
Start Date : 1/18/2007
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Groups Printed- Unshifted - Bank 1

	Pleasant Ave Southbound				Route 20 Westbound				Pleasant Ave Northbound				Route 20 Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
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07:15 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
07:30 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
07:45 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
08:00 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
08:15 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
08:30 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
08:45 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Grand Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Apprch %	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Total %	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Unshifted	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% Unshifted	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bank 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% Bank 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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Rochester, NY 14623

File Name : Route20.PleasantAM
Site Code : 00270052
Start Date : 1/18/2007
Page No : 2

	Pleasant Ave Southbound					Route 20 Westbound					Pleasant Ave Northbound					Route 20 Eastbound					
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Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
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07:45 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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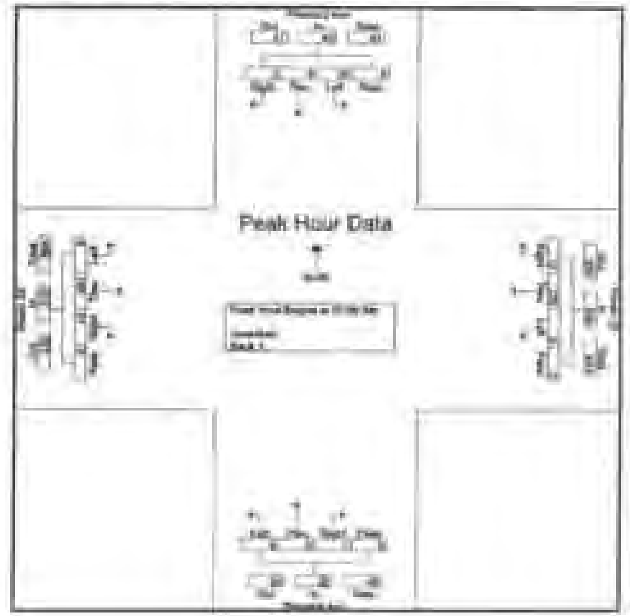

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File Name : Route20.Pleasant.PM
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Groups Printed- Unshifted - Bank 1

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Apprch %	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
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% Unshifted	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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APPENDIX
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File Name : Route20.Pleasant.PM
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Start Date : 1/17/2007
Page No : 2

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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
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04:30 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
04:45 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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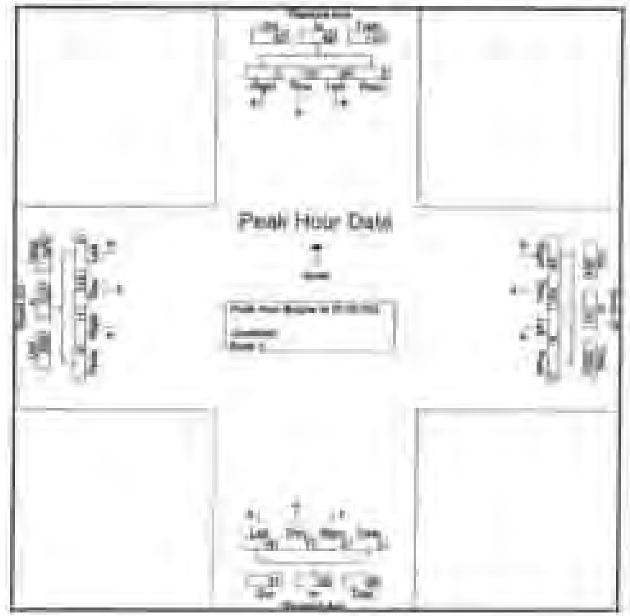

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File Name : Route20,Pleasant.BAT
Site Code : 44444444
Start Date : 3/3/2007
Page No : 1

Groups Printed- Unshifted - Bank 1

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File Name : Route20,Pleasant.BAT
Site Code : 44444444
Start Date : 3/3/2007
Page No : 2

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Peak Hour for Entire Intersection Begins at 12:00 PM																					
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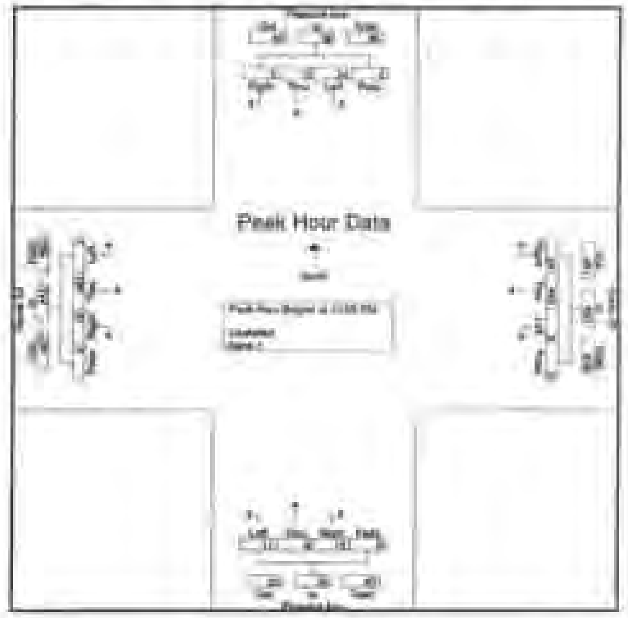

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Start Date : 1/18/2007
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Groups Printed- Unshifted - Bank 1

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07:15 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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07:45 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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08:00 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
08:15 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
08:30 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
08:45 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Apprch %	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
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Unshifted	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% Unshifted	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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File Name : Route20.Rogers.AM
Site Code : 00000000
Start Date : 1/18/2007
Page No : 2

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Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
07:30 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
07:45 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
08:00 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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% App. Total	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]		
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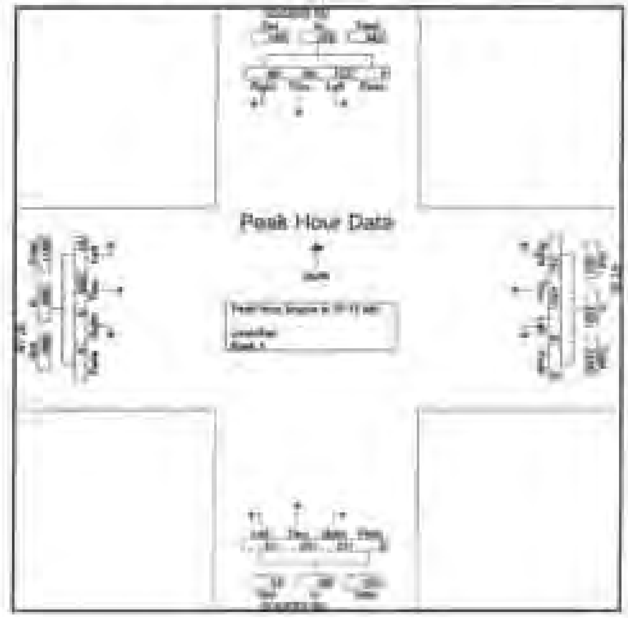

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File Name : Route20.Rogers PM
Site Code : 00000000
Start Date : 1/17/2007
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Groups Printed- Unshifted - Bank 1

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04:15 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
04:30 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
04:45 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
05:00 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
05:15 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
05:30 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
05:45 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Grand Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Apprch %	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Total %	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Unshifted	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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File Name : Route20.Rogers PM
Site Code : 00000000
Start Date : 1/17/2007
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
04:15 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
04:30 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
04:45 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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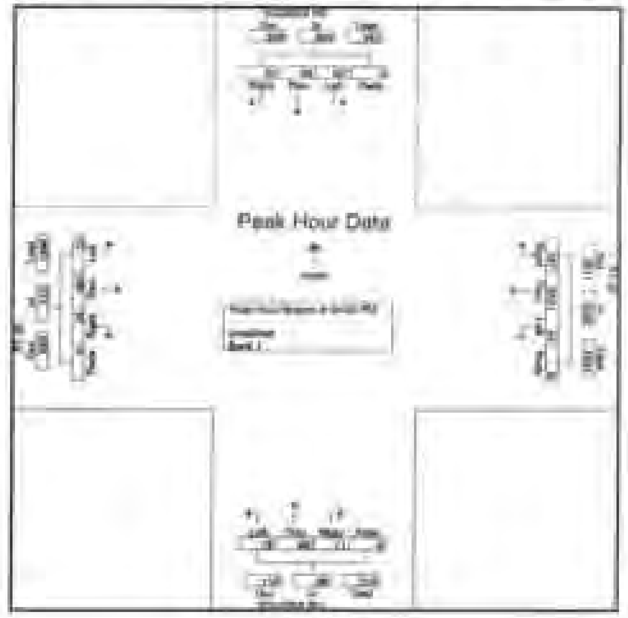

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File Name : Route20.Rogers.SAT
Site Code : 22222222
Start Date : 1/13/2007
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Groups Printed- Unshifted - Bank 1

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11:45 AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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12:00 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12:15 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12:30 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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01:00 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Apprch %	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
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Bank 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% Bank 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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File Name : Route20.Rogers.SAT
Site Code : 22222222
Start Date : 1/13/2007
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	Rogers Road Southbound					Route 20 (Southwestern Blvd) Westbound					Rogers Road Northbound					Route 20 (Southwestern Blvd) Eastbound					
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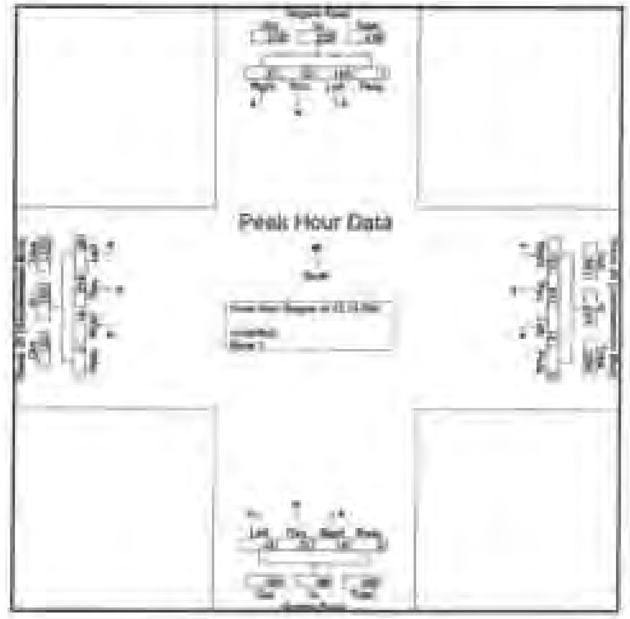
Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:15 PM																					
12:15 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12:30 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12:45 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
01:00 PM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total Volume	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% App. Total	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]		
PHF	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



A2

Miscellaneous Traffic Data and Calculations

SRF ASSOCIATES

Proposed Villas at Brierwood, Town of Hamburg

Documentation of Ambient Traffic Volume Growth

Roadway	Segment ends at	1991	1995	1996	1997	1998	1999	2001	2002	2004	2005	Annual Growth
NYS Route 20	CR 122 Amsdell Road	12,200	13,500					10,600		13,000		0.49%
NYS Route 20	Rt. 75 Acc Rt. 90 I		19,800	20,300	21,300	20,300	20,900		23,300		22,808	1.42%
										Average		0.96%

Villas at Brierwood
Summary of Multi-Use Trip Generation
Average Weekday Driveway Volumes
March 13, 2007

Land Use	Size	24 Hour Two-Way Volume	AM Pk Hour Enter	AM Pk Hour Exit	PM Pk Hour Enter	PM Pk Hour Exit
Residential Condominium / Townhouse	148 Dwelling Units	896	12	59	56	27
Shopping Center	28 T.G.L.A.	1202	18	11	50	55
Total		2098	30	70	106	82

Note: A zero indicates no data available.

TRIP GENERATION BY MICROTRANS

Villas at Brierwood
Summary of Multi-Use Trip Generation
Saturday and Sunday Driveway Volumes
March 13, 2007

		Saturday			Sunday		
Land Use	Size	24 Hr 2-Way Vol.	Peak Hour Enter	Peak Hour Exit	24 Hr 2-Way Vol.	Peak Hour Enter	Peak Hour Exit
Residential Condominium / Townhouse	148 Dwelling Units	964	46	39	821	41	43
Shopping Center	28 T.G.L.A.	1399	72	67	707	43	45
Total		2363	118	106	1528	84	88

Note: A zero indicates no data available.

TRIP GENERATION BY MICROTRANS

Epcon Project Listing

For Trip Generation Analyses

Project #	Project Name	Project Location
2002-0425	Villas at Maple Creek	Westerville - Southwest corner of Africa Road/Worthington Road intersection
2003-1448	The Village at Maxtown	Westerville - South side of Maxtown Road, West of Tussic Street Road
2004-0877	Hamilton Road Community	Gahanna - West side of Hamilton Road, between US 62 and Clark State Road
2004-0889	Watkins Road Hoovler Property	Pataskala - West side of Watkins Road, South of US 40 (East Broad Street)
2004-1483	Silver Summit at Flat Shoals	Conveyers, Georgia
2004-2199	The Village at Birch Street	Westerville - South of The Village at Maxtown Epcon Development
2005-0875	Avery Road Condominiums	Dublin - East side of Avery Road, between Shier-Rings Road and Woerner & Temple Road
2005-1890	Epcon Grove City #6 (White Road)	Grove City - North side of White Road, between Buckeye Parkway and SR 104
2005-2157	Villas at North Waverly Road	Delta Township, Michigan
2005-2577	Villas at Hull Road Rezoning	Erie County, Huron Township, Ohio
2006-1723	Villas of Arden Mills	Chartiers Twp., Washington, PA

APPENDIX
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Updated: 3/1/2007
Q:\Traffic Information Library\Traffic Study\Epcon Database\Epcon Project Listing.xls

Epcon Traffic Count Database

Count Site	Location	Jurisdiction	Date	Count Type	Time	Performed By
Collingwood Place	North of Morse Road	Gahanna, OH	8/17/2004	Machine	24-hour	Traffic Engineering Services
Meadowood Place	East of Worthinton Road	Delaware County, Ohio	3/14/2002	Manual	5-6 PM	?
Greystone	?	?	February, 1998	?	24-hour	Traffic Engineering Services

Conditional Use Trip Generation Rates

Based on Existing Epcon Development in Columbus, Ohio

Count Location: Collingwood Pointe at the Preserve
Gahanna, Ohio
Existing 136 unit Epcon development
Count Date: August 17, 2004

Collingwood Pointe 136 Units						
Hour of Day	Vehicles/Hour			Vehicles/D.U.		
	IN	OUT	TOTAL	IN	OUT	TOTAL
12:00 AM	0	0	0	0.00	0.00	0.00
1:00 AM	0	0	0	0.00	0.00	0.00
2:00 AM	2	2	4	0.01	0.01	0.03
3:00 AM	0	0	0	0.00	0.00	0.00
4:00 AM	1	2	3	0.01	0.01	0.02
5:00 AM	2	4	6	0.01	0.03	0.04
6:00 AM	2	14	16	0.01	0.10	0.12
7:00 AM	4	26	30	0.03	0.19	0.22
8:00 AM	**8**	**30**	**38**	**0.06**	**0.22**	**0.28**
9:00 AM	12	21	33	0.09	0.15	0.24
10:00 AM	11	16	27	0.08	0.12	0.20
11:00 AM	16	22	38	0.12	0.16	0.28
12:00 PM	13	20	33	0.10	0.15	0.24
1:00 PM	16	16	32	0.12	0.12	0.24
2:00 PM	25	14	39	0.18	0.10	0.29
3:00 PM	20	14	34	0.15	0.10	0.25
4:00 PM	27	18	45	0.20	0.13	0.33
5:00 PM	**32**	**20**	**52**	**0.24**	**0.15**	**0.38**
6:00 PM	26	22	48	0.19	0.16	0.35
7:00 PM	28	20	48	0.21	0.15	0.35
8:00 PM	25	10	35	0.18	0.07	0.26
9:00 PM	12	8	20	0.09	0.06	0.15
10:00 PM	9	2	11	0.07	0.01	0.08
11:00 PM	6	0	6	0.04	0.00	0.04
Total	**297**	**301**	**598**	**2.18**	**2.21**	**4.40**

Conditional Use Trip Generation Results

Land Use	Dwelling Units	Time Period	Formula	Vehicle Trips Total	Vehicle Trips Entering	Vehicle Trips Exiting
Conditional Use Condominium (Epcon)	100	ADT	T= 4.40(x)	440	219	221
		AM Peak	T= 0.28(x)	28	6	22
		PM Peak	T= 0.38(x)	38	23	15

Collingwood Place 136 Units				
Hour of Day	Veh/Hour	Hourly Dist.		Veh/DU
12:00 AM	0	0.00%	0.00%	0.00
1:00 AM	0	0.00%	0.00%	0.00
2:00 AM	4	0.67%	10.53%	0.03
3:00 AM	0	0.00%	0.00%	0.00
4:00 AM	3	0.50%	7.89%	0.02
5:00 AM	6	1.00%	15.79%	0.04
6:00 AM	16	2.68%	42.11%	0.12
7:00 AM	30	5.03%	78.95%	0.22
8:00 AM	38	6.38%	100.00%	0.28
9:00 AM	33	5.53%	86.84%	0.24
10:00 AM	27	4.53%	71.05%	0.20
11:00 AM	38	6.38%	100.00%	0.28
12:00 PM	33	5.53%	63.46%	0.24
1:00 PM	32	5.37%	61.54%	0.24
2:00 PM	30	5.03%	78.00%	0.22
3:00 PM	34	5.70%	65.38%	0.25
4:00 PM	46	7.55%	88.46%	0.33
5:00 PM	52	8.72%	100.00%	0.38
6:00 PM	48	8.05%	92.31%	0.35
7:00 PM	48	8.05%	92.31%	0.35
8:00 PM	35	5.87%	67.31%	0.26
9:00 PM	20	3.36%	38.46%	0.15
10:00 PM	11	1.84%	21.15%	0.08
11:00 PM	6	1.00%	11.54%	0.04
TOTAL	596			4.40

Graystone Condominiums 66 Units			
Hour of Day	Veh/Hour	Hourly Dist.	Veh/DU
12:00 AM	0	0.00%	0.00
1:00 AM	0	0.00%	0.00
2:00 AM	0	0.00%	0.00
3:00 AM	0	0.00%	0.00
4:00 AM	1	0.27%	0.01
5:00 AM	1	0.27%	0.01
6:00 AM	13	3.48%	0.19
7:00 AM	21	5.61%	0.31
8:00 AM	20	5.35%	0.29
9:00 AM	29	7.75%	0.43
10:00 AM	19	5.08%	0.28
11:00 AM	19	5.08%	0.28
12:00 PM	26	6.95%	0.39
1:00 PM	25	6.68%	0.37
2:00 PM	24	6.42%	0.36
3:00 PM	29	7.75%	0.43
4:00 PM	25	6.68%	0.37
5:00 PM	41	10.96%	0.60
6:00 PM	24	6.42%	0.35
7:00 PM	21	5.61%	0.31
8:00 PM	13	3.48%	0.19
9:00 PM	15	4.01%	0.22
10:00 PM	7	1.87%	0.10
11:00 PM	1	0.27%	0.01
TOTAL	374		5.66

*Values in [illegible] from Collingwood and Graystone [illegible]
**ITE rates taken from ITE Trip Generation 7th edition, ITE Code #230 condo/townhouse

Meadowood Place 68 units		
Hour of Day	Veh/Hour	Veh/DU
12:00 AM	0	0.00
1:00 AM	0	0.00
2:00 AM	1	0.01
3:00 AM	0	0.00
4:00 AM	1	0.01
5:00 AM	4	0.02
6:00 AM	8	0.16
7:00 AM	12	0.17
8:00 AM	13	0.19
9:00 AM	13	0.22
10:00 AM	11	0.16
11:00 AM	13	0.19
12:00 PM	14	0.21
1:00 PM	13	0.20
2:00 PM	14	0.20
3:00 PM	15	0.22
4:00 PM	16	0.24
5:00 PM	22	0.32
6:00 PM	16	0.24
7:00 PM	12	0.18
8:00 PM	10	0.15
9:00 PM	8	0.12
10:00 PM	6	0.09
11:00 PM	4	0.06
TOTAL	224	3.29

Condo/Townhouse (ITE #230) 100 Units		
Hour of Day	Veh/Hour	Veh/DU
12:00 AM	0	0.00
1:00 AM	0	0.00
2:00 AM	2	0.02
3:00 AM	0	0.00
4:00 AM	2	0.02
5:00 AM	4	0.04
6:00 AM	20	0.20
7:00 AM	34	0.34
8:00 AM	52	0.52
9:00 AM	43	0.43
10:00 AM	31	0.31
11:00 AM	31	0.31
12:00 PM	40	0.40
1:00 PM	36	0.36
2:00 PM	43	0.43
3:00 PM	43	0.43
4:00 PM	48	0.48
5:00 PM	60	0.60
6:00 PM	48	0.48
7:00 PM	44	0.44
8:00 PM	30	0.30
9:00 PM	34	0.34
10:00 PM	12	0.12
11:00 PM	4	0.04
TOTAL	642	6.42

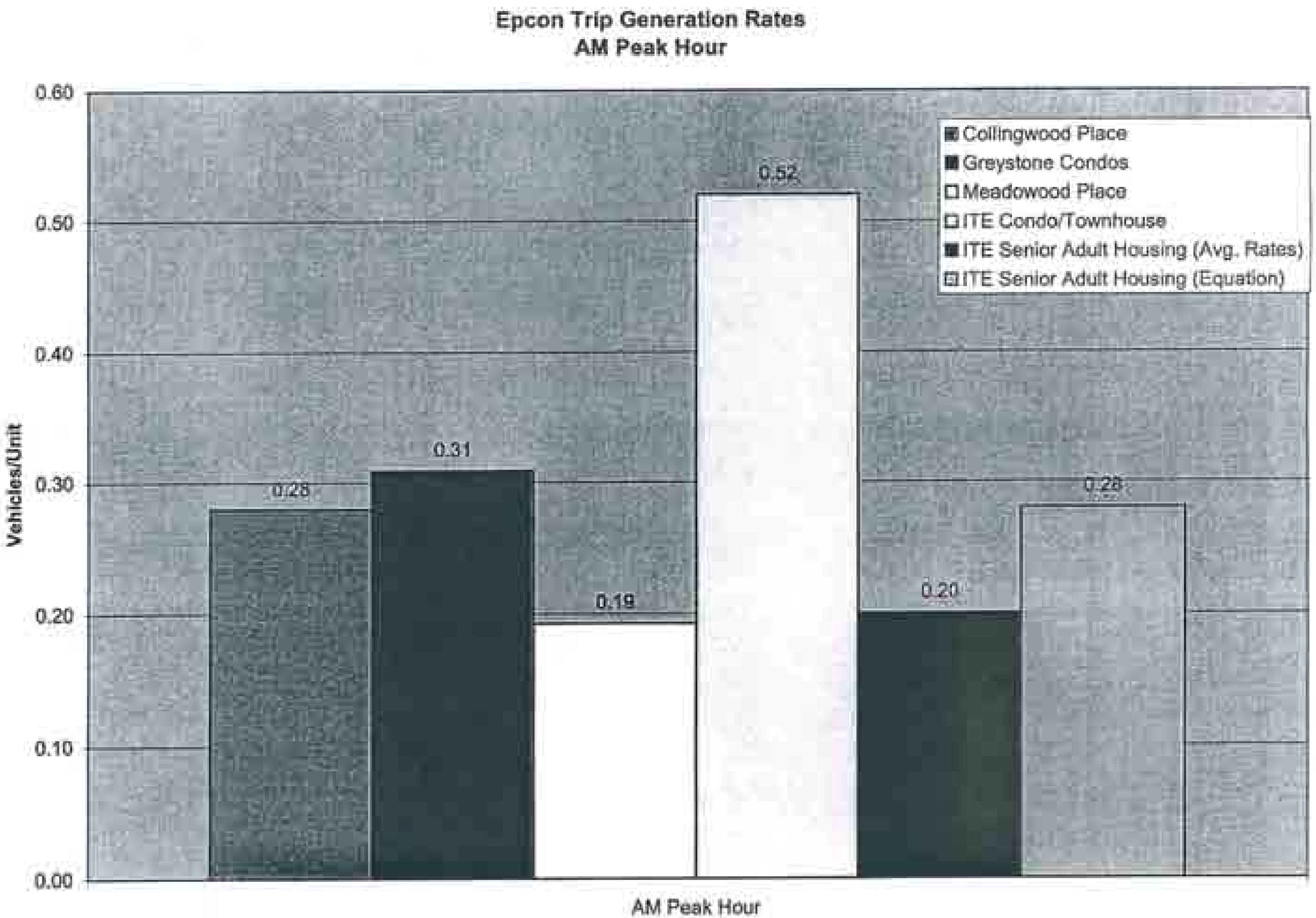
Average Rates

Senior Adult Housing (ITE #251) 100 Units		
Hour of Day	Veh/Hour	Veh/DU
12:00 AM	0	0.00
1:00 AM	0	0.00
2:00 AM	2	0.02
3:00 AM	0	0.00
4:00 AM	2	0.02
5:00 AM	2	0.02
6:00 AM	6	0.06
7:00 AM	16	0.16
8:00 AM	20	0.20
9:00 AM	17	0.17
10:00 AM	14	0.14
11:00 AM	20	0.20
12:00 PM	17	0.17
1:00 PM	18	0.18
2:00 PM	20	0.20
3:00 PM	17	0.17
4:00 PM	23	0.23
5:00 PM	26	0.26
6:00 PM	24	0.24
7:00 PM	24	0.24
8:00 PM	18	0.18
9:00 PM	10	0.10
10:00 PM	6	0.06
11:00 PM	3	0.03
TOTAL	371	3.71

Regression Equation

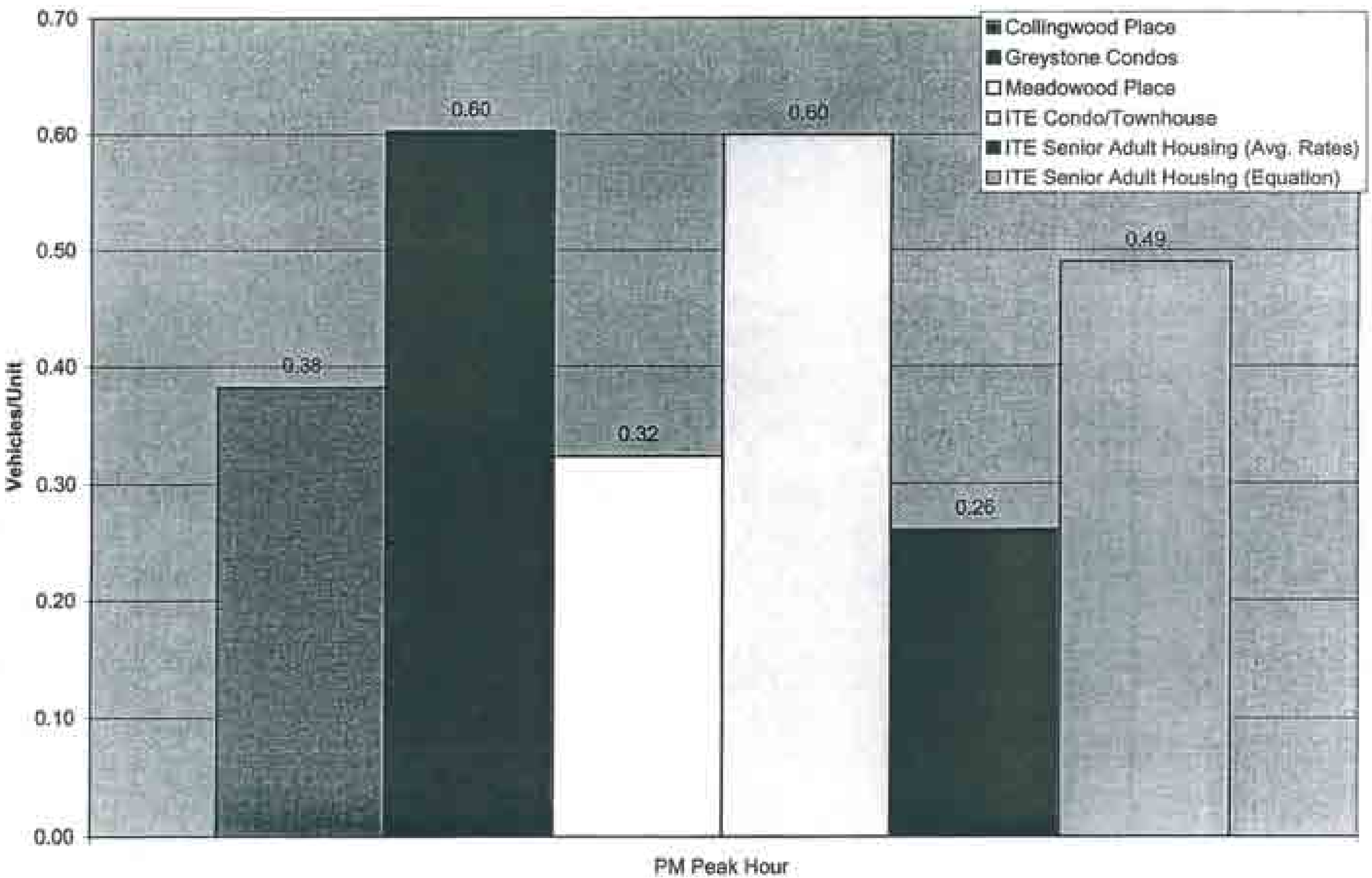
Senior Adult Housing (ITE #251) 100 Units		
Hour of Day	Veh/Hour	Veh/DU
12:00 AM	0	0.00
1:00 AM	0	0.00
2:00 AM	3	0.03
3:00 AM	0	0.00
4:00 AM	2	0.02
5:00 AM	4	0.04
6:00 AM	12	0.12
7:00 AM	22	0.22
8:00 AM	28	0.28
9:00 AM	24	0.24
10:00 AM	20	0.20
11:00 AM	28	0.28
12:00 PM	31	0.31
1:00 PM	33	0.33
2:00 PM	37	0.37
3:00 PM	32	0.32
4:00 PM	42	0.42
5:00 PM	49	0.49
6:00 PM	45	0.45
7:00 PM	45	0.45
8:00 PM	33	0.33
9:00 PM	18	0.18
10:00 PM	10	0.10
11:00 PM	6	0.06
TOTAL	542	5.42

Conditional Use Trip Generation Rates
The Epcon Group, Inc.



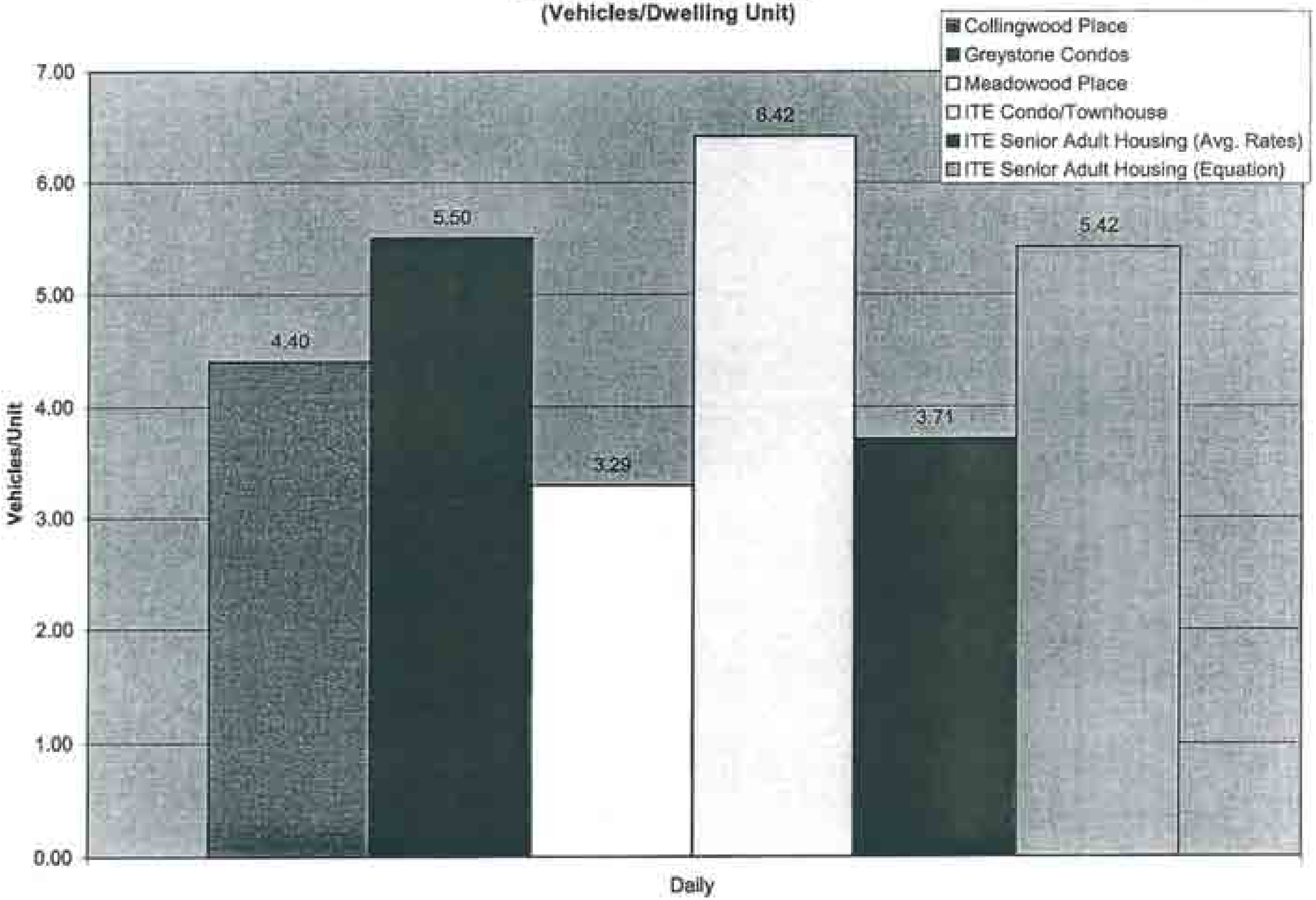
Conditional Use Trip Generation Rates
The Epcon Group, Inc.

Trip Generation Rates - PM Peak Hour
(Vehicles/Dwelling Unit)

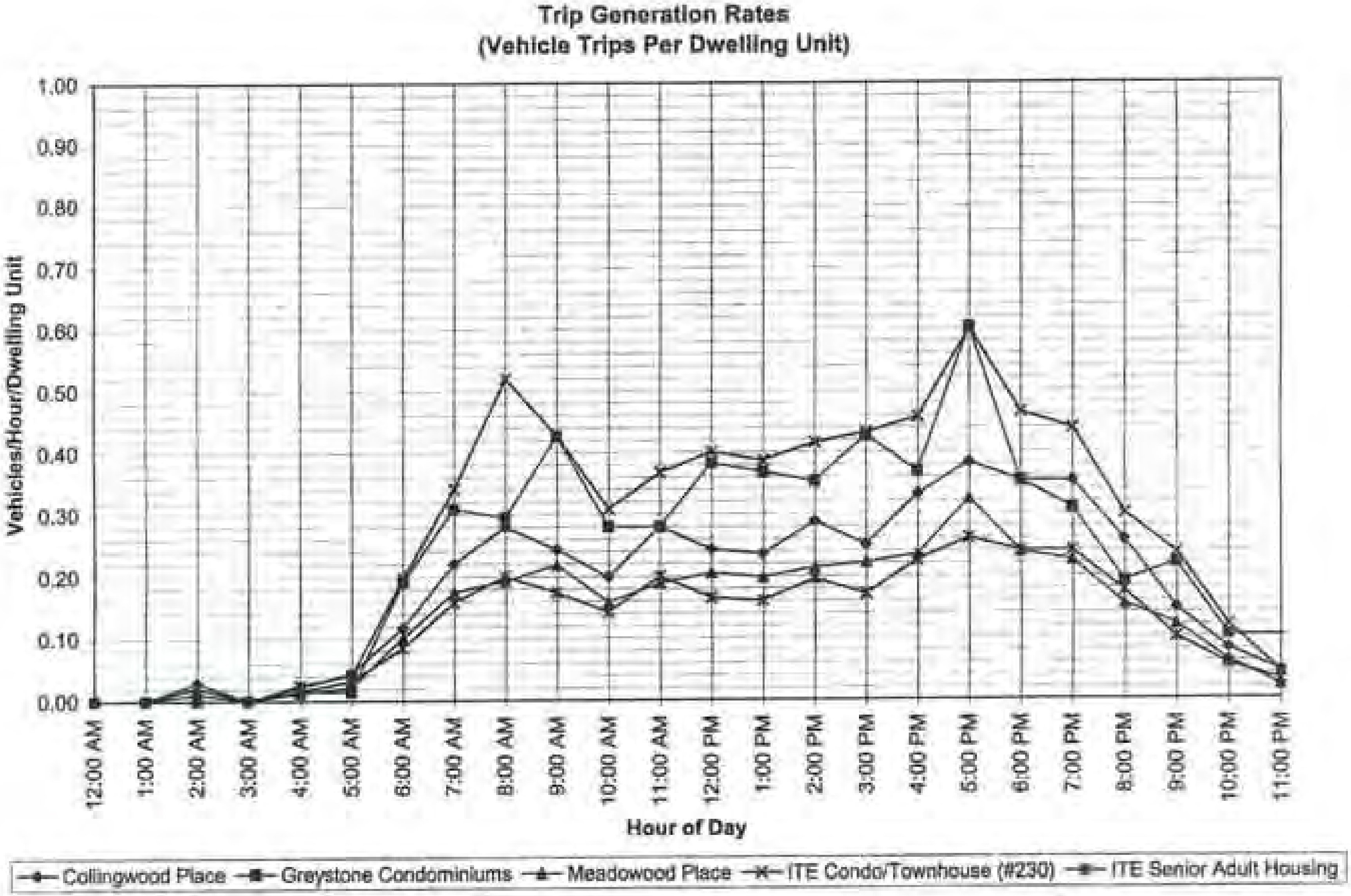


Conditional Use Trip Generation Rates
The Epcon Group, Inc.

Trip Generation Rates - Daily
(Vehicles/Dwelling Unit)



Conditional Use Trip Generation Rates
The Epcon Group, Inc.



PROPOSED VILLAS AT BRIERWOOD
TOWN OF HAMBURG, ERIE COUNTY, NY
AM PEAK

Total Trips	150	18
Pass BY	30%	30%

Num of yrs 1

LOCATION NUMBER	INTERSECTION DESCRIPTION	Existing Volume	Bkgd Volume 1.0%	Wellington Woods & Tawhaven Enter Dist %	Exit Dist %	Trips IN 34	Trips OUT 111	Woodstream Subdivision Enter Dist %	Exit Dist %	Trips IN 17	Trips OUT 52	Walmart Supercenter Enter Dist %	Exit Dist %	Trips IN 116	Trips OUT 74	Pass By Trips	Total Bkgd Volume	Prop. Villas at Brierwood - Residential Enter Dist %	Exit Dist %	Trips In 12	Trips OUT 59	Prop. Villas at Brierwood - Retail Enter Dist %	Exit Dist %	Trips In 18	Trips OUT 17	Total Site Trips	Full Build Volumes
1	Route 20/Southwestern Blvd/Rogers Road																										
	SR	29	30						23%		12						42	10%		1		10%		2		3	45
	ST	44	45						10%		5		5%		4		52										53
	SL	132	134						50%		26						160										160
	WR	74	75					30%		5							84										84
	WT	416	424	50%		18							20%		15	2	460	60%		7		60%		11		17	475
	WL	3	3										1%		1		16										12
	NR	22	22									7%		8			31										31
	NT	52	56					10%		2		3%		3			61										61
	NL	21	21														21	10%		1		10%		2		3	24
	ER	5	5														5		10%		6		10%		1	7	12
	ET	608	600		50%		81					20%		20			703		80%		72		80%		8	39	742
	EL	15	15					23%		4							23		10%		6		10%		1	7	30
2	Route 20/Southwestern Blvd/Amsdell Road																										
	SR	25	25														26	3%		0		3%		1		1	27
	ST	53	54														54										54
	SL	152	155									3%		3			158										158
	WR	203	204										3%		2		206										206
	WT	244	246	55%		19			23%		12		17%		13	2	304	75%		9		75%		14		23	317
	WL	8	8														8										8
	NR	13	13														13										13
	NT	62	64														64										64
	NL	6	6														6	2%		0		2%		0		1	7
	ER	5	5														5		2%		1		2%		0	1	6
	ET	514	524		50%		81	23%		4		17%		20			629		75%		44		75%		8	53	681
	EL	38	39														39		3%		2		3%		0	2	41
3	Route 20/Southwestern Blvd/East Site Drive																										
	SR																										
	ST																										
	SL																										
	WR																										
	WT	275	281	55%		19			23%		12		17%		13	2	326	90%		10		15%		3		12	338
	WL																					85%		15		12	12
	NR																						85%		7	7	7
	NT																										
	NL																						15%		1	1	1
	ER																					15%		2		2	2
	ET	557	568		50%		81	23%		4		17%		20			593		80%		-47		-85%		2	49	611
	EL																										
4	Route 20/Southwestern Blvd/West Site Drive																										
	SR																										
	ST																										
	SL																										
	WR																										
	WT	275	281	55%		19			23%		12		17%		13	2	326						10%		1	1	327
	WL																	80%		10		15%		3		12	12
	NR																		80%		47		10%		2	49	49
	NT																										
	NL																		20%		12		10%		1	13	13
	ER																	20%		2		15%		3		4	4
	ET	557	568		50%		81	23%		4		17%		20			593					15%		2		2	604
	EL																										
5	Route 20/Southwestern Blvd/Pleasant Avenue																										
	SR	2	2														2										2
	ST	8	8														8										8
	SL	29	30														30	2%		0		2%		0		1	31
	WR	17	17														17		2%		1		2%		0	1	18
	WT	223	234	55%		19			23%		12		17%		13	2	283		18%		11		18%		2	13	301
	WL	3	3														3										3
	NR	7	7														7										7
	NT	4	4														4										4
	NL	8	8														8										9
	ER	15	15														15										15
	ET	327	334		50%		41	23%		4		17%		20			393	18%		2		18%		3		5	398
	EL																										

SRF

PROPOSED VILLAS AT BRIERWOOD
TOWN OF HAMBURG, ERIE COUNTY, NY
PM PEAK

Total Trips	521	526
Pass By	20%	20%

LOCATION NUMBER	INTERSECTION DESCRIPTION	Existing Volume	Base Volume 1.0%	Wellington Woods & Treehaven Enter Dist %	Exit Dist %	Trips IN 120	Trips OUT 96	[illegible] Subdivision Enter Dist %	Exit Dist %	Trips IN 58	Trips OUT 34	Walmart Supercenter Enter Dist %	Exit Dist %	Trips IN 366	Trips OUT 366
1	Route 20(Southwestern Blvd)/Rogers Road														
	SR	34	35						25%		9				
	ST	98	99						10%		3		3%		11
	SL	107	109						50%		16				
	WR	187	177					25%		20					
	WT	828	880	50%		60							20%		74
	WL	24	24										7%		26
	NR	11	11									7%		26	
	NT	69	69					15%		9		3%		11	
	NL	19	19												
	ER	36	37												
	ET	462	472		50%		38					20%		73	
	EL	23	23					20%		12					
2	Route 20(Southwestern Blvd)/Amsdell Road														
	SR	29	29												
	ST	70	71												
	SL	148	149									3%		11	
	WR	119	120										3%		11
	WT	652	659	50%		60			23%		8		17%		63
	WL	7	7												
	NR	8	8												
	NT	69	70												
	NL	14	14												
	ER	4	4												
	ET	383	389		60%		48	23%		13		17%		63	
	EL	18	18												
3	Route 20(Southwestern Blvd)/East Site Drive														
	SR														
	ST														
	SL														
	WR														
	WT	731	746	50%		60			23%		8		17%		63
	WL														
	NR														
	NT														
	NL														
	ER														
	ET	345	333		50%		48	23%		13		17%		63	
	EL														
4	Route 20(Southwestern Blvd)/West Site Drive														
	SR														
	ST														
	SL														
	WR														
	WT	731	746	50%		60			23%		8		17%		63
	WL														
	NR														
	NT														
	NL														
	ER														
	ET	340	355		55%		55	23%		13		17%		62	
	EL														
5	Route 20(Southwestern Blvd)/Pleasant Avenue														
	SR	1	1												
	ST	10	10												
	SL	38	39												
	WR	56	57												
	WT	637	650	40%		48			23%		8		11%		63
	WL	6	6												
	NR	4	4												
	NT	7	7												
	NL	18	18												
	ER	11	11												
	ET	372	376		40%		38	23%		13		17%		62	
	EL														

LOCATION NUMBER	INTERSECTION DESCRIPTION	Pass By Trips	Total Bkgd Volume	Prop. Villas at Brierwood - Residential Enter Dist %	Exit Dist %	Trips IN 56	Trips OUT 27	Prop. Villas at Brierwood - Retail Enter Dist %	Exit Dist %	Trips IN 55	Trips OUT 33	Total Site Trips	Full Build Volumes
1	Route 20(Southwestern Blvd)/Rogers Road												
	SR		43	10%		6		10%		5		11	53
	ST		63										63
	SL		128										128
	WR		202										202
	WT	2	988	55%		31		55%		25		56	1044
	WL		50										50
	NR		37										37
	NT		89										89
	NL		19	10%		6		10%		5		11	30
	ER		37		10%		3		10%		6	9	33
	ET		583		80%		16		80%		30	46	629
	EL		35		10%		3		10%		6	9	44
2	Route 20(Southwestern Blvd)/Amsdell Road												
	SR		29	3%		2		3%		2		3	32
	ST		71										71
	SL		160										160
	WR		131										131
	WT	2	834	75%		42		75%		38		80	914
	WL		7										7
	NR		8										8
	NT		70										70
	NL		14	2%		1		2%		1		2	16
	ER		4		3%		1		3%		1	2	6
	ET		440		79%		20		79%		44	62	504
	EL		18		3%		1		3%		2	3	21
3	Route 20(Southwestern Blvd)/East Site Drive												
	SR												
	ST												
	SL												
	WR												
	WT	2	884	90%		49		15%		8		57	921
	WL							85%		22		22	22
	NR								85%		28	28	28
	NT												
	NL								15%		5	5	5
	ER							15%		1		1	1
	ET		480		80%		22		15%		8	30	490
	EL												
4	Route 20(Southwestern Blvd)/West Site Drive												
	SR												
	ST												
	SL												
	WR												
	WT	2	884						10%		6	6	890
	WL			80%		45		15%		3		42	42
	NR				80%		22		75%		8	30	30
	NT												
	NL				20%		5		15%		6	11	11
	ER			20%		11		15%		5		16	16
	ET		490					10%		9		9	479
	EL												
5	Route 20(Southwestern Blvd)/Pleasant Avenue												
	SR		1										1
	ST		10										10
	SL		39	3%		1		2%		1		2	41
	WR		57		3%		1		2%		1	2	59
	WT	2	766		18%		5		18%		10	15	803
	WL		6										6
	NR		4										4
	NT		7										7
	NL		18										18
	ER		11										11
	ET		431	15%		12		18%		6		18	450
	EL												

SRF

PROPOSED VILLAS AT BRIERWOOD
TOWN OF HAMBURG, ERIE COUNTY, NY
SAT PEAK

Total Trips	778	681
Pass BY	20%	20%

Bkgd growth: 2

LOCATION NUMBER	INTERSECTION DESCRIPTION	Existing Volume	Bkgd Volume 1.0%	Wellington Woods & Treehaven Enter Dist %	Exit Dist %	Trips IN 111	Trips OUT 84	Woodstream Subdivision Enter Dist %	Exit Dist %	Trips IN 47	Trips OUT 40	Walmart Supercenter Enter Dist %	Exit Dist %	Trips IN 578	Trips OUT 540	Pass By Trips	Total Bkgd Volume	Prop. Villas at Brierwood - Residential Enter Dist %	Exit Dist %	Trips IN 46	Trips OUT 26	Prop. Villas at Brierwood - Retail Enter Dist %	Exit Dist %	Trips IN 72	Trips OUT 67	Total Site Trips	Full Build Volumes
1	Route 20/Southwestern Blvd/Rogers Road																										
	SR	27	28						32%		9						37	10%		5		10%		7		12	49
	ST	92	94						7%		7		3%		16		106										106
	SL	118	120						60%		24						142										142
	WR	122	125					55%		26							151										151
	WT	517	527	55%		61							20%		108	-4	692	30%		20		55%		40		50	742
	WL	13	13										7%		38		51										51
	NR	14	14									7%		40			54										54
	NT	67	68					10%		5		3%		17			90										90
	NL	15	15														15	10%		5		10%		7		12	27
	ER	14	14														14		70%		9		70%		7	11	25
	ET	519	520		65%		55					20%		116			690		20%		21		20%		27	38	728
	EL	30	31					23%		11							42		10%		3		10%		7	11	52
2	Route 20/Southwestern Blvd/Amsdell Road																										
	SR	17	17														17	2%		1		3%		2		4	21
	ST	83	83														83										83
	SL	110	113									3%		17			129										129
	WR	96	101										3%		16		117										117
	WT	435	444	55%		61			23%		9		17%		93	-4	603	75%		35		75%		54		89	692
	WL	5	5														5										5
	NR	4	4														4										4
	NT	76	77														77										77
	NL	17	17														17	2%		1		2%		1		2	19
	ER	14	14														14		2%		1		2%		1	2	16
	ET	409	417		65%		55	23%		11		17%		98			577		75%		20		75%		50	70	657
	EL	18	18														18		5%		1		5%		3	3	21
3	Route 20/Southwestern Blvd/East Site Drive																										
	SR																										
	ST																										
	SL																										
	WR																										
	WT	469	478	55%		61			23%		9		17%		93	-4	637	80%		37		15%		11		48	687
	WL																					65%		47		47	47
	NR																						80%		54	54	54
	NT																										
	NL																						10%		7	7	7
	ER																					10%		7		7	7
	ET	441	450		65%		55	23%		11		17%		98			612		80%		21		10%		10	41	652
	EL																										
4	Route 20/Southwestern Blvd/West Site Drive																										
	SR																										
	ST																										
	SL																										
	WR																										
	WT	469	478	55%		61			23%		9		17%		93	-4	637						10%		7	7	644
	WL																	80%		37		15%		11		48	48
	NR																		80%		21		10%		7	28	28
	NT																										
	NL																		20%		5		10%		7	12	12
	ER																	20%		9		10%		7		16	16
	ET	441	450		65%		55	23%		11		17%		98			612					10%		7		7	617
	EL																										
5	Route 20/Southwestern Blvd/Pleasant Avenue																										
	SR	2	2														2										2
	ST	13	13														13										13
	SL	24	24														24	2%		1		2%		1		2	26
	WR	34	35														35		2%		1		2%		1	2	37
	WT	454	463	55%		61			23%		9		17%		93	-4	622		18%		5		18%		12	17	641
	WL	9	9														9										9
	NR	13	13														13										13
	NT	9	9														9										9
	NL	11	11														11										11
	ER	10	10														10										10
	ET	402	410		65%		55	23%		11		17%		98			574	18%		8		18%		13		21	592
	EL	3	3														3										3

APPENDIX
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SRF

Guideline for a major-road left-turn bay on a four lane undivided Road at an unsignalized intersection

INPUT

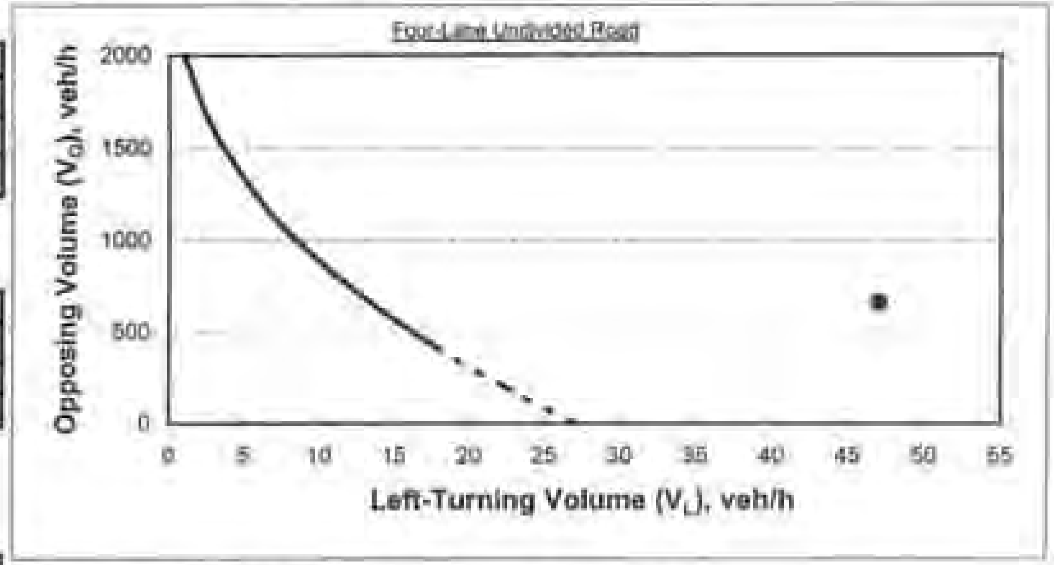
Variable	Value
Left-turning volume (V_L), veh/h:	47
Advancing volume (V_A), veh/h: (Left + Thru + Right)	731
Opposing volume (V_O), veh/h: (Thru + Right)	659

OUTPUT

Variable	Message
Combined volume (V_A and V_O) check:	O.K.
Guidance for determining the need for a major-road left-turn bay:	
LEFT-TURN TREATMENT WARRANTED.	

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	4.0
Critical headway/Gap, s:	6.0



Note: When V_O < 400 veh/h (dashed line), a left-turn lane is not normally warranted unless the advancing volume (V_A) in the same direction as the left-turning traffic exceeds 400 veh/h (V_A > 400 veh/h).

Attachment A

PEDESTRIAN GENERATOR CHECKLIST

Note: The term "generator" in this document refers to both pedestrian generators (where pedestrians originate) and destinations (where pedestrians travel to)

A check of yes indicates a potential need to accommodate pedestrians and coordination with the Regional Bicycle and Pedestrian Coordinator is necessary during project scoping. Answers to the following questions should be checked with the local municipality to ensure accuracy.

1.	Is there an existing or planned sidewalk, trail, or pedestrian crossing facility?	YES ☐ NO ☑
2.	Are there bus stops, transit stations, or depots/terminals located in or within 800 m of the project area?	YES ☐ NO ☑
3.	Is there more than occasional pedestrian activity? Evidence of pedestrian activity may include a worn path.	YES ☐ NO ☑
4.	Are there existing or approved plans for generators of pedestrian activity in or within 800 m of the project that promote or have the potential to promote pedestrian traffic in the project area, such as schools, parks, playgrounds, places of employment, places of worship, post offices, municipal buildings, restaurants, shopping centers or other commercial areas, or multiuse paths?	YES ☑ NO ☐
5.	Are there existing or approved plans for seasonal generators of pedestrian activity in or within 800 m of the project that promote or have the potential to promote pedestrian traffic in the project area, such as ski resorts, state parks, camps, amusement parks?	YES ☑ NO ☐
6.	Is the project located in a residential area within 800 m of existing or planned pedestrian generators such as those listed in #4?	YES ☑ NO ☐
7.	From record plans, were pedestrian facilities removed during a previous highway reconstruction project?	YES ☐ NO ☑
8.	Did a study of secondary impacts indicate that the project promotes or is likely to promote commercial and/or residential development within the intended life cycle of the project?	YES ☑ NO ☐
9.	Does the community's comprehensive plan call for development of pedestrian facilities in the area?	YES ☐ NO ☐

Note: This checklist should be revisited due to a project delay or if site conditions or local planning changes during the project development process.

A3

Level of Service: Criteria and Definitions

Level of Service Criteria

Highway Capacity Manual 2000

SIGNALIZED INTERSECTIONS

Level of Service is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. Level of Service for signalized intersections is defined in terms of delay specifically, average total delay per vehicle for a 15 minute analysis period. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 - 20
C	20 – 35
D	35 – 55
E	55 - 80
F	>80

UNSIGNALIZED INTERSECTIONS

Level of Service for unsignalized intersections is also defined in terms of delay. However, the delay criteria are different from a signalized intersection. The primary reason for this is driver expectation that a signalized intersection is designed to carry higher volumes than an unsignalized intersection. The total delay threshold for any given Level of Service is less for an unsignalized intersection than for a signalized intersection. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 15
C	15 – 25
D	25 - 35
E	35 - 50
F	>50

A4

Level of Service Calculations: Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	300		105	80		0	80		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850		0.885			0.940	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3530	0	1770	3539	1583	1770	1773	0	1770	1751	0
Flt Permitted	0.481			0.318			0.687			0.668		
Satd. Flow (perm)	896	3530	0	594	3539	1583	1280	1773	0	1252	1751	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				84		32			37	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		2268			1159			691			606	
Travel Time (s)		31.2			16.2			13.6			13.8	
Volume (vph)	19	658	5	5	416	74	21	55	23	122	44	29
Peak Hour Factor	0.83	0.83	0.83	0.88	0.88	0.88	0.73	0.73	0.73	0.79	0.79	0.79
Adj. Flow (vph)	23	793	6	6	473	84	29	75	32	154	56	37
Lane Group Flow (vph)	23	798	0	6	473	84	29	107	0	154	93	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		1			1			3			3	
Permitted Phases	1			1		1	3			3		
Detector Phases	1	1		1	1	1	3	3		3	3	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	27.0	27.0		27.0	27.0	27.0	21.0	21.0		21.0	21.0	
Total Split (s)	40.0	40.0	0.0	40.0	40.0	40.0	20.0	20.0	0.0	20.0	20.0	0.0
Total Split (%)	66.7%	66.7%	0.0%	66.7%	66.7%	66.7%	33.3%	33.3%	0.0%	33.3%	33.3%	0.0%
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	15.0	15.0		15.0	15.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)	29.5	29.5		29.5	29.5	29.5	12.9	12.9		12.9	12.9	
Actuated g/C Ratio	0.60	0.60		0.60	0.60	0.60	0.26	0.26		0.26	0.26	
v/c Ratio	0.04	0.37		0.02	0.22	0.09	0.09	0.23		0.48	0.20	
Control Delay	5.8	6.4		5.6	5.8	2.0	12.7	9.8		17.5	8.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	5.8	6.4		5.6	5.8	2.0	12.7	9.8		17.5	8.9	
LOS	A	A		A	A	A	B	A		B	A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		6.3			5.0			10.3			14.2	
Approach LOS		A			A			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 49
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.48
Intersection Signal Delay: 7.7 — Intersection LOS: A
Intersection Capacity Utilization 38.4% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Route 20 (Southwestern Blvd) & Rogers Road

ø1 — ø3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	55		0	185		180	50		0	90		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.971			0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3536	0	1770	3539	1583	1770	1809	0	1770	1773	0
Flt Permitted	0.564			0.381			0.698			0.694		
Satd. Flow (perm)	1051	3536	0	710	3539	1583	1300	1809	0	1293	1773	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				259		18			26	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		50			50			35			35	
Link Distance (ft)		4208			2288			1273			754	
Travel Time (s)		57.4			31.2			24.8			14.7	
Volume (vph)	39	514	5	9	244	230	6	63	13	152	53	27
Peak Hour Factor	0.86	0.86	0.86	0.79	0.79	0.79	0.81	0.81	0.81	0.86	0.86	0.86
Adj. Flow (vph)	45	605	6	11	309	291	7	78	16	177	62	31
Lane Group Flow (vph)	45	611	0	11	309	232	7	76	0	177	67	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		1			1			3			3	
Permitted Phases	1			1		1	3			3		
Detector Phases	1	1		1	1	1	3	3		3	3	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	20.0	20.0		20.0	20.0	
Total Split (s)	40.0	40.0	0.0	40.0	40.0	40.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	57.1%	57.1%	0.0%	57.1%	57.1%	57.1%	42.9%	42.9%	0.0%	42.9%	42.9%	0.0%
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	25.0	25.0		25.0	25.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Act Effct Green (s)	25.0	25.0		25.0	25.0	25.0	13.4	13.4		13.4	13.4	
Actuated g/C Ratio	0.56	0.56		0.56	0.56	0.56	0.29	0.29		0.29	0.29	
v/c Ratio	0.08	0.31		0.03	0.16	0.25	0.02	0.16		0.48	0.17	
Control Delay	7.1	6.9		6.9	6.2	2.0	10.0	8.9		15.1	8.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	7.1	6.9		6.9	6.2	2.0	10.0	8.9		15.1	8.1	
LOS	A	A		A	A	A	A	A		B	A	
Approach Delay		6.9			4.4			9.0			12.7	
Approach LOS		A			A			A			B	

Proposed Villas at Brierwood
2: Route 20 (Southwestern Blvd) & Amsdell Road
AM Peak - Existing Conditions
3/13/2007

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 44.6
Natural Cycle: 40
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.48
Intersection Signal Delay: 7.1 — Intersection LOS: A
Intersection Capacity Utilization 42.8% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Route 20 (Southwestern Blvd) & Amsdell Road

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Synchro 6
SRF & Associates

APPENDIX
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑↱			↰↑↱			↰↑↱			↰↑↱	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	557	15	3	220	17	9	4	7	29	8	3
Peak Hour Factor	0.84	0.84	0.84	0.82	0.82	0.82	0.63	0.63	0.63	0.77	0.77	0.77
Hourly flow rate (vph)	0	663	18	4	268	21	14	6	11	38	10	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	289			681			919	988	340	621	997	145
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	289			681			919	968	340	621	997	145
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			94	97	99	89	96	100
cM capacity (veh/h)	1270			908			237	251	656	327	252	877

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	332	349	138	155	32	52
Volume Left	0	0	4	0	14	38
Volume Right	0	18	0	21	11	4
cSH	1270	1700	908	1700	325	344
Volume to Capacity	0.00	0.21	0.00	0.09	0.10	0.15
Queue Length 95th (ft)	0	0	0	0	8	13
Control Delay (s)	0.0	0.0	0.3	0.0	17.3	17.3
Lane LOS			A		C	C
Approach Delay (s)	0.0		0.1		17.3	17.3
Approach LOS					C	C

Intersection Summary

Average Delay	1.4		
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

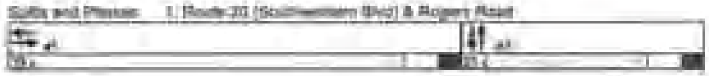
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑	↱	↰	↑↱		↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	300		300	35		0	45		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992				0.850		0.979			0.950	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3511	0	1770	3539	1583	1770	1824	0	1770	1770	0
Flt Permitted	0.253			0.403			0.682			0.697		
Satd. Flow (perm)	471	3511	0	751	3539	1583	1270	1824	0	1299	1770	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				176		13			39	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		50			50			35			35	
Link Distance (ft)		2268			1186			691			696	
Travel Time (s)		31.2			16.2			13.5			13.6	
Volume (vph)	23	463	26	24	544	167	19	68	11	107	68	34
Peak Hour Factor	0.80	0.80	0.80	0.95	0.95	0.95	0.72	0.72	0.72	0.87	0.87	0.87
Adj. Flow (vph)	29	579	32	25	573	176	26	94	15	123	78	39
Lane Group Flow (vph)	29	611	0	25	573	176	26	109	0	123	117	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		1			1			3			3	
Permitted Phases	1			1		1	3			3		
Detector Phases	1	1		1	1	1	3	3		3	3	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	27.0	27.0		27.0	27.0	27.0	21.0	21.0		21.0	21.0	
Total Split (s)	39.0	39.0	0.0	39.0	39.0	39.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	65.0%	65.0%	0.0%	65.0%	65.0%	65.0%	35.0%	35.0%	0.0%	35.0%	35.0%	0.0%
Maximum Green (s)	34.0	34.0		34.0	34.0	34.0	16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)	35.9	35.9		35.9	35.9	35.9	12.9	12.9		12.9	12.9	
Actuated g/C Ratio	0.64	0.64		0.64	0.64	0.64	0.22	0.22		0.22	0.22	
v/c Ratio	0.08	0.27		0.05	0.25	0.19	0.09	0.26		0.43	0.28	
Control Delay	5.0	5.1		5.4	5.9	1.5	14.8	13.2		19.2	11.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	5.0	5.1		5.4	5.9	1.5	14.8	13.2		19.2	11.4	
LOS	A	A		A	A	A	B	B		B	B	

1: Route 20 (Southwestern Blvd) & Rogers Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		6.1			6.1			14.0			15.4	
Approach LOS		A			A			B			B	

Intersection Summary
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 56.1
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.43
Intersection Signal Delay: 9.8 — Intersection LOS: A
Intersection Capacity Utilization 42.2% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Route 20 (Southwestern Blvd) & Rogers Road



Proposed Villas at Brierwood — PM Peak - Existing Conditions
3/13/2007

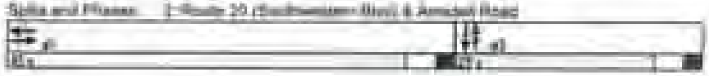
2: Route 20 (Southwestern Blvd) & Amsdell Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	185		180	50		0	50		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850		0.984			0.950	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3532	0	1770	3539	1583	1770	1833	0	1770	1770	0
Flt Permitted	0.341			0.509			0.678			0.695		
Satd. Flow (perm)	635	3532	0	1004	3539	1583	1260	1833	0	1295	1770	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				187		9			37	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		50			50			35			35	
Link Distance (ft)		4208			2298			1273			754	
Travel Time (s)		57.4			31.3			24.8			14.7	
Volume (vph)	18	323	4	7	682	176	14	69	8	146	70	35
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.81	0.81	0.81	0.83	0.83	0.83
Adj. Flow (vph)	20	351	4	7	726	187	17	85	10	176	84	42
Lane Group Flow (vph)	20	355	0	7	726	187	17	95	0	176	126	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		1			1			3			3	
Permitted Phases	1			1		1	3			3		
Detector Phases	1	1		1	1	1	3	3		3	3	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	20.0	20.0		20.0	20.0	
Total Split (s)	45.0	45.0	0.0	45.0	45.0	45.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	64.3%	64.3%	0.0%	64.3%	64.3%	64.3%	35.7%	35.7%	0.0%	35.7%	35.7%	0.0%
Maximum Green (s)	40.0	40.0		40.0	40.0	40.0	20.0	20.0		20.0	20.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Act Effct Green (s)	28.1	28.1		28.1	28.1	28.1	13.9	13.9		13.9	13.9	
Actuated g/C Ratio	0.58	0.58		0.58	0.58	0.58	0.27	0.27		0.27	0.27	
v/c Ratio	0.05	0.17		0.01	0.36	0.18	0.05	0.19		0.50	0.25	
Control Delay	7.0	6.0		6.4	7.0	1.8	11.1	10.6		16.6	9.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	7.0	6.0		6.4	7.0	1.8	11.1	10.6		16.6	9.1	
LOS	A	A		A	A	A	B	B		B	A	
Approach Delay		6.1			6.0			10.7			13.5	
Approach LOS		A			A			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 45.7
Natural Cycle: 40
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 7.5 Intersection LOS: A
Intersection Capacity Utilization 43.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Route 20 (Southwestern Blvd) & Amsdell Road



APPENDIX
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		41>			41>			4			4	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	310	11	8	637	56	18	7	4	29	13	1
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.81	0.81	0.81	0.56	0.56	0.56
Hourly flow rate (vph)	0	338	12	9	678	60	22	9	5	59	16	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	737			351			750	1092	178	894	1071	369
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	737			351			708	1086	178	894	1071	369
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			93	98	99	70	92	100
cM capacity (veh/h)	864			1204			301	211	837	206	216	629

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	170	182	348	398	36	65
Volume Left	0	0	9	0	22	58
Volume Right	0	12	0	60	5	2
cSH	864	1700	1204	1700	297	227
Volume to Capacity	0.00	0.11	0.01	0.23	0.12	0.29
Queue Length 95th (ft)	0	0	0	0	10	43
Control Delay (s)	0.0	0.0	0.2	0.0	18.8	30.4
Lane LOS			A		C	D
Approach Delay (s)	0.0		0.1		18.8	30.4
Approach LOS					C	D

Intersection Summary

Average Delay	2.6		
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	300		105	35		0	85		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996				0.850		0.970			0.953	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3525	0	1770	3539	1583	1770	1807	0	1770	1784	0
Flt Permitted	0.461			0.452			0.681			0.708		
Satd. Flow (perm)	859	3525	0	842	3539	1583	1269	1807	0	1319	1784	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				123		16			30	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2288			1160			601			609	
Travel Time (s)		52.0			26.4			13.7			13.8	
Volume (vph)	30	519	14	13	517	123	15	57	14	118	82	27
Peak Hour Factor	0.99	0.99	0.99	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92
Adj. Flow (vph)	30	524	14	13	517	123	17	63	16	128	89	29
Lane Group Flow (vph)	30	538	0	13	517	123	17	79	0	128	118	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		1			1			3			3	
Permitted Phases	1			1		1	3			3		
Detector Phases	1	1		1	1	1	3	3		3	3	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	27.0	27.0		27.0	27.0	27.0	21.0	21.0		21.0	21.0	
Total Split (s)	35.0	35.0	0.0	35.0	35.0	35.0	15.0	15.0	0.0	15.0	15.0	0.0
Total Split (%)	70.0%	70.0%	0.0%	70.0%	70.0%	70.0%	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%
Maximum Green (s)	30.0	30.0		30.0	30.0	30.0	10.0	10.0		10.0	10.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)	30.0	30.0		30.0	30.0	30.0	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.58	0.58		0.58	0.58	0.58	0.24	0.24		0.24	0.24	
v/c Ratio	0.06	0.26		0.03	0.25	0.13	0.06	0.18		0.41	0.26	
Control Delay	5.3	5.1		5.0	5.2	1.7	10.5	9.1		14.3	9.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	5.3	5.1		5.0	5.2	1.7	10.5	9.1		14.3	9.3	
LOS	A	A		A	A	A	B	A		B	A	

Proposed Villas at Brierwood — SAT Peak - Existing Conditions
1: Route 20 (Southwestern Blvd) & Rogers Road — 3/13/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		5.1			4.8			9.4			11.0	
Approach LOS		A			A			A			B	

Intersection Summary

Area Type: Other
Cycle Length: 50
Actuated Cycle Length: 51.8
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 6.2 — Intersection LOS: A
Intersection Capacity Utilization 41.3% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Route 20 (Southwestern Blvd) & Rogers Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑	↱	↰	↱		↰	↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	55		0	185		80	50		0	50		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850		0.992			0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3522	0	1770	3539	1583	1770	1848	0	1770	1800	0
Flt Permitted	0.486			0.492			0.694			0.692		
Satd. Flow (perm)	905	3522	0	916	3539	1583	1293	1848	0	1289	1800	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				105		4			20	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		4205			2308			1273			754	
Travel Time (s)		95.6			52.0			28.9			17.1	
Volume (vph)	15	409	14	5	435	99	17	75	4	110	62	17
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	16	435	15	5	463	105	21	91	5	134	76	21
Lane Group Flow (vph)	16	450	0	5	463	105	21	96	0	134	97	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phases	2	2		6	6	6	8	8		4	4	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		21.0	21.0	
Total Split (s)	45.0	45.0	0.0	45.0	45.0	45.0	20.0	20.0	0.0	20.0	20.0	0.0
Total Split (%)	69.2%	69.2%	0.0%	69.2%	69.2%	69.2%	30.8%	30.8%	0.0%	30.8%	30.8%	0.0%
Maximum Green (s)	40.0	40.0		40.0	40.0	40.0	15.0	15.0		15.0	15.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Act Effct Green (s)	22.2	22.2		22.2	22.2	22.2	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.52	0.52		0.52	0.52	0.52	0.30	0.30		0.30	0.30	
v/c Ratio	0.03	0.24		0.01	0.25	0.12	0.06	0.18		0.37	0.18	
Control Delay	6.8	6.1		6.4	6.3	2.4	7.4	7.8		10.5	8.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	6.8	6.1		6.4	6.3	2.4	7.4	7.8		10.5	8.8	
LOS	A	A		A	A	A	A	A		B	A	
Approach Delay		6.1			5.8			7.8			9.8	
Approach LOS		A			A			A			A	

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Proposed Villas at Brierwood
2: Route 20 (Southwestern Blvd) & Amsdell Road
SAT Peak - Existing Conditions
3/13/2007

Intersection Summary
Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 42.6
Natural Cycle: 45
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.37
Intersection Signal Delay: 6.8 Intersection LOS: A
Intersection Capacity Utilization 34.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Route 20 (Southwestern Blvd) & Amsdell Road

S:\Projects\2007\27005 Villas at Brierwood\Synchro\Existing\SAT.sy7
Synchro 6
SRF & Associates

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4↑			4↑			4			4	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	3	402	10	9	454	34	11	8	16	24	13	2
Peak Hour Factor	0.94	0.94	0.94	0.87	0.87	0.87	0.80	0.80	0.80	0.75	0.75	0.75
Hourly flow rate (vph)	3	428	11	10	522	39	14	11	18	32	17	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	561			438			730	1021	216	788	1007	280
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	561			438			730	1021	216	788	1007	280
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			95	95	98	89	93	100
cM capacity (veh/h)	1008			1118			289	232	785	282	237	717

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	217	224	271	300	44	52
Volume Left	3	0	10	0	14	32
Volume Right	0	11	0	39	19	3
cSH	1008	1700	1118	1700	365	261
Volume to Capacity	0.00	0.13	0.01	0.18	0.12	0.20
Queue Length 95th (ft)	0	0	1	0	10	18
Control Delay (s)	0.2	0.0	0.4	0.0	16.2	22.3
Lane LOS	A		A		C	C
Approach Delay (s)	0.1		0.2		16.2	22.3
Approach LOS					C	C

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

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A5

Level of Service Calculations: Background Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑	↱	↰	↱		↰	↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	300		105	95		0	95		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.885			0.933	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3536	0	1770	3539	1583	1770	1710	0	1770	1738	0
Flt Permitted	0.454			0.271			0.681			0.676		
Satd. Flow (perm)	846	3536	0	505	3539	1583	1269	1770	0	1259	1738	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				96		41			53	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		50			50			45			45	
Link Distance (ft)		2289			1188			891			898	
Travel Time (s)		31.2			16.2			13.5			13.6	
Volume (vph)	23	753	5	10	460	84	21	61	31	153	52	42
Peak Hour Factor	0.83	0.83	0.83	0.88	0.88	0.88	0.73	0.73	0.73	0.79	0.79	0.79
Adj. Flow (vph)	28	907	6	11	523	95	29	84	42	194	66	53
Lane Group Flow (vph)	28	913	0	11	523	95	29	126	0	194	119	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		1			1			3			3	
Permitted Phases	1			1		1	3			3		
Detector Phases	1	1		1	1	1	3	3		3	3	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	27.0	27.0		27.0	27.0	27.0	21.0	21.0		21.0	21.0	
Total Split (s)	40.0	40.0	0.0	40.0	40.0	40.0	20.0	20.0	0.0	20.0	20.0	0.0
Total Split (%)	66.7%	66.7%	0.0%	66.7%	66.7%	66.7%	33.3%	33.3%	0.0%	33.3%	33.3%	0.0%
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	15.0	15.0		15.0	15.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)	29.9	29.9		29.9	29.9	29.9	13.3	13.3		13.3	13.3	
Actuated g/C Ratio	0.61	0.61		0.61	0.61	0.61	0.26	0.26		0.26	0.26	
v/c Ratio	0.08	0.42		0.04	0.24	0.09	0.09	0.25		0.59	0.24	
Control Delay	5.8	6.9		5.8	5.8	1.6	14.2	11.0		22.4	8.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	5.8	6.9		5.8	5.8	1.6	14.2	11.0		22.4	8.7	
LOS	A	A		A	A	A	B	B		C	A	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		6.8			5.2			11.8			17.6	
Approach LOS		A			A			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 48.8
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 9.2 Intersection LOS: A
Intersection Capacity Utilization 43.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Route 20 (Southwestern Blvd) & Rogers Road

ø1 40 s ø3 20 s

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	55		0	185		180	80		0	80		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.971			0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3535	0	1770	3539	1583	1770	1809	0	1770	1773	0
Flt Permitted	0.529			0.224			0.697			0.694		
Satd. Flow (perm)	984	3535	0	404	3539	1583	1298	1809	0	1293	1773	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				261		19			30	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		50			50			35			35	
Link Distance (ft)		4206			2288			1273			754	
Travel Time (s)		57.4			31.2			24.8			14.7	
Volume (vph)	39	609	5	9	294	206	6	64	15	158	54	25
Peak Hour Factor	0.85	0.85	0.85	0.79	0.79	0.79	0.81	0.81	0.81	0.86	0.86	0.86
Adj. Flow (vph)	46	716	6	11	372	261	7	79	19	184	63	29
Lane Group Flow (vph)	46	722	0	11	372	261	7	98	0	184	92	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		1			1			3			3	
Permitted Phases	1			1		1	3			3		
Detector Phases	1	1		1	1	1	3	3		3	3	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	20.0	20.0		20.0	20.0	
Total Split (s)	40.0	40.0	0.0	40.0	40.0	40.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	57.1%	57.1%	0.0%	57.1%	57.1%	57.1%	42.9%	42.9%	0.0%	42.9%	42.9%	0.0%
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	25.0	25.0		25.0	25.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Act Effct Green (s)	27.5	27.5		27.5	27.5	27.5	13.8	13.8		13.8	13.8	
Actuated g/C Ratio	0.58	0.58		0.58	0.58	0.58	0.29	0.29		0.29	0.29	
v/c Ratio	0.08	0.35		0.03	0.18	0.25	0.02	0.19		0.51	0.18	
Control Delay	7.1	7.1		7.0	6.3	2.0	11.3	10.1		17.3	9.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	7.1	7.1		7.0	6.3	2.0	11.3	10.1		17.3	9.1	
LOS	A	A		A	A	A	B	B		B	A	
Approach Delay		7.1			4.8			10.2			14.5	
Approach LOS		A			A			B			B	

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Proposed Villas at Brierwood AM Peak - Background Conditions
2: Route 20 (Southwestern Blvd) & Amsdell Road 3/13/2007

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 47.2
Natural Cycle: 40
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 7.8 Intersection LOS: A
Intersection Capacity Utilization 45.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Route 20 (Southwestern Blvd) & Amsdell Road

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Synchro 6
SRF & Associates

Proposed Villas at Brierwood — AM Peak - Background Conditions
5: Route 20 (Southwestern Blvd) & Pleasant Avenue — 3/13/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		[illegible]			[illegible]			[illegible]			[illegible]	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	653	15	3	269	17	4	4	7	30	8	3
Peak Hour Factor	0.84	0.84	0.84	0.82	0.82	0.82	0.83	0.83	0.83	0.77	0.77	0.77
Hourly flow rate (vph)	0	777	18	4	328	21	14	5	11	39	10	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	349			795			980	1142	398	738	1141	174
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	349			795			980	1142	398	738	1141	174
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			93	97	98	87	95	100
cM capacity (veh/h)	1207			822			200	198	601	292	198	839

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	389	407	168	185	30	53
Volume Left	0	0	4	0	14	39
Volume Right	0	18	0	21	11	4
cSH	1207	1700	822	1700	260	280
Volume to Capacity	0.00	0.24	0.00	0.11	0.12	0.19
Queue Length 95th (ft)	0	0	0	0	10	17
Control Delay (s)	0.0	0.0	0.2	0.0	20.7	20.9
Lane LOS			A		C	C
Approach Delay (s)	0.0		0.1		20.7	20.9
Approach LOS					C	C

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	28.8%	ICU Level of Service	A
Analysis Period (min)	15		

Proposed Villas at Brierwood — PM Peak - Background Conditions
1: Route 20 (Southwestern Blvd) & Rogers Road — 3/13/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	300		100	35		0	55		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993				0.850		0.955			0.946	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3514	0	1770	3539	1583	1770	1779	0	1770	1765	0
Flt Permitted	0.221			0.329			0.666			0.631		
Satd. Flow (perm)	412	3514	0	613	3539	1583	1238	1779	0	1175	1765	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				213		39			43	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		50			50			35			35	
Link Distance (ft)		2288			1186			691			690	
Travel Time (s)		31.2			16.2			13.5			13.4	
Volume (vph)	36	583	27	52	988	202	19	89	37	128	83	53
Peak Hour Factor	0.80	0.80	0.80	0.98	0.95	0.95	0.72	0.72	0.72	0.87	0.87	0.87
Adj. Flow (vph)	45	729	34	53	1040	213	26	119	51	147	95	55
Lane Group Flow (vph)	45	768	0	53	1040	213	26	170	0	147	144	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Detector Phases	1	1		1	1	1	2	2		2	2	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	27.0	27.0		27.0	27.0	27.0	21.0	21.0		21.0	21.0	
Total Split (s)	39.0	39.0	0.0	39.0	39.0	39.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	65.0%	65.0%	0.0%	65.0%	65.0%	65.0%	35.0%	35.0%	0.0%	35.0%	35.0%	0.0%
Maximum Green (s)	34.0	34.0		34.0	34.0	34.0	16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)	34.5	34.5		34.5	34.5	34.5	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.65	0.65		0.65	0.65	0.65	0.23	0.23		0.23	0.23	
v/c Ratio	0.17	0.33		0.13	0.46	0.19	0.09	0.38		0.54	0.32	
Control Delay	7.6	5.8		6.5	6.7	1.5	18.4	15.2		24.3	13.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	7.6	5.8		6.5	6.7	1.5	18.4	15.2		24.3	13.4	
LOS	A	A		A	A	A	B	B		C	B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		5.8			5.8			15.4			16.8	
Approach LOS		A			A			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 52.3
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 8.0 — Intersection LOS: A
Intersection Capacity Utilization 57.8% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Route 20 (Southwestern Blvd) & Rogers Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	55		0	185		180	50		0	50		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.984			0.930	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3536	0	1770	3539	1583	1770	1833	0	1770	1729	0
Flt Permitted	0.272			0.467			0.674			0.695		
Satd. Flow (perm)	507	3536	0	870	3539	1583	1256	1833	0	1295	1729	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				203		9			37	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		50			50			35			35	
Link Distance (ft)		4206			2288			1273			764	
Travel Time (s)		57.4			31.2			24.8			14.7	
Volume (vph)	18	442	4	7	834	191	14	70	8	160	71	38
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.81	0.81	0.81	0.83	0.83	0.83
Adj. Flow (vph)	20	480	4	7	887	203	17	86	10	193	86	46
Lane Group Flow (vph)	20	484	0	7	887	203	17	96	0	193	128	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			4			3			3	
Permitted Phases	4			4		4	3			3		
Detector Phases	4	4		4	4	4	3	3		3	3	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	20.0	20.0		20.0	20.0	
Total Split (s)	45.0	45.0	0.0	45.0	45.0	45.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	64.3%	64.3%	0.0%	64.3%	64.3%	64.3%	35.7%	35.7%	0.0%	35.7%	35.7%	0.0%
Maximum Green (s)	40.0	40.0		40.0	40.0	40.0	20.0	20.0		20.0	20.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Act Effct Green (s)	30.9	30.9		30.9	30.9	30.9	14.1	14.1		14.1	14.1	
Actuated g/C Ratio	0.61	0.61		0.61	0.61	0.61	0.28	0.28		0.28	0.28	
v/c Ratio	0.07	0.23		0.01	0.41	0.20	0.05	0.19		0.58	0.28	
Control Delay	7.1	6.1		6.3	7.3	1.8	13.6	12.8		20.7	11.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	7.1	6.1		6.3	7.3	1.8	13.6	12.8		20.7	11.0	
LOS	A	A		A	A	A	B	B		C	B	
Approach Delay		6.2			6.3			12.9			16.8	
Approach LOS		A			A			B			B	

Proposed Villas at Brierwood
2: Route 20 (Southwestern Blvd) & Amsdell Road

PM Peak - Background Conditions
3/13/2007

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 50.5
Natural Cycle: 40
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 5.3 — Intersection LOS: A
Intersection Capacity Utilization 45.3% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Route 20 (Southwestern Blvd) & Amsdell Road

Proposed Villas at Brierwood
5: Route 20 (Southwestern Blvd) & Pleasant Avenue

PM Peak - Background Conditions
3/13/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4↑			4↑			4›			4›	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	431	11	6	755	57	18	7	4	39	10	1
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.81	0.81	0.81	0.56	0.56	0.56
Hourly flow rate (vph)	0	468	12	6	803	61	22	8	5	70	18	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	899			490			915	1388	240	1120	1362	449
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	899			490			915	1388	240	1120	1362	449
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			89	94	99	54	88	100
cM capacity (veh/h)	751			1078			205	141	761	152	146	567

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	234	245	426	490	35	89
Volume Left	0	0	6	0	22	70
Volume Right	0	12	0	61	5	2
cSH	751	1700	1078	1700	203	153
Volume to Capacity	0.00	0.14	0.01	0.29	0.18	0.58
Queue Length 95th (ft)	0	0	0	0	16	76
Control Delay (s)	0.0	0.0	0.2	0.0	26.6	57.3
Lane LOS			A		D	F
Approach Delay (s)	0.0		0.1		26.6	57.3
Approach LOS					D	F

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	39.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	300		105	50		0	85		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997				0.850		0.940			0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3529	0	1770	3539	1583	1770	1751	0	1770	1790	0
Flt Permitted	0.378			0.358			0.690			0.692		
Satd. Flow (perm)	704	3529	0	660	3539	1583	1229	1751	0	1232	1790	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				151		50			33	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		50			50			35			35	
Link Distance (ft)		2288			1186			891			898	
Travel Time (s)		31.2			16.2			15.5			15.6	
Volume (vph)	42	698	14	51	693	151	16	80	54	142	104	37
Peak Hour Factor	0.99	0.99	0.99	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92
Adj. Flow (vph)	42	703	14	51	693	151	17	89	60	154	113	40
Lane Group Flow (vph)	42	717	0	51	693	151	17	149	0	154	153	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		1			1			3			3	
Permitted Phases	1			1		1	3			3		
Detector Phases	1	1		1	1	1	3	3		3	3	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	27.0	27.0		27.0	27.0	27.0	21.0	21.0		21.0	21.0	
Total Split (s)	35.0	35.0	0.0	35.0	35.0	35.0	15.0	15.0	0.0	15.0	15.0	0.0
Total Split (%)	70.0%	70.0%	0.0%	70.0%	70.0%	70.0%	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%
Maximum Green (s)	30.0	30.0		30.0	30.0	30.0	10.0	10.0		10.0	10.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)	26.8	26.8		26.8	26.8	26.8	10.0	10.0		10.0	10.0	
Actuated g/C Ratio	0.62	0.62		0.62	0.62	0.62	0.23	0.23		0.23	0.23	
v/c Ratio	0.10	0.33		0.12	0.32	0.15	0.06	0.33		0.53	0.34	
Control Delay	5.6	5.2		5.3	5.2	1.3	14.1	10.8		22.2	13.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	5.6	5.2		5.3	5.2	1.3	14.1	10.8		22.2	13.0	
LOS	A	A		A	A	A	B	B		C	B	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		5.2			4.5			11.2			17.6	
Approach LOS		A			A			B			B	

Intersection Summary
Area Type: Other
Cycle Length: 50
Actuated Cycle Length: 43.2
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 7.2 Intersection LOS: A
Intersection Capacity Utilization 51.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Route 20 (Southwestern Blvd) & Rogers Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑	↱	↰	↑↱		↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	150		80	50		0	80		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850		0.992			0.968	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3526	0	1770	3539	1583	1770	1848	0	1770	1803	0
Flt Permitted	0.383			0.389			0.694			0.699		
Satd. Flow (perm)	732	3526	0	743	3539	1583	1293	1848	0	1301	1803	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				124		4			20	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		4358			2258			1275			754	
Travel Time (s)		99.0			51.3			29.0			17.1	
Volume (vph)	18	577	14	5	603	117	17	77	4	129	63	17
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	19	614	15	5	641	124	21	94	5	157	77	21
Lane Group Flow (vph)	19	629	0	5	641	124	21	95	0	157	78	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phases	2	2		6	6	6	8	8		4	4	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		21.0	21.0	
Total Split (s)	45.0	45.0	0.0	45.0	45.0	45.0	20.0	20.0	0.0	20.0	20.0	0.0
Total Split (%)	69.2%	69.2%	0.0%	69.2%	69.2%	69.2%	30.8%	30.8%	0.0%	30.8%	30.8%	0.0%
Maximum Green (s)	40.0	40.0		40.0	40.0	40.0	15.0	15.0		15.0	15.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Act Effct Green (s)	22.0	22.0		22.0	22.0	22.0	12.0	12.0		12.2	12.2	
Actuated g/C Ratio	0.54	0.54		0.54	0.54	0.54	0.29	0.29		0.29	0.29	
v/c Ratio	0.05	0.33		0.01	0.33	0.13	0.06	0.18		0.43	0.16	
Control Delay	6.7	6.7		6.4	6.8	2.2	8.9	9.1		13.0	9.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	6.7	6.7		6.4	6.8	2.2	8.9	9.1		13.0	9.0	
LOS	A	A		A	A	A	A	A		B	A	
Approach Delay		6.7			6.1			9.1			11.1	
Approach LOS		A			A			A			B	

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Proposed Villas at Brierwood — SAT Peak - Background Conditions
2: Route 20 (Southwestern Blvd) & Amsdell Road — 3/13/2007

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 40.4
Natural Cycle: 45
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.43
Intersection Signal Delay: 7.2 — Intersection LOS: A
Intersection Capacity Utilization 37.1% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Route 20 (Southwestern Blvd) & Amsdell Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↱			↰↱			✣			✣	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	3	570	10	9	622	35	11	9	15	24	13	2
Peak Hour Factor	0.94	0.94	0.94	0.87	0.87	0.87	0.80	0.80	0.80	0.75	0.75	0.75
Hourly flow rate (vph)	3	606	11	10	715	40	14	11	19	32	17	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	755			617			1005	1394	309	1071	1379	378
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	755			617			1005	1394	309	1071	1379	378
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			92	92	97	80	88	100
cM capacity (veh/h)	851			958			173	136	687	158	141	620

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	306	314	368	358	44	52
Volume Left	3	0	10	0	14	32
Volume Right	0	11	0	40	19	3
cSH	851	1700	958	1700	224	158
Volume to Capacity	0.00	0.18	0.01	0.21	0.19	0.33
Queue Length 95th (ft)	0	0	1	0	17	33
Control Delay (s)	0.1	0.0	0.4	0.0	23.9	38.8
Lane LOS	A		A		C	E
Approach Delay (s)	0.1		0.2		23.9	38.8
Approach LOS					C	E

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		

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Level of Service Calculations: Full Development Conditions

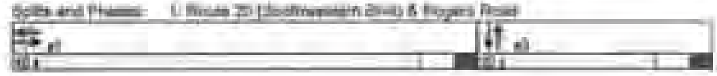
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↱		↰	↑↑	↱	↰	↱		↰	↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		0	350		105	55		0	65		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850		0.850			0.902	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3532	0	1770	3539	1583	1770	1770	0	1770	1732	0
Flt Permitted	0.444			0.251			0.679			0.676		
Satd. Flow (perm)	827	3532	0	468	3539	1583	1263	1770	0	1259	1732	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				95		41			57	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		2288			1189			591			599	
Travel Time (s)		31.2			16.2			13.5			13.6	
Volume (vph)	30	792	12	10	476	84	24	61	31	153	52	45
Peak Hour Factor	0.83	0.83	0.83	0.88	0.88	0.88	0.73	0.73	0.73	0.79	0.79	0.79
Adj. Flow (vph)	36	954	14	11	541	95	33	84	42	194	66	57
Lane Group Flow (vph)	36	968	0	11	541	95	33	126	0	194	123	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		1			1			3			3	
Permitted Phases	1			1		1	3			3		
Detector Phases	1	1		1	1	1	3	3		3	3	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	27.0	27.0		27.0	27.0	27.0	21.0	21.0		21.0	21.0	
Total Split (s)	40.0	40.0	0.0	40.0	40.0	40.0	20.0	20.0	0.0	20.0	20.0	0.0
Total Split (%)	66.7%	66.7%	0.0%	66.7%	66.7%	66.7%	33.3%	33.3%	0.0%	33.3%	33.3%	0.0%
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	15.0	15.0		15.0	15.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)	30.7	30.7		30.7	30.7	30.7	13.1	13.1		13.1	13.1	
Actuated g/C Ratio	0.63	0.63		0.63	0.63	0.63	0.25	0.25		0.25	0.25	
v/c Ratio	0.07	0.44		0.04	0.24	0.09	0.10	0.26		0.61	0.25	
Control Delay	5.6	6.8		5.7	5.6	1.8	15.2	11.7		24.0	10.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	5.6	6.8		5.7	5.6	1.8	15.2	11.7		24.0	10.2	
LOS	A	A		A	A	A	B	B		C	B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		6.8			5.1			12.4			19.8	
Approach LOS		A			A			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 48.1
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 8.5 — Intersection LOS: A
Intersection Capacity Utilization 48.7% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Route 20 (Southwestern Blvd) & Rogers Road



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	65		0	185		190	50		0	40		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.971			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3536	0	1770	3539	1583	1770	1809	0	1770	1771	0
Flt Permitted	0.506			0.294			0.698			0.694		
Satd. Flow (perm)	946	3536	0	548	3539	1583	1299	1809	0	1293	1771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				251		19			51	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		50			50			35			35	
Link Distance (ft)		865			2288			1273			754	
Travel Time (s)		12.1			31.2			24.8			14.7	
Volume (vph)	41	661	6	9	317	206	7	64	15	108	54	27
Peak Hour Factor	0.85	0.85	0.85	0.79	0.79	0.79	0.81	0.81	0.81	0.66	0.66	0.66
Adj. Flow (vph)	48	778	7	11	401	261	9	76	19	164	83	41
Lane Group Flow (vph)	48	785	0	11	401	261	9	96	0	164	84	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Detector Phases	1	1		1	1	1	2	2		2	2	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	20.0	20.0		20.0	20.0	
Total Split (s)	40.0	40.0	0.0	40.0	40.0	40.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	57.1%	57.1%	0.0%	57.1%	57.1%	57.1%	42.9%	42.9%	0.0%	42.9%	42.9%	0.0%
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	25.0	25.0		25.0	25.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Act Effct Green (s)	29.1	29.1		29.1	29.1	29.1	14.0	14.0		14.0	14.0	
Actuated g/C Ratio	0.60	0.60		0.60	0.60	0.60	0.27	0.27		0.27	0.27	
v/c Ratio	0.08	0.37		0.03	0.19	0.25	0.03	0.19		0.52	0.16	
Control Delay	7.0	7.2		6.9	6.2	1.9	12.3	10.9		18.0	9.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	7.0	7.2		6.9	6.2	1.9	12.3	10.9		18.0	9.7	
LOS	A	A		A	A	A	B	B		B	A	
Approach Delay		7.2			4.5			11.0			15.8	
Approach LOS		A			A			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 48.5
Natural Cycle: 40
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 7.7 — Intersection LOS: A
Intersection Capacity Utilization 47.2% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Route 20 (Southwestern Blvd) & Amsdell Road

Proposed Villas at Brierwood — AM Peak - Full Development Conditions
3: Route 20 (Southwestern Blvd) & East Site Drive — 3/13/2007

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↱			↰↑	↰	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	701	2	12	339	1	7
Peak Hour Factor	0.85	0.85	0.79	0.79	0.85	0.85
Hourly flow rate (vph)	825	2	15	429	1	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				885		
pX, platoon unblocked						
vC, conflicting volume			827		1071	414
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			827		1071	414
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		99	99
cM capacity (veh/h)			805		212	586

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	550	277	158	286	9
Volume Left	0	0	15	0	1
Volume Right	0	2	0	0	8
cSH	1700	1700	805	1700	481
Volume to Capacity	0.32	0.16	0.02	0.17	0.02
Queue Length 95th (ft)	0	0	1	0	1
Control Delay (s)	0.0	0.0	1.1	0.0	12.6
Lane LOS			A		B
Approach Delay (s)	0.0		0.4		12.6
Approach LOS					B

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	39.4%	ICU Level of Service		A
Analysis Period (min)	15			

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Proposed Villas at Brierwood — AM Peak - Full Development Conditions
4: Route 20 (Southwestern Blvd) & West Site Drive — 3/13/2007

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↱			↰↑	↰	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	654	4	12	327	13	49
Peak Hour Factor	0.85	0.85	0.79	0.79	0.85	0.85
Hourly flow rate (vph)	769	5	15	414	15	58
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				1272		
pX, platoon unblocked						
vC, conflicting volume			774		1009	387
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			774		1009	387
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		93	91
cM capacity (veh/h)			837		232	611

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	513	261	153	276	73
Volume Left	0	0	15	0	15
Volume Right	0	5	0	0	58
cSH	1700	1700	837	1700	456
Volume to Capacity	0.30	0.15	0.02	0.16	0.16
Queue Length 95th (ft)	0	0	1	0	14
Control Delay (s)	0.0	0.0	1.1	0.0	14.4
Lane LOS			A		B
Approach Delay (s)	0.0		0.4		14.4
Approach LOS					B

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	36.0%	ICU Level of Service		A
Analysis Period (min)	15			

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Proposed Villas at Briarwood — AM Peak - Full Development Conditions
5: Route 20 (Southwestern Blvd) & Pleasant Avenue — 3/13/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑↱			↰↑↱			↰↑↱			↰↑↱	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	658	15	2	282	18	9	4	7	31	5	3
Peak Hour Factor	0.84	0.84	0.84	0.82	0.82	0.82	0.83	0.83	0.83	0.77	0.77	0.77
Hourly flow rate (vph)	0	783	18	4	344	22	11	5	11	40	10	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	366			801			977	1185	401	787	1193	183
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	366			801			977	1185	401	787	1193	183
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			92	97	98	80	95	100
cM capacity (veh/h)	1189			819			198	192	599	200	192	838

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	392	410	176	194	32	55
Volume Left	0	0	4	0	14	40
Volume Right	0	18	0	22	11	4
cSH	1189	1700	819	1700	284	271
Volume to Capacity	0.00	0.24	0.00	0.11	0.12	0.20
Queue Length 95th (ft)	0	0	0	0	11	18
Control Delay (s)	0.0	0.0	0.3	0.0	21.2	21.8
Lane LOS			A		C	C
Approach Delay (s)	0.0		0.1		21.2	21.8
Approach LOS					C	C

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	29.1%	ICU Level of Service	A
Analysis Period (min)	15		

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Proposed Villas at Briarwood — PM Peak - Full Development Conditions
1: Route 20 (Southwestern Blvd) & Rogers Road — 3/13/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑	↱	↰	↑↱		↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	400		100	35		0	85		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990				0.850		0.955			0.941	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3511	0	1770	3539	1583	1770	1779	0	1770	1753	0
Flt Permitted	0.201			0.301			0.655			0.631		
Satd. Flow (perm)	374	3511	0	561	3539	1583	1220	1779	0	1175	1753	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				213		36			58	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		50			50			35			35	
Link Distance (ft)		2288			1189			891			629	
Travel Time (s)		31.2			16.2			13.5			13.6	
Volume (vph)	45	628	35	50	1046	202	30	86	37	128	83	53
Peak Hour Factor	0.80	0.80	0.80	0.95	0.95	0.95	0.72	0.72	0.72	0.87	0.87	0.87
Adj. Flow (vph)	56	785	44	53	1101	213	42	119	51	147	95	61
Lane Group Flow (vph)	56	829	0	53	1101	213	42	170	0	147	156	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		1			1			3			3	
Permitted Phases	1			1		1	3			3		
Detector Phases	1	1		1	1	1	3	3		3	3	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	27.0	27.0		27.0	27.0	27.0	21.0	21.0		21.0	21.0	
Total Split (s)	39.0	39.0	0.0	39.0	39.0	39.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	65.0%	65.0%	0.0%	65.0%	65.0%	65.0%	35.0%	35.0%	0.0%	35.0%	35.0%	0.0%
Maximum Green (s)	34.0	34.0		34.0	34.0	34.0	16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)	35.2	35.2		35.2	35.2	35.2	12.7	12.7		12.7	12.7	
Actuated g/C Ratio	0.66	0.66		0.66	0.66	0.66	0.23	0.23		0.23	0.23	
v/c Ratio	0.23	0.36		0.14	0.47	0.19	0.15	0.39		0.54	0.38	
Control Delay	8.6	5.8		6.7	6.8	1.6	17.3	15.8		25.0	13.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	8.6	5.8		6.7	6.8	1.6	17.3	15.8		25.0	13.3	
LOS	A	A		A	A	A	B	B		C	B	

Proposed Villas at Brierwood
1: Route 20 (Southwestern Blvd) & Rogers Road

PM Peak - Full Development Conditions
3/13/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		6.1			6.0			15.9			19.0	
Approach LOS		A			A			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 33.1
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 8.2 — Intersection LOS: A
Intersection Capacity Utilization 55.8% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Route 20 (Southwestern Blvd) & Rogers Road

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Synchro 6
SRF & Associates

Proposed Villas at Brierwood
2: Route 20 (Southwestern Blvd) & Amodell Road

PM Peak - Full Development Conditions
3/13/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	55		0	165		180	50		0	80		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850		0.984			0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3532	0	1770	3539	1583	1770	1833	0	1770	1764	0
Flt Permitted	0.241			0.427			0.672			0.695		
Satd. Flow (perm)	449	3532	0	795	3539	1583	1252	1833	0	1295	1764	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				203		9			40	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		585			2284			1273			764	
Travel Time (s)		13.3			51.9			24.8			14.9	
Volume (vph)	20	504	6	7	914	191	18	70	9	160	71	39
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.81	0.81	0.81	0.83	0.83	0.83
Adj. Flow (vph)	22	548	7	7	972	203	22	86	11	193	86	47
Lane Group Flow (vph)	22	552	0	7	972	203	22	88	0	193	93	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		1			1			3			3	
Permitted Phases	1			1		1	3			3		
Detector Phases	1	1		1	1	1	3	3		3	3	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	20.0	20.0		20.0	20.0	
Total Split (s)	45.0	45.0	0.0	45.0	45.0	45.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	64.3%	64.3%	0.0%	64.3%	64.3%	64.3%	35.7%	35.7%	0.0%	35.7%	35.7%	0.0%
Maximum Green (s)	40.0	40.0		40.0	40.0	40.0	20.0	20.0		20.0	20.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Act Effct Green (s)	33.5	33.5		33.5	33.5	33.5	14.2	14.2		14.2	14.2	
Actuated g/C Ratio	0.63	0.63		0.63	0.63	0.63	0.26	0.26		0.26	0.26	
v/c Ratio	0.05	0.25		0.01	0.44	0.19	0.08	0.20		0.56	0.28	
Control Delay	7.0	6.0		6.0	7.3	1.6	15.6	14.5		23.5	12.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	7.0	6.0		6.0	7.3	1.6	15.6	14.5		23.5	12.3	
LOS	A	A		A	A	A	B	B		C	B	
Approach Delay		6.0			6.3			14.7			19.3	
Approach LOS		A			A			B			B	

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Synchro 6
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Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 33.2
Natural Cycle: 40
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 8.5 — Intersection LOS: A
Intersection Capacity Utilization 47.5% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Route 20 (Southwestern Blvd) & Amsdell Road

APPENDIX
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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↱			↰↑	Y	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	495	5	33	937	6	36
Peak Hour Factor	0.92	0.92	0.94	0.94	0.85	0.85
Hourly flow rate (vph)	538	5	35	997	7	42
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				480		
pX, platoon unblocked					0.87	
vC, conflicting volume			543		1100	272
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			543		979	272
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		97	94
cM capacity (veh/h)			1022		208	726

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	359	185	367	665	49
Volume Left	0	0	35	0	7
Volume Right	0	5	0	0	42
cSH	1700	1700	1022	1700	558
Volume to Capacity	0.21	0.11	0.03	0.39	0.09
Queue Length 95th (ft)	0	0	3	0	8
Control Delay (s)	0.0	0.0	1.2	0.0	12.4
Lane LOS			A		B
Approach Delay (s)	0.0		0.4		12.4
Approach LOS					B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	64.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↱			↰↑	Y	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	470	16	52	890	11	30
Peak Hour Factor	0.92	0.92	0.94	0.94	0.85	0.85
Hourly flow rate (vph)	511	17	55	947	13	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				1273		
pX, platoon unblocked					0.83	
vC, conflicting volume			529		1164	264
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			529		1036	264
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		94	95
cM capacity (veh/h)			1035		201	734

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	341	188	371	631	48
Volume Left	0	0	55	0	13
Volume Right	0	17	0	0	35
cSH	1700	1700	1035	1700	429
Volume to Capacity	0.20	0.11	0.05	0.37	0.11
Queue Length 95th (ft)	0	0	4	0	9
Control Delay (s)	0.0	0.0	1.8	0.0	14.5
Lane LOS			A		B
Approach Delay (s)	0.0		0.7		14.5
Approach LOS					B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑↱			↰↑↱			✢			✢	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	450	11	6	803	59	18	7	4	41	10	1
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.81	0.81	0.81	0.56	0.56	0.56
Hourly flow rate (vph)	0	489	12	6	854	63	22	9	5	73	18	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	917			501			944	1429	251	1147	1390	459
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	917			501			944	1422	251	1147	1390	459
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			89	94	99	49	87	100
cM capacity (veh/h)	740			1059			194	134	740	145	136	549

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	245	257	434	490	36	93
Volume Left	0	0	6	0	22	73
Volume Right	0	12	0	63	5	2
cSH	740	1700	1059	1700	193	145
Volume to Capacity	0.00	0.15	0.01	0.29	0.19	0.64
Queue Length 95th (ft)	0	0	0	0	17	87
Control Delay (s)	0.0	0.0	0.2	0.0	27.9	65.5
Lane LOS			A		D	F
Approach Delay (s)	0.0		0.1		27.9	65.5
Approach LOS					D	F

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑	↱	↰	↱		↰	↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	300		100	35		0	85		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850		0.940			0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3522	0	1770	3539	1583	1770	1751	0	1770	1773	0
Flt Permitted	0.348			0.336			0.652			0.692		
Satd. Flow (perm)	648	3522	0	626	3539	1583	1215	1751	0	1289	1773	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				151		60			43	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		50			50			35			35	
Link Distance (ft)		2386			1166			691			698	
Travel Time (s)		51.2			16.2			13.5			13.6	
Volume (vph)	81	754	25	51	758	151	27	80	54	142	104	49
Peak Hour Factor	0.99	0.99	0.99	1.00	1.00	1.00	0.90	0.90	0.90	0.92	0.92	0.92
Adj. Flow (vph)	82	762	25	51	758	151	30	89	60	154	113	53
Lane Group Flow (vph)	82	787	0	51	758	151	30	149	0	154	166	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		1			1			3			3	
Permitted Phases	1			1		1	3			3		
Detector Phases	1	1		1	1	1	3	3		3	3	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	27.0	27.0		27.0	27.0	27.0	21.0	21.0		21.0	21.0	
Total Split (s)	35.0	35.0	0.0	35.0	35.0	35.0	15.0	15.0	0.0	15.0	15.0	0.0
Total Split (%)	70.0%	70.0%	0.0%	70.0%	70.0%	70.0%	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%
Maximum Green (s)	30.0	30.0		30.0	30.0	30.0	10.0	10.0		10.0	10.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)	26.1	26.1		26.1	26.1	26.1	10.3	10.3		10.3	10.3	
Actuated g/C Ratio	0.58	0.58		0.58	0.58	0.58	0.23	0.23		0.23	0.23	
v/c Ratio	0.14	0.38		0.14	0.37	0.15	0.11	0.33		0.54	0.38	
Control Delay	5.4	5.5		5.5	5.5	1.3	15.1	11.5		23.4	13.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	5.4	5.5		5.5	5.5	1.3	15.1	11.5		23.4	13.4	
LOS	A	A		A	A	A	B	B		C	B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		5.5			4.9			12.1			18.2	
Approach LOS		A			A			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 50
Actuated Cycle Length: 44.7
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 7.5 — Intersection LOS: A
Intersection Capacity Utilization 53.7% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Route 20 (Southwestern Blvd) & Rogers Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑	↱	↰	↱		↰	↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	55		0	165		90	50		0	60		0
Storage Lanes	1		0	1		1	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850		0.992			0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3525	0	1770	3539	1583	1770	1848	0	1770	1792	0
Flt Permitted	0.349			0.358			0.690			0.693		
Satd. Flow (perm)	650	3525	0	667	3539	1583	1285	1848	0	1291	1792	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				124		4			25	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		885			2288			1273			754	
Travel Time (s)		20.1			52.0			28.9			17.1	
Volume (vph)	21	469	16	5	691	117	19	77	4	129	63	21
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	22	499	17	5	735	124	23	94	5	157	77	26
Lane Group Flow (vph)	22	516	0	5	735	124	23	99	0	157	103	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phases	2	2		6	6	6	8	8		4	4	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		21.0	21.0	
Total Split (s)	45.0	45.0	0.0	45.0	45.0	45.0	20.0	20.0	0.0	20.0	20.0	0.0
Total Split (%)	69.2%	69.2%	0.0%	69.2%	69.2%	69.2%	30.8%	30.8%	0.0%	30.8%	30.8%	0.0%
Maximum Green (s)	40.0	40.0		40.0	40.0	40.0	15.0	15.0		15.0	15.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Act Effct Green (s)	24.4	24.4		24.4	24.4	24.4	12.1	12.1		12.4	12.4	
Actuated g/C Ratio	0.57	0.57		0.57	0.57	0.57	0.27	0.27		0.27	0.27	
v/c Ratio	0.06	0.26		0.01	0.37	0.13	0.07	0.20		0.44	0.20	
Control Delay	6.7	6.7		6.2	9.1	2.1	10.1	10.1		14.4	8.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	6.7	6.7		6.2	9.1	2.1	10.1	10.1		14.4	8.6	
LOS	A	A		A	A	A	B	B		B	A	
Approach Delay		6.7			8.1			10.1			12.1	
Approach LOS		A			A			B			B	

APPENDIX
Page 58 of 62

Intersection Summary
Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 42.9
Natural Cycle: 45
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 7.3 Intersection LOS: A
Intersection Capacity Utilization 39.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Route 20 (Southwestern Blvd) & Amsdell Road

3: Route 20 (Southwestern Blvd) & East Site Drive

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↱			↰↑	Y	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	652	7	47	684	7	44
Peak Hour Factor	0.94	0.94	0.94	0.94	0.85	0.85
Hourly flow rate (vph)	694	7	50	728	8	52
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				880		
pX, platoon unblocked					0.95	
vC, conflicting volume			701		1161	351
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			701		1115	351
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		95	92
cM capacity (veh/h)			892		181	648

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	462	236	293	485	60
Volume Left	0	0	50	0	8
Volume Right	0	7	0	0	52
cSH	1700	1700	892	1700	477
Volume to Capacity	0.27	0.14	0.06	0.29	0.13
Queue Length 95th (ft)	0	0	4	0	11
Control Delay (s)	0.0	0.0	2.1	0.0	13.6
Lane LOS			A		B
Approach Delay (s)	0.0		0.8		13.6
Approach LOS					B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

4: Route 20 (Southwestern Blvd) & West Site Drive

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↱			↰↑	Y	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	617	16	48	644	15	41
Peak Hour Factor	0.94	0.94	0.94	0.94	0.85	0.85
Hourly flow rate (vph)	656	17	51	685	18	48
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				1273		
pX, platoon unblocked						
vC, conflicting volume			673		1110	337
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			673		1110	337
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		91	93
cM capacity (veh/h)			913		192	659

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	438	236	279	457	66
Volume Left	0	0	51	0	18
Volume Right	0	17	0	0	48
cSH	1700	1700	913	1700	399
Volume to Capacity	0.26	0.14	0.06	0.27	0.17
Queue Length 95th (ft)	0	0	4	0	15
Control Delay (s)	0.0	0.0	2.2	0.0	15.8
Lane LOS			A		C
Approach Delay (s)	0.0		0.8		15.8
Approach LOS					C

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4T›			4T›			4›			4›	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	3	592	10	9	641	37	11	9	15	26	13	2
Peak Hour Factor	0.94	0.94	0.94	0.87	0.87	0.87	0.80	0.80	0.80	0.75	0.75	0.75
Hourly flow rate (vph)	3	630	11	10	737	43	14	11	19	35	17	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	779			640			1036	1441	320	1106	1426	390
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	779			640			1036	1441	320	1106	1426	390
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			92	91	97	77	87	100
cM capacity (veh/h)	834			940			164	122	675	148	132	608

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	318	326	379	411	44	55
Volume Left	3	0	10	0	14	35
Volume Right	0	11	0	43	19	3
cSH	834	1700	940	1700	220	148
Volume to Capacity	0.00	0.19	0.01	0.24	0.20	0.37
Queue Length 95th (ft)	0	0	1	0	18	39
Control Delay (s)	0.1	0.0	0.4	0.0	25.4	42.9
Lane LOS	A		A		D	E
Approach Delay (s)	0.1		0.2		25.4	42.9
Approach LOS					D	E

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		

A7

Correspondence

From: adake@netacc.net
Sent: Thursday, February 15, 2007 8:44 AM
To: adake@srfa.net
Subject: FW: Re: new projects

-------- Original Message --------
From : Michael Gallerani[mailto:mgallerani@dot.state.ny.us]
Sent : 2/14/2007 9:00:58 AM
To : adake@srfa.net
Cc : BSKOK@dot.state.ny.us; ERUTKOWSKI@dot.state.ny.us; HLANGDON@dot.state.ny.us; cgreene@srfa.net; vkannan@srfa.net
Subject : FW: Re: new projects

Amy,

We have reviewed the information supplied for both the proposed Brierwood Villas and Camp Road Retail projects, and we have the following comments:

Brierwood Villas:

1) Because this development is also proposing 28,000 SF of retail, we would like to see the Saturday peak also analyzed.
2) Was this development analyzed using existing traffic, or do you plan on using a growth rate?

If you have any questions, please feel free to let us know.

Michael Gallerani
NYSDOT - Region 5
Traffic Engineering & Safety

>>> "Amy Dake" <adake@srfa.net> 02/06/07 3:52 PM >>>
Hi Michael,

I have 2 new projects that I am working on in your region! I wanted to send you some preliminary information on the projects to see if you concur with the trip generation and distribution, etc.

The second project is called Villas at Brierwood. It is a mixed use development (residential and commercial) located on the south side of Southwestern Blvd just west of Amsdell Rd. The file called Villas_Brierwood has the same info that I provided for the Camp Road project. I didn't think it would make sense to look at accidents on this one since the impact is all on Southwestern Blvd - what do you think?

Please let me know what you think at your earliest convenience. We are going to continue to progress the two projects over the next week or two and hopefully finish the TIS's around mid-month or the third week of February.
Feel free to give me a call if you have any questions.

Thanks,

Amy

APPENDIX D – SECTION 5

Storm Water Management
Drainage Calculations

METZGER CIVIL ENGINEERING, PLLC
8560 Main Street
Williamsville, New York 14221
Phone: 716-633-2601, Fax: 716-633-2704

roject:	Villas @ Brierwood (PRELIMINARY POND CALCS)	By:	PCC	Date:	3/16/2007
Location:	Town of Hamburg, Erie County, NY	Checked:	ARH	Date:	
County:	Erie				

TR-55 Pre-Development Summary

STORM 1-Yr

Area or Reach Identifier	Drainage Area (acres)	% of site	Runoff Amount, Qd (in)	Peak Flow Rate (cfs)
Entire Site	43.2	100		24.35
This Pond	43.2	100.0	0.5	24.36

STORM 10-Yr

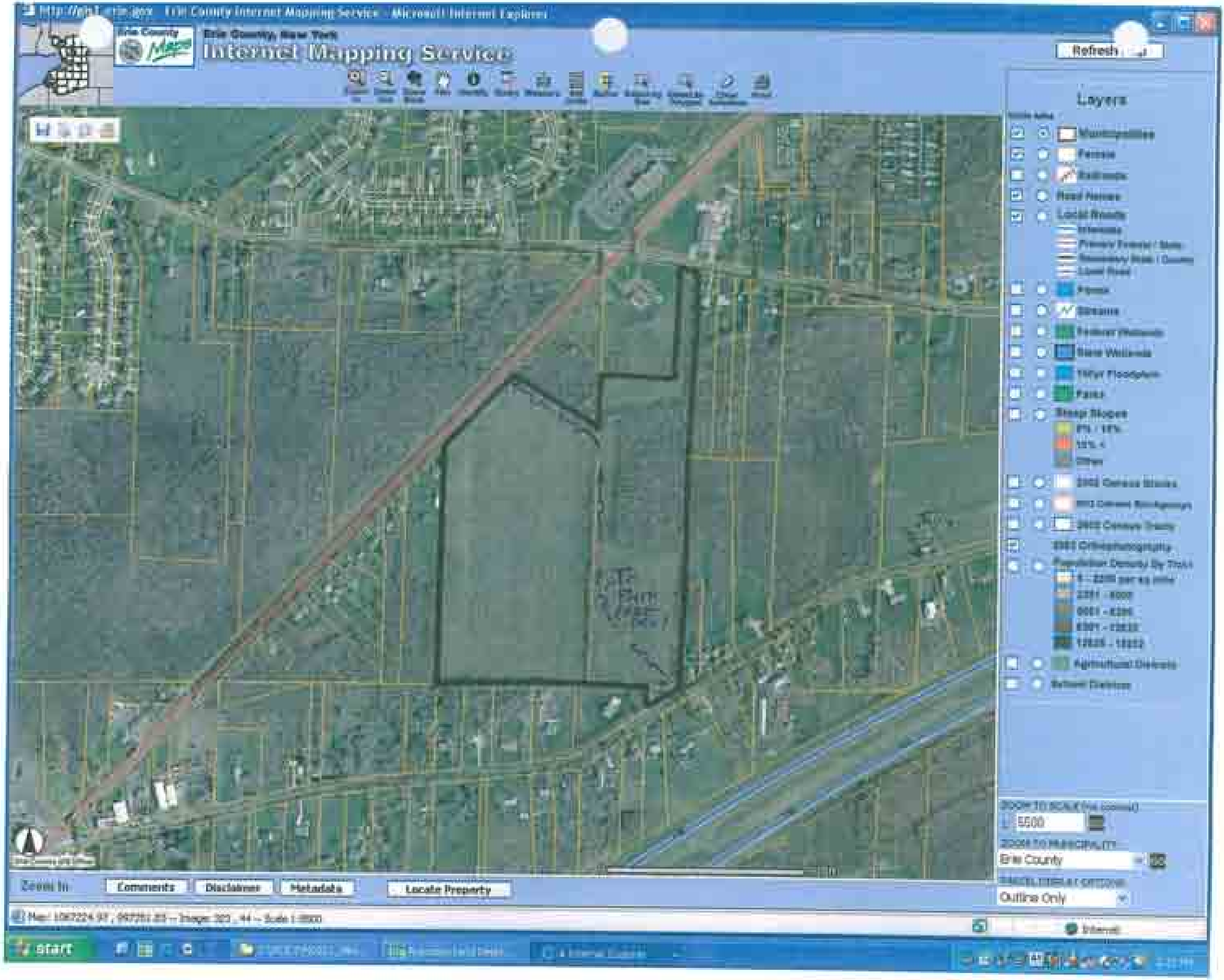
Area or Reach Identifier	Drainage Area (acres)	% of site	Runoff Amount, Qd (in)	Peak Flow Rate (cfs)
Entire Site	43.2	100		77.09
This Pond	43.2	100.0	1.6	77.11

STORM 100-Yr

Area or Reach Identifier	Drainage Area (acres)	% of site	Runoff Amount, Qd (in)	Peak Flow Rate (cfs)
Entire Site	43.2	100		129.73
This Pond	43.2	100.0	2.6	129.76

Storm Event	Rainfall P, Inches	Initial Abstraction Ia = 0.2S, Inches	Potential Retention S=(1000/CN)-10 inches	CN	Runoff Amount, Inches Qd = (P-Ia)^2 / ((P-Ia)+S)
1-yr	2.1	0.56	2.82	78	0.54
10-yr	3.6	0.56	2.82	78	1.57
100-yr	4.9	0.56	2.82	78	2.63

Rainfall Distribution = TYPE II
Time of Concentration, $T_{c\,(hours)}$ = 0.31



Erie County, New York
Internet Mapping Service
Refresh
Layers
Municipalities
Parcels
Railroads
Road Names
Local Roads
Streams
Federal Wetlands
State Wetlands
Parks
Steep Slopes
Agricultural Districts
School Districts
Zoom In
Comments
Disclaimer
Metadata
Locate Property
5500
Erie County
Outline Only
start

WinTR-55 Current Data Description

--- Identification Data ---

User: PCC
Project: Villas @ Brierwood
SubTitle: Pre-development
State: New York
County: Erie
Filename: Z:\MCE 2\M0621_Villas At Brierwood\M0621_TR-55_Predevelopment.w55

Date: 2/2/2007
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
predevelop		Outlet	43.19	78	.308

Total area: 43.19 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.5	3.1	3.6	4.0	4.5	4.9	2.1

Storm Data Source: Erie County, NY (NRCS)
Rainfall Distribution Type: Type II
Dimensionless Unit Hydrograph: <standard>

PCC

Villas @ Brierwood
Pre-development
Erie County, New York

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 10-Yr (cfs) (hr)	100-Yr (cfs) (hr)	1-Yr (cfs) (hr)
SUBAREAS			
predevelop	77.09 12.08	129.73 12.07	24.35 12.09
REACHES			
OUTLET	77.09	129.73	24.35

Villas @ Brierwood
Pre-development
Erie County, New York

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
predevelop	Meadow -cont. grass (non grazed)		D	36.79	78
	Woods	(fair)	D	6.4	79
	Total Area / Weighted Curve Number			43.19	78

Villas @ Brierwood
Pre-development
Erie County, New York

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
predevelop							
SHEET	100	0.0600	0.240				0.173
SHALLOW	750	0.0230	0.050				0.085
CHANNEL	610	0.0150	0.035	27.00	16.42	7.367	0.023
CHANNEL	530	0.0087	0.035	27.00	16.42	5.453	0.027
				Time of Concentration			.308

METZGER CIVIL ENGINEERING, PLLC

DITCH DESIGN BASED ON MANNINGS EQUATION

PROJECT NAME: Villas @ Brierwood, Town of Hamburg, Erie County, New York
PROJECT NO: M0621
DATE: 02-02-07
By : P. CASE
Page : Pre-development Tc Calc - Channel Flow A

N	DEPTH OF FLOW (FT)	WIDTH (FT)	SLOPE (%)	LEFT SS X:1	RIGHT SS X:1
0.035	3.000	3.00	1.500	2.000	2.000

DITCH DESIGN

TOP OF BANK ELEVATION (FT)	=	748.00
DITCH BOTTOM ELEVATION (FT)	=	745.00
TOTAL DEPTH OF DITCH (FT)	=	3.00
TOTAL TOP WIDTH OF DITCH (FT)	=	15.00
BOTTOM WIDTH OF DITCH (FT)	=	3.00

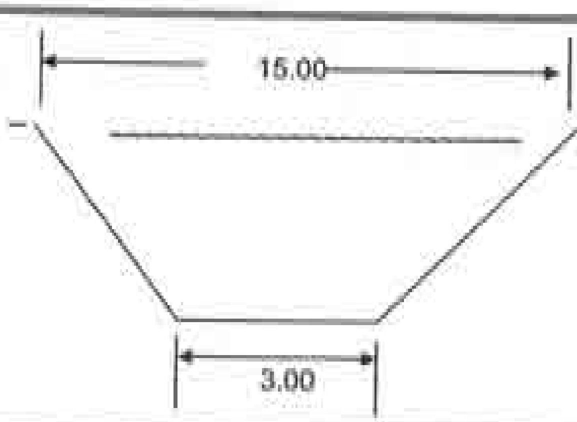
RESULTS

TOTAL FLOW IN DITCH (CFS)	=	195.62
VELOCITY OF FLOW (FPS)	=	7.25
FREE BOARD AVAILABLE (FT)	=	0.00

FORMULA

$$\text{FLOW, Q} = \frac{1.486}{n} \times (R)^{2/3} \times (S)^{0.5} \times A$$

CROSS-SECT. AREA OF DITCH 'A' (SF)	=	27.00
WETTED PERIMETER 'P' (FT)	=	16.42
HYDRAULIC RADIUS R = A/P (FT)	=	1.64



TOP OF BANK EL. (ft.)	=	748.00
WATER SURFACE (ft.)	=	748.00
BOTTOM ELEVATION (ft.)	=	745.00

METZGER CIVIL ENGINEERING, PLLC

DITCH DESIGN BASED ON MANNINGS EQUATION

PROJECT NAME: Villas @ Brierwood, Town of Hamburg, Erie County, New York
PROJECT NO: M0621
DATE: 02-02-07
By : P. CASE
Page : Pre-development Tc Calc. - Channel Flow "B"

N	DEPTH OF FLOW (FT)	WIDTH (FT)	SLOPE (%)	LEFT SS X:1	RIGHT SS X:1
0.035	3.000	3.00	0.870	2.000	2.000

DITCH DESIGN

TOP OF BANK ELEVATION (FT)	=	735.00
DITCH BOTTOM ELEVATION (FT)	=	732.00
TOTAL DEPTH OF DITCH (FT)	=	3.00
TOTAL TOP WIDTH OF DITCH (FT)	=	15.00
BOTTOM WIDTH OF DITCH (FT)	=	3.00

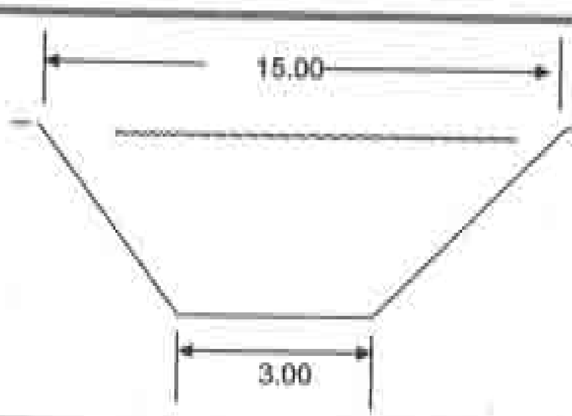
RESULTS

TOTAL FLOW IN DITCH (CFS)	=	148.98
VELOCITY OF FLOW (FPS)	=	5.52
FREE BOARD AVAILABLE (FT)	=	0.00

FORMULA

$$\text{FLOW, Q} = \frac{1.486}{n} \times (R)^{2/3} \times (S)^{0.5} \times A$$

CROSS-SECT. AREA OF DITCH 'A' (SF)	=	27.00
WETTED PERIMETER 'P' (FT)	=	16.42
HYDRAULIC RADIUS R = A/P (FT)	=	1.64



TOP OF BANK EL. (ft.)	=	735.00
WATER SURFACE (ft.)	=	735.00
BOTTOM ELEVATION (ft.)	=	732.00

METZGER CIVIL ENGINEERING, PLLC

8560 Main Street
Williamsville, New York 14221
Phone: 716-633-2601, Fax: 716-633-2704

Project:	Villas @ Briarwood (PRELIMINARY POND CALCS)	By:	PCC	Date:	3/16/2007
Location:	Town of Hamburg, Erie County, NY	Checked:	ARH	Date:	

TR-55 Post Development Summary

STORM 1-Yr

Area or Reach Identifier	Drainage Area (acres)	% of site	Runoff Amount, Qd (in)	Peak Flow Rate (cfs)
Entire Site	43.2	100		
This pond	43.2	100.0	1.1	59.68

STORM 10-Yr

Area or Reach Identifier	Drainage Area (acres)	% of site	Runoff Amount, Qd (in)	Peak Flow Rate (cfs)
Entire Site	43.2	100		
This pond	43.2	100.0	2.4	129.30

STORM 100-Yr

Area or Reach Identifier	Drainage Area (acres)	% of site	Runoff Amount, Qd (in)	Peak Flow Rate (cfs)
Entire Site	43.2	100		
This pond	43.2	100.0	3.7	190.79

Storm Event	Rainfall P, inches	Initial Abstraction Ia = 0.2S, inches	Potential Retention S=(1000/CN)-10 inches	CN	Runoff Amount, Inches Qd = (P-Ia)^2 / ((P-Ia)+S)
1-yr	2.1	0.25	1.24	89	1.11
10-yr	3.6	0.25	1.24	89	2.45
100-yr	4.9	0.25	1.24	89	3.68

Rainfall Distribution = TYPE II

Time of Concentration, $Tc_{(Hours)}$ = 0.25


SITE DATA
BUILDING TYPES
CONCEPTUAL PLAN ASSUMPTIONS

WinTR-55 Current Data Description

--- Identification Data ---

User: PCC
Project: Villas @ Brierwood
SubTitle: Post Development
State: New York
County: Erie
Filename: Z:\MCE Z\M0621_Villas At Brierwood\M0621_TR-55_Post Development.w55

Date: 2/2/2007
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
Post Dev.		Outlet	43.19	89	0.250 (ASSUMED 15MIN.)

Total area: 43.19 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.5	3.1	3.6	4.0	4.5	4.9	2.1

Storm Data Source: Erie County, NY (NRCS)
Rainfall Distribution Type: Type II
Dimensionless Unit Hydrograph: <standard>

POC

Villas @ Brierwood
Post Development
Erie County, New York

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 10-Yr (cfs) (hr)	100-Yr (cfs) (hr)	1-Yr (cfs) (hr)
SUBAREAS			
Post Dev.	129.30 12.04	190.79 12.04	59.68 12.05
REACHES			
OUTLET	129.30	190.79	59.68

FCC

Villas @ Brierwood
Post Development
Erie County, New York

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Post Dev.	Open space; grass cover > 75%	(good)	D	11.56	80
	Commercial & business		D	3.21	95
	Residential districts (1/8 acre)		D	27.49	92
	Residential districts (1/3 acre)		D	.93	86
	Total Area / Weighted Curve Number			43.19	89

METZGER CIVIL ENGINEERING, PLLC

8560 Main Street
Williamsville, New York 14221
Phone: 716-633-2601, Fax: 716-633-2704

Project:	Villas @ Brierwood (PRELIMINARY POND CALCS)	By:	PCC	Date:	3/16/2007
Location:	Town of Hamburg, Erie County, NY	Checked	ARH	Date:	

Storage Volume Estimation

Taken from NYS Stormwater Management Design Manual (NYS-SMDM) Appendix B

Area Final Phase = 43.2 Acres

	Channel Protection Cp_v 1 YR / 24-Hour Extended Detention	
Ia / P (From Post Development Summary Sheet, 1yr storm)	0.12	
Post Development Time of Concentration, Tc (From TR-55 Calcs)	0.25	hours
Unit Peak Discharge, qu (from TR-55 Exhibit 4-II, attached)	729	cfs/sqmi/inch
Ratio of Outflow to Inflow, qo/qi (NYS-SMDM Figure B.1, attached)	0.025	
Ratio of Storage Volume to Runoff Volume, vs/vr		
vs/vr = 0.682 - 1.43(qo/qi) + 1.64 (qo/qi)^2 - 0.804 (qo/qi)^3 =	0.65	
Pos-Dev Runoff Amount, Q_d (From Post Development Summary Sheet)	1.1	inches
Req'd Storage Volume$_{(acre-feet)}$, Vs = ((V_s/V_r) ($Q_{d, inches}$) ($A_{, acres}$)) / 12 $_{inches/foot}$	2.6	acre-feet
Req'd Storage Volume$_{(cubic feet)}$, Vs = Vs $_{(acre-feet)}$ x 43560 $_{sq.ft./acre}$	$\boxed{112{,}810}$	cubic feet
Cp_v-ED Average release rate over 24 hours = vs $_{(cubic feet)}$ / 86400 $_{seconds/24 hrs}$	1.31	cfs

	Overbank Flood Q_p 10YR	Extreme Flood Q_f 100 YR	
Pre-Dev Peak Flow Q_O (From TR-55 Output)	77.11	129.76	cfs
Pos-Dev Peak Flow Q_I (From TR-55 Output)	129.30	190.79	cfs
Pos-Dev Runoff Amount, Q_d (From Post Development Summary Sheet)	2.45	3.68	inches
Ratio of Pre-Dev Peak Flow to Pos-Dev Peak Flow, Q_O/Q_I	0.60	0.68	
Ratio of Storage Volume to Runoff Volume, V_S/V_R (From TR-55 Fig 6-1, Type II, attached)	0.24	0.22	
Req'd Storage Volume$_{(acre-feet)}$, Vs = [((V_s/V_r) ($Q_{d, inches}$) ($A_{, acres}$)) / 12 $_{in./ft.}$]	2.12	2.91	acre-feet
Req'd Storage Volume$_{(cubic feet)}$, Vs = Vs $_{(acre-feet)}$ x 43560 $_{sq.ft./acre}$	92,198	126,829	cubic feet

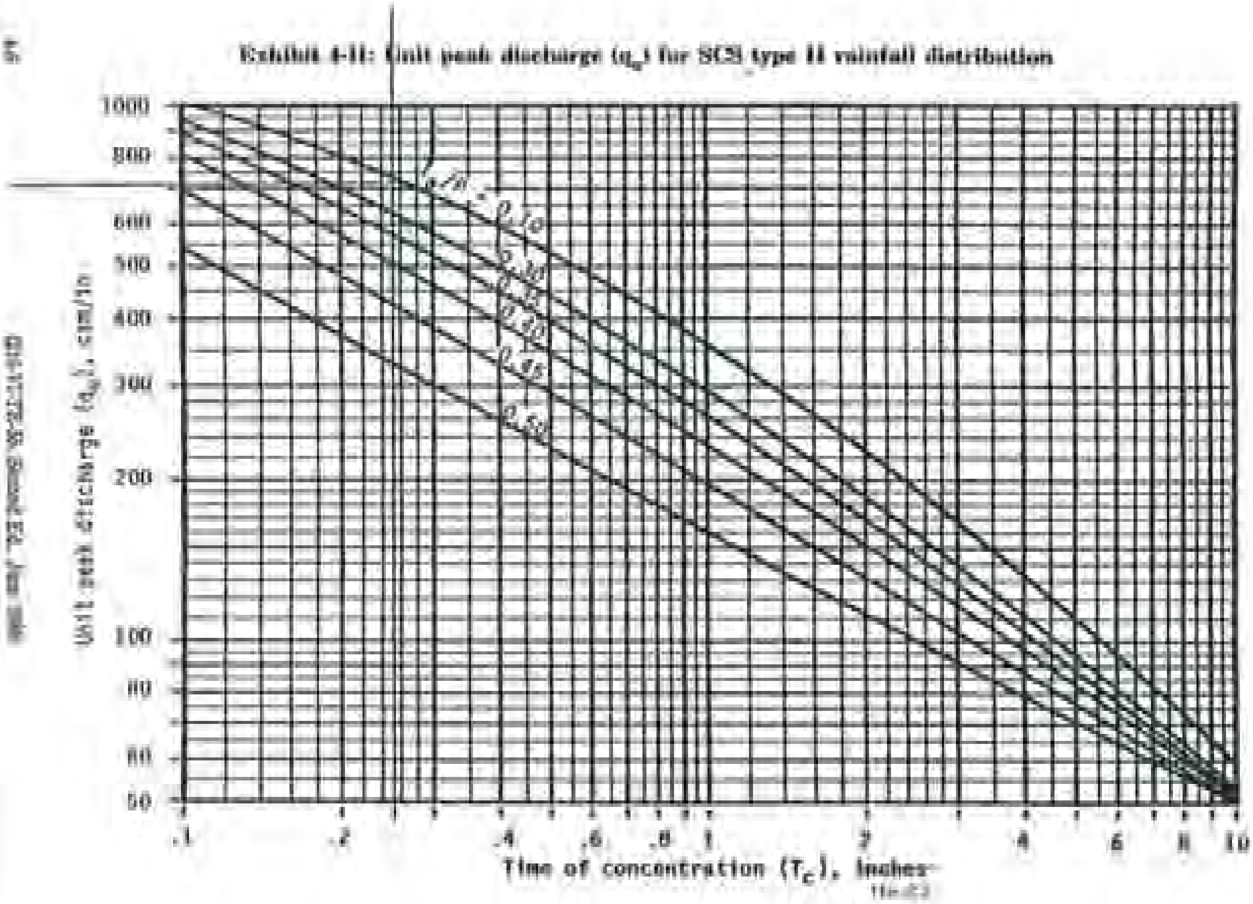
METZGER
CIVIL
ENGINEERING, PLLC

8560 Main Street
Williamsville, New York 14221
Phone: 716-633-2601, Fax: 716-633-2704

Project:	Villas @ Brierwood (PRELIMINARY POND CALCS)	By:	PCC	Date:	3/16/2007
Location:	Town of Hamburg, Erie County, NY	Checked:	ARH	Date:	

Storage Volume Estimation - Continued

Exhibit 4-II: Unit peak discharge (q_u) for SCS type II rainfall distribution

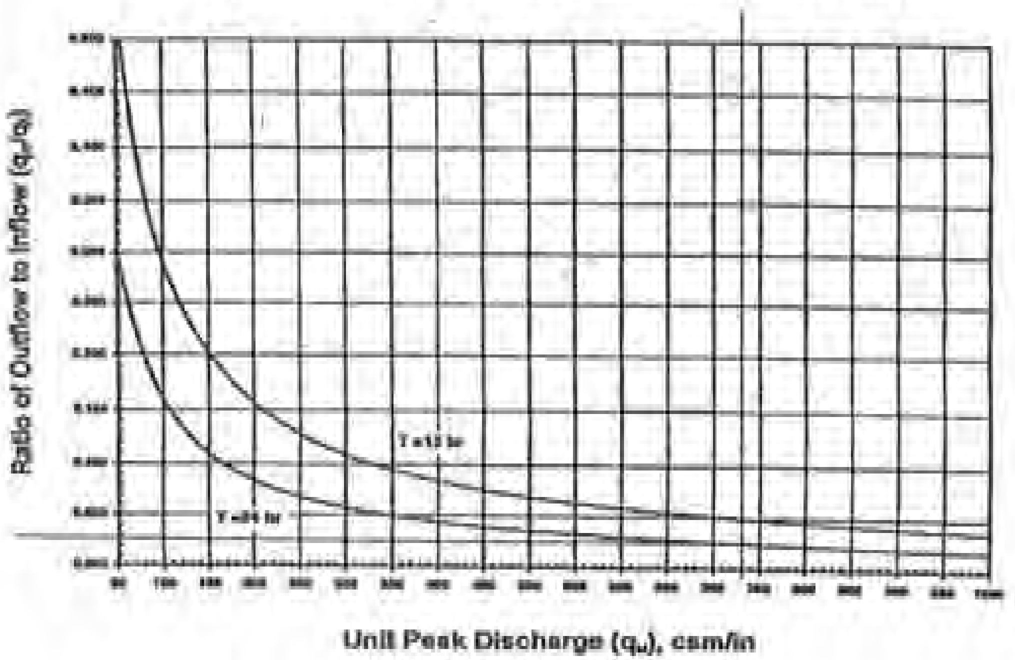


METZGER CIVIL ENGINEERING, PLLC

8560 Main Street
Williamsville, New York 14221
Phone: 716-633-2601, Fax: 716-633-2704

Project:	Villas @ Brierwood (PRELIMINARY POND CALCS)	By:	PCC	Date:	3/16/2007
Location:	Town of Hamburg, Erie County, NY	Checked:	ARH	Date:	

Figure B.1 Detention Time vs. Discharge Ratios (Source: MDE, 2000)



METZGER CIVIL ENGINEERING, PLLC
8560 Main Street
Williamsville, New York 14221
Phone: 716-633-2601, Fax: 716-633-2704

Project:	Villas @ Brierwood (PRELIMINARY POND CALCS)	By:	PCC	Date:	3/16/2007
Location:	Town of Hamburg, Erie County, NY	Checked:	ARH	Date:	

Storage Volume Estimation - Continued

Input requirements and procedures

Use figure 6-1 to estimate storage volume (V_s) required or peak outflow discharge (q_o). The most *frequent* application is to estimate V_s, for which the required inputs are runoff volume (V_r), q_o, and peak inflow discharge (q_i). To estimate q_o, the required inputs are V_r, V_s, and q_i.

Estimating V_s

Use worksheet 6a to estimate V_s, storage volume required, by the following procedure.

1. Determine q_o. Many factors may dictate the selection of peak outflow discharge. The most common is to limit downstream discharges to a desired level, such as predevelopment discharge. Another factor may be that the outflow device has already been selected.
2. Estimate q_i by procedures in chapters 4 or 5. Do not use peak discharges developed by any other procedure. When using the Tabular Hydrograph method to estimate q_i for a subarea, only use

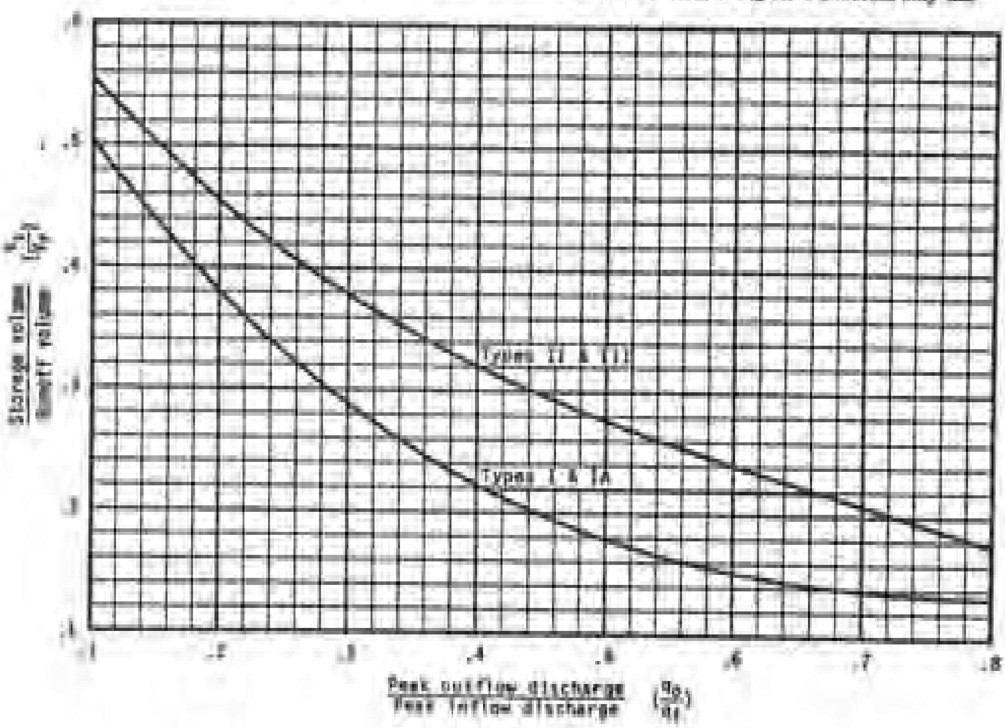


Figure 6-1.—Approximate detention basin routing for rainfall types I, IA, II, and III.

METZGER CIVIL ENGINEERING, PLLC
8560 Main Street
Williamsville, New York 14221
Phone: 716-633-2601, Fax: 716-633-2704

Project:	Villas @ Brierwood (PRELIMINARY POND CALCS)	By:	PCC	Date:	03/16/07
Location:	Town of Hamburg, Erie County, NY	Checked:	ARN	Date:	

Water Quality and Pond Volumes

Water Quality Volume, WQv

From NYS Stormwater Management Design Manual (NYS-SMDM), Section 4

WQv = (P*Rv*A) / 12

P=90% Rainfall Event No. for WNY	0.85		
I = Impervious cover	47.0	Percent	Note: Mean impervious cover from NYS-SMDM Table 4.2
Rv = 0.05 + 0.009 * I	0.47		
A = Site area	43.20	acres	

Total WQv Required =	**1.45**	acre-feet =	63,048	cf
Total Minimum Req'd Permanent Pool Volume, PPV = Total WQv x 50%	0.72	acre-feet =	31,524	cf
Req'd Forebay (Pretreatment) Volume = Total WQv x 10% =		acre-feet =		cf
Req'd Permanent Pool Volume in the "Wet Pool" = Total PPV - Req'd Forebay Volume =	0.724	acre-feet =	31,524	cf

Is "Wet Pool" Volume Provided = or > the Total WQv Required? Yes, 100% of WQv Provided in Wet Pool. Therefore, WQv-ED Not Req'd

Req'd WQv-ED Volume (i.e. volume above Normal Water Level) =Total WQv x 50% =		acre-feet =		cf
WQv-ED Average release rate over 24 hours = WQv-ED (cubic feet) / 86400 secs/24 hrs =		c.f.s.		

Pond Levels and Volumes

Pond A	HWE, ft	HWE Area, sf	LWE, ft	LW Area, sf	water depth, ft	Avg. Area, sf	Vol. Provided, cf	Vol. Req'd, cf		Difference
"Wet Pool"	108.00	61,714	100.00	21810	8.00	41,762	334,096	31,524		302,572
WQ_{ED}								None Req'd		
WQ										
WQ										
Cp_v	109.70	72,348	108.00	61714	1.70	67,031	113,952	112,810		1,142
[illegible]	109.75	72,660	108.00	61714	1.75	67,187	117,577	92,198		25,379
	109.90	73,599	108.00	61714	1.90	67,656	128,547	126,829		1,718

Wet Pond TOB @ EL. 111
Area @ TOB 80479 sf

WQv Storm Event Peak Flow Calculation (WQv Qp)

For Sizing Proprietary Pretreatment Structures If Used In Lieu Of Pretreatment Forebay

From NYS Stormwater Management Design Manual (NYS-SMDM), Appendix B.2

Post Development Time of Concentration, Tc	0.25 hr
Initial Abstraction, Ia	0.25
Ia / P	0.29
Unit Peak Discharge, qu	630 cfs/sqmi/inch
WQv in watershed inches = [WQv / Area] x 12	0.40 inches
A = area in square miles	0.0675 sq. miles
WQv Qp = qu x A x WQv	
Wqv Peak Discharge Qp =	17.1 cfs

Area, acres		% Impervious
3.21	acres of Commercial @	70
27.49	1/8-acre Residential @	65
0.93	1/3-acre Residential @	30
11.56	Open Space @	
Site Area, Ac = 43.19	Imp. Area, Ac =	20.39

APPENDIX D – SECTION 6

Sanitary Sewer Feasibility Study

SANITARY SEWER FEASIBILITY STUDY
VANDERBILT PROPERTIES, INC.
VILLAS AT BRIERWOOD
HAMBURG, NEW YORK

Prepared by:

TVGA CONSULTANTS

One Thousand Maple Road
Elma, NY 14059

(716) 655-8842
(fax) (716) 655-0937

2006.0104.00

June 2006

SANITARY SEWER FEASIBILITY STUDY
VANDERBILT PROPERTIES, INC.
VILLAS AT BRIERWOOD
HAMBURG, NEW YORK

TABLE OF CONTENTS

SANITARY SEWER FEASIBILITY STUDY
VANDERBILT PROPERTIES, INC.
VILLAS AT BRIERWOOD
HAMBURG, NEW YORK

1.0 INTRODUCTION

TVGA Consultants (TVGA) was retained by Vanderbilt Properties Inc. to perform a site review and prepare a feasibility study for the development of a gravity-feed sanitary sewer system for a proposed housing development in the town of Hamburg, Erie County, New York. TVGA has been provided with the following references for use in developing this report:

- Boundary/Topographic and Utility Survey, Genzel Land Surveying, P.C. 4/10/06
- Test pit coordinates and pipe elevations, Genzel Land Surveying, P.C. 6/12/06
- Town of Hamburg Construction Specifications, Article III. 1/91

The purpose of this feasibility report is to summarize the results of TVGA's study of existing conditions on and near the proposed development site. A site visit was conducted for the purpose of generally characterizing site conditions and identifying potential development constraints.

2.0 SITE DESCRIPTION

The proposed Villas at Brierwood development site is located on the east side of Southwestern Boulevard south of the intersection with Amsdell Road in the Town of Hamburg. The study is based on a development site consisting of 43 acres and 148 condominium units. The northern and smaller section of the property is wooded while the southern section is open fields. The property gradually slopes down to the north with an approximate difference in elevation of 20 feet. There is currently no town sanitary sewer service on Amsdell Road east of Southwestern Boulevard. Two sanitary manholes are located in the northwestern quadrant of the intersection of Southwestern and Amsdell Roads. TVGA evaluated connecting to these manholes via a gravity-feed conveyance.

3.0 PRELIMINARY SEWER LAYOUT

TVGA developed two possible alternatives for the layout of an 8-inch PVC gravity sewer system on the proposed development site. Layout # 1 connects to the existing sanitary manhole with a rim elevation of 738.50 feet and crosses Amsdell Road on the west side of Southwestern Boulevard, continues approximately 775 feet adjacent to the road until reaching a crossing point approximately 50 feet south of a 30-inch CMP storm culvert. After crossing Southwestern, the sewer then enters the property and provides service to all proposed buildings on the site. Refer to the preliminary line layout, Appendix A. Layout # 2 connects to an existing stub in the northernmost manhole, rim elevation 740.03 feet, located in the northwestern corner of the intersection of Southwestern and Amsdell Roads. It then crosses Southwestern, travels approximately 200 feet along the north side of Amsdell Road, crosses Amsdell and then enters the property, providing service to all proposed buildings on the site in a similar layout to Layout # 1.

4.0 FINDINGS

TVGA has determined that both layouts are feasible for the development of a gravity-feed sanitary sewer system, but both have physical limitations caused by utilities and the existing site conditions. The limitations are discussed below.

4.1 Waterline - Separation

A 42-inch transmission line runs adjacent to Southwestern Boulevard near the west shoulder of the road. The 51-inch outside diameter and profile of this pipe in relation to the elevation of the sanitary manhole inverts complicate crossing Southwestern Boulevard at any location along the property. Two test pits were dug to confirm the top of pipe elevation at the proposed crossing locations of Layout # 1 and Layout # 2. The test pits verified that the elevation of the pipe was slightly higher than shown on the Erie County Water Authority's as-built profiles of the water line. Layout # 1 is designed to cross over the top of the pipe at an invert elevation of 729.43 feet. This leaves nearly 20 inches of cover between the sanitary and water line, and is therefore satisfactory. Layout # 2 crosses under the water line at a distance of 25.0 feet from the sanitary manhole with a top of pipe elevation of 727.530 feet. The 42-inch transmission line has a bottom of pipe elevation of approximately 729.260 feet at this location, leaving a separation of 20.76 inches. While this meets the Erie County Water Authority's required amount of separation for a sanitary line under a water line, it is possible that a 16 – 20 inch casing will be required around the sanitary pipe at this location, as the location of the waterline puts it near the shoulder of Southwestern Boulevard. This would reduce the actual separation slightly below 18 inches, requiring an additional approval from the Erie County Water Authority and Health Department. The exact location of the waterline in relation to the new shoulder of Southwestern cannot be determined at this time as the road is under construction and the site survey does not incorporate the proposed construction.

4.2 Cover to Existing Ground

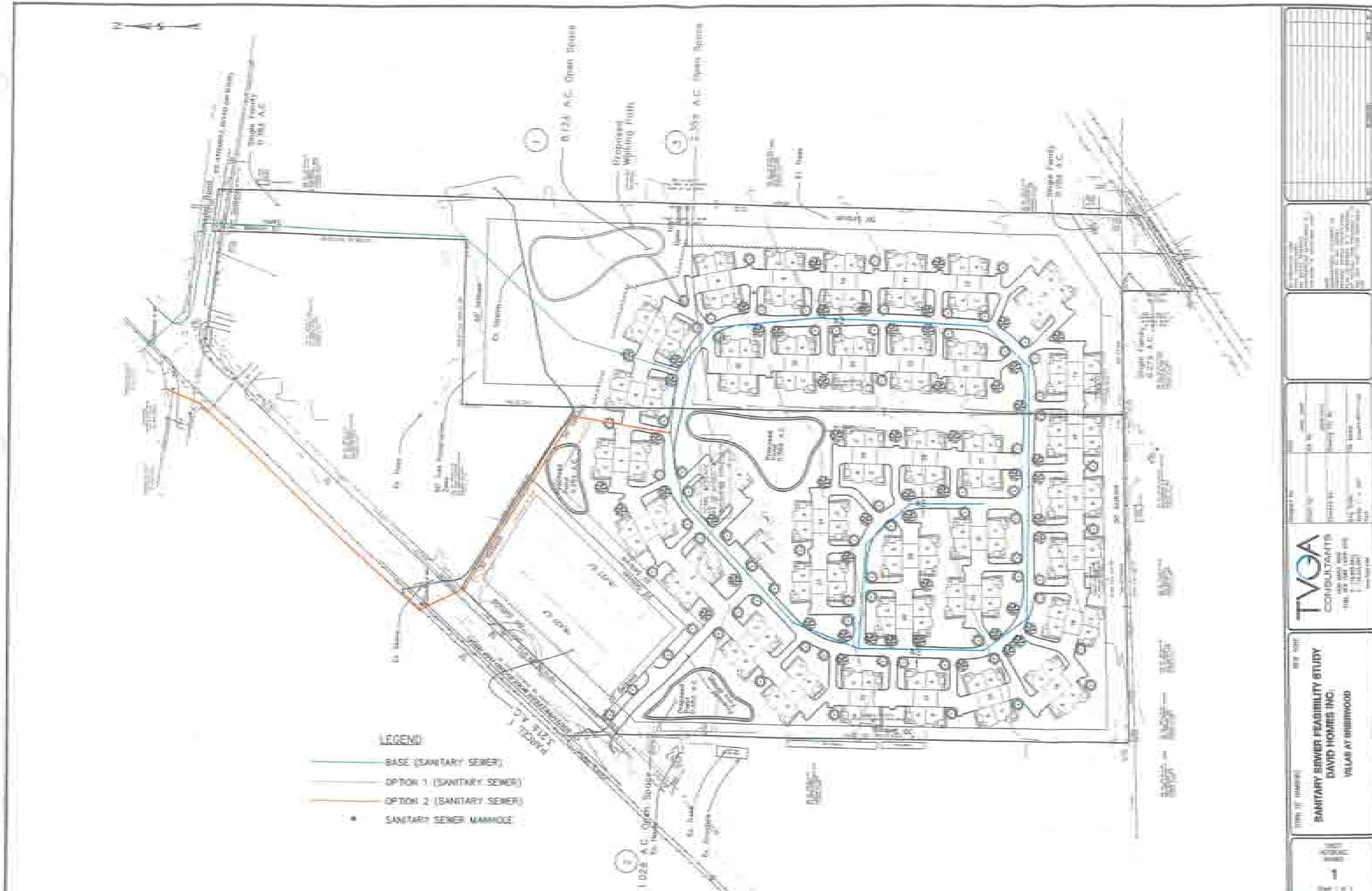
Gravity sanitary sewer in the Town of Hamburg is required to be at a minimum of 0.40 percent grade with 5.0 feet of cover below the finished grade. TVGA's two layouts have been designed at the 0.40 percent grade and profiles drawn to determine if this cover requirement is met. Layout # 1 has several cover restraints that would need to be addressed for construction to be accomplished. First, a drainage ditch is adjacent to the west side of Southwestern which would have to be crossed. The Genzel survey does not fully map the elevation of the ditch, but it has been determined from the invert elevation at the 30-inch CMP storm culvert that the sanitary pipe would cross the bottom of the ditch with approximately 1.0 feet of cover. Second, the pipe crosses onto the low side of the property and from preliminary profiles would require berms or earth fill to bring the cover up to acceptable levels along approximately 500 feet of pipe in the northwest quadrant of the proposed development site. Layout # 2 enters the property in a shorter length of pipe and on the high side of the property, therefore no constraints due to cover will occur along the length of the layout.

5.0 CONCLUSION

After consideration of both layout options and all site constraints examined by TVGA, it has been determined that a gravity-feed sanitary sewer system for the Brierwood development site, with connection to the Town of Hamburg's existing sanitary manholes, is feasible.

APPENDIX A

DRAFT LAYOUT


LEGEND
BASE (SANITARY SEWER)
OPTION 1 (SANITARY SEWER)
OPTION 2 (SANITARY SEWER)
SANITARY SEWER MANHOLE
TVGA
CONSULTANTS
SANITARY SEWER FEASIBILITY STUDY
DAVID HOMES INC.
VILLAS AT BRIARWOOD
1

APPENDIX D – SECTION 7

Sanitary Sewer Flow Monitoring Report

SANITARY SEWER FLOW MONITORING

TOWN OF HAMBURG, NEW YORK

FOR THE PROPOSED

VILLAS AT BRIERWOOD

FLOW MONITORING DATA

JANUARY 11, 2007

TECsmith
PO Box [illegible]
[illegible], New York [illegible]
716-[illegible]
fax 716-[illegible]

INTRODUCTION / SUMMARY

INTRODUCTION

This report was prepared for Lifestyle Communities, Inc., to determine the sanitary sewer flow downstream of their proposed Villas at Briarwood development in the Town of Hamburg, New York. We measured flow from November 21 – December 19, 2006, at two locations to help determine average flow, peak flow and peak levels.

Our study involved installing and maintaining two American Sigma portable flow meters for a four-week period. During that period, we calibrated the meters, adjusted the level, and downloaded the data, once each week. The results of our flow monitoring program are presented in this report, which includes data summaries for each monitoring point.

FLOW SUMMARY

Based on this flow monitoring program:

The *average daily* total flow rates at these locations were:

Site 01= 60,000+/- gpd;

Site 02 = 10,000+/- gpd;

Peak rainfall amounts recorded for this project include:

November 30 – December 1, 2006 = 1.70 inches

December 4, 2006 = 0.25 inches

The peak *wet-weather* flow rates at these locations were:

Site 01 = 390,000 gpd (December 1, 2006)

Site 02 = 66,000 gpd (December 1, 2006)

The peak flow *levels* at these locations (both 8-inch diameter pipes) were:

Site 01 = 3.217 inches (December 1, 2006)

Site 02 = 2.224 inches (December 1, 2006)

PROJECT INFORMATION

CLIENT: Lifestyle Communities, Inc.
c/o David Homes, Inc
PO Box 945
Hamburg, New York 14075

CONTACT: Eric J. Krull
716-691-6900

FLOW MEASUREMENT INFORMATION

1998 MEASUREMENT DATES: November 21 – December 19, 2006

METER LOCATIONS:

Location Map (see Figure 1)
001 – Cloverbank at Briercliff
002 – Brierwood @ Condominium No. 39

EQUIPMENT: AMERICAN SIGMA 910/920 Submerged Area/Velocity Flow Meters in open channels

DATA COLLECTED BY: Patrick Gronachan, Jerony Mosher, Chris Fiume; TEC*smith*

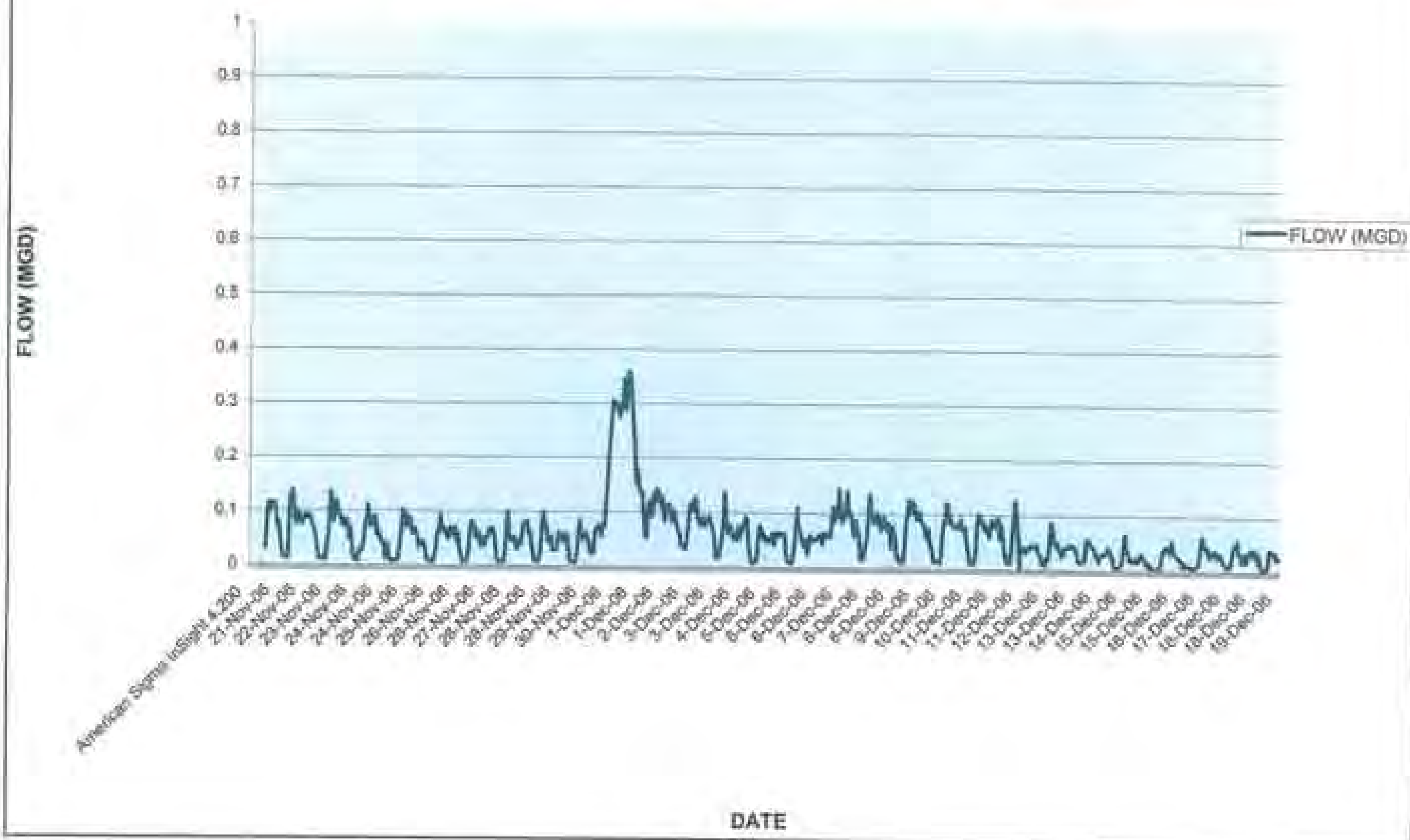
RAINFALL DATA: Frontier High School, Hamburg New York

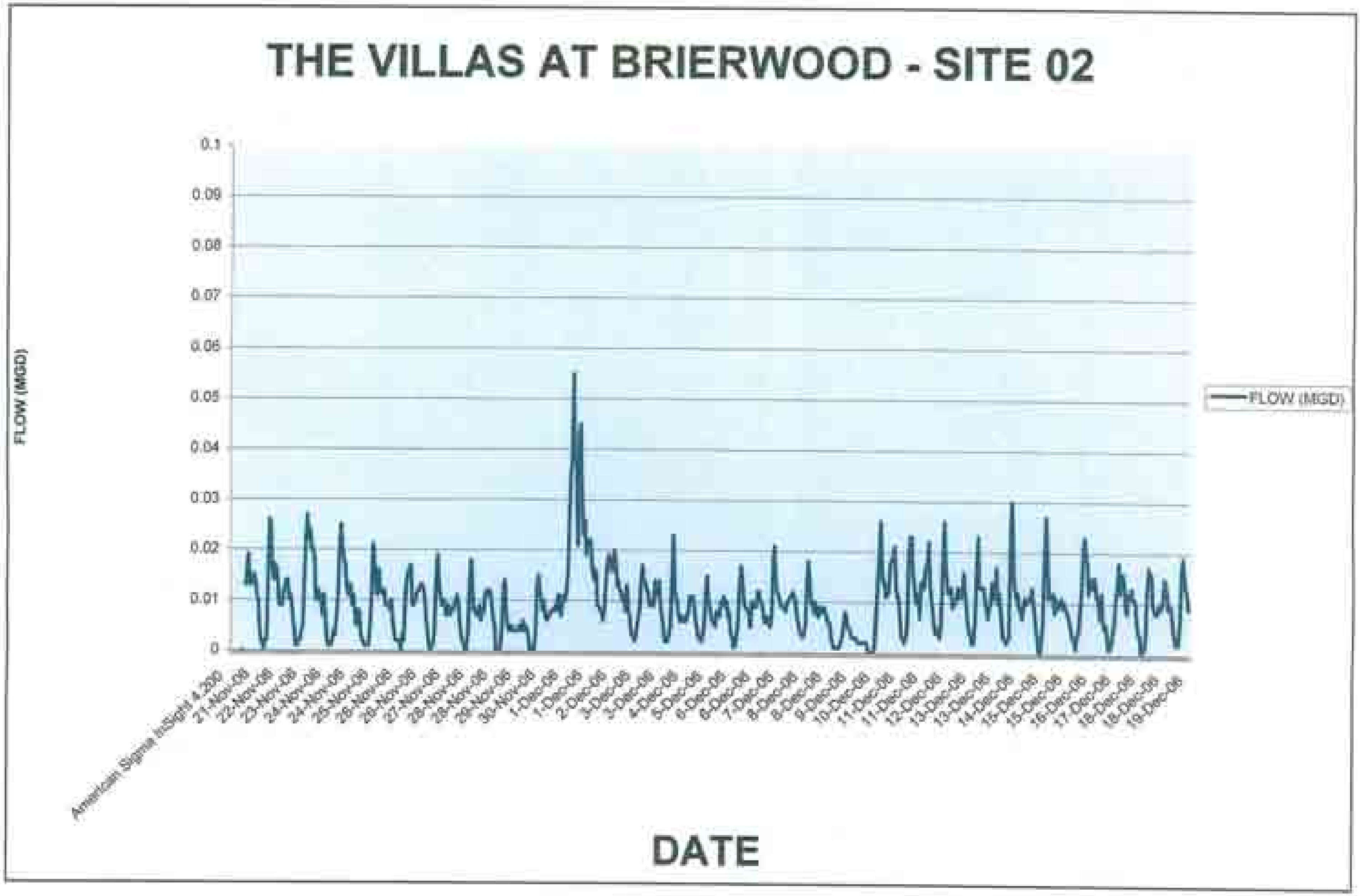
LOCATION MAP

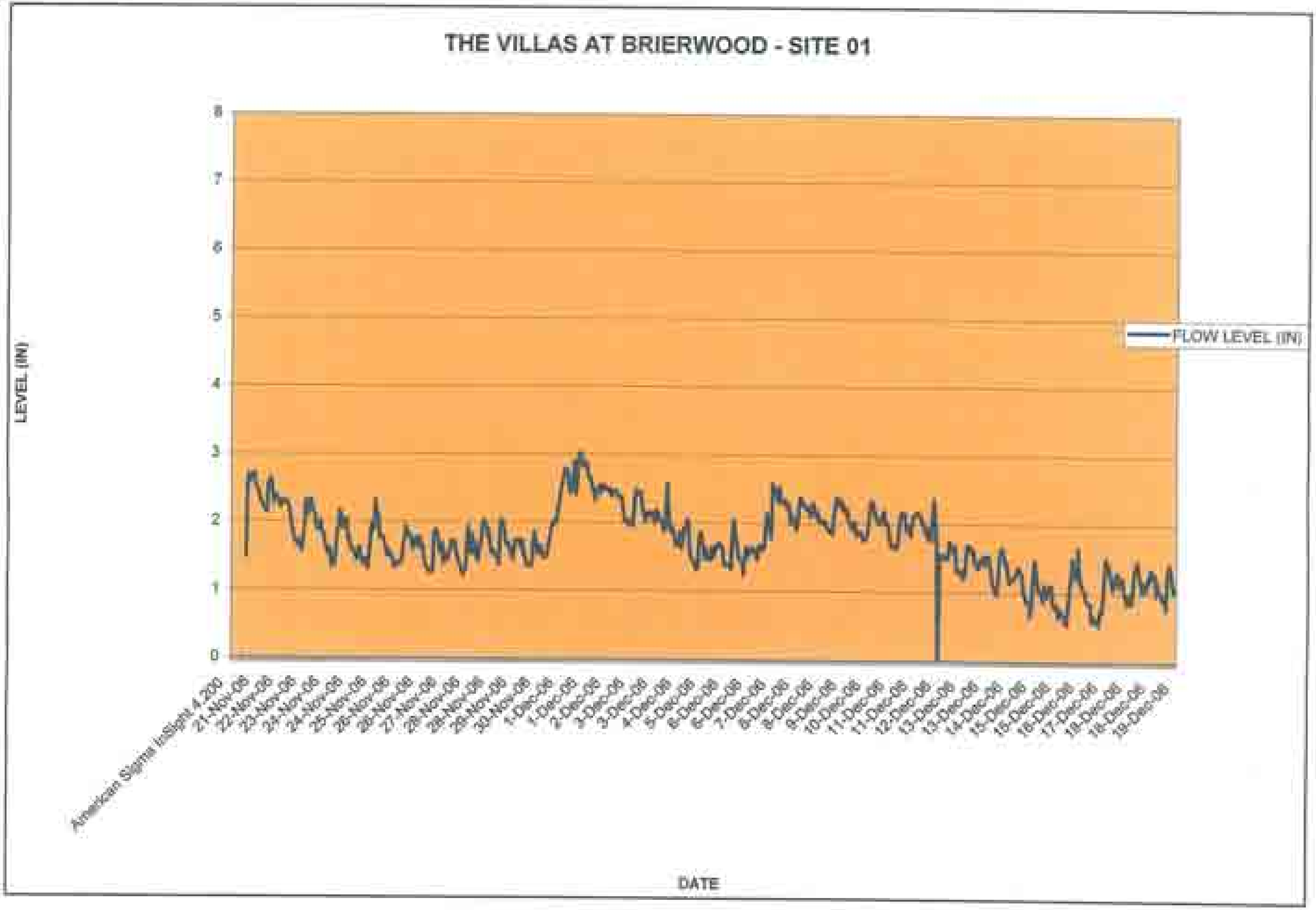
TEC smith	THE VILLAS AT BRIERWOOD SANITARY SEWER FLOW MONITORING SITE LOCATION MAP	FIGURE 1

FLOW DATA

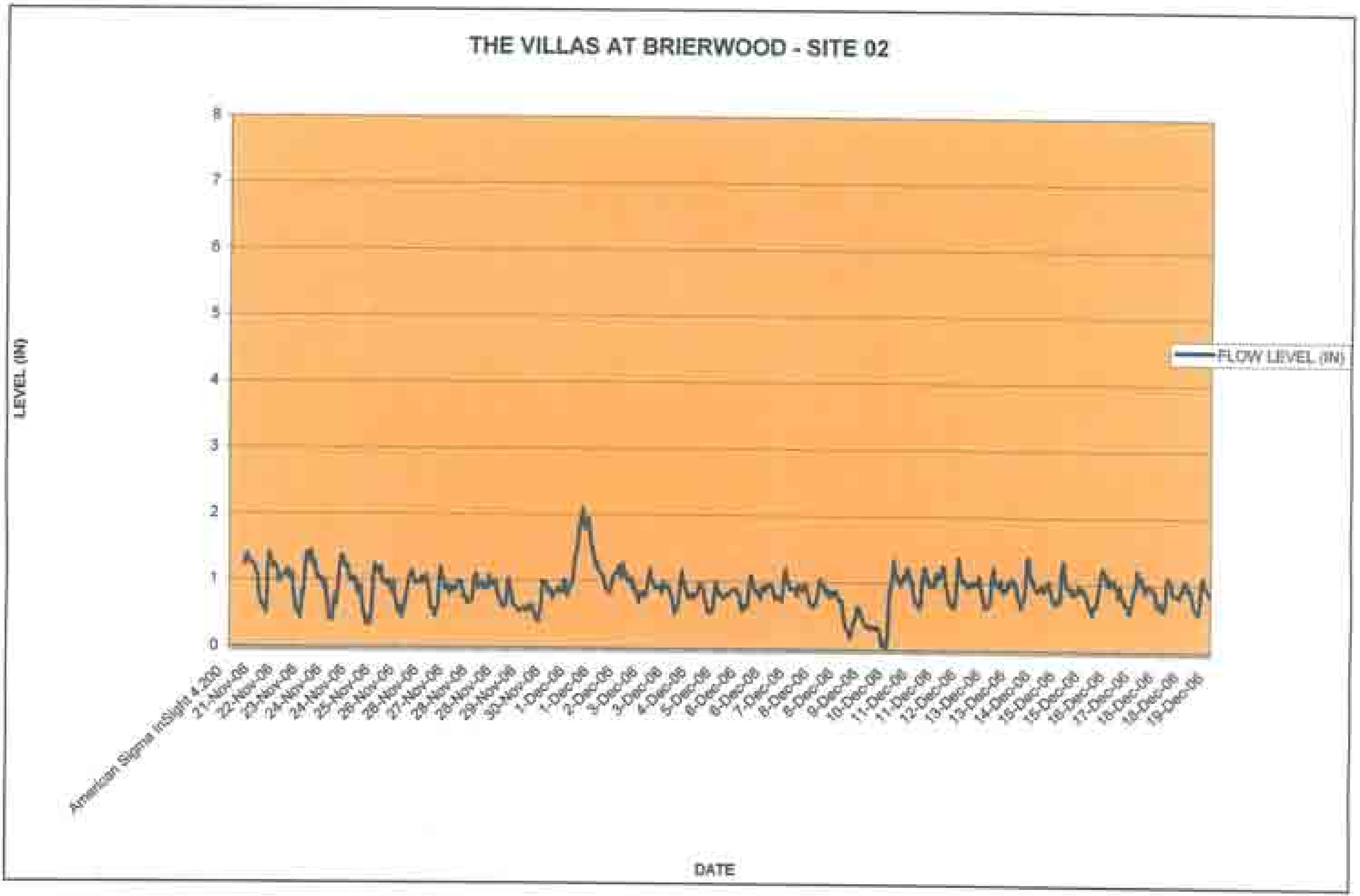
THE VILLAS AT BRIERWOOD - SITE 01




THE VILLAS AT BRIERWOOD - SITE 02
FLOW (MGD)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
FLOW (MGD)
DATE



THE VILLAS AT BRIERWOOD - SITE 01
LEVEL (IN)
FLOW LEVEL (IN)
DATE



THE VILLAS AT BRIERWOOD - SITE 02
LEVEL (IN)
8
7
6
5
4
3
2
1
0
FLOW LEVEL (IN)
American Sigma InSight 4.200
21-Nov-06
19-Dec-06
DATE


THE VILLAS AT BRIERWOOD - RAINFALL
RAIN (IN)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
RAIN (IN)
11/21/2007
11/22/2007
11/23/2007
11/24/2007
11/25/2007
11/26/2007
11/27/2007
11/28/2007
11/29/2007
11/30/2007
12/1/2007
12/2/2007
12/3/2007
12/4/2007
12/5/2007
12/6/2007
12/7/2007
12/8/2007
12/9/2007
12/10/2007
12/11/2007
12/12/2007
12/13/2007
12/14/2007
12/15/2007
12/16/2007
12/17/2007
12/18/2007
12/19/2007
DATE

SITE 01 SUMMARY

American Sigma InSight 4.200

SITE 01
21/NOV/06 - 19/DEC/06

Site Id: 00000001
Description: Briercliff

	Level (in.)	Vel. 1 (fps)	Flow 1 (mgd)
Minimum:	0.000 10:30am DEC 7	0.00 10:15am DEC 12	0.000 10:30am DEC 7
Maximum:	3.217 08:00pm DEC 1	5.28 02:30pm DEC 1	0.390 03:45pm DEC 1
Average:	1.732	1.45	0.060

Total Flow1: 1663.526 (gal) x1000

American Sigma InSight 4.200

SITE 01
Month Report - NOV 6

Channel: Flow 1
Site Id: 00000001
Description: Briercliff

Date		Maximum Time	Maximum (mgd)	Minimum Time	Minimum (mgd)	Total (gal) (x1000)
21/NOV/06	Tue	09:45pm	0.134	02:45pm	0.003	37.315
22/NOV/06	Wed	08:15am	0.172	05:30am	0.010	73.048
23/NOV/06	Thu	10:30am	0.155	06:15am	0.007	65.015
24/NOV/06	Fri	10:30am	0.147	02:30am	0.007	49.660
25/NOV/06	Sat	12:30pm	0.124	02:30am	0.005	46.675
26/NOV/06	Sun	11:00am	0.110	03:00am	0.005	45.246
27/NOV/06	Mon	08:00am	0.091	03:30am	0.005	45.648
28/NOV/06	Tue	06:15pm	0.124	03:00am	0.005	44.851
29/NOV/06	Wed	07:30am	0.139	03:30am	0.007	43.389
30/NOV/06	Thu	10:45pm	0.094	05:00am	0.005	45.606

Month Summary

Maximum:	0.172	(mgd)	22/NOV/06	08:15a.m.
Minimum:	0.003	(mgd)	21/NOV/06	02:45p.m.
Average:	0.055	(mgd)		
Total:	496.451	(gal)	x1000	

SITE 01
Month Report - DEC 6

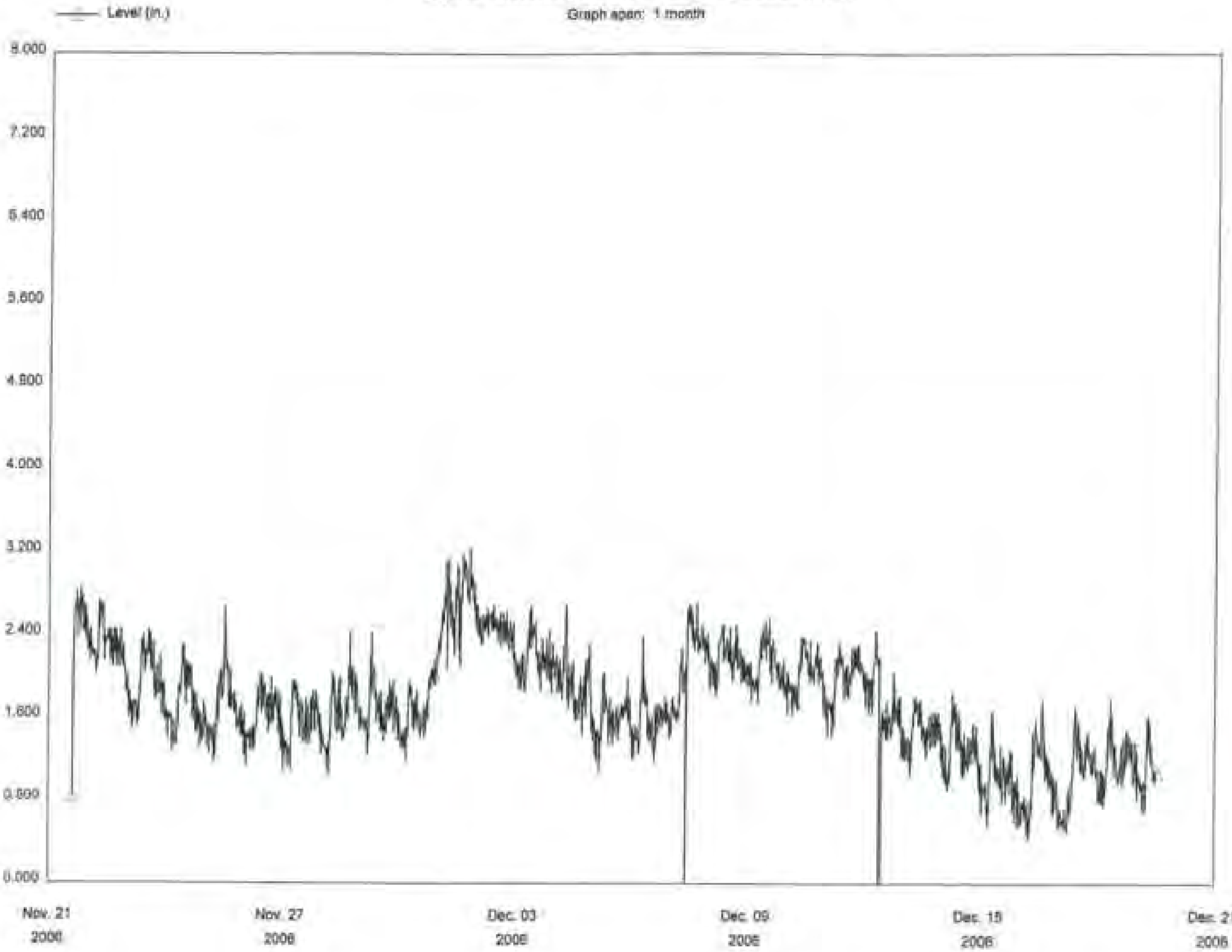
Channel: Flow 1
Site Id: 00000001
Description: Briercliff

Date		Maximum Time	Maximum (mgd)	Minimum Time	Minimum (mgd)	Total (gal) (x1000)
01/DEC/06	Fri	03:45pm	0.390	12:15am	0.087	255.079
02/DEC/06	Sat	11:00am	0.176	02:45am	0.021	105.505
03/DEC/06	Sun	09:00am	0.172	03:00am	0.011	79.616
04/DEC/06	Mon	08:15am	0.165	04:30am	0.010	61.943
05/DEC/06	Tue	07:00am	0.108	04:15am	0.006	47.047
06/DEC/06	Wed	07:30am	0.165	03:30am	0.006	45.893
07/DEC/06	Thu	11:30am	0.164	10:30am	0.000	86.516
08/DEC/06	Fri	07:30am	0.150	02:30am	0.012	72.645
09/DEC/06	Sat	09:30am	0.161	03:45am	0.010	70.415
10/DEC/06	Sun	11:30am	0.139	05:45am	0.009	63.619
11/DEC/06	Mon	04:30pm	0.134	02:45am	0.008	63.986
12/DEC/06	Tue	07:15am	0.149	10:00am	0.000	42.471
13/DEC/06	Wed	07:30am	0.101	03:15am	0.005	37.595
14/DEC/06	Thu	07:00am	0.108	01:30am	0.005	30.372
15/DEC/06	Fri	07:15am	0.093	04:30am	0.003	19.464
16/DEC/06	Sat	08:45am	0.072	03:30am	0.001	21.738
17/DEC/06	Sun	11:15am	0.084	04:30am	0.002	25.096
18/DEC/06	Mon	08:15am	0.099	04:00am	0.003	27.424
19/DEC/06	Tue	08:00am	0.069	04:30am	0.003	10.651

Month Summary

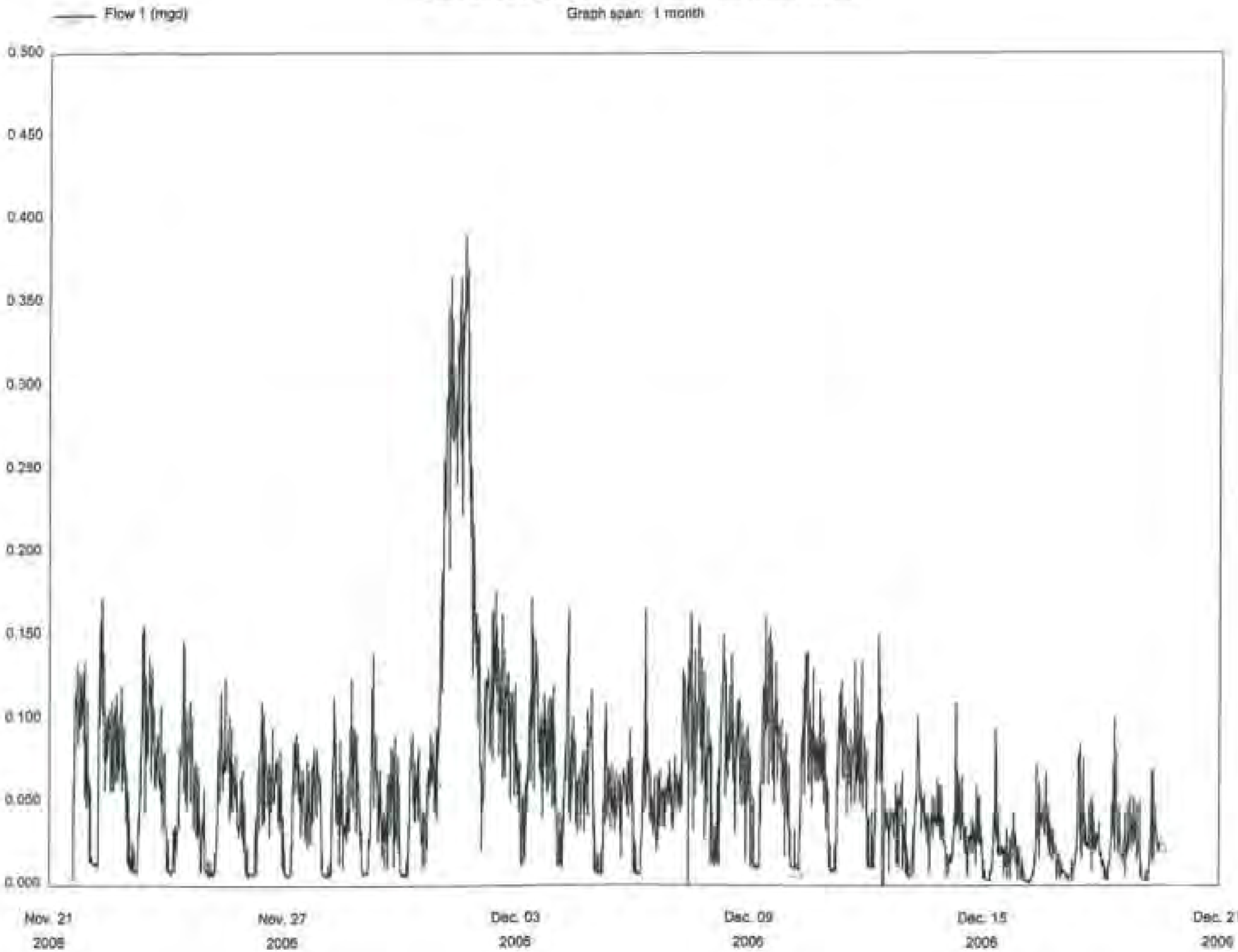
Maximum:	0.390	(mgd)	01/DEC/06	03:45p.m.
Minimum:	0.000	(mgd)	07/DEC/06	10:30a.m.
Average:	0.062	(mgd)		
Total:	1167.074	(gal)	x1000	

Bhercilli
Site Id: 00000001 File .me: 00000001.000



Snerolin

Site Id: 00000001   File   .me: 00000001.000



SITE 02 SUMMARY

American Sigma InSight 4.200

SITE 02
21/NOV/06 - 19/DEC/06

Site Id: 00000002
Description: Condo39

	Level (in.)	Vel. 1 (fps)	Flow 1 (mgd)
Minimum:	0.000 02:00pm NOV 21	0.00 01:45am NOV 22	0.000 02:00pm NOV 21
Maximum:	2.224 10:45am DEC 1	1.43 12:45pm DEC 1	0.066 08:45am DEC 1
Average:	0.887	0.56	0.010

Total Flow1: 271.493 (gal) x1000

American Sigma InSight 4.200

SITE 02

Month Report - NOV 6

Channel: Flow 1
Site Id: 00000002
Description: Condo39

Date		Maximum Time	Maximum (mgd)	Minimum Time	Minimum (mgd)	Total (gal) (x1000)
21/NOV/06	Tue	04:30pm	0.023	02:00pm	0.000	5.813
22/NOV/06	Wed	08:00am	0.031	01:45am	0.000	11.115
23/NOV/06	Thu	10:45am	0.033	03:00am	0.000	11.339
24/NOV/06	Fri	10:45am	0.029	02:15am	0.000	9.592
25/NOV/06	Sat	09:45am	0.025	02:15am	0.000	8.493
26/NOV/06	Sun	12:45pm	0.024	02:15am	0.000	8.640
27/NOV/06	Mon	07:15am	0.023	01:15am	0.000	7.758
28/NOV/06	Tue	08:00am	0.020	01:00am	0.000	7.804
29/NOV/06	Wed	07:15am	0.018	01:15am	0.000	4.614
30/NOV/06	Thu	07:00am	0.018	01:15am	0.000	7.175

Month Summary
- Maximum: 0.033 (mgd) 23/NOV/06 10:45a.m.
- Minimum: 0.000 (mgd) 21/NOV/06 02:00p.m.
- Average: 0.009 (mgd)
- Total: 82.341 (gal) x1000

SITE 02

Month Report - DEC 6

Channel: Flow 1
Site Id: 00000002
Description: Condo39

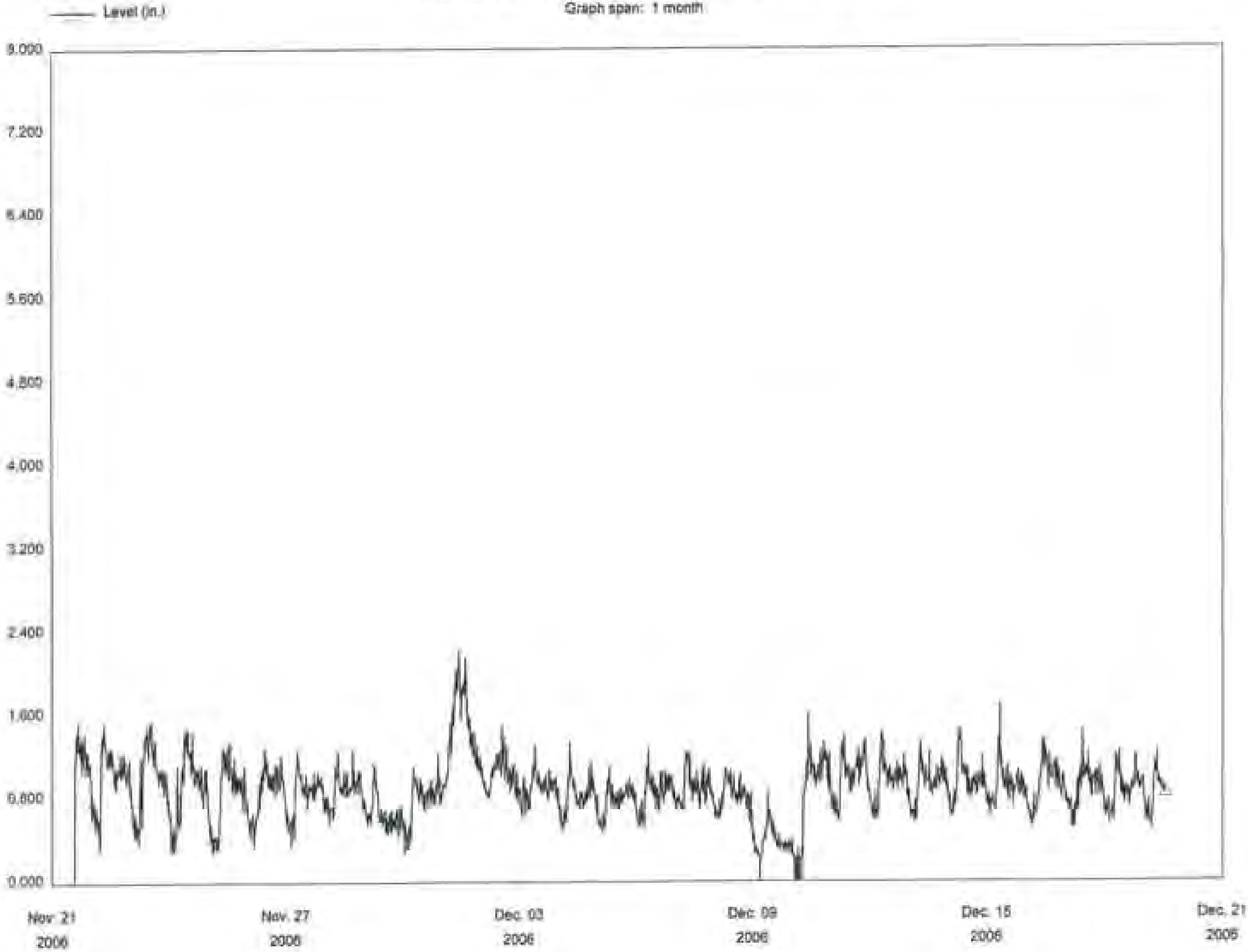
Date		Maximum Time	Maximum (mgd)	Minimum Time	Minimum (mgd)	Total (gal) (x1000)
01/DEC/06	Fri	08:45am	0.066	12:30am	0.008	25.372
02/DEC/06	Sat	01:30pm	0.028	05:45am	0.006	12.579
03/DEC/06	Sun	06:30pm	0.019	02:45am	0.000	9.339
04/DEC/06	Mon	07:15am	0.029	01:45am	0.000	7.886
05/DEC/06	Tue	07:45am	0.017	04:00am	0.000	7.448
06/DEC/06	Wed	08:15am	0.020	02:45am	0.000	8.382
07/DEC/06	Thu	07:45am	0.024	04:45am	0.004	10.096
08/DEC/06	Fri	07:15am	0.023	03:45am	0.000	7.787
09/DEC/06	Sat	09:30am	0.013	04:45am	0.000	2.830
10/DEC/06	Sun	10:15am	0.039	02:00am	0.000	10.737
11/DEC/06	Mon	08:30am	0.032	02:00am	0.000	11.963
12/DEC/06	Tue	07:30am	0.030	04:30am	0.003	11.027
13/DEC/06	Wed	07:15am	0.030	04:00am	0.000	10.292
14/DEC/06	Thu	07:45am	0.033	01:15am	0.000	10.276
15/DEC/06	Fri	08:00am	0.037	01:30am	0.000	9.606
16/DEC/06	Sat	10:00am	0.027	04:30am	0.000	10.548
17/DEC/06	Sun	10:30am	0.023	03:15am	0.000	9.144
18/DEC/06	Mon	09:15am	0.030	02:15am	0.000	9.010
19/DEC/06	Tue	08:00am	0.024	03:00am	0.000	4.830

Month Summary
- Maximum: 0.066 (mgd) 01/DEC/06 08:45a.m.
- Minimum: 0.000 (mgd) 03/DEC/06 02:45a.m.
- Average: 0.010 (mgd)
- Total: 189.152 (gal) x1000

Condose

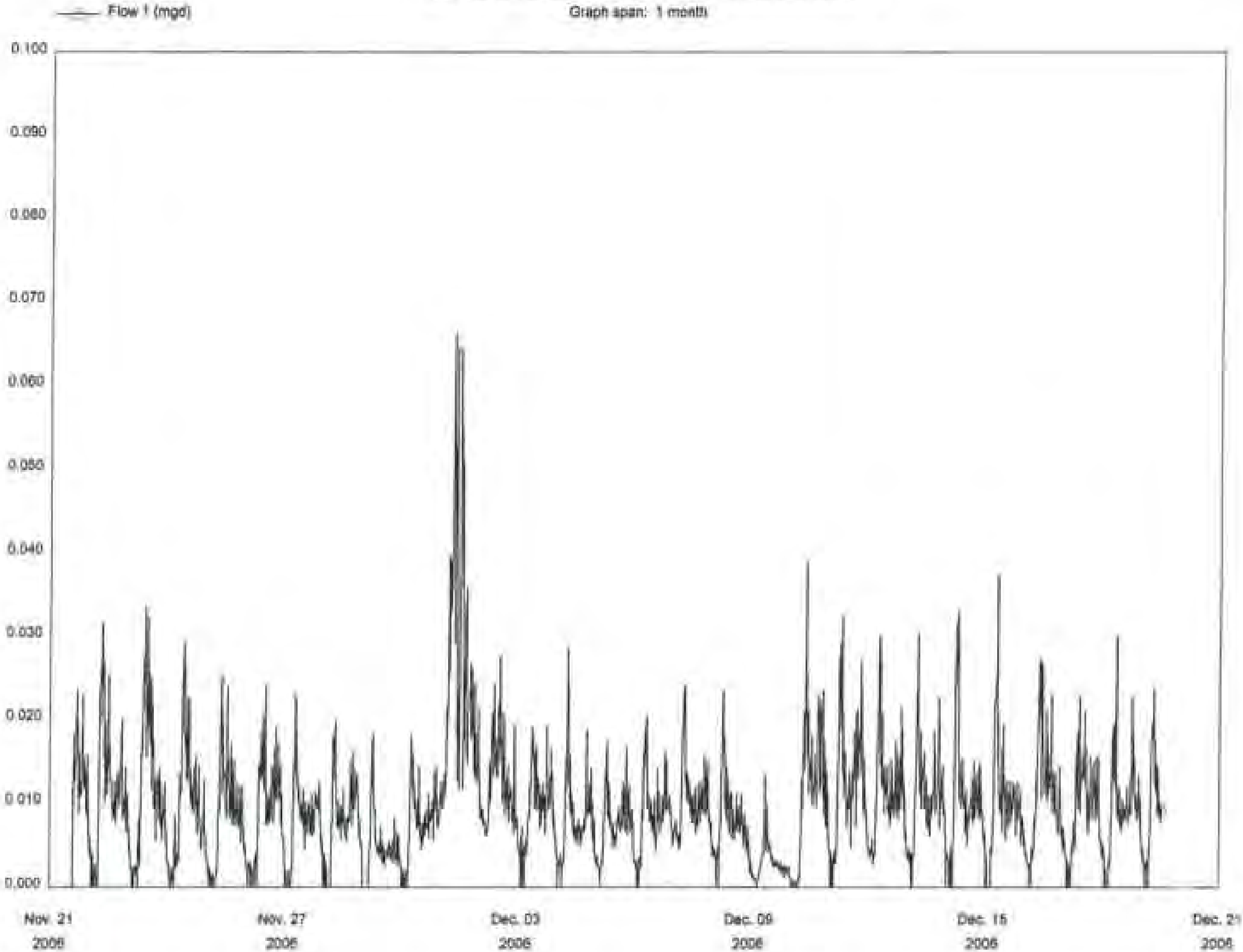
Site Id: 00000002 File Name: 00000002.000

Graph span: 1 month



Condo39

Site Id: 00000002 File .me: 00000002.000



RAIN DATA

Daily Observations

2006	Temperature (°F)			Dew Point (°F)			Humidity (%)			Sea Level Pressure (in)			Visibility (mi)			Wind (mph)		Gust Speed (mph)	Precipit
mber	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	su
1	48	42	36	35	34	28	85	72	58	30.09	30.05	30.00	10	10	10	22	10	26	0.00
2	41	36	30	34	24	19	100	72	44	30.20	30.04	30.01	10	6	0	22	10	28	0.21
3	40	35	29	26	22	19	78	63	48	30.42	30.31	30.20	10	10	10	21	12	25	0.00
4	40	35	30	30	23	21	78	63	48	30.51	30.47	30.42	10	10	9	21	9	26	T
5	51	45	38	37	28	27	76	60	44	30.47	30.41	30.33	10	10	10	14	8	16	0.00
6	57	48	38	39	32	26	76	63	49	30.36	30.30	30.18	10	10	10	16	8	20	0.00
7	57	52	46	48	36	34	93	68	43	30.17	30.00	29.83	10	10	7	13	8	16	0.07
8	58	54	50	54	48	48	100	90	80	29.82	29.73	29.62	10	5	2	13	4	16	0.01
9	60	52	44	52	51	37	100	80	60	29.84	29.64	29.55	10	8	0	33	13	41	0.00
10	49	45	40	37	36	34	92	77	61	30.08	29.98	29.85	10	10	10	15	6	18	0.00
11	62	50	37	54	47	37	100	82	64	30.08	29.87	29.67	10	6	2	18	11	23	0.33
12	39	37	35	37	36	34	100	93	85	30.31	30.19	30.08	10	7	2	14	8	17	T
13	44	41	38	43	37	37	100	97	93	30.24	30.18	29.95	10	3	0	12	6	13	0.11
14	46	44	42	43	43	37	100	91	82	29.96	29.94	29.84	10	5	2	10	4	13	0.11
15	51	47	42	47	39	37	100	81	61	29.98	29.91	29.77	10	8	3	15	6	18	0.21
	65	56	47	59	51	46	100	86	72	29.75	29.49	29.29	10	6	2	25	13	35	0.41
17	50	44	37	48	42	32	100	87	73	30.03	29.75	29.43	10	10	5	23	15	29	0.19
18	42	40	38	34	33	32	85	76	67	30.06	30.02	30.01	10	10	10	13	6	15	0.00
19	38	36	33	34	33	27	85	77	69	30.09	30.02	30.00	10	10	9	12	8	14	T
20	33	32	31	30	29	23	100	82	64	30.42	30.22	30.06	10	8	1	13	6	14	0.01
21	41	35	29	28	26	25	85	72	59	30.56	30.49	30.42	10	9	7	12	4	15	0.00
22	47	37	26	32	26	23	92	65	38	30.48	30.44	30.34	10	9	7	14	7	15	0.00
23	50	39	27	37	29	26	100	71	42	30.33	30.32	30.24	10	6	0	10	5	14	0.00
24	51	41	30	38	31	30	100	78	56	30.36	30.31	30.24	10	4	0	9	4	10	0.00
25	60	48	35	33	28	24	76	53	30	30.26	30.23	30.15	10	10	10	12	6	13	0.00
26	60	53	45	42	35	34	80	61	42	30.26	30.20	30.16	10	10	8	18	9	23	0.00
27	60	52	44	48	42	39	83	72	60	30.25	30.24	30.17	10	9	7	18	8	22	0.00
28	60	56	51	48	48	39	89	71	53	30.26	30.22	30.15	10	9	6	10	6	14	0.00
29	68	62	55	56	47	44	84	71	57	30.15	30.14	30.04	10	10	10	22	13	26	T
30	66	53	39	58	50	37	100	82	63	30.03	29.92	29.83	10	9	5	24	14	31	0.49

Daily Observations

2006		Temperature (°F)			Dew Point (°F)			Humidity (%)			Sea Level Pressure (in)			Visibility (mi)			Wind (mph)		Gust Speed (mph)	Precipit
E	nber	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	su
1		46	41	36	46	39	28	100	85	70	29.95	29.58	29.26	10	7	2	48	22	67	1.21
2		37	34	30	28	23	19	75	66	56	30.37	30.20	29.83	10	10	9	36	19	51	T
3		34	31	27	28	24	15	82	73	63	30.36	30.32	30.21	10	8	4	17	12	23	T
4		30	26	21	25	15	12	92	71	49	30.24	30.21	30.05	10	6	0	22	15	29	0.25
5		29	24	19	20	17	14	92	78	63	30.30	30.21	30.05	10	10	6	23	10	25	T
6		43	35	26	36	23	17	85	68	50	30.18	29.94	29.82	10	9	3	29	19	38	0.07
7		36	25	14	34	28	4	92	74	56	30.27	29.99	29.83	10	4	0	24	15	28	0.10
8		30	21	11	22	9	4	84	74	63	30.37	30.30	30.22	10	8	2	30	15	37	T
9		39	32	24	22	18	16	75	58	40	30.28	30.24	30.16	10	10	10	31	21	40	0.00
10		47	41	35	30	23	16	64	53	42	30.27	30.19	30.15	10	10	10	33	20	40	0.00
11		46	43	39	39	34	23	92	67	41	30.51	30.36	30.28	10	8	2	23	9	31	0.06
12		58	49	41	38	38	33	86	66	46	30.48	30.32	30.08	10	10	9	23	9	31	T
13		52	46	40	42	39	35	93	72	50	30.07	30.00	29.93	10	9	5	29	18	38	0.06
14		55	47	38	40	37	35	93	72	50	29.95	29.80	29.63	10	10	3	28	14	33	0.00
.		54	47	40	40	38	33	76	63	50	29.92	29.70	29.59	10	10	10	33	20	44	0.01
16		42	38	34	32	31	27	82	69	55	30.17	30.07	29.93	10	10	10	18	9	23	0.00
17		56	49	41	48	41	31	100	77	53	30.08	29.96	29.94	10	5	0	23	13	30	T
18		44	40	36	43	35	24	100	80	59	30.34	30.21	30.05	10	9	4	17	9	21	T
19		37	34	30	25	24	22	78	69	59	30.40	30.32	30.29	10	10	10	18	10	23	0.00
20		42	35	28	34	27	17	92	64	36	30.37	30.34	30.22	10	9	6	28	15	35	0.00
21		44	39	34	36	33	29	82	70	57	30.36	30.28	30.23	10	9	7	18	9	25	0.00
22		52	44	36	48	35	29	100	85	70	30.31	30.03	29.78	10	6	2	21	11	25	0.58
23		52	46	39	47	44	36	92	81	70	29.86	29.80	29.73	10	9	5	35	22	43	0.07
24		42	38	33	36	35	30	92	83	73	30.25	30.12	29.86	10	10	10	30	17	38	T
25		50	41	32	39	29	19	100	66	31	30.22	29.92	29.60	10	8	3	18	9	23	0.39
26		37	35	33	36	36	28	100	91	82	29.77	29.54	29.43	10	6	2	18	10	23	0.23
27		39	35	30	33	28	22	92	77	61	30.12	29.92	29.75	10	7	2	24	13	30	0.02
28		41	39	37	36	34	33	92	83	73	30.49	30.32	30.13	10	9	4	23	10	29	T
29		37	34	30	36	35	24	100	85	69	30.67	30.58	30.46	10	8	4	18	12	21	0.00
		35	32	29	34	28	27	96	87	78	30.51	30.44	30.38	10	7	2	12	4	14	0.01
31		49	39	29	44	31	26	93	76	59	30.49	30.20	29.73	10	9	5	24	10	29	0.08

FIELD SHEETS

FLOW METER RECORD
Installation / Calibration

TECsmith

SITE DATA

SITE	BACKCLIFF			I.D.	001
METER MODEL	920	SERIAL NO	R09	JOB #	LIF
DATE	11/21/16	TIME	2:11 pm	CREW	CE JD
RIM TO INV	15'	PIPE SIZE	8"	PROBE LOC.	UPSTREAM

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	2.050	INCHES	2"	INCHES	2.108	INCHES
FLOW	0.05	MGD			0.05	MGD
TOTAL	0	GAL x 1000			0	GAL x 1000
VEL	3.30	FPS		FPS	[illegible]	FPS
SIGNAL	100	%			[illegible]	%
BATTERY	11.1	VDC			11.0	VDC

BUCKET CALIBRATION

ACTUAL: 10.5 METER: .200

WORK COMPLETED:

Installed Flowmeter

NOTES:

TECsmith
PERMIT - CONFINED SPACE ENTRY

1. Work Start: Date: 11/21/06 Time: 2:40pm Work Completed: Date: 11/21/06 Time: 3:01pm
2. Worksite: BRIERCLIFF Manhole #: ______
3. Confined Space Type/Location: SANITARY SEWER MH
4. Rim to inv +/-: 15' Pipe Size: 8" San./Storm: SAN
   Conditions: Invert: ✓ Flow: ✓ Bench: ✓ Walls: ✓
5. Work Required: INSTALL FLOWMETER
6. Crew: CF TD
7. Confined Space Hazards:
   ✓ Atmospheric: O_2, LEL, H_2S, CO
   ___ Mechanical/Electrical: ______
   ___ Configuration: ______
   ___ Engulfment: ______
   ___ Other: ______

ATMOSPHERIC TESTS

Test For:	Acceptable Levels	Pre-Entry Levels	Continuous Monitoring Required with Meter	Exit Levels
% Oxygen	19.5-23.5%	20.9	✓	20.9
Flammable	≤ 10% LEL	0	✓	0
H_2S	< 20 PPM	0	✓	0
CO	< 50 PPM	0	✓	0

Testing Equipment: PHD Ltd
Tester's Name: CFINN Equipment Calibrated ? YES

Emergency Rescue - Call: 911

	Print	Signature	
Entry Supervisor			—
Attendant	Christopher Finn		—
Entrant	Jason Dekker		___ Out

FLOW METER RECORD
Installation / Calibration

TECsmith

SITE DATA

SITE	[illegible] 39			I.D.	002
METER MODEL	920	SERIAL NO	[illegible]	JOB #	11F 001
DATE	[illegible]	TIME	2:01 PM	CREW	[illegible]
RIM TO INV	95"	PIPE SIZE	10"	PROBE LOC.	UPSTREAM

	INITIAL READINGS		***ACTUAL MSMTS***		***FINAL READINGS***	
LEVEL	1.251	INCHES	1.74"	INCHES	0.552	INCHES
FLOW	0.00	MGD			0.00	MGD
TOTAL	0	GAL x 1000			0	GAL x 1000
VEL	0.59	FPS		FPS	0.48	FPS
SIGNAL	95	%			76	%
BATTERY	11.9	VDC			[illegible]	VDC

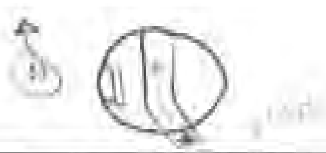
BUCKET CALIBRATION

ACTUAL	10.5"	METER	10.500"

WORK COMPLETED:

Installed the flowmeter

NOTES:



TECsmith
PERMIT - CONFINED SPACE ENTRY

1. Work Start: Date: 11/21/01 Time: [illegible] Work Completed: Date: 11/21/01 Time: 2:10pm
2. Worksite: [illegible] 39 Manhole #: ______
3. Confined Space Type/Location: Sanitary Sewer
4. Rim to inv +/-: 25' Pipe Size: 10" San./Storm: San.
   Conditions: Invert: ✓ Flow: ✓ Bench: ✓ Walls: ✓
5. Work Required: Install [illegible]
6. Crew: CF JB
7. Confined Space Hazards:
   ✓ Atmospheric: O_2, LEL, H_2S, CO
   ___ Mechanical/Electrical: ______
   ___ Configuration: ______
   ___ Engulfment: ______
   ___ Other: ______

ATMOSPHERIC TESTS

Test For:	Acceptable Levels	Pre-Entry Levels	Continuous Monitoring Required with Meter	Exit Levels
% Oxygen	19.5-23.5%	20.9	✓	20.9
Flammable	≤ 10% LEL	0	✓	0
H_2S	< 20 PPM	0	✓	0
CO	< 50 PPM	0	✓	0

Testing Equipment: PAC [illegible]
Tester's Name: C FIUME Equipment Calibrated ? [illegible]

Emergency Rescue - Call: 911

	Print	Signature	
Entry Supervisor	[illegible]		—
Attendant			—
Entrant	[illegible]		Out

FLOW METER RECORD
Field Check / Data Download

TECsmith

SITE DATA

SITE	Briarcliff	I.D.	001	JOB NO.	LPF001
METER MODEL	920	SERIAL NO	84Y		
DATE	1-28-06	TIME	10:11 AM	CREW	JM

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	1.225	INCHES	1.25	INCHES	1.770	INCHES
FLOW	.002	MGD			.006	MGD
TOTAL	376	GAL x 1000			376	GAL x 1000
VEL	.06	FPS		FPS	1.63	FPS
SIGNAL	94	%			99	%
BATTERY	10.1	VDC			12.0	VDC

DATA DOWNLOAD

DTU CELL ______ INSIGHT ______ OTHER ______

WORK COMPLETED: DL Data check lvl Changed Batteries

EQUIPMENT REMOVED:

METER MODEL		METER S/N	
PROBE MODEL		PROBE S/N	
PROBE MODEL		PROBE S/N	

NOTES:

FLOW METER RECORD
Field Check / Data Download

TECsmith

SITE DATA

SITE	COLDO 39	I.D.	002	JOB NO.	4F001
METER MODEL	920	SERIAL NO	801		
DATE	11-28-06	TIME	10:02 AM	CREW	JM

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	0.933	INCHES	1	INCHES	0.913	INCHES
FLOW	0.00	MGD			0.00	MGD
TOTAL	65	GAL x 1000			65	GAL x 1000
VEL	0.48	FPS		FPS	0.31	FPS
SIGNAL	30	%			64	%
BATTERY	11.5	VDC			11.5	VDC

DATA DOWNLOAD

DTU CELL ____ INSIGHT ____ OTHER ____

WORK COMPLETED: DL DATA, check lvl

EQUIPMENT REMOVED:				
	METER MODEL		METER S/N	
	PROBE MODEL		PROBE S/N	
	PROBE MODEL		PROBE S/N	

NOTES:

FLOW METER RECORD
Field Check / Data Download

TECsmith

SITE DATA

SITE	[illegible]	I.D.	001	JOB NO.	[illegible]F001
METER MODEL	920	SERIAL NO	RQY		
DATE	12/7/06	TIME	10:30am	CREW	CF

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	1.428	INCHES	1.36	INCHES	1.437	INCHES
FLOW	0.08	MGD			0.06	MGD
TOTAL	1123	GAL x 1000			953	GAL x 1000
VEL	0.34	FPS		FPS	0.16	FPS
SIGNAL	66	%			98	%
BATTERY	12.0	VDC			11.5	VDC

DATA DOWNLOAD

DTU CELL		INSIGHT		OTHER	

WORK COMPLETED: DOWNLOADED METER CHK LVL

EQUIPMENT REMOVED:	METER MODEL		METER S/N	
	PROBE MODEL		PROBE S/N	
	PROBE MODEL		PROBE S/N	

NOTES: ARM [illegible]

FLOW METER RECORD
Field Check / Data Download

TECsmith

SITE DATA

SITE	[illegible]	I.D.	002	JOB NO.	[illegible]001
METER MODEL	[illegible]	SERIAL NO	[illegible]		
DATE	[illegible]	TIME	10:45am	CREW	[illegible]

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	[illegible]	INCHES	[illegible]	INCHES	[illegible]	INCHES
FLOW	0.01	MGD			0.01	MGD
TOTAL	[illegible]	GAL x 1000			[illegible]	GAL x 1000
VEL	[illegible]	FPS		FPS	[illegible]	FPS
SIGNAL	66	%			[illegible]	%
BATTERY	11.1	VDC			11.6	VDC

DATA DOWNLOAD

DTU CELL ______ INSIGHT ______ OTHER ______

WORK COMPLETED: [illegible]

EQUIPMENT REMOVED:

METER MODEL		METER S/N	
PROBE MODEL		PROBE S/N	
PROBE MODEL		PROBE S/N	

NOTES:

FLOW METER RECORD
Field Check / Data Download

TECsmith

SITE DATA

SITE	[illegible]	I.D.	001	JOB NO.	47001
METER MODEL	930	SERIAL NO	[illegible]		
DATE	[illegible]	TIME	5:51	CREW	[illegible]

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	0	INCHES	1.25	INCHES	1.179	INCHES
FLOW	0	MGD			.002	MGD
TOTAL	1469	GAL x 1000			1470	GAL x 1000
VEL	1.82	FPS		FPS	1.67	FPS
SIGNAL	53	%			100	%
BATTERY	11.8	VDC			11.2	VDC

DATA DOWNLOAD

DTU CELL		INSIGHT		OTHER	

WORK COMPLETED: downloaded data, checked level
Brushed Sensor, Calibrated sensor + [illegible]

EQUIPMENT REMOVED:				
	METER MODEL		METER S/N	
	PROBE MODEL		PROBE S/N	
	PROBE MODEL		PROBE S/N	

NOTES:

FLOW METER RECORD
Field Check / Data Download

TECsmith

SITE DATA

SITE	Conda 39	I.D.	007	JOB NO.	62F001
METER MODEL	920	SERIAL NO	RG1		
DATE	12/12/08	TIME	11:29	CREW	PGCF

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	0.970	INCHES	1	INCHES	1.063	INCHES
FLOW	0.01	MGD			0.01	MGD
TOTAL	201	GAL x 1000			201	GAL x 1000
VEL	0.77	FPS		FPS	0.87	FPS
SIGNAL	100	%			100	%
BATTERY	11.5	VDC			11.2	VDC

DATA DOWNLOAD

DTU CELL: | INSIGHT: | OTHER:

WORK COMPLETED: downloaded data, checked level

EQUIPMENT REMOVED:

METER MODEL		METER S/N	
PROBE MODEL		PROBE S/N	
PROBE MODEL		PROBE S/N	

NOTES:

TECsmith
PERMIT - CONFINED SPACE ENTRY

1. Work Start: Date: 12/12/06 Time: 10.14 Work Completed: Date: 12/12/06 Time: 11.14
2. Worksite: Briarcliff Ct Manhole #: ______
3. Confined Space Type/Location: Sanitary Manhole
4. Rim to inv +/-: 7/0 Pipe Size: 8 San./Storm: San
   Conditions: Invert: x Flow: x Bench: n Walls: x
5. Work Required: install sub AV after calibration
6. Crew: PG CF
7. Confined Space Hazards:
   X Atmospheric: O2, H2S, LEL, CO
   ___ Mechanical/Electrical: ______
   ___ Configuration: ______
   ___ Engulfment: ______
   ___ Other: ______

ATMOSPHERIC TESTS

Test For:	Acceptable Levels	Pre-Entry Levels	Continuous Monitoring Required with Meter	Exit Levels
% Oxygen	19.5-23.5%	20.6	✓	20.9
Flammable	≤ 10% LEL	0	✓	0
H_2S	< 20 PPM	0	✓	0
CO	< 50 PPM	0	✓	0

Testing Equipment: PHD Lite
Tester's Name: PGronacha Equipment Calibrated ? yes

Emergency Rescue - Call: 911

	Print	Signature	
Entry Supervisor			—
Attendant	Paronacha	[signature]	—
Entrant	CF Fiore	[signature] Fiore	___ Out

FLOW METER RECORD
Field Check / Data Download

TECsmith

SITE DATA

SITE	Goode 39	I.D.	002	JOB NO.	Lif001
METER MODEL	920	SERIAL NO	RB1		
DATE	12/19/06	TIME	13:10	CREW	PG

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	0.652	INCHES	.625	INCHES		INCHES
FLOW	0.00	MGD				MGD
TOTAL	271	GAL x 1000				GAL x 1000
VEL	0.52	FPS		FPS		FPS
SIGNAL	75	%				%
BATTERY	10.8	VDC				VDC

DATA DOWNLOAD

DTU CELL		INSIGHT		OTHER	

WORK COMPLETED: downloaded data, checked level
Removed meter

EQUIPMENT REMOVED:				
	METER MODEL		METER S/N	
	PROBE MODEL		PROBE S/N	
	PROBE MODEL		PROBE S/N	

NOTES:

FLOW METER RECORD
Field Check / Data Download

TECsmith

SITE DATA

SITE	Pinecliff	I.D.	001	JOB NO.	274
METER MODEL	920	SERIAL NO	804		
DATE	12/11/06	TIME	17:04	CREW	PC

	INITIAL READINGS		ACTUAL MSMTS		FINAL READINGS	
LEVEL	1.265	INCHES	1	INCHES		INCHES
FLOW	0.02	MGD				MGD
TOTAL	1663	GAL x 1000				GAL x 1000
VEL	1.39	FPS		FPS		FPS
SIGNAL	100	%				%
BATTERY	10.6	VDC				VDC

DATA DOWNLOAD

DTU CELL ______ INSIGHT ______ OTHER ______

WORK COMPLETED: downloaded data, Checked level Removed meter

EQUIPMENT REMOVED:

METER MODEL		METER S/N	
PROBE MODEL		PROBE S/N	
PROBE MODEL		PROBE S/N	

NOTES:

APPENDIX D – SECTION 8

Wetland Delineation

WETLAND DELINEATION

for

VILLA'S AT BRIERWOOD
SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK

Project Sponsor:

VANDERBILT PROPERTIES, INC.
P.O. Box 945
Hamburg, New York 14075

Project Investigator:

ERIK J. KRULL

Submitted December, 2006

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VILLA'S AT BRIERWOOD
HAMBURG, NEW YORK

DELINEATION REPORT
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VILLA'S AT BRIERWOOD
HAMBURG, NEW YORK

INTRODUCTION

The proposed Villa's at Brierwood will include 148 condominium units and 28,000 square feet of mixed retail/office space. The proposed site will occupy 43 acres and is located on the east side of Southwestern Boulevard approximately 850 feet south of the intersection of Southwestern Boulevard and Amsdell Road, in the Town of Hamburg, New York.

The project site contains 2.52± acres of federal jurisdictional wetland which is located in a wooded area in the northeast corner of the site. The wetland area is adjacent to and south of the intermittent stream referred to as a tributary of Lake Erie E-8. The stream and adjacent wetlands, along with approximately 6 contiguous acres of woodland and meadows, will be protected and preserved as green space. (See U.S.G.S. Topographic Map, Eden, New York Quadrangle, Map #1 and Site Plan Map #2)

Site Description

The project site consists primarily of abandoned farm fields with a 6-acre wood lot located along the northern half of the eastern boundary of site.

The site has 496 feet of road frontage on Southwestern Boulevard, 98 feet of frontage on Amsdell Road and 213 feet of frontage on Pleasant Avenue. On its north side, the site borders single-family residences, commercial property and a Lakeshore Volunteer Fire Company substation which are all located on Amsdell Road. The west side of the site borders Southwestern Boulevard and single-family homes. The southern side of the site is also bordered by single-family homes. The eastern side of the site is bordered by woodland on the northern portion and meadows on the southern portion.

The project site slopes from the highest elevation of 770 feet at Pleasant Avenue in a northeast direction, to the lowest elevation of735 feet where the intermittent stream flows under Southwestern Boulevard. The grade rises on the north side of the intermittent stream to an elevation of 745 feet at Amsdell Road. The slopes range from 1 to 4 percent. The majority of the site, however, has slopes between 2 and 3 percent.

The intermittent stream (NYDEC Lake Erie Tributary #E8 which has a NYSDEC Class 3 designation) crosses the property from east to west near the northern boundary.

The site consists of two separate farm parcels. A ditch was hand dug between the two parcels by the WPA in the 1930's. The ditch originates at the southern boundary and extends north where it eventually intersects the intermittent stream at one of the property corners. The stream is channelized from that point and runs northeast along the property boundary to Southwestern Boulevard. The intermittent stream and the ditch were observed regularly from March through November and after all major rain events. The stream flows after major rain events particularly in spring when the water table is high and the adjacent wetlands are saturated; however, there is little to no water in the ditch during these periods. There are no ditches feeding into this ditch from the south or from the two farm fields which are located on either side of the ditch. Two of the homes on Pleasant Avenue direct a small volume of storm water into the ditch. The ditch stops short of Pleasant Avenue between these two homes.

The ditch has nearly vertical sides which do not support vegetation. The vegetation on either side of the ditch is dominated by upland plant species. There are no Palustrine wetlands along the sides of the ditch. The same conditions exist along the channelized portion of the intermittent stream which flows from the junction of the ditch along the northern boundary to Southwestern Boulevard. In addition, there is little or no water in the ditch throughout most of the year. The volume of water that flows through this ditch and the intermittent stream is too small for them to be classified Riverine wetlands. (See NYSDEC Map of Tributaries with Map Key Map #3, and Topography Survey Map #4).

AGENCY RESOURCE INFORMATION

New York State Freshwater Wetlands

The New York State Freshwater Wetland Map of the project site shows no wetlands on or in close proximity to the project site. (See New York State Freshwater Wetland Map, Eden Quadrangle, Map #5)

National Wetland Inventory

The National Wetland Inventory Map (NWI) of the site shows no wetlands on or in close proximity to the project site. (See NWI Eden, NY Quadrangle, Map #6)

Wetlands Investigation Co. identified and delineated 2.52 acres of wetland. The wetland is located primarily in the wood lot on the south side of the intermittent stream at the eastern side of the property.

The wetland community is positioned at the end of a fairly long 3 to 4% slope. Where the wetlands begin, the slopes are reduced to only 1%. Storm water runoff saturates and, at times, inundates the wetland area in early spring and for short periods after very heavy precipitation in the summer and autumn. This change in slope is also the interface between the Churchville silt loam and the Lyons silt loam soil phases.

Federal Emergency Management Agency (FEMA)

The FEMA map of the project area does not portray any floodplains on or in close proximity to the site. (See FEMA Floodplain Map #7)

Soils

There are five soil phases on the project site. Approximately 45% of the site is covered by Churchville silt loam and another 25% is covered by Hornell silt loam. The remainder of the site is covered by Manlius shaly silt loam, Orpark silty clay loam and Lyons silt loam.

Lyons silt loam is a hydric soil. The Churchville silt loam, Hornell silt loam and Orpark silty clay loam are all soils with the potential for hydric inclusions.

Manlius soils are well drained soils and do not, under normal conditions, contain hydric inclusions. (See Soil Survey of Erie County Map #8)

The following list includes the soil phase abbreviations and important characteristics of the 5 soil phases on the subject site.*

<u>CoA</u> - **Churchville silt loam, 0 to 9 percent slopes.** This nearly level soil is deep and somewhat poorly drained. It formed in a thin mantle of clayey lake sediments underlain by glacial till. This soil is on broad flats of the lowland till plain. Areas of this soil are oblong or irregular in shape and range from 10 to 200 acres. Typically, this soil has a surface layer of very dark grayish brown silt loam about 9 inches thick. The subsurface layer is mottled, pinkish gray silt loam about 2 inches thick. The subsoil is 15 inches thick. The upper part of the subsoil is reddish brown silty clay loam, and the lower part is firm, mottled, reddish brown silty clay. The substratum is very firm, mottled, reddish gray gravelly loam to a depth of 60 inches or more.

Included with this sol in mapping are small areas of the Ovid, Odessa, Remson and Darien soils. The Ovid and Darien soils do not have a clayey mantle, and the Remson and Odessa soils formed in thicker, clayey deposits than this Churchville soil. Included wet spots and drainageways are indicated by special symbols on the soil map. Areas of included soils are 1/4 acre to 2 acres.

This Churchville soil has a perched seasonal high water table in the upper part of the subsoil from December through May and is susceptible to ponding in some areas. Rooting depth is limited by the seasonal high water table. Permeability is slow or very slow in the subsoil and substratum. The available water capacity is moderate to high, and runoff is slow. Bedrock is at a depth of 5 feet or more. The surface layer is medium acid to neutral, and the subsoil is slightly acid to mildly alkaline.

The soil is moderately suited to farming. Most of the acreage is in pasture, hay or woodland, or it is idle. Some areas are used for cultivated crops.

<u>HrA</u> **Hornell silt loam, 0 to 3 percent slopes.** This nearly level soil is moderately deep and somewhat poorly drained. It formed in acid glacial till deposits that have a high clay content. This soil is in broad, nearly flat areas where the topography is influenced by the underlying bedrock. Soft shale bedrock is at a depth of 20 to 40

inches. Areas of this soil are oblong or irregular in shape and range from 3 to 60 acres, but areas of 5 to 20 acres are most common.

Typically, this soil has a surface layer of dark grayish brown silt loam about 7 inches thick. The subsoil extends to a depth of 29 inches. It is mottled, yellowish brown silty clay loam in the upper part; mottled, light brownish gray silty clay loam in the moddle part; and mottled, gray silty clay in the lower part. The substratum, to a depth of 40 inches, is olive gray shaly silty clay derived from decomposing shale bedrock. It is underlain by interbedded soft and hard shale bedrock.

Included with this soil in mapping are small intermingled areas of the Orpark, Derb and Marilla soils. The Orpark soils are similar to this Hornell sold but coarser in texture. The Derb soils are underlain by soft shale bedrock at a depth of 40 to 60 inches. The Marilla soils formed in deep, shaly glacial till deposits and have a fragipan in the subsoil. Areas of included soils range up to 3 acres.

This Hornell soil has a perched seasonal high water table in the upper part of the subsoil from December through May. Permeability is slow or very slow in the subsoil and substratum. The available water capacity is moderate, and runoff is medium. Bedrock is within 20 to 40 inches of the surface. In unlimed areas, the surface layer is extremely acid to strongly acid and the subsoil is very strongly acid or strongly acid.

Most of the acreage is idle or is in woodland. Some areas are used for pasture or are cultivated, and a few areas are in residential developments.

<u>MaB</u> **Manlius shaly silt loam, 3 to 8 percent slopes.** This gently sloping soil is moderately deep and well drained to excessively drained. It formed in glacial till deposits derived from shale bedrock. This soil is on the sides of slightly elevated benches or rises on the fringe of the upland plateau where the topography is influenced by the underlying bedrock. Areas of this soil are oval or elongated and range from 5 to 100 acres, but areas of 15 to 25 acres are most common.

Typically, this soil has a surface layer of dark grayish brown shaly silt loam about 8 inches thick. The subsoil extends to a depth of 21 inches and is yellowish brown very shaly silt loam. The substratum, to a depth of 31 inches, is brown very shaly silt loam. It is underlain by brittle, very dark grayish brown to very dark gray, shale bedrock.

Included with this soil in mapping are small areas of the Orpark and Marilla soils. The Marilla soils are moderately well drained, have a dense fragipan in the subsoil, and are underlain by bedrock that is more than 40 inches deep. The Orpark soils are somewhat poorly drained and usually are in slight depressions or on foot slopes. They are indicated on the soil map by a special symbol for wetness. Also included are some very large areas of a soil that is similar to this Manlius soil but it is nearly level and moderately well drained and has a seasonal high water table above bedrock early in the spring. Areas of included soils range from 1/2 acre to 3 acres.

In this Manlius soil, the seasonal high water table is usually at a depth of 5 feet or more, but many areas included soils that have a seasonal high water table above the bedrock early in the spring. Permeability of the Manlius soil is moderate. The available water capacity is low, and runoff is medium to slow. Bedrock is at a depth of 20 to 40 inches. Shale fragments make up 15 to 35 percent of the surface layer. Unless limed, the surface layer and subsoil are extremely acid to strongly acid.

This soil is only moderately suited to farming and poorly suited to many urban uses. Most of the acreage is cultivated, is in hay, pasture or woodland, or is idle.

The moderate depth to shale bedrock is the main limitation to urban uses of this soil. Erosion is a slight hazard during construction. Seasonal wetness is also a problem in areas that include more poorly drained soils. Because this Manlius soil is droughty, frequent watering and adequate liming are usually needed to establish lawns. Some areas are suited to recreational uses, such as campsites or picnic areas, but small stones can be a minor limitation.

<u>Ly</u> **Lyons silt loam.** This nearly level soil is deep and poorly drained. This soil is along drainageways or in flat areas on glacial till plains. Slope is 0 to 3 percent. Areas of this soil are irregular in shape and range form 3 to 40 acres.

Typically, this soil has a surface layer of very dark brown silt loam about 9 inches thick. The subsoil is about 23 inches thick. It is brown to dark brown silt loam in the upper part and grayish brown heavy silt loam in the lower part. The substratum extends to a depth of 65 inches or more. It is brown heavy silt loam in the upper part and dark grayish brown silty clay loam in the lower part.

Included with this soil in mapping are small areas of the Canandaigua, Appleton and Kendaia soils. The Canandaigua soils have no gravel in the lower part of the subsoil, whereas the Lyons soil is gravelly throughout. The Appleton and Kendia soils are on slightly higher, better drained rises and low knolls. Included are some areas where free carbonates are more than 40 inches deep, and some small areas where the surface layer is mucky usually near the center of depressions. Areas of included soils range up to 3 acres.

This Lyons soil has a perched water table at or near the soil surface from November through June. Permeability is moderate or moderately slow in the subsoil and slow or very slow in the substratum. The available water capacity is moderate to high, and runoff is very slow. Gravel makes up 0 to15 percent of the surface layer. Depth to bedrock is generally more than 5 feet deep.

Because of prolonged wetness, this Lyons soil has limited suitability for farmland and is poorly suited to urban uses. Most of the acreage is in woods or is idle. A few areas are pastured.

The prolonged high water table, slow or very slow permeability in the substratum, and high risk or frost damage are very serious limitations for urban uses of this soil. Basements are difficult to keep dry, and buildings without basements and roads are subject to frost heave. Some areas are suitable for dugout ponds, while other areas are good sites for the development of wildlife marshes.

<u>OrA</u> **Orpark silty clay loam, 0 to 3 percent slopes.** This nearly level soil is moderately deep and somewhat poorly drained. It formed in acid glacial till deposits underlain by soft bedrock at a depth of 20 to 40 inches. This soil is on the flat ledges and ridge crests of the shelf-like northern edge of the upland plateau. Areas of this soil are 5 to100 acres or more and are generally elongated or irregular in shape. This soil usually receives some seepage but not much runoff from higher adjacent soils.

Typically, this soil has a surface layer of dark grayish brown silty clay loam about 9 inches thick. The subsoil is light olive brown and olive brown silty clay loam about 1 inches thick. The substratum is mottled, pale olive silty clay loam about 5 inches thick. Olive, soft shale bedrock is at a depth of 27 inches.

Included with this soil in mapping are small areas of the slightly deeper Derb soils and the less acid Angola soils. Occasional depressional wet spots are indicated by a special symbol on the soil map. Areas of included soils range from 1/4 acre to 2 acres.

This Orpark soil has a perched seasonal high water table in the upper part of the subsoil from November through May. The root zone is restricted by this water table and by the underlying bedrock at a depth of 20 to 40 inches. Permeability is moderate in the surface layer and slow or moderately slow in the subsoil. The available water capacity is moderate, and runoff is slow to medium. Shale fragments are usually less than 10 percent throughout the soil. This soil is strongly acid or very strongly acid.

This soil is poorly suited to many uses because of seasonal wetness and moderate depth to bedrock. Many areas are used for hay, pasture or woodland. Some areas are idle.

**Taken from "Soil Survey of Erie County, NY," by Donald W. Owens, et al.*

PLANT COMMUNITIES

The site consists of four plant communities. Two of the four communities are forested. One of the forested communities is a wetland.

The other two communities, which together occupy approximately 75% of the site, exist on abandoned farm fields. (See Upland/Wetland Boundary; Plant Community, Test Plot & Photo Direction Map #9)

PLANT COMMUNITY 1

Plant Community 1, the largest of the four on the site, is dominated by upland vegetation. This community is comprised of common pasture grasses and legumes, and a mixture of weeds which normally invade old farm fields. This community has only one stratum, the herbaceous, due to the recent farming activities. Shrubs and saplings have not had enough time to become established in this field. Plant Community 1 grows primarily on the Hornell and Churchville soil phases. There are small areas of this community that occupy the Orpark, Manlius and Lyons soil phases.

The dominant species found in the herbaceous stratum of Plant Community 1 are listed below by order of dominance.

HERBS

	Botanical Name	Common Name	Indicator Status
1.	Lotus corniculatus	Birds-Foot Trefoil	FACU-
2.	Anthoxanthum odoratum	Sweet Vernal Grass	FACU
3.	Aster lanceloatus	White Panicle Aster	NI
4.	Soldago canadensis	Canada Golden-Rod	FACU
5.	Phleum pratense	Timothy	FACU
6.	Poa pratensis	Kentucky Bluegrass	FACU
7.	Vicia cracca	Cow Vetch	UPL
8.	Euthamia graminifolia	Flat-Top Fragrant-Golden-Rod	FAC
9.	Plantago major	Common Plantain	FACU
10.	Agropyron repens	Quackgrass	FACU

PLANT COMMUNITY 2

Plant Community 2 is also dominated by upland vegetation growing on an abandoned farm field. This field, however, hasn't been farmed for at least 10 years. Enough time has elapsed since the last farming activities for a sapling/shrub stratum to become established throughout Plant Community 2. This plant community occupies areas of the site that contain the Hornell, Manlius and Churchville soil phases.

The dominant species growing in the herbaceous and sapling/shrub strata of Plant Community 2 are listed below by order of dominance.

HERBS

	Botanical Name	Common Name	Indicator Status
1.	Anthoxanthum odoratum	Sweet Vernal Grass	FACU
2.	Dactylis glomerata	Orchard Grass	FACU
3.	Vicia cracca	Cow Vetch	UPL
4.	Phleum pratense	Timothy	FACU
5.	Rannuculus acris	Tall Buttercup	FAC+
6.	Holcus lanatus	Velvet Grass	FACU
7.	Lotus corniculatus	Birds-Foot Trefoil	FACU-
8.	Euthamia graminifolia	Flat-Top Fragrant-Golden-Rod	FAC
9.	Agrostis stolonifera	Spreading Bentgrass	FACW
10.	Soldago canadensis	Canada Golden-Rod	FACU
11.	Poa pratensis	Kentucky Bluegrass	FACU
12.	Equistetum arvense	Field Horsetail	FAC
13.	Juncus effusus	Soft Rush	FACW+

SAPLING & SHRUBS

	Botanical Name	Common Name	Indicator Status
1.	Fraxinus pennsylvanica	Green Ash	FACW
2.	Rhamnus cathartica	Common Buckthorn	UPL
3.	Fraxinus americana	Whtie Ash	FACU
4.	Rosa multiflora	Multiflora Rose	FACU
5.	Cornus racemosa	Panicled Dogwood	FAC

PLANT COMMUNITY 3

Plant Community 3 is a forested upland community. It is located on the Manlius and Churchville soils with slopes of 2 to 4 percent. The trees have developed a canopy that shades the understory of saplings and vines as well as the sparse herbaceous stratum.

The dominant species in each stratum are listed below by order of dominance.

TREES

	Botanical Name	Common Name	Indicator Status
1.	Carya ovata	Shag-Bark Hickory	FACU-
2.	Acer saccharum	Sugar Maple	FACU-
3.	Fraxinus americana	White Ash	FACU
4.	Tilia americana	American Basswood	FACU
5.	Acer rubrum	Red Maple	FAC
6.	Ostrya virginiana	Eastern Hop-Hornbeam	FACU-

SAPLINGS & SHRUBS

	Botanical Name	Common Name	Indicator Status
1.	Carya ovata	Shag-Bark Hickory	FACU-
2.	Fraxinus americana	White Ash	FACU
3.	Acer saccharum	Sugar Maple	FACU-

HERBS

	Botanical Name	Common Name	Indicator Status
1.	Carya ovata (seedlings)	Shag-Bark Hickory	FACU-
2.	Parthenocissus quinquefolia	Virginia Creeper	FACU
3.	Toxicodendron radicans	Poison Ivy	FAC
4.	Prunus pumila	Sand Cherry	UPL
5.	Circaea lutetiana	Small Broad-Leaf Enchanter's Nightshade	FACU

VINES

	Botanical Name	Common Name	Indicator Status
1.	Toxicodendron radicans	Poison Ivy	FAC
2.	Parthenocissus quinquefolia	Virginia Creeper	FACU

PLANT COMMUNITY 4

Plant Community 4 is a forested wetland community which is located on Lyons silt loam and Churchville silt loam. It occupies the area starting where the slope in the wood lot reduces to 0 to1 percent to just north of the intermittent stream. On the north side of the stream the slope increases rapidly as you proceed north towards Amsdell Road.

The dominant species in each stratum are listed below by order of dominance.

TREES

	Botanical Name	Common Name	Indicator Status
1.	Fraxinus pennsylvanica	Green Ash	FACW
2.	Carya ovata	Shag-Bark Hickory	FACU-
3.	Ulmus rubra	Slippery Elm	FAC
4.	Acer rubrum	Red Maple	FAC
5.	Tilia americana	American Basswood	FACU

SAPLINGS & SHRUBS

	Botanical Name	Common Name	Indicator Status
1.	Fraxinus pennsylvanica	Green Ash	FACW
2.	Ulmus rubra	Slippery Elm	FAC
3.	Carpinus caroliniana	American Hornbeam	FAC
4.	Rhamnus cathartica	Common Buckthorn	UPL

HERBS

	Botanical Name	Common Name	Indicator Status
1.	Impatiens capensis	Spotted Touch-Me-Not	FACW
2	Glyceria striata	Fowl Manna Grass	OBL
3.	Polygonum virginianum	Virginia Knotweed	FAC
4.	Carex scabrata	Rough Sedge	OBL
5.	Aster tradescanti	Tradescant Aster	FACW
6.	Toxicodendron radicans	Poison Ivy	FAC
7.	Pathenocissus quinquefolia	Virginia Creeper	FACU
8.	Fraxinus pennsylvanica (seedlings)	Green Ash	FACW
9.	Onoclea sensibilis	Sensitive Fern	FACW

VINES

	Botanical Name	Common Name	Indicator Status
1	Pathenocissus quinquefolia	Virginia Creeper	FACU

METHODOLOGY

The subject site was investigated using the on-site inspection method for areas greater than 5 acres in size. This method is described in the "Corps of Engineers Wetlands Delineation Manual, January 1987," Part IV, Section D, Subsection 2. The site investigation began in March, 2006 and was concluded by August, 2006. The upland/wetland boundary was surveyed on August, 2006.

The southern boundary of the subject site was designated as the baseline. Three transects with a total of 16 test plots were studied, one transect in each baseline segment as required by the manual. Ten additional test plots were studied to delineate the wetland boundary. The entire parcel was traversed in order to identify the plant communities prior to the selection of the exact transect locations. The transects were placed in suitable locations so all plant communities present on the subject site would be sampled, and so that the main transects were located at, or as close as possible to, the mid-point of each baseline segment.

Vegetation data for the herbaceous and saplings/shrubs strata were taken within a 5-foot radius of the center of the sample plot. Data for the tree and woody vine strata were taken within a 30-foot radius from the center of the sample plot. The data was then statistically analyzed to determine hydrophytic status according to the methods described in "Corps of Engineers Wetland Delineation Manual, January 1987."

Soil pits were dug to a depth of 20 inches (except where shallow shale formations were encountered) in the center of each sample plot. Munsell color notations were recorded for the A horizon and immediately below the A horizon, and other pertinent characteristics were also noted. From this soil profile data, a hydric or non-hydric designation was made. The property was monitored for direct hydrologic indicators (i.e. saturated soils to the surface or inundation) at random intervals and after periods of heavy precipitation from March through October. Observations on the hydrology were also taken at each hole. The sides of each hole were examined to determine the upper level at which water was seeping into the hole. The soil pits were also observed after sufficient time had been allowed for water to drain into the hole. The depth to the water table and saturated soils was recorded. Secondary evidence of wetland hydrology was also observed and recorded when present.

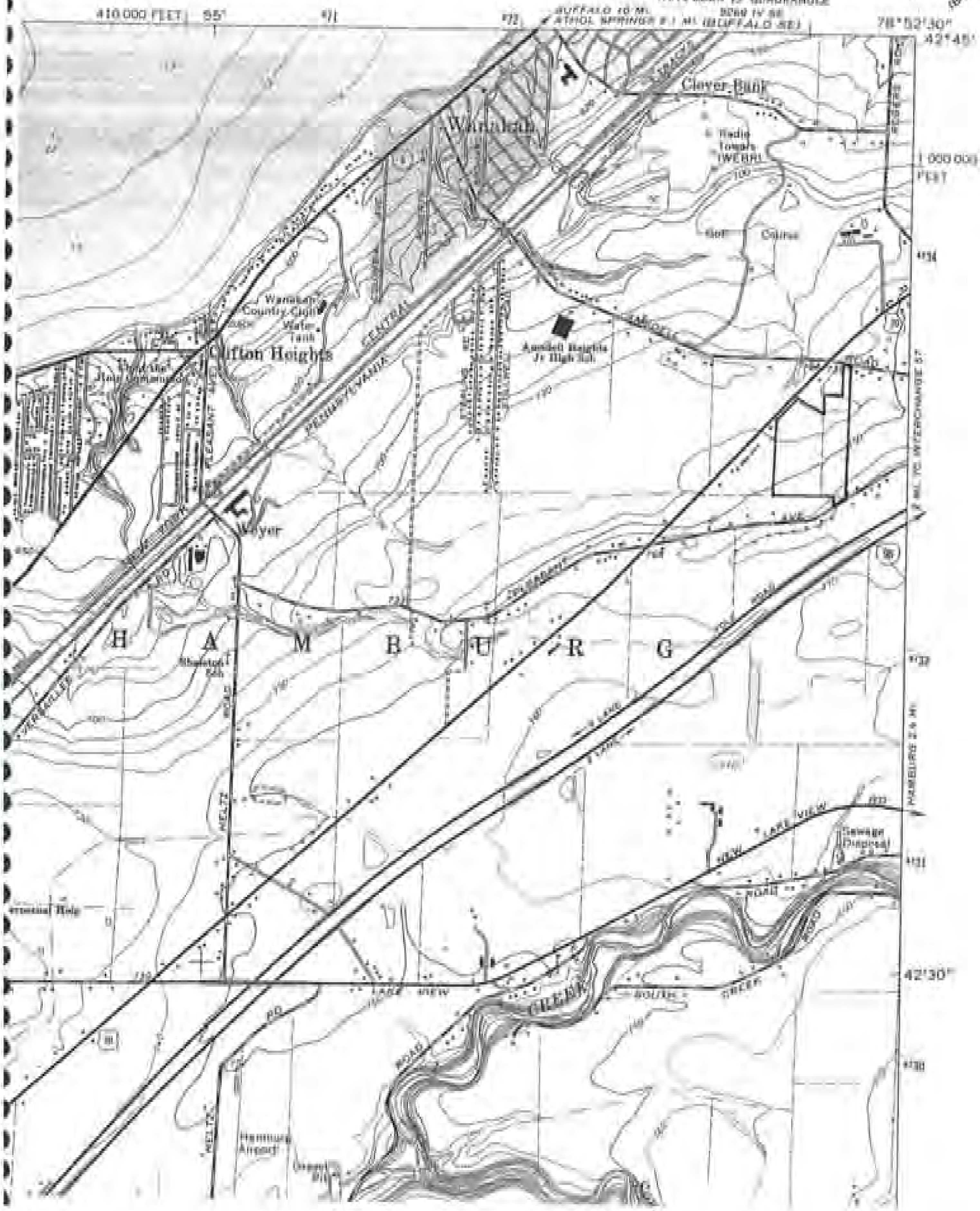
The wetland boundary was located at the interface of the Upland and Wetland plant communities. The interfaces were carefully examined and flagged. The boundaries were refined further by collecting data at ten (10) sample plots, in addition to the sixteen (16) sample plots located along transects T1, T2 and T3. The data recorded on vegetation, hydrology and soils at the sample plots are the statistical basis for the wetland boundary.

CONCLUSION

The subject site contains 2.5± acres of federal jurisdictional wetlands. The project design will be altered to avoid disturbing any wetland areas. We do not anticipate the need for any nationwide permits.

U.S.G.S. TOPOGRAPHICAL MAP #1

EDEN QUADRANGLE
NEW YORK – ERIE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



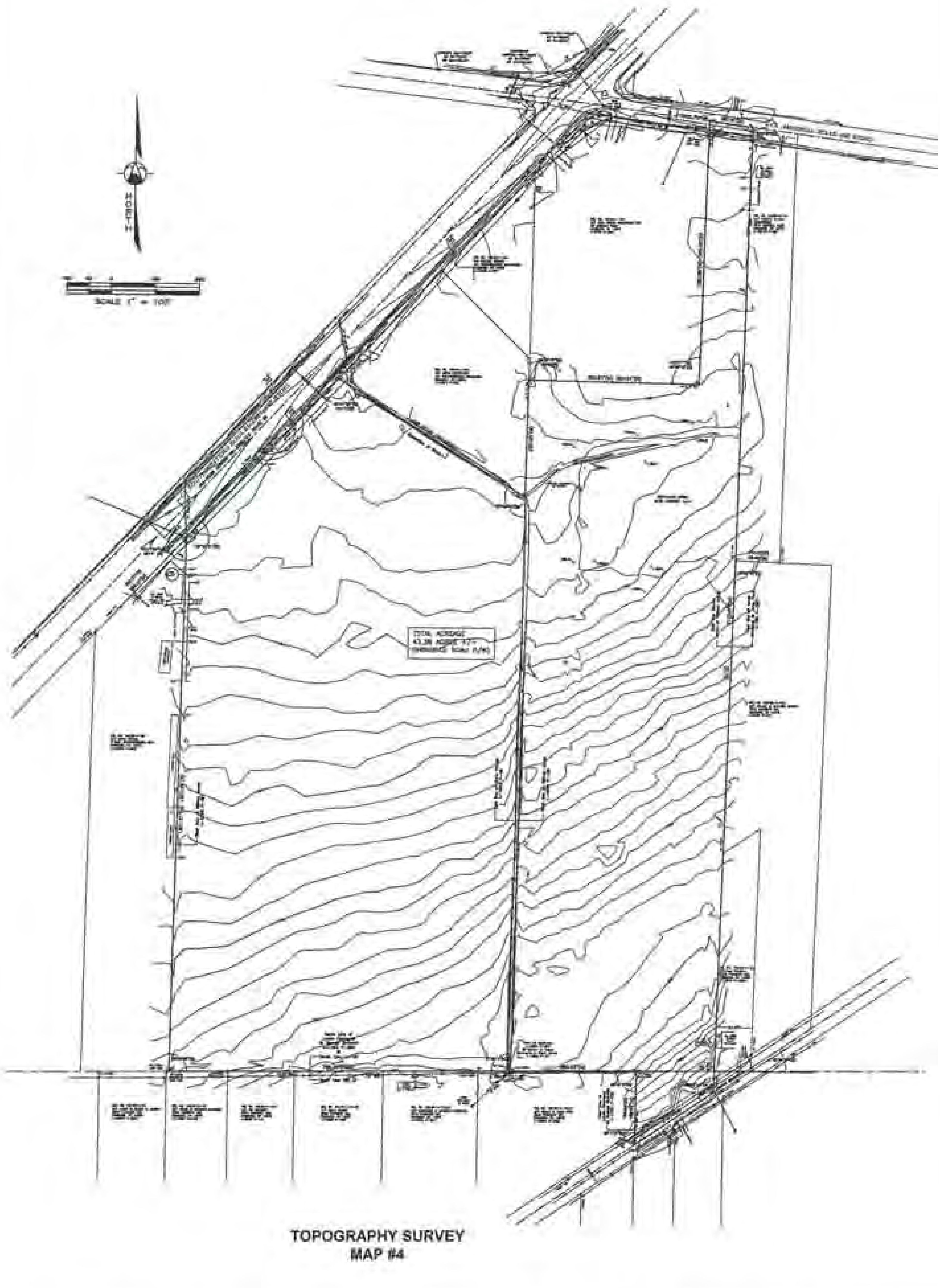
SITE DATA
BUILDING TYPES
CONCEPTUAL PLAN ASSUMPTIONS
SITE PLAN
MAP #2
VILLAS AT BRIERWOOD
EMHT

EDEN QUADRANGLE

MAP 10

Item No.	Waters Index Number	Name	Description	Map Ref. No.	Class	Standards
231	E-3-2 portion as described	Trib. of Smoke Creek	Enters from south approximately 0.7 mile due north of Webster Corners. From mouth to outlet of P 80 easterly of Freeman Ponds. Near junction of S. Freeman Road and E. Quaker Street, Orchard Park.	7	C	C
232	E-3-2 portion as described including P 80, P 81 and tribs.	Trib. of Smoke Creek	From outlet of P 80, easterly of Freeman Ponds P 80 and P 81 to source.	7, 11	C	C
233	E-3-3, 4, 5, 6, 7, 8 and tribs.	Tribs. of Smoke Creek	Enter above Orchard Park; East Aurora Road (Big Tree Road).	7, 11	C	C
234	E-5 portion as described	Rush Creek	Enters Lake Erie from approximately 1.1 miles south of City of Lackawanna-Hamburg town line. From mouth to a point ¼ mile above mouth.	8	B	B
235	E-5 portion as described and tribs.	Rush Creek	From ¼ mile above mouth to source.	8, 10	C	C
236	E-4, 5, 6, 7, 8, 9, 10, 11, 12 and tribs.	Tribs. of Lake Erie	Enter from east and southeast between Rush Creek and Eighteenmile Creek	8, 10	C	C
237	E-13 portion as described	Eighteenmile Creek	Enters Lake Erie from southeast at Evans-Hamburg town line. From mouth to Village of Hamburg water supply dam	10	B	B(T)
238	E-13 portion as described	Eighteenmile Creek	From Village of Hamburg water supply dam to trib. 41.	10, 11	A	A
239	E-13 portion as described	Eighteenmile Creek	From trib. 41 to source.	11	A	A(T)
240	E-13-1, 2, 3 and tribs.	Tribs. of Eighteenmile Creek	Enter between mouth and Evans-Hamburg town line.	10	C	C
241	E-13-4 portion as described	South Branch Eighteenmile Creek	Enters Eighteenmile Creek from east approximately 0.3 mile above Eden-Hamburg town line. From mouth to Church Road	10	B	B(T)
241.1	E-13-4 portion as described including P 82	South Branch Eighteenmile Creek	From Church Road to trib. 23	10	B	B
242	E-13-4 portion as described including P 83	South Branch Eighteenmile Creek	From trib. 23 to source.	10	C	C(TS)
243	E-13-4-1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 and tribs.	Tribs. of South Branch Eighteenmile Creek	Enter between mouth and a point approximately 0.2 mile above North Collins-Eden town line.	10	B	B
244	E-13-4-13 and tribs.	Jennings Creek	Enters South Branch Eighteenmile Creek from south approximately 0.3 mile above North Collins-Eden town line.	10	B	B
245	E-13-4-14, 15, 16, 17, 18, 19, 20, 21, 22 and tribs.	Tribs. of South Branch Eighteenmile Creek	Enter South Branch Eighteenmile Creek between a point approximately 0.3 mile above North Collins-Eden town line and New Oregon.	10	B	B
246	E-13-4-23 and tribs.	Trib. of South Branch Eighteenmile Creek	Enters from east at Langford Road, New Oregon.	10	B	B

BOUNDARY /TOPOGRAPHIC AND UTILITY SURVEY



TOPOGRAPHY SURVEY
MAP #4

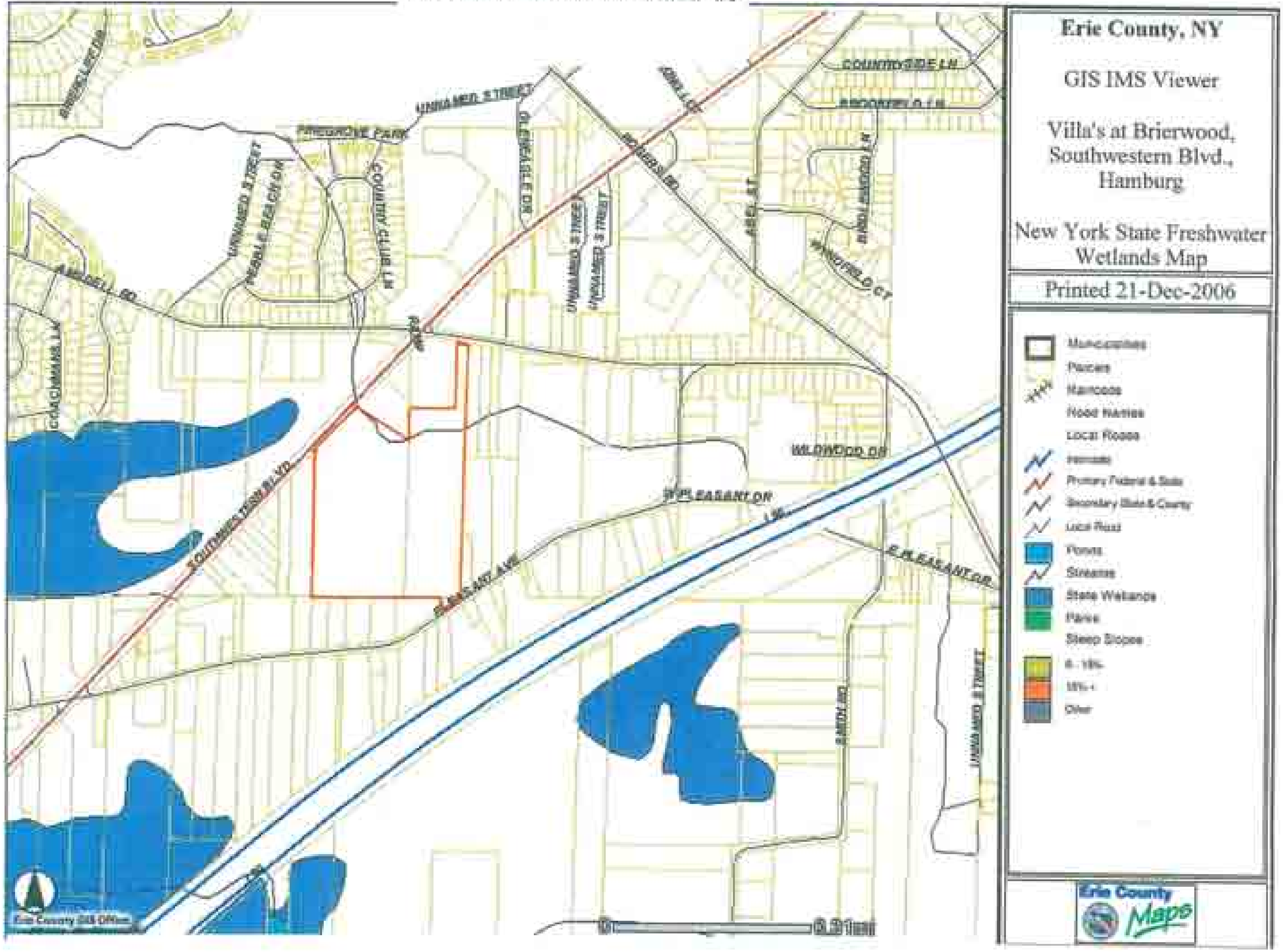
Sheet 2	of 2

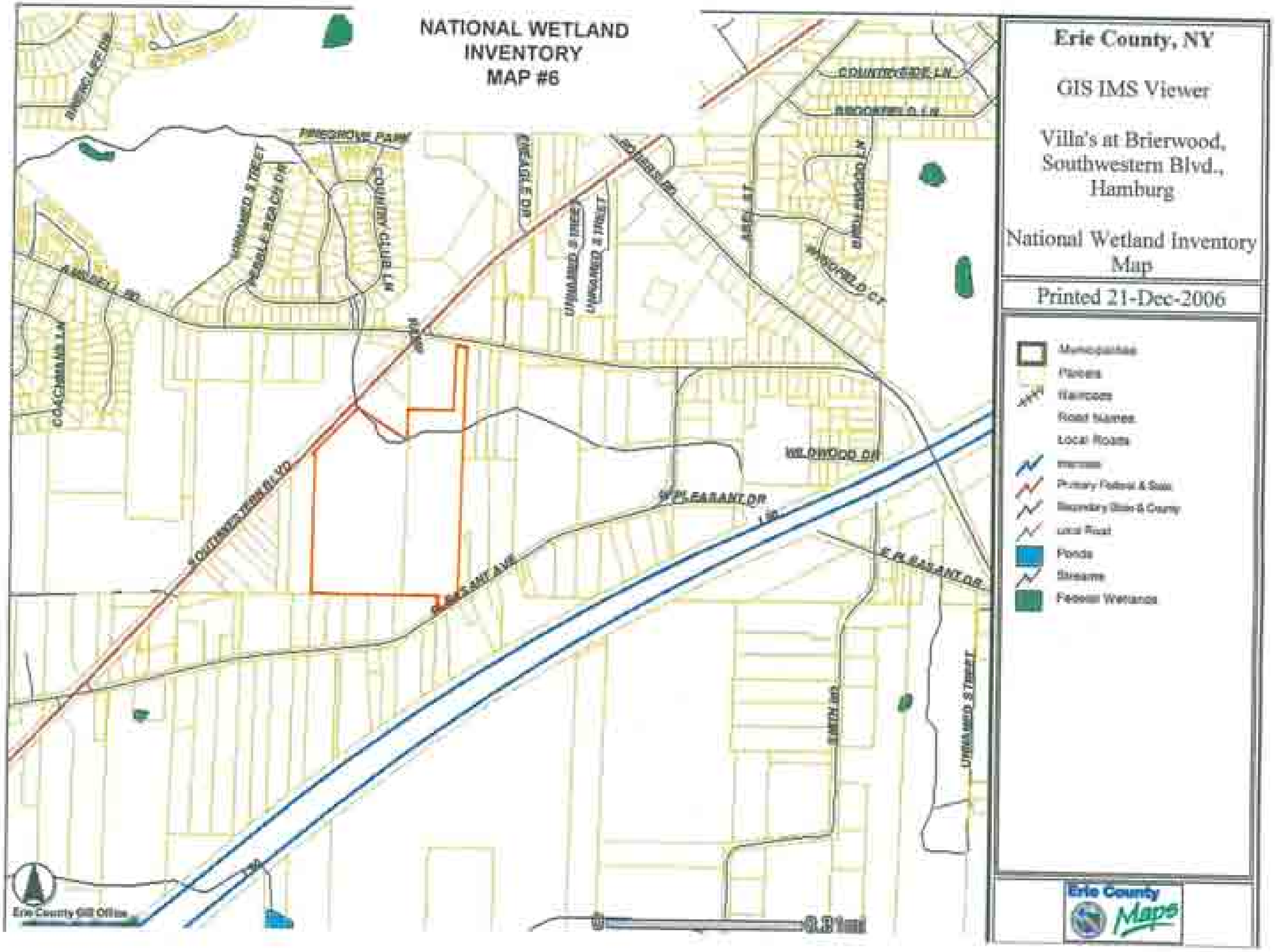
PROJECT: BOUNDARY SURVEY OF
SBL NO. 182.00-4-13.1
SBL NO. 182.00-4-19

GENZEL LAND SURVEYING, P.C.
7033 COLE ROAD COLDEN, NEW YORK 14033
505 EAST 20TH STREET CHEYENNE WY 82001
PH: (716) 867-9735 FAX: (716) 667-9733 EMAIL: JGENZEL@AOL.COM

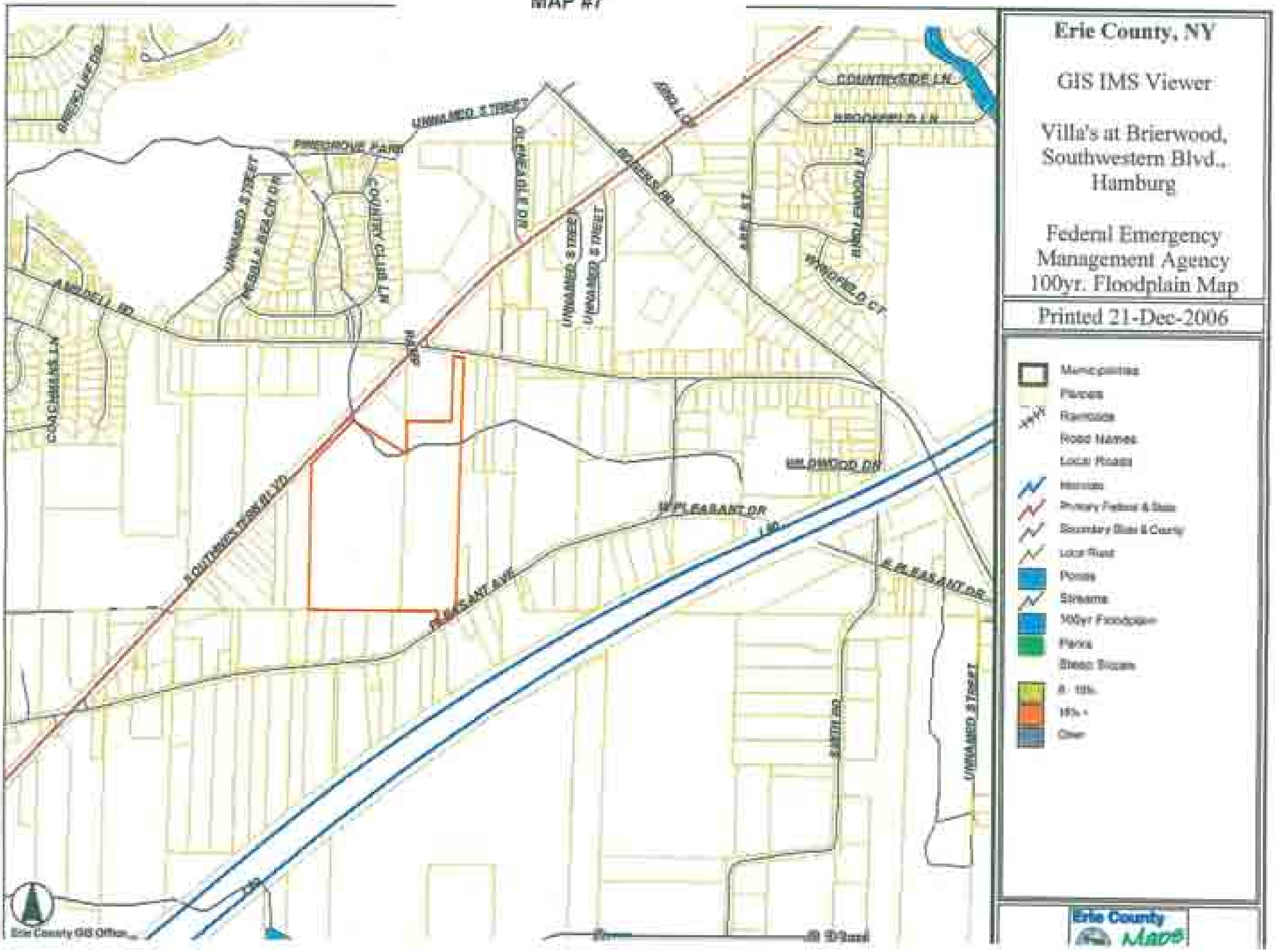
PROJECT:	0555
DATE:	04/10/06
SURVEYOR:	JAG
DRAWN BY:	JAG

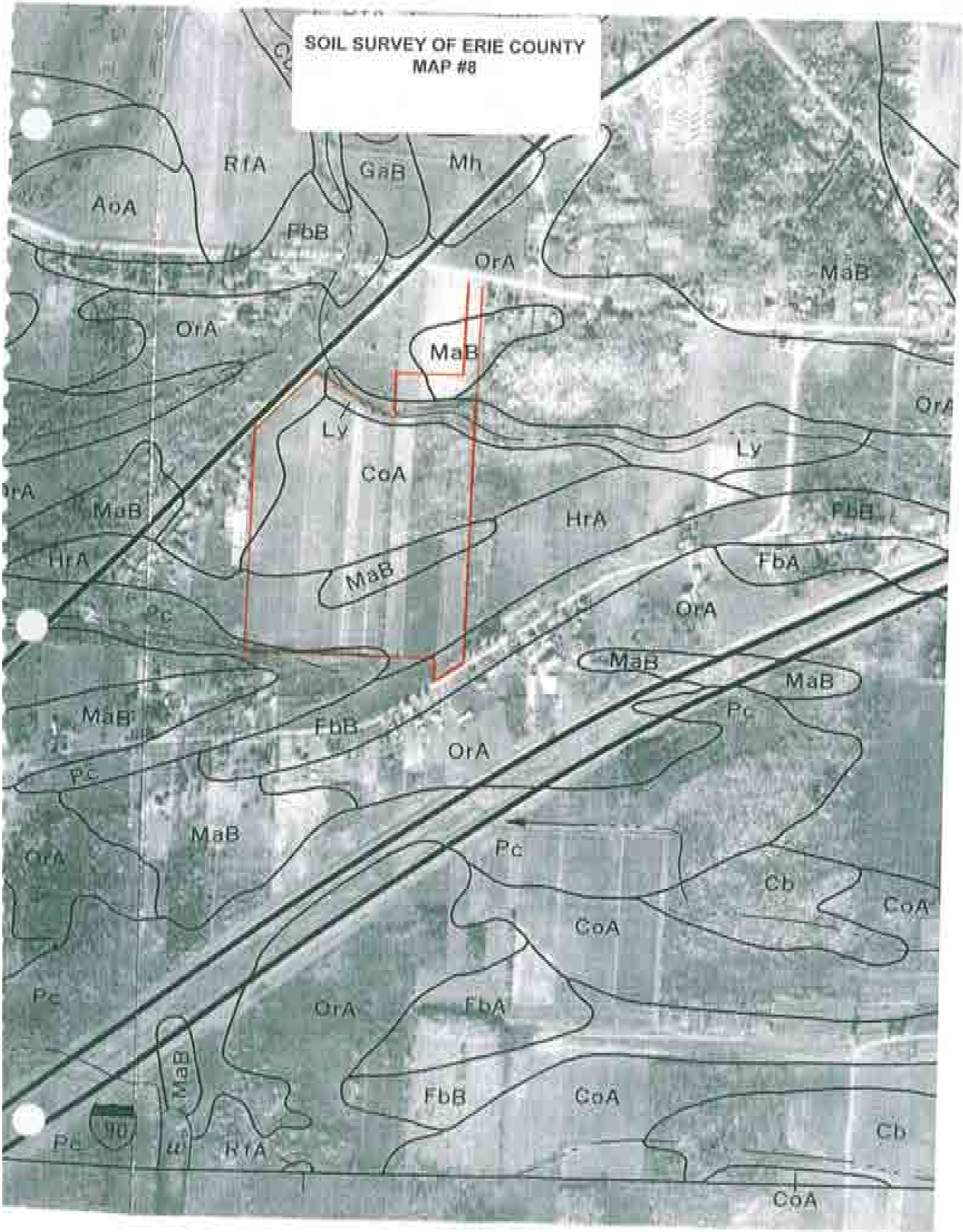
NEW YORK STAT
FRESHWATER WETLAND MAP #5



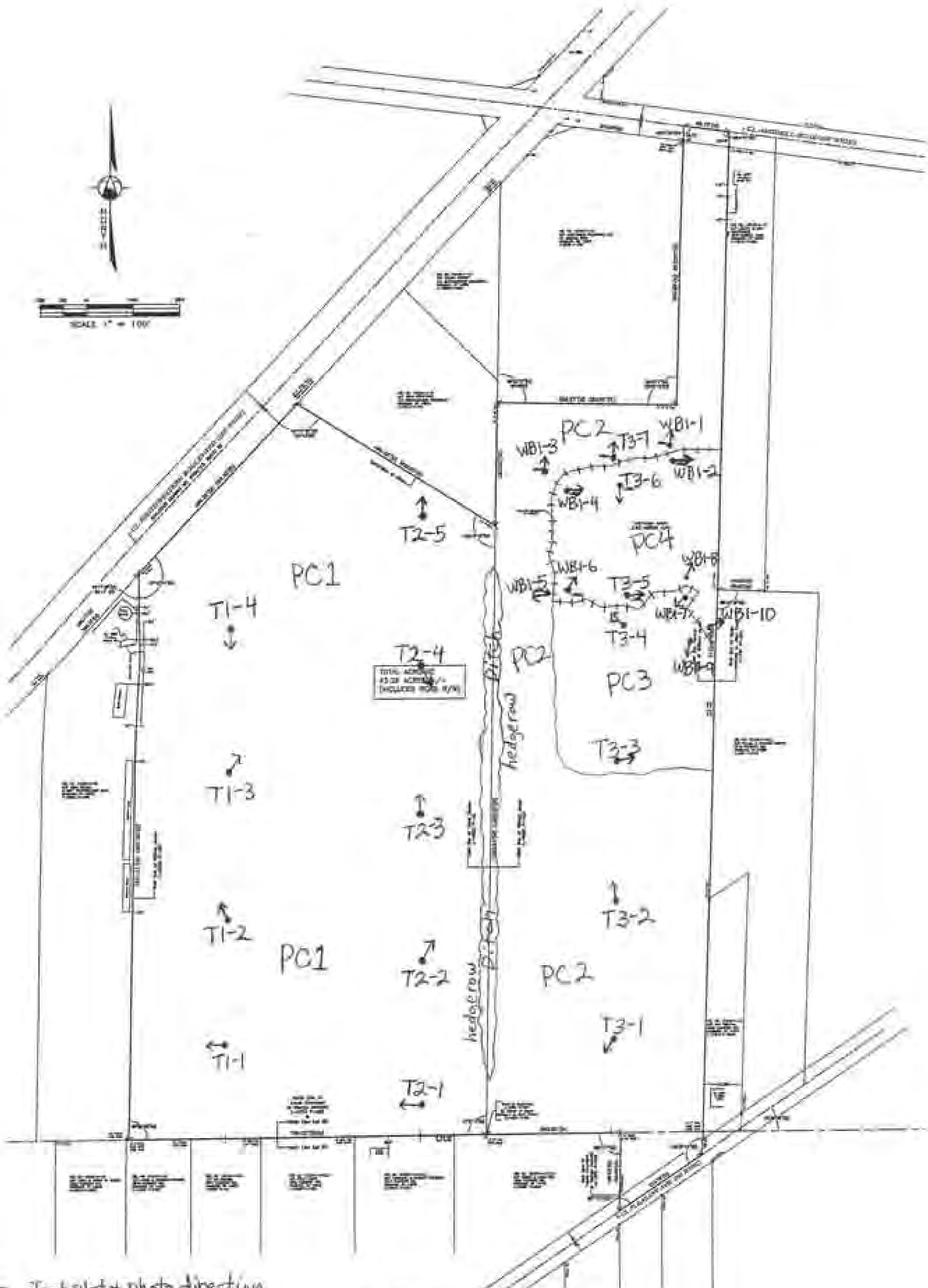

NATIONAL WETLAND
INVENTORY
MAP #6
Erie County, NY
GIS IMS Viewer
Villa's at Brierwood,
Southwestern Blvd.,
Hamburg
National Wetland Inventory
Map
Printed 21-Dec-2006
Parcels
Road Names
Local Roads
Ponds
Streams
COUNTRYSIDE LN
PINEGROVE PARK
EAGLE DR
COUNTRY CLUB LN
UNNAMED STREET
COACHMAN LN
SOUTHWESTERN BLVD
WILDWOOD DR
W PLEASANT DR
E PLEASANT DR
PLEASANT AVE
Erie County GIS Office
Erie County
Maps

FEMA FLOODPLA...
MAP #7




SOIL SURVEY OF ERIE COUNTY
MAP #8
RfA
GaB
Mh
AoA
FbB
OrA
MaB
OrA
MaB
Ly
CoA
Ly
OrA
MaB
HrA
FbB
HrA
MaB
FbA
Pc
OrA
MaB
MaB
MaB
FbB
OrA
Pc
Pc
MaB
OrA
Pc
Cb
CoA
CoA
Pc
OrA
FbA
MaB
FbB
CoA
Cb
Pc
90
RfA
CoA

BOUNDARY SURVEY



T1-1 = Test plot + photo direction
x-+-+-x = Upland/Wetland Boundary
PC = Plant Community

UPLAND/WETLAND BOUNDARY;
PLANT COMMUNITY;
TEST PLOT & PHOTO DIRECTION
MAP #9

Sheet 2 of 2

PROJECT: BOUNDARY SURVEY OF
SBL NO 182.00-4-13.1
SBL NO. 182.00-4-19

GENZEL LAND SURVEYING, P.C.
7033 COLE ROAD COLDEN, NEW YORK 14033
505 EAST 20TH STREET CHEYENNE WY 82001
PH: (716) 667-9735 FAX: (716) 667-9733 EMAIL: JGENZEL@AOL.COM

PROJECT:	0663
DATE:	04/04/06
SURVEYOR:	JAG
DRAWN BY:	JAG

T1-3 NE

T1-1 E

T1-4 S

T1-2 N

T2-3 N

T2-1 W

T2-4 SE

T2-2 NE

T3-3 E

T2-5 N

T3-4 NW

T3-2 N

T3-7 N

T3-5 E

WB1-1 N

T3-6 S

WB1-3 N

WB1-2 W

WB1-4 F

T3-1 SW


WB1-7 SW

WB1-5 W


WB1-8 NE


WB1-6 NE

WB1-9 S

WB1-10 E

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood	Date: 6/5
Applicant/Owner: Vanderbilt Properties	County: Erie
Investigator: Erik Krull	State: NY
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: Transect ID: T1 Plot ID: 1

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Lotus corniculatus	Herb	FACU-	9.		
2. Solidago canadensis	"	FACU	10.		
3. Anthoxanthum odoratum	Herb	FACU	11.		
4. Phluem pratense	"	FACU	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 0% 0%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
 ___ Stream, Lake, or Tide Gauge
 ___ Aerial Photographs
 ___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
 ___ Inundated
 ___ Saturated in Upper 12 Inches
 ___ Water Marks
 ___ Drift Lines
 ___ Sediment Deposits
 ___ Drainage Patters
Secondary Indicators (2 or more required):
 ___ Oxidized Root Channels in Upper 12 Inches
 ___ Water-Stained Leaves
 ___ Local Soil Survey Data
 ___ FAC-Neutral Test
 ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Hornell silt loam, 0 to 3% slopes

Drainage Class: SPD

Taxonomy (Subgroup): Aeric Haplaquepts

Field Observations Confirm Mapped Type? Yes N

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8	Ap	10YR4/2			Siltloam, granular
8-11	B21	10YR5/3	7.5YR4/6	comm/distinct	SCL, subang. blocky
11 to 18+	B22g	10YR5/4	10YR4/6	many/dist.	SCL, prismatic to ang. block

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)

Wetland Hydrology Present? Yes No

Hydric Soils Present? Yes No

(Circle)

Is this Sampling Point Within a Wetland Yes No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood
Applicant/Owner: Vanderbilt Properties
Investigator: Erik Krull

Date: 6/5
County: Erie
State: NY

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is the area a potential Problem Area? Yes **No**
(If needed, explain on reverse.)

Community ID:
Transect ID: T1
Plot ID: 2

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Trifolium hybridum	Herb	FACU-	9.		
2. Phluem pratense	"	FACU	10.		
3. Poa pratensis	Herb	FACU	11.		
4. Trifolium pratense	"	FACU-	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 0% 0%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patters
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Orpark silty clay loam, 0 to 3 % slopes

Drainage Class: SPD

Taxonomy (Subgroup): Aeric Haplaquepts

Field Observations Confirm Mapped Type? Yes / No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-8	Ap	10YR3/2			SL, granular
8-16	B21	10YR5/3	10YR5/6	comm/faint	SCL, subang. blocky

Hydric Soil Indicators:

- ____ Histosol
- ____ Histic Epipedon
- ____ Sulfidic Odor
- ____ Aquic Moisture Regime
- ____ Reducing Conditions
- ____ Gleyed or Low-Chroma Colors
- ____ Concretions
- ____ High Organic Content in Surface Layer in Sandy Soils
- ____ Organic Streaking in Sandy Soils
- ____ Listed on Local Hydric Soils List
- ____ Listed on National Hydric Soils List
- ____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this Sampling Point Within a Wetland Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood	Date: 6/5
Applicant/Owner: Vanderbilt Properties	County: Erie
Investigator: Erik Krull	State: NY
Do Normal Circumstances exist on the site? Yes No — Yes	Community ID:
Is the site significantly disturbed (Atypical Situation)? Yes No — No	Transect ID: T1
Is the area a potential Problem Area? Yes No — No	Plot ID: 3
(If needed, explain on reverse.)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Solidago canadensis	Herb	FACU	9.		
2. Aster lanceolatus	"	NI	10.		
3. Plantago major	Herb	FACU	11.		
4. Chysanthemum leucanthemum	"	UPL	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 0 0

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns

Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Churchville silt loam, 0 to 3% slopes

Drainage Class: SPD

Taxonomy (Subgroup): Aeric Ochraqualfs

Field Observations Confirm Mapped Type? Yes

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-8	Ap	10YR 3/2			SL, granular
8-12	A2	10YR 4/2	10YR 4/6	Comm/dist.	SCL, ang. blocky
12-16	B+A	7.5YR 5/3	10YR 5/6		SC, prismatic

Hydric Soil Indicators:

- ______ Histosol
- ______ Histic Epipedon
- ______ Sulfidic Odor
- ______ Aquic Moisture Regime
- ______ Reducing Conditions
- ______ Gleyed or Low-Chroma Colors
- ______ Concretions
- ______ High Organic Content in Surface Layer in Sandy Soils
- ______ Organic Streaking in Sandy Soils
- ______ Listed on Local Hydric Soils List
- ______ Listed on National Hydric Soils List
- ______ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

Is this Sampling Point Within a Wetland Yes No (Circle)

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

oject/Site: Villas @ Brierwood	Date:
Applicant/Owner: Vanderbilt Properties	County: Erie
Investigator: Erik Krull	State: NY
Do Normal Circumstances exist on the site? Yes No — Yes	Community ID:
Is the site significantly disturbed (Atypical Situation)? Yes No — No	Transect ID: T1
Is the area a potential Problem Area? Yes No — No (If needed, explain on reverse.)	Plot ID: 4

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Aster lanceolatus	Herb	NI	9.		
2. Poa canadensis	Herb	FACU	10.		
3. Prunella vulgaris	〃	FACU+	11.		
4. Lotus corniculatus	Herb	FACU-	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 0 0

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patters

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Churchville silt loam, 0 to 3% slopes

Drainage Class: SPD

Taxonomy (Subgroup): Aeric Ochraqualfs

Field Observations Confirm Mapped Type? Yes

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-8	Ap	10YR3/2			SL, granular
8-12	A2	10YR4/2	7.5YR5/6	comm/dist	SL, subang. blocky
12-17	B+A	7.5YR5/3	7.5YR5/6	comm/dist	SCL, subang. blocky

Hydric Soil Indicators:

- ____ Histosol
- ____ Histic Epipedon
- ____ Sulfidic Odor
- ____ Aquic Moisture Regime
- ____ Reducing Conditions
- ____ Gleyed or Low-Chroma Colors
- ____ Concretions
- ____ High Organic Content in Surface Layer in Sandy Soils
- ____ Organic Streaking in Sandy Soils
- ____ Listed on Local Hydric Soils List
- ____ Listed on National Hydric Soils List
- ____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this Sampling Point Within a Wetland Yes No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood
Applicant/Owner: Vanderbilt Properties
Investigator: Erik Krull

Date: 6/5/06
County: Erie
State: NY

Do Normal Circumstances exist on the site? Yes No — Yes
Is the site significantly disturbed (Atypical Situation)? Yes No — No
Is the area a potential Problem Area? Yes No — No
(If needed, explain on reverse.)

Community ID: T2
Transect ID: 1
Plot ID:

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Aster lanceolatus	Herb	NI	9.		
2. Anthoxanthum odoratum	"	FACU	10.		
3. Potentilla simplex	Herb	FACU-	11.		
4. Lotus corniculatus	"	FACU-	12.		
5. Vicia cracca	Herb	UPL	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 0% 0%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patters

Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Hornell silt loam, 0 to 3% slopes

Drainage Class: SPD

Taxonomy (Subgroup): Aeric Haplaquepts

Field Observations Confirm Mapped Type? Yes /

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-8	Ap	10YR4/3			Silt loam, granular
8-11	B21	10YR 5/3	7.5Y6/2 7.5YR5/6	comm/dist	SCL, subang. blocky
11-18+	B22g	2.5Y5/3	10YR5/1 7.5YR5/6	many, prom. dist.	SCL, angular blocky

Hydric Soil Indicators:

- ____ Histosol
- ____ Histic Epipedon
- ____ Sulfidic Odor
- ____ Aquic Moisture Regime
- ____ Reducing Conditions
- ____ Gleyed or Low-Chroma Colors
- ____ Concretions
- ____ High Organic Content in Surface Layer in Sandy Soils
- ____ Organic Streaking in Sandy Soils
- ____ Listed on Local Hydric Soils List
- ____ Listed on National Hydric Soils List
- ____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this Sampling Point Within a Wetland Yes No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood
pplicant/Owner: Vanderbilt Properties
Investigator: Erik Krull

Date: 6/5/06
County: Erie
State: NY

Do Normal Circumstances exist on the site? Yes No — Yes
Is the site significantly disturbed (Atypical Situation)? Yes No — No
Is the area a potential Problem Area? Yes No — No
(If needed, explain on reverse.)

Community ID:
Transect ID: T2
Plot ID: 2

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Dactylis glomerata	Herb	FACU	9.		
2. Lotus corniculatus	"	FACU-	10.		
3. Anthoxanthum odoratum	Herb	FACU	11.		
4. Vicia cracca	"	UPL	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

ercent of Dominant Species that are OBL, FACW or FAC (excluding FAC):

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patters

Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

emarks:

SOILS

Map Unit Name
(Series and Phase): Manilus shaly siltloam, 3 to 8 % slopes

Drainage Class: Well Drained

Field Observations
Confirm Mapped Type? Yes N

Taxonomy (Subgroup): Typic Dystrochrepts

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-8	Ap	10YR 4/2			Siltloam, granular
8-18+"	B2	10YR5/4			Shaly SL, subang. blocky

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this Sampling Point Within a Wetland Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood
Applicant/Owner: Vanderbilt Properties
Investigator: Erik Krull

Date: 6/6/05
County: Erie
State: NY

Do Normal Circumstances exist on the site? Yes No
Is the site significantly disturbed (Atypical Situation)? Yes No
Is the area a potential Problem Area? Yes No
(If needed, explain on reverse.)

Community ID:
Transect ID: T2
Plot ID: 3

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Solidago canadensis	Herb	FACU	9.		
2. Poa pratensis	Herb	FACU	10.		
3. Euthamia graminifolia	"	FAC	11.		
4. Lotus corniculatus	Herb	FACU+	12.		
5. Phleum pratense	"	FACU	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 0% 20%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): Churchville silt loam, 0 to 3% slopes

Drainage Class: SPD

Taxonomy (Subgroup): Aeric Ochraqualfs

Field Observations
Confirm Mapped Type? Yes

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-8	Ap	10YR 4/2			SL, granular
8-11"	A2	10YR 5/3	7.5YR 5/6	comm/dist.	SCL, subang. blocky
11-16	B+A	10YR 4/3	10YR 5/6	comm/dist.	SCL, subang. blocky

Hydric Soil Indicators:

- ____ Histosol
- ____ Histic Epipedon
- ____ Sulfidic Odor
- ____ Aquic Moisture Regime
- ____ Reducing Conditions
- ____ Gleyed or Low-Chroma Colors
- ____ Concretions
- ____ High Organic Content in Surface Layer in Sandy Soils
- ____ Organic Streaking in Sandy Soils
- ____ Listed on Local Hydric Soils List
- ____ Listed on National Hydric Soils List
- ____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this Sampling Point Within a Wetland Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood	Date: 6/6/06
Applicant/Owner: Vanderbilt Properties	County: Erie
Investigator: Erik Krull	State: NY
Do Normal Circumstances exist on the site? Yes No (Yes circled)	Community ID:
Is the site significantly disturbed (Atypical Situation)? Yes No (No circled)	Transect ID: T2
Is the area a potential Problem Area? Yes No (No circled) (If needed, explain on reverse.)	Plot ID: 4

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Solidago canadensis	Herb	FACU	9.		
2. Lotus corniculatus	〃	FACU-	10.		
3. Euthamia graminifolia	Herb	FAC	11.		
4. Vicia cracca	〃	UPL	12.		
5. Aster lanceolatus	Herb	NI	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 25 0

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns

Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): Churchville silt loam, 0 to 3% slopes

Drainage Class: SPD

Taxonomy (Subgroup): Aeric Ochraqualfs

Field Observations
Confirm Mapped Type? Yes

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-10	Ap	10YR4/2			SL, granular
10-15"	B+A	10YR5/3	10YR5/6 10YR5/1	comm /dist	SCL, subang. blocky

Hydric Soil Indicators:

- ____ Histosol
- ____ Histic Epipedon
- ____ Sulfidic Odor
- ____ Aquic Moisture Regime
- ____ Reducing Conditions
- ____ Gleyed or Low-Chroma Colors
- ____ Concretions
- ____ High Organic Content in Surface Layer in Sandy Soils
- ____ Organic Streaking in Sandy Soils
- ____ Listed on Local Hydric Soils List
- ____ Listed on National Hydric Soils List
- ____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)

Wetland Hydrology Present? Yes No

Hydric Soils Present? Yes No

(Circle)

Is this Sampling Point Within a Wetland Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood	Date:
Applicant/Owner: Vanderbilt Properties	County: Erie
Investigator: Erik Krull	State: NY
Do Normal Circumstances exist on the site? Yes No — Yes	Community ID:
Is the site significantly disturbed (Atypical Situation)? Yes No — No	Transect ID: T2
Is the area a potential Problem Area? (If needed, explain on reverse.) Yes No — No	Plot ID: 3

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Fraxinus americana	Tree	FACU	9.		
2. Fraxinus americana	SS	FACU	10.		
3. Poa pratensis	Herb	FACU	11.		
4. Agropyron repens	"	FACU-	12.		
5. Holcus lantana	Herb	FACU	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 0 0

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Lyons silt loam

Drainage Class: PD

Taxonomy (Subgroup): Mollic Haplaquepts

Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-9	Ap	10YR2/2			SL, granular
9-16	B2	7.5YR 4/2	7.5YR5/4+6	comm/faint+dist	SL, subang. blocky

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)

Wetland Hydrology Present? Yes No

Hydric Soils Present? Yes No

(Circle)

Is this Sampling Point Within a Wetland Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood	Date: 7/6/06
Applicant/Owner: Vanderbilt Properties	County: Erie
Investigator: Erik Krull	State: NY
Do Normal Circumstances exist on the site? **Yes** No	Community ID:
Is the site significantly disturbed (Atypical Situation)? Yes **No**	Transect ID: T3
Is the area a potential Problem Area? Yes **No** (If needed, explain on reverse.)	Plot ID: 1

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Fraxinus americana	SS	FACU	9.		
2. Rhamnus cathartica	SS	UPL	10.		
3. Anthoxanthum odoratum	Herb	FACU	11.		
4. Dactylis glomerata	"	FACU	12.		
5. Ranunculus acris	"	FAC+	13.		
6. Fragaria virginiana	Herb	FACU	14.		
7. Poa pratensis	"	FACU	15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 14% 14%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patters

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Hornell silt loam, 0 to 3% slopes

Drainage Class: SPD

Field Observations Confirm Mapped Type? Yes

Taxonomy (Subgroup): Aeric Haplaquepts

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-9	Ap	10YR4/2			SL, granular
9-17	B21	10YR5/3	7.5YR5/6	Many/dist	SCL, angular blocky

Hydric Soil Indicators:

- ____ Histosol
- ____ Histic Epipedon
- ____ Sulfidic Odor
- ____ Aquic Moisture Regime
- ____ Reducing Conditions
- ____ Gleyed or Low-Chroma Colors
- ____ Concretions
- ____ High Organic Content in Surface Layer in Sandy Soils
- ____ Organic Streaking in Sandy Soils
- ____ Listed on Local Hydric Soils List
- ____ Listed on National Hydric Soils List
- ____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this Sampling Point Within a Wetland Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood
Applicant/Owner: Vanderbilt Properties
Investigator: Erik Krull

Date: 7/6/06
County: Erie
State: NY

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is the area a potential Problem Area? Yes **No**
(If needed, explain on reverse.)

Community ID:
Transect ID: T3
Plot ID: 2

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Fraxinus pennsylvanica	SS	FACW	9.		
2. Rosa multiflora	SS	FACU	10.		
3. Dactylis glomerata	Herb	FACU	11.		
4. Holcus lantana	"	FACU	12.		
5. Anthoxanthum odoratum	"	FACU	13.		
6. Phleum pratense	Herb	FACU	14.		
7. Ranunculus acris		FAC	15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 14% 28%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)
Depth to Free Water in Pit: over 18 (in.)
Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patters
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Hornell silt loam, 0 to 3% slopes

Drainage Class: SPD

Taxonomy (Subgroup): Aeric Haplaquepts

Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-8	Ap	10YR 4/2			SL, granular
8-11	B21	10YR 5/6	10YR 5/6	Comm./dist	SL, subangular blocky
11-18+	B22g	10YR 5/2	7.5YR 5/6	Many / dist.	SCL, subangular blocky

Hydric Soil Indicators:

- ______ Histosol
- ______ Histic Epipedon
- ______ Sulfidic Odor
- ______ Aquic Moisture Regime
- ______ Reducing Conditions
- ______ Gleyed or Low-Chroma Colors
- ______ Concretions
- ______ High Organic Content in Surface Layer in Sandy Soils
- ______ Organic Streaking in Sandy Soils
- ______ Listed on Local Hydric Soils List
- ______ Listed on National Hydric Soils List
- ______ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)

Wetland Hydrology Present? Yes No

Hydric Soils Present? Yes No

(Circle)

Is this Sampling Point Within a Wetland Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood
Applicant/Owner: Vanderbilt Properties
Investigator: Erik Krull

Date: 7/6/06
County: Erie
State: NY

Do Normal Circumstances exist on the site? Yes No — Yes
Is the site significantly disturbed (Atypical Situation)? Yes No — No
Is the area a potential Problem Area? Yes No — No
(If needed, explain on reverse.)

Community ID:
Transect ID: T3
Plot ID: 3

VEGETATION

	Dominant Plant Species	Stratum	Indicator
1.	Carya ovata	Tree	FACU-
2.	Tilia americana	Tree	FACU
3.	Acer saccharum	"	FACU-
4.	Carya ovata	SS	FACU-
5.	Toxicodendro radicans	Herb	FAC
6.	Parthenocissus quinquefolia	"	FACU
7.	Prunus pumila	"	UPL
8.	Toxicodendron radicans	Vine	FAC
9.	Parthenocissus quinquefolia	Vine	FACU
10.			
11.			
12.			
13.			
14.			
15.			
16.			

Percent of Dominant Species that are OBL, FACW or FAC 22%
(excluding FAC): 0%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns

Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Churchville silt loam, 0 to 3% slopes

Drainage Class: SPD

Taxonomy (Subgroup): Aeric Ochraqualfs

Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-6	A	10YR3/2			SL, granular
6-9	A2	7.5YR5/3	7.5YR5/6	Comm./Dist	SL, subangular blocky
9-14	B+A	7.5YR5/3	7.5YR5/6	Comm./Dist	SCL, subangular blocky (sandy)

Hydric Soil Indicators:

- ____ Histosol
- ____ Histic Epipedon
- ____ Sulfidic Odor
- ____ Aquic Moisture Regime
- ____ Reducing Conditions
- ____ Gleyed or Low-Chroma Colors
- ____ Concretions
- ____ High Organic Content in Surface Layer in Sandy Soils
- ____ Organic Streaking in Sandy Soils
- ____ Listed on Local Hydric Soils List
- ____ Listed on National Hydric Soils List
- ____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this Sampling Point Within a Wetland Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood
Applicant/Owner: Vanderbilt Properties
Investigator: Erik Krull

Date: 7/6/06
County: Erie
State: NY

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is the area a potential Problem Area? Yes **No**
(If needed, explain on reverse.)

Community ID:
Transect ID: T3
Plot ID: 4

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Carya ovata	Tree	FACU-	9.		
2. Quercus rubra	"	FACU-	10.		
3. Acer rubrum	"	FAC	11.		
4. Carya ovata	SS	FACU-	12.		
5. Carya ovata (seedlings)	Herb	FACU-	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 0% 20%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Churchville silt loam, 0 to 3% slopes

Drainage Class: SPD

Field Observations Confirm Mapped Type? Yes No

Taxonomy (Subgroup): Aeric Ochraqualfs

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-7	A	10YR3/2			SL, granular
7-9	A2	10YR5/3	7.5YR5/6	Comm/Dist	SL, subangular blocky
9-14	B+A	7.5YR4/3	7.5YR5/8	Comm/Prom	SCL, subang. blocky + sandy

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this Sampling Point Within a Wetland? Yes No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood
Applicant/Owner: Vanderbilt Properties
Investigator: Erik Krull

Date: 7/6
County: Erie
State: NY

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is the area a potential Problem Area? Yes **No**
(If needed, explain on reverse.)

Community ID:
Transect ID: T3
Plot ID: 5

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Acer rubrum	Tree	FAC	9.		
2. Ulmus rubra	Tree	FAC	10.		
3. Tilia americana	"	FACU	11.		
4. Fraxinus pennsylvanica	SS	FACW	12.		
5. Impatiens capensis	Herb	FACW	13.		
6. Carex communis	"	NI	14.		
7. Glyceria striata	Herb	OBL	15.		
8. Parthenocissus quinquefolia	Vine	FACU	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 60 % 71 %

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
X Water Marks
___ Drift Lines
X Sediment Deposits
X Drainage Patters
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Lyons silt loam

Drainage Class: PD

Taxonomy (Subgroup): Mollic Haplaquepts

Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-7	A	10YR2/2			SL, granular
7-14	B2	7.5YR4/2	7.5YR5/6	Comm/Dist.	SL, subangular blocky

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors w/mottles
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this Sampling Point Within a Wetland Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood
Applicant/Owner: Vanderbilt Properties
Investigator: Erik Krull

Date: 7/6/06
County: Erie
State: NY

Do Normal Circumstances exist on the site? Yes No — Yes
Is the site significantly disturbed (Atypical Situation)? Yes No — No
Is the area a potential Problem Area? Yes No — No
(If needed, explain on reverse.)

Community ID:
Transect ID: T3
Plot ID: 6

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Fraxinus pennsylvanica	Tree	FACW	9.		
2. Ulmus rubra	〃	FAC	10.		
3. Carya ovata		FACU-	11.		
4. Rhamnus cathartica	SS	FACU	12.		
5. Polygonum virginianum	Herb	FAC	13.		
6. Impatiens capensis	Herb	FACW	14.		
7. Glyceria striata	〃	OBL	15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 60% 71%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)
Depth to Free Water in Pit: over 18 (in.)
Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
X Water Marks
___ Drift Lines
___ Sediment Deposits
X Drainage Patterns
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): Lyons silt loam

Drainage Class: PD

Taxonomy (Subgroup): Mollic Haplaquepts

Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6	A	10YR2/2			SL, granular
6-13	B2	10YR4/2	7.5YR5/6	Comm/Dist	SL, subangular blocky

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this Sampling Point Within a Wetland Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood	Date: 7/6
Applicant/Owner: Vanderbilt Properties	County: Erie
Investigator: Erik Krull	State: NY
Do Normal Circumstances exist on the site? Yes No — Yes	Community ID:
Is the site significantly disturbed (Atypical Situation)? Yes No — No	Transect ID: T3
Is the area a potential Problem Area? Yes No — No (If needed, explain on reverse.)	Plot ID: 7

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Fraxinus pennsylvanica	SS	FACW	9.		
2. Rosa multiflora	SS	FACU	10.		
3. Anthoxanthum odoratum	Herb	FACU	11.		
4. Holcus lantana	"	FACU	12.		
5. Vicia cracca	Herb	UPL	13.		
6. Carex vulpinoidea	"	OBL	14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 33% 33%

Remarks:

HYDROLOGY

____Recorded Data (Describe in Remarks):
____Stream, Lake, or Tide Gauge
____Aerial Photographs
____Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
____Inundated
____Saturated in Upper 12 Inches
____Water Marks
____Drift Lines
____Sediment Deposits
____Drainage Patters

Secondary Indicators (2 or more required):
____Oxidized Root Channels in Upper 12 Inches
____Water-Stained Leaves
____Local Soil Survey Data
____FAC-Neutral Test
____Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Lyons silt loam

Drainage Class: PD

Taxonomy (Subgroup): Mollic Haplaquepts

Field Observations Confirm Mapped Type? Yes N

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-9	Ap	10YR4/2			SL, granular
9-16	B2	10YR4/1	7.5YR4/6	Comm/Prom	SCL, subangular blocky

Hydric Soil Indicators:

- ____ Histosol
- ____ Histic Epipedon
- ____ Sulfidic Odor
- ____ Aquic Moisture Regime
- ____ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ____ Concretions
- ____ High Organic Content in Surface Layer in Sandy Soils
- ____ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ____ Listed on National Hydric Soils List
- ____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)

Wetland Hydrology Present? Yes No

Hydric Soils Present? Yes No

(Circle)

Is this Sampling Point Within a Wetland Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood
Applicant/Owner: Vanderbilt Properties
Investigator: Erik Krull

Date: 7/7/06
County: Erie
State: NY

	Yes	No
Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No

Community ID:
Transect ID: WB1
Plot ID: 1

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Lotus corniculata	Herb	FACU-	9.		
2. Holcus lantana	Herb	FACU	10.		
3. Anthoxanthum odoratum	"	FACU	11.		
4. Rannuculus acris	"	FAC+	12.		
5. Trifolium pratense	Herb	FACU-	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 20% 20%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patters
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Lyons silt loam

Drainage Class: PD

Taxonomy (Subgroup): Mollic Haplaquepts

Field Observations Confirm Mapped Type? Yes N

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-10	Ap	10YR3/2			SL, granular
10-16	B2	10YR4/2	7.5YR5/4+6	Comm/Dist	SL, subangular blocky

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ✓ Reducing Conditions
- ✓ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this Sampling Point Within a Wetland Yes No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

roject/Site: Villas @ Brierwood	Date: 7/7/06
Applicant/Owner: Vanderbilt Properties	County: Erie
Investigator: Erik Krull	State: NY
Do Normal Circumstances exist on the site? Yes No (Yes circled)	Community ID:
Is the site significantly disturbed (Atypical Situation)? Yes No (No circled)	Transect ID: WB1
Is the area a potential Problem Area? Yes No (No circled) (If needed, explain on reverse.)	Plot ID: 2

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Fraxinus pennsylvanica	Tree	FACW	9.		
2. Acer rubrum	11	FAC	10.		
3. Carya ovata	11	FACU-	11.		
4. Tilia americana	Tree	FACU	12.		
5. Impatiens capensis	Herb	FACW	13.		
6. Onoclea sensibilis	11	FACW	14.		
7. Aster tradescantii	11	FACW	15.		
8. Eupatorium perfoliatum	Herb	FACW+	16.		

Percent of Dominant Species that are OBL, FACW or FAC 75%
(excluding FAC): 71%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: 12" (in.)

Depth to Saturated Soil: 10" (in.)

Wetland Hydrology Indicators:

Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
X Drainage Patterns

Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): Lyons silt loam

Drainage Class: PD

Taxonomy (Subgroup): Mollic Haplaquepts

Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-6	Ap	10YR2/2			SL, granular
6-13	B2	10YR4/2	7.5YR5/6	Comm/Dist	SCL, subangular blocky

Hydric Soil Indicators:

- ____ Histosol
- ____ Histic Epipedon
- ____ Sulfidic Odor
- ____ Aquic Moisture Regime
- ____ Reducing Conditions
- ____ Gleyed or Low-Chroma Colors
- ____ Concretions
- ____ High Organic Content in Surface Layer in Sandy Soils
- ____ Organic Streaking in Sandy Soils
- ____ Listed on Local Hydric Soils List
- X Listed on National Hydric Soils List
- ____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No

(Circle)
Is this Sampling Point Within a Wetland Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

oject/Site: Villas @ Brierwood	Date: 7/11/06
Applicant/Owner: Vanderbilt Properties	County: Erie
Investigator: Erik Krull	State: NY
Do Normal Circumstances exist on the site? **Yes** No	Community ID:
Is the site significantly disturbed (Atypical Situation)? Yes **No**	Transect ID: WB1
Is the area a potential Problem Area? Yes **No** (If needed, explain on reverse.)	Plot ID: 3

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Fraxinus pennsylvanica	SS	FACW	9.		
2. Rhamnus cathartica	SS	UPL	10.		
3. Rosa multiflora	SS	FACU	11.		
4. Anthoxanthum odoratum	Herb	FACU	12.		
5. Solidago canadensis	"	FACU	13.		
6. Aster tradescantii	"	FACW	14.		
7. Poa pratensis	Herb	FACU	15.		
8. Ranunculus acris	Herb	FAC+	16.		

Percent of Dominant Species that are OBL, FACW or FAC 38%
(excluding FAC): 38%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Pattern
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Lyons silt loam

Drainage Class: PD

Taxonomy (Subgroup): Mollic Haplaquepts

Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-9	Ap	10YR4/2			SL, granular
9-17	B2	10YR5/2	7.5YR5/6	Comm / Dist	SL, subangular blocky

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this Sampling Point Within a Wetland Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood
Applicant/Owner: Vanderbilt Properties
Investigator: Erik Krull

Date: 7/11
County: Erie
State: NY

Do Normal Circumstances exist on the site? Yes (circled) No
Is the site significantly disturbed (Atypical Situation)? Yes No (circled)
Is the area a potential Problem Area? Yes No (circled)
(If needed, explain on reverse.)

Community ID:
Transect ID: WB1
Plot ID: 4

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Fraxinus pennsylvanica	Tree	FACW	9.		
2. Carya ovata	"	FACU-	10.		
3. Ulmus rubra	Tree	FAC+	11.		
4. Carpinus caroliniana	SS	FAC	12.		
5. Carex scabrata	Herb	OBL	13.		
6. Carex tenuiflora	"	OBL	14.		
7. Impatiens capensis	"	FACW	15.		
8. Dactylis glomerata	Herb	FACU	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 71% 75%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: 18 (in.)

Depth to Saturated Soil: 16 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
X Sediment Deposits
X Drainage Patterns

Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): Lyons silt loam

Drainage Class: PD

Taxonomy (Subgroup): Mollic Haplaquepts

Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-8	A	10YR4/2			SL, granular
8-14	B2	10YR5/2	7.5YR 5/4+6	Comm/Dist.	SL, subangular blocky (shaly + sandy)

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No

(Circle)
Is this Sampling Point Within a Wetland Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood	Date: 7/31/06
Applicant/Owner: Vanderbilt Properties	County: Erie
Investigator: Erik Krull	State: NY
Do Normal Circumstances exist on the site? **Yes** No	Community ID:
Is the site significantly disturbed (Atypical Situation)? Yes **No**	Transect ID: WB1
Is the area a potential Problem Area? Yes **No** (If needed, explain on reverse.)	Plot ID: 5

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Fraxinus pennsylvanica	Tree	FACW	9.		
2. Carya ovata	"	FACU-	10.		
3. Fraxinus pennsylvanica	SS	FACW	11.		
4. Holcus lanatus	Herb	FACU	12.		
5. Anthoxanthum odoratum	"	FACU	13.		
6. Poa pratensis	"	FACU	14.		
7. Carex vulpinoidea	Herb	OBL	15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC 43%
(excluding FAC): 43%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): Churchville silt loam, 0 to 3% slopes

Drainage Class: SPD

Taxonomy (Subgroup): Aeric Ochraqualfs

Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-9	Ap	10YR4/2			SL, granular
9-12	A2	7.5YR5/3	7.5YR5/6	Comm / Dist	SL, subangular blocky

Hydric Soil Indicators:

_____ Histosol
_____ Histic Epipedon
_____ Sulfidic Odor
_____ Aquic Moisture Regime
_____ Reducing Conditions
_____ Gleyed or Low-Chroma Colors
_____ Concretions
_____ High Organic Content in Surface Layer in Sandy Soils
_____ Organic Streaking in Sandy Soils
_____ Listed on Local Hydric Soils List
_____ Listed on National Hydric Soils List
_____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No

(Circle)
Is this Sampling Point Within a Wetland Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood	Date:
pplicant/Owner: Vanderbilt Properties	County: Erie
Investigator: Erik Krull	State: NY
Do Normal Circumstances exist on the site? **Yes** No	Community ID:
Is the site significantly disturbed (Atypical Situation)? Yes **No**	Transect ID: WB1
Is the area a potential Problem Area? Yes **No** (If needed, explain on reverse.)	Plot ID: 6

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Acer rubrum	Tree	FAC	9.		
2. Fraxinus pennsylvanica	"	FACW	10.		
3. Carya ovata	Tree	FACU-	11.		
4. Ulmus rubra	SS	FAC	12.		
5. Impatiens capensis	Herb	FACW	13.		
6. Aster lanceolatus	"	NI	14.		
7. Glyceria striata	Herb	OBL	15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC 83%
(excluding FAC): 75%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
 ___ Stream, Lake, or Tide Gauge
 ___ Aerial Photographs
 ___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
X Sediment Deposits
X Drainage Patters
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Churchville silt loam, 0 to 3% slopes

Drainage Class: SPD

Taxonomy (Subgroup): Aeric Ochraqualfs

Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-8	A	10YR 3/2			SL, granular
8-11	A2	7.5YR 4/2			SL, subangular blocky

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this Sampling Point Within a Wetland? Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood
Applicant/Owner: Vanderbilt Properties
Investigator: Erik Krull

Date: 7/31
County: Erie
State: NY

Do Normal Circumstances exist on the site? Yes No — Yes
Is the site significantly disturbed (Atypical Situation)? Yes No — No
Is the area a potential Problem Area? Yes No — No
(If needed, explain on reverse.)

Community ID:
Transect ID: WB1
Plot ID: 7

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Acer rubrum	Tree	FAC	9.		
2. Carya ovata	"	FACU-	10.		
3. Tilia american	Tree	FACU	11.		
4. Fraxinus pennsylvanica	SS	FACW	12.		
5. Parthenocissus quinquefolia	Herb	FACU	13.		
6. Carya ovata (seedlings)	"	FACU-	14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 20% 33%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: over 18 (in.)

Depth to Saturated Soil: over 18 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns

Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Churchville silt loam, 0 to 3% slopes

Drainage Class: S.P.D

Taxonomy (Subgroup): Aeric Ochraqualfs

Field Observations Confirm Mapped Type? Yes / No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-8	A	10YR3/2			SL, granular
8-14"	BtA	10YR5/3	7.5YR5/6	Comm./Dist.	SCL, subangular block 10% coarse fragments

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this Sampling Point Within a Wetland Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood	Date: 7/31
Applicant/Owner: Vanderbilt Properties	County: Erie
Investigator: Erik Krull	State: NY
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: Transect ID: WB1 Plot ID: 8

Do Normal Circumstances exist on the site? **Yes**
Is the site significantly disturbed (Atypical Situation)? **No**
Is the area a potential Problem Area? **No**

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Acer Rubrum	Tree	FAC	9.		
2. Carya ovata	11	FACU	10.		
3. Fraxinus pennsylvanica	SS	FACW	11.		
4. Polygonum Virginianum	Herb	FAC	12.		
5. Fraxinus pennsylvanica	11	FACW	13.		
6. Prunus pumila	11	UPL	14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC 67%
(excluding FAC): 50%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: 17 (in.)

Depth to Saturated Soil: 15 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
X Sediment Deposits
X Drainage Patterns

Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Churchville silt loam, 0 to 3% slopes

Drainage Class: SPD

Taxonomy (Subgroup): Aeric Ochraqualfs

Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-8"	A	10YR4/2			SL, granular
8-11	A2	10YR 5/3	10YR5/6	Comm/Dist	SCL, subangular block

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this Sampling Point Within a Wetland Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Villas @ Brierwood
Applicant/Owner: Vanderbilt Properties
Investigator: Erik Krull

Date: 7/31
County: Erie
State: NY

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is the area a potential Problem Area? Yes **No**
(If needed, explain on reverse.)

Community ID:
Transect ID: WB1
Plot ID: 10

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Acer rubrum	Tree	FAC	9.		
2. Fraxinus pennsylvanica	Tree	FACW	10.		
3. Carya ovata	Tree	FACU	11.		
4. Impatiens capensis	Herb	FACW	12.		
5. Toxicodendron radicans	"	FAC	13.		
6. Aster lateriflorus	"	FACW-	14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 75% 83%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)
Depth to Free Water in Pit: 4" (in.)
Depth to Saturated Soil: @ surface (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
X Water Marks
___ Drift Lines
X Sediment Deposits
X Drainage Patterns
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Churchville silt loam, 0 to 3% slopes

Drainage Class: SPD

Taxonomy (Subgroup): Aeric Ochraqualfs

Field Observations Confirm Mapped Type? Yes

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions Structure, etc.
0-8	A	10YR3/2			SL, granular
8-11	A2	7.5YR4/2	7.5YR5/6	Comm/Dist.	SL, subangular blocky

Hydric Soil Indicators:

- ____ Histosol
- ____ Histic Epipedon
- ____ Sulfidic Odor
- ____ Aquic Moisture Regime
- ____ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ____ Concretions
- ____ High Organic Content in Surface Layer in Sandy Soils
- ____ Organic Streaking in Sandy Soils
- ____ Listed on Local Hydric Soils List
- ____ Listed on National Hydric Soils List
- ____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this Sampling Point Within a Wetland: Yes No

Remarks:

Date: 6/5

Transect: T1

Sample Plot: 1

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov.	
HERBS	1.	Lotus corniculatus	70	FACU-
	2.	Solidago canadensis	30	FACU
	3.	Anthoxanthum odoratum	20	FACU
	4.	Phleum pratense	10	FACU
	5.			
			Stem #	
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

% of species that are OBL, FACW and/or FAC: 0

Hydrophytic vegetation: Yes____ No X

Basis: no hydrophytes present.

Known physiological or morphological adaptations: ____

Date: 6/5

Transect: T1
Sample Plot: 1

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: Ap *Depth:* 0"-8" *Color:* 10YR4/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
Class (Size in mm.)	1.	Very fine (very thin)	0-10	0-5	0-1
	2.	Fine (thin)	10-20	5-10	1-2
	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, ~~slightly hard~~, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5+ in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 6/5

Transect: T1
Sample Plot: 1

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B21 Depth: 8-11 Color: 10YR5/3 Mottling: 7.5YR4/6

Abundance	Size	Contrast
1. Few - less than 2%	1. Fine - less than 5 mm.	1. ~~Faint~~
2. Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. ~~Clay loam~~	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

Class (Size in mm.)		Prisms	Blocks	Plates and Granules
1.	~~Very fine (very thin)~~	0-10	~~0-5~~	0-1
2.	Fine (thin)	10-20	5-10	1-2
3.	Medium	20-50	~~10-20~~	2-5
4.	Coarse (thick)	50-100	20-50	5-10
5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, ~~crumb~~
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly ~~sticky~~, ~~sticky~~, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	~~A. Fine~~	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	~~C. Large~~	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5+ in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 6/5

Transect: T1
Sample Plot: 1

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B22g *Depth:* 11 to 18+ *Color:* 10YR5/4 *Mottling:* 10YR 4/6

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	~~Common - 2-20%~~	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	~~3. Prominent~~

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. ~~Clay loam~~	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other: 10% shale fragments

Structure: **Aggregation Characteristics of Soil Particles**

			Prisms	Blocks	Plates and Granules
	1.	~~Very fine~~ (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
to Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5 + in.	Broken - parts unconnected

Date: 6/5

Transect: T1

Sample Plot: 1

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated? Y **N**

Depth to Water Table? "/over 18"

Depth to Saturated Soil? "/over 18"

Are watermarks present on woody vegetation? Y **N**

Are driftlines present? Y **N**

Are sediment deposits present? Y **N**

Is the area encrusted with detritus? Y **N**

Are drainage patterns present? Y **N**

Ambient weather conditions: 75° sunny

Recent precipitation: On an off rain last week, no rain past 2 days

Date: 6/5

Transect: T1

Sample Plot: 2

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov.	
HERBS	1.	Trifolium hybridum	35	FACU-
	2.	Phluem pratense	30	FACU
	3.	Poa pratensis	25	FACU
	4.	Trifolium pratense	15	FACU-
	5.			
			Stem #	
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

% of species that are OBL, FACW and/or FAC: 0

Hydrophytic vegetation: Yes____ No X

Basis: no hydrophytes present

Known physiological or morphological adaptations:

Date: 6/5

Transect: T1
Sample Plot: 2

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: Ap *Depth:* 0-8 *Color:* 10YR3/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

Class (Size in mm.)			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
	2.	Fine (thin)	10-20	5-10	1-2
	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5+ in.	Broken - parts unconnected

Date: 6/5

Transect: T1
Sample Plot: 2

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B21 *Depth:* 8 to 16 *Color:* 10YR5/3 *Mottling:* 10YR5/6

Abundance	Size	Contrast
1. Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2. Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other: Sandy w 10% stone + shale fragments

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5 + in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 6/5/06

Transect: T1

Sample Plot: 2

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated?	Y	N
Depth to Water Table?	"/over 18"	
Depth to Saturated Soil?	"/over 18"	
Are watermarks present on woody vegetation?	Y	N
Are driftlines present?	Y	N
Are sediment deposits present?	Y	N
Is the area encrusted with detritus?	Y	N
Are drainage patterns present?	Y	N

Ambient weather conditions: 75° sunny

Recent precipitation: On and off rain last week, no rain past 2 days.

Date: 6/5

Transect: T1

Sample Plot: 3

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov.	
HERBS	1.	Solidago canadensis	30	FACU
	2.	Aster lanceolatus	25	NI
	3.	Plantago major	25	FACU
	4.	Chrysanthemum leucanthemum	20	UPL
	5.			
			Stem #	
WOODY VINES.	1.			
	2.			
	3.			
	4.			
	5.			

% of species that are OBL, FACW and/or FAC: 0

Hydrophytic vegetation: Yes____ No X

Basis: no hydrophytes present

Known physiological or morphological adaptations:

Date: 6/5

Transect: T1
Sample Plot: 3

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: A2 *Depth:* 8 to 12" *Color:* 10YR 4/2 *Mottling:* 10YR 4/6

	Abundance		Size	Contrast
1.	Few - less than 2%	1.	Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2.	Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3.	Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: **Aggregation Characteristics of Soil Particles**

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5 + in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 6/5

Transect: T1
Sample Plot: 3

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: Ap *Depth:* 0-8" *Color:* 10YR3/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Course - more than 15 mm.	3. Prominent

Textures: **Size of mineral particles**

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: **Aggregation Characteristics of Soil Particles**

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5+ in.	Broken - parts unconnected

Date: 6/5

Transect: T1-3
Sample Plot: ________

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B+A *Depth:* 12-16 *Color:* 7.5YR 5/3 *Mottling:* 10YR5/6

Abundance	Size	Contrast
1. Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2. Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: **Size of mineral particles**

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay heavy
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other: small shale fragments 10%

Structure: **Aggregation Characteristics of Soil Particles**

		Prisms	Blocks	Plates and Granules
Class (Size in mm.)	1. Very fine (very thin)	0-10	0-5	0-1
	2. Fine (thin)	10-20	5-10	1-2
	3. Medium	20-50	10-20	2-5
	4. Coarse (thick)	50-100	20-50	5-10
	5. Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5+ in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 6/5

Transect: T1

Sample Plot: 3

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated?	Y	N
Depth to Water Table?	"/over 18"	
Depth to Saturated Soil?	"/over 18"	
Are watermarks present on woody vegetation?	Y	N
Are driftlines present?	Y	N
Are sediment deposits present?	Y	N
Is the area encrusted with detritus?	Y	N
Are drainage patterns present?	Y	N

Ambient weather conditions: 75° sunny

Recent precipitation: On and off rain last week, no rain past 2 days.

Date: 6/5

Transect: T1

Sample Plot: 4

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov.	
HERBS	1.	Aster lanceolatus	30	NI
	2.	Poa canadensis	25	FACU
	3.	Prunella vulgaris	25	FACU+
	4.	Lotus corniculatus	20	FACU-
	5.			
			Stem #	
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

of species that are OBL, FACW and/or FAC: 0

Hydrophytic vegetation: Yes____ No X

Basis: no hydrophytes present

Known physiological or morphological adaptations:

Date: 6/5/06

Transect: T4
Sample Plot: 4

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: Ap *Depth:* 0 to 8" *Color:* 10YR3/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.

B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.

C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: **Aggregation Characteristics of Soil Particles**

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5 + in.	Broken - parts unconnected

Date: 6/5/06

Transect: T1
Sample Plot: 4

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: A2 *Depth:* 8-12" *Color:* 10YR 4/2 *Mottling:* 7.5YR 5/6

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5 + in.

Topography
Smooth, nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 6/5/06

Transect: T1
Sample Plot: 4

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B+A *Depth:* 12-17 *Color:* 7.5YR 5/3 *Mottling:* 7.5YR5/6

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium, 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure:

Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5 + in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 6/5

Transect: T1

Sample Plot: 4

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated?	Y	N
Depth to Water Table?		"/over 18"
Depth to Saturated Soil?		"/over 18"
Are watermarks present on woody vegetation?	Y	N
Are driftlines present?	Y	N
Are sediment deposits present?	Y	N
Is the area encrusted with detritus?	Y	N
Are drainage patterns present?	Y	N

Ambient weather conditions: 75° sunny

Recent precipitation: On and off rain last week, no rain past 2 days.

Date: 6/5

Transect: T2

Sample Plot: 1

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.			
	2.			
	3.			
	4.			
	5.			

		Species	% Areal Cov. or Height	Indicator Status
SAPLINGS & SHRUBS	1.			
	2.			
	3.			
	4.			
	5.			

		Species	% Areal Cov.	Indicator Status
HERBS	1.	Aster lanceolatus	50	NI
	2.	Anthoxanthum odoratum	35	FACU
	3.	Potentilla simplex	35	FACU-
	4.	Lotus corniculatus	20	FACU-
	5.	Vicia cracca	20	UPL

		Species	Stem #	Indicator Status
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

% of species that are OBL, FACW and/or FAC: 0

Hydrophytic vegetation: Yes____ No X

Basis: no hydrophytes present

Known physiological or morphological adaptations:

Date: 6/5

Transect: T2
Sample Plot: 1

WETLANDS INVESTIGATIONS SOIL DATA FORM

orizon: Ap Depth: 0 to 8 Color: 10YR 4/3 Mottling:

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

oundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5 + in.	Broken - parts unconnected

Date: 6/5/06

Transect: 12
Sample Plot: 1

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B21 *Depth:* 8"-11" *Color:* 10YR5/3 *Mottling:* 7.5YR5/6 2.5Y6/2

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other: 5% Coarse shale

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky.
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5+ in.	Broken - parts unconnected

Date:____________

Transect: 72
Sample Plot: 1

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B22g *Depth:* 11 - 18+ *Color:* 2.5Y 5/3 *Mottling:* 7.5YR 5/6 10YR 5/1

Abundance	Size	Contrast
1. Few - less than 2%	1. ~~Fine - less~~ than 5 mm.	1. Faint
2. Common - 2-20%	2. Medium 5-15 mm.	2. ~~Distinct~~
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: **Size of mineral particles**

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. ~~Clay loam~~	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other: 5-10 % coarse shale

Structure:

Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	~~Fine (thin)~~	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	~~Coarse~~ (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry:	Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist:	Loose, very friable, friable, firm, very firm, extremely firm.
Wet:	Nonsticky, slightly sticky, sticky, very sticky
	Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. ~~Moderate~~	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. ~~Medium~~	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5 + in.	Broken - parts unconnected

Date: 6/5/06

Transect: T2

Sample Plot: 1

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated?	Y	N
Depth to Water Table?		over 18"
Depth to Saturated Soil?		over 18"
Are watermarks present on woody vegetation?	Y	N
Are driftlines present?	Y	N
Are sediment deposits present?	Y	N
Is the area encrusted with detritus?	Y	N
Are drainage patterns present?	Y	N

Ambient weather conditions: 80° sunny

Recent precipitation: On and off rain last week, no rain past 2days

Date: 6/5/06

Transect: T2

Sample Plot: 2

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov.	
HERBS	1.	Dactylis glomerata	80	FACU
	2.	Lotus corniculatus	25	FACU-
	3.	Anthoxanthum odoratum	20	FACU
	4.	Vicia cracca	20	UPL
	5.			
			Stem #	
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

of species that are OBL, FACW and/or FAC: 0

Hydrophytic vegetation: Yes____ No X

Basis: no hydrophytes present

Known physiological or morphological adaptations:

Date: 10/4/96

Transect: 1 2
Sample Plot: 2

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: Ap *Depth:* 0 to 8" *Color:* 10YR 4/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles
- A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
- B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
- C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other: 10-20% coarse shale fragments

Structure: **Aggregation Characteristics of Soil Particles**

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
- Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
- Moist: Loose, very friable, friable, firm, very firm, extremely firm.
- Wet: Nonsticky, slightly sticky, sticky, very sticky
  Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5+ in.	Broken - parts unconnected

Date: 10/4/00

Transect: 12
Sample Plot: 2

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B2 *Depth:* 8"–18"+ *Color:* 10YR5/4 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. ~~Silt~~	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other: 20 % coarse shale fragments

Structure: **Aggregation Characteristics of Soil Particles**

			Prisms	Blocks	Plates and Granules
Class (Size in mm.)	1.	Very fine (very thin)	0-10	0-5	0-1
	2.	Fine (thin)	10-20	5-10	1-2
	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	~~B. Medium~~	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5 + in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 6/5/06

Transect: T2

Sample Plot: 2

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated?	Y	N
Depth to Water Table?	"/over 18"	
Depth to Saturated Soil?	"/over 18"	
Are watermarks present on woody vegetation?	Y	N
Are driftlines present?	Y	N
Are sediment deposits present?	Y	N
Is the area encrusted with detritus?	Y	N
Are drainage patterns present?	Y	N

Ambient weather conditions: 80° sunny

Recent precipitation: On and off rain last week, no rain past 2 days

Date: 6/6/06

Transect: T2

Sample Plot: 3

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov.	
HERBS	1.	Solidago canadensis	50	FACU
	2.	Poa pratensis	30	FACU
	3.	Euthamia graminifolia	20	FAC
	4.	Lotus corniculatus	25	FACU-
	5.	Phleum pratense	10	FACU
			Stem #	
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

% of species that are OBL, FACW and/or FAC: 20%

Hydrophytic vegetation: Yes____ No X

Basis: <50% of dominant vegetation is hydrophytic.

Known physiological or morphological adaptations: ____

Date: 6/6/06

Transect: T2
Sample Plot: 3

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: Ap *Depth:* 0 to 8" *Color:* 10YR4/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure:

Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
Class (Size in mm.)	1.	Very fine (very thin)	0-10	0-5	0-1
	2.	Fine (thin)	10-20	5-10	1-2
	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
to Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5 + in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 6/6/06

Transect: T2
Sample Plot: 3

WETLANDS INVESTIGATIONS SOIL DATA FORM

izon: A2 Depth: 8 to 11" Color: 10YR5/3 Mottling: 7.5YR5/6

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: **Aggregation Characteristics of Soil Particles**

			Prisms	Blocks	Plates and Granules
Class (Size in mm.)	1.	Very fine (very thin)	0-10	0-5	0-1
	2.	Fine (thin)	10-20	5-10	1-2
	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

undary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5+ in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 6/6

Transect: T2
Sample Plot: 4

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B+A *Depth:* 10-15" *Color:* 10YR5/3 *Mottling:* 10YR 5/6 10YR 5/1

Abundance	Size	Contrast
1. Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2. Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5 + in.	Broken - parts unconnected

Date: 6/6

Transect: T2

Sample Plot: 4

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated?	Y	N
Depth to Water Table?		"/over 18"
Depth to Saturated Soil?		"/over 18"
Are watermarks present on woody vegetation?	Y	N
Are driftlines present?	Y	N
Are sediment deposits present?	Y	N
Is the area encrusted with detritus?	Y	N
Are drainage patterns present?	Y	N

Ambient weather conditions: 85° sunny

Recent precipitation: On and off rain last week, no rain past 3 days

Date: 6/6/06

Transect: T2

Sample Plot: 5

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.	Fraxinus americana	100	FACU
	2.			
	3.			
	4.			
	5.			
			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.	Fraxinus americana	5'	FACU
	2.			
	3.			
	4.			
	5.			
			% Areal Cov.	
HERBS	1.	Poa pratensis	50	FACU
	2.	Agropyron repens	35	FACU-
	3.	Holcus lantana	10	FACU
	4.	Phleum pratense	10	FACU
	5.	Lotus corniculatus	10	FACU-
			Stem #	
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

% of species that are OBL, FACW and/or FAC: 0

Hydrophytic vegetation: Yes____ No X

Basis: no hydrophytes present

Known physiological or morphological adaptations: ____

Date: 6/6

Transect: T2
Sample Plot: 5

WETLANDS INVESTIGATIONS SOIL DATA FORM

orizon: Ap *Depth:* 0 to 9" *Color:* 10YR 2/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: **Size of mineral particles**

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: **Aggregation Characteristics of Soil Particles**

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

oundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5+ in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 6/6

Transect: T2
Sample Plot: 5

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B2 *Depth:* 9 to 16" *Color:* 7.5YR 4/2 *Mottling:* 7.5YR 5/6 7.5YR 5/4

Abundance	Size	Contrast
1. Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2. ~~Common - 2-20%~~	2. Medium - 5-15 mm.	2. ~~Distinct~~
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. ~~Silt~~	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. ~~Loam~~	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	~~Very fine (very thin)~~	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	~~Coarse~~ (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
~~Clear 1-2.5 in.~~
Gradual 2.5-5 in.
~~Diffuse 5+ in.~~

Topography
Smooth - nearly a plane
~~Wavy or~~ undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 6/6

Transect: T2

Sample Plot: 5

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated?	Y	N
Depth to Water Table?		"/over 18"
Depth to Saturated Soil?		"/over 18"
Are watermarks present on woody vegetation?	Y	N
Are driftlines present?	Y	N
Are sediment deposits present?	Y	N
Is the area encrusted with detritus?	Y	N
Are drainage patterns present?	Y	N

Ambient weather conditions: 85° sunny

Recent precipitation: On and off rain last week, no rain past 3 days.

Date: 6/6

Transect: T3

Sample Plot: 1

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.	Fraxinus americana	9'	FACU
	2.	Rhamnus cathartica	6'	UPL
	3.			
	4.			
	5.			
			% Areal Cov.	
HERBS	1.	Anthoxanthum odoratum	60	FACU
	2.	Dactylis glomerata	40	FACU
	3.	Ranunculus acris	25	FAC+
	4.	Fragaria virginiana	20	FACU
	5.	Poa pratensis	20	FACU
			Stem #	
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

% of species that are OBL, FACW and/or FAC: 14%

Hydrophytic vegetation: Yes____ No X

Basis: <50% of dominant vegetation is FAC, FACW and/or OBL

Known physiological or morphological adaptations: ____________

Date:__________

Transect: T3
Sample Plot: 1

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: Ap *Depth:* 0-9" *Color:* 10YR4/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, ~~slightly~~ hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
~~Abrupt 0-1 in.~~	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5+ in.	Broken - parts unconnected

Date: 6/6

Transect: T3
Sample Plot: 1

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B21 *Depth:* 9-17+" *Color:* 10YR5/3 *Mottling:* 7.5YR 5/6

Abundance	Size	Contrast
1. Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2. Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam heavy	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: **Aggregation Characteristics of Soil Particles**

Class (Size in mm.)		Prisms	Blocks	Plates and Granules
1.	Very fine (very thin)	0-10	0-5	0-1
2.	~~Fine (thin)~~	10-20	5-10	1-2
3.	Medium	20-50	10-20	2-5
4.	Coarse (thick)	50-100	20-50	5-10
5.	~~Very coarse~~ (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, ~~columnar~~
to Blocky, angular blocky, subangular blocky
Granular, ~~crumb~~
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	~~A. Fine~~	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
~~Abrupt 0-1 in.~~	~~Smooth~~ - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
~~Gradual~~ 2.5-5 in.	~~Irregular~~ - pockets deeper than wide
Diffuse 5 + in.	Broken - parts unconnected

Date: 6/6

Transect: T3

Sample Plot: 1

WETLANDS HYDROLOGY DETERMINATION FORM
INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated?	Y	N
Depth to Water Table?	"/over 18"	
Depth to Saturated Soil?	"/over 18"	
Are watermarks present on woody vegetation?	Y	N
Are driftlines present?	Y	N
Are sediment deposits present?	Y	N
Is the area encrusted with detritus?	Y	N
Are drainage patterns present?	Y	N

Ambient weather conditions: 85° sunny

Recent precipitation: On and off rain last week, no rain past 3 days

Date: 7/6/06

Transect: T3

Sample Plot: 2

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.	Fraxinus pennsylvanica	10'	FACW
	2.	Rosa multiflora	7'	FACU
	3.			
	4.			
	5.			
			% Areal Cov.	
HERBS	1.	Dactylis glomerata	30	FACU
	2.	Holcus lantana	25	FACU
	3.	Anthoxanthum ordatum	20	FACU
	4.	Phleum pratense	20	FACU
	5.	Rannuculus acris	10	FAC+
			Stem #	
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

% of species that are OBL, FACW and/or FAC: 28%

Hydrophytic vegetation: Yes____ No X

Basis: <50 of dominants are FAC, FACW and/or OBL

Known physiological or morphological adaptations:

Date: 1/10/00

Transect: 1 3
Sample Plot: 2

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: Ap *Depth:* 0 - 8" *Color:* 10YR 4/2 *Mottling:*

Abundance	Size	Contrast
1. Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2. Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. - Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

Class (Size in mm.)		Prisms	Blocks	Plates and Granules
1.	Very fine (very thin)	0-10	0-5	0-1
2.	Fine (thin)	10-20	5-10	1-2
3.	Medium	20-50	10-20	2-5
4.	Coarse (thick)	50-100	20-50	5-10
5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5+ in.	Broken - parts unconnected

Date: 11/12/06

Transect: 13
Sample Plot: 2

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B21 *Depth:* 8 - 11 *Color:* 10YR5/3 *Mottling:* 10YR5/6

	Abundance		Size		Contrast
1.	Few - less than 2%	1.	Fine - less than 5 mm.	1.	Faint
2.	Common - 2-20%	2.	Medium - 5-15 mm.	2.	Distinct
3.	Many - more than 20%	3.	Coarse - more than 15 mm.	3.	Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.

B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.

C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
Class (Size in mm.)	1.	Very fine (very thin)	0-10	0-5	0-1
	2.	Fine (thin)	10-20	5-10	1-2
	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky.
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5+ in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 7/31/98

Transect: 13
Sample Plot: 2

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B22g *Depth:* 11-18+ *Color:* 10YR 5/2 *Mottling:* 7.5YR5/6

	Abundance	Size	Contrast
1.	Few - less than 2%	1. ~~Fine - less than 5 mm.~~	1. ~~Faint~~
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
Class (Size in mm.)	1.	Very fine (very thin)	0-10	0-5	0-1
	2.	Fine (thin)	10-20	5-10	1-2
	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar to
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5+ in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 7/6/06

Transect: T3

Sample Plot: 2

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated?	Y	N
Depth to Water Table? ______		"/over 18"
Depth to Saturated Soil? ______		"/over 18"
Are watermarks present on woody vegetation?	Y	N
Are driftlines present?	Y	N
Are sediment deposits present?	Y	N
Is the area encrusted with detritus?	Y	N
Are drainage patterns present?	Y	N

Ambient weather conditions: 75° sunny

Recent precipitation: On and off Rain 2-5 days ago
no rain past 2 days

Date: 7/6/06

Transect: T3

Sample Plot: 3

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.	Carya ovata	35	FACU-
	2.	Tilia americana	25	FACU
	3.	Acer saccharum	20	FACU-
	4.	Fraxinus americana	10	FACU
	5.			

		Species	% Areal Cov, or Height	Indicator Status
SAPLINGS & SHRUBS	1.	Carya ovata	12'	FACU-
	2.			
	3.			
	4.			
	5.			

		Species	% Areal Cov.	Indicator Status
HERBS	1.	Toxicodendron radicans	25	FAC
	2.	Parthenocissus quinquefolia	20	FACU
	3.	Prunus pumila	5	UPL
	4.	Circaea lutetiana	5	FACU
	5.			

		Species	Stem #	Indicator Status
WOODY VINES	1.	Toxicodendron radicans	3	FAC
	2.	Parthenocissus quinquefolia	2	FACU
	3.			
	4.			
	5.			

of species that are OBL, FACW and/or FAC: 22%

Hydrophytic vegetation: Yes ____ No X

Basis: <50% of dominants are FAC, FACW and/or FAC

Known physiological or morphological adaptations: ____

Date: 1/10/06

Transect: 13
Sample Plot: 3

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: A *Depth:* 0 to 6 *Color:* 10YR3/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
Class (Size in mm.)	1.	Very fine (very thin)	0-10	0-5	0-1
	2.	Fine (thin)	10-20	5-10	1-2
	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky.
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5+ in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 1/10

Transect: 13
Sample Plot: 3

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: A2 *Depth:* 6-9 *Color:* 7.5YR5/3 *Mottling:* 7.5YR5/6

	Abundance		Size		Contrast
1.	~~Few - less than 2%~~	1.	~~Fine - less~~ than 5 mm.	1.	Faint
2.	Common - 2-20%	2.	Medium - 5-15 mm.	2.	Distinct
3.	Many - more than 20%	3.	Coarse - more than 15 mm.	3.	~~Prominent~~

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5+ in.	Broken - parts unconnected

Date: 7/6/06

Transect: T3
Sample Plot: 3

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B+A *Depth:* 9 - 14" *Color:* 7.5YR5/3 *Mottling:* 7.5YR 5/(

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other: Sandy

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5+ in.	Broken - parts unconnected

Date: 7/6/06

Transect: T3

Sample Plot: 3

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated?	Y	N
Depth to Water Table?	"/over 18"	
Depth to Saturated Soil?	"/over 18"	
Are watermarks present on woody vegetation?	Y	N
Are driftlines present?	Y	N
Are sediment deposits present?	Y	N
Is the area encrusted with detritus?	Y	N
Are drainage patterns present?	Y	N

Ambient weather conditions: 75° sunny

Recent precipitation: On and off rain 5-2 days ago, no rain past 2 days

Date: 7/6/06

Transect: T3

Sample Plot: 4

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.	Carya ovata	40	FACU-
	2.	Quercus rubra	30	FACU-
	3.	Acer rubrum	20	FAC
	4.	Ostrya virginiana	5	FACU-
	5.			

			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.	Carya ovata	15'	FACU-
	2.			
	3.			
	4.			
	5.			

			% Areal Cov.	
HERBS	1.	Carya ovata (seedlings)	20	FACU-
	2.			
	3.			
	4.			
	5.			

			Stem #	
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

% of species that are OBL, FACW and/or FAC: 20%

Hydrophytic vegetation: Yes____ No X

Basis: < 50% of dominants are FAC, FACW and/or FAC

Known physiological or morphological adaptations:

Date: [illegible]

Transect: 13
Sample Plot: 4

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: A *Depth:* 0 – 7" *Color:* 10YR3/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
Class (Size in mm.)	1.	Very fine (very thin)	0-10	0-5	0-1
	2.	Fine (thin)	10-20	5-10	1-2
	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5 + in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 4/6/00

Transect: 13
Sample Plot: 4

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: A2 *Depth:* 7-9 *Color:* 10YR5/3 *Mottling:* 7.5YR5/6

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: **Aggregation Characteristics of Soil Particles**

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky.
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5+ in.	Broken - parts unconnected

Date: 1/6/06

Transect: T3
Sample Plot: 4

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B+A *Depth:* 9–14 *Color:* 7.5YR 4/3 *Mottling:* 7.5YR 5/8

Abundance	Size	Contrast
1. Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2. Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other: sandy

Structure: **Aggregation Characteristics of Soil Particles**

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky.
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5 + in.	Broken - parts unconnected

Date: 7/6/06

Transect: T3

Sample Plot: 4

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated? Y N

Depth to Water Table? "/over 18"

Depth to Saturated Soil? "/over 18"

Are watermarks present on woody vegetation? Y N

Are driftlines present? Y N

Are sediment deposits present? Y N

Is the area encrusted with detritus? Y N

Are drainage patterns present? Y N

Ambient weather conditions: 78° sunny

Recent precipitation: On and off rain 5-2 days ago no rain past 2 days.

Date: 7/6

Transect: T3

Sample Plot: 5

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.	Acer rubrum	80	FAC
	2.	Ulmus rubra	10	FAC
	3.	Tilia americana	10	FACU
	4.			
	5.			
			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.	Fraxinus pennsylvanica	7'	FACW
	2.			
	3.			
	4.			
	5.			
			% Areal Cov.	
HERBS	1.	Impatiens capensis	10	FACW
	2.	Carex communis	10	NI
	3.	Glyceria striata	5	OBL
	4.			
	5.			
			Stem #	
WOODY VINES	1.	Parthenocissus quinquefolia	1	FACU
	2.			
	3.			
	4.			
	5.			

% of species that are OBL, FACW and/or FAC: 71 %

Hydrophytic vegetation: Yes X No ____

Basis: >50% of dominants are FAC FACW and/or OBL

Known physiological or morphological adaptations: ____

Date: 7/6

Transect: T3
Sample Plot: 5

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: A *Depth:* 0 to 7" *Color:* 10YR 2/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. ~~Silt~~	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. ~~Loam~~	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure:

Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	~~Fine (thin)~~	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	~~Coarse~~ (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, ~~strong~~, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, ~~hard~~, very hard, extremely hard.
Moist: Loose, very friable, friable, ~~firm~~, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5+ in.	Broken - parts unconnected

Date: 7/6

Transect: T3
Sample Plot: 5

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B2 *Depth:* 7 - 14" *Color:* 7.5YR 4/2 *Mottling:* 7.5YR 5/6

Abundance	Size	Contrast
1. Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2. Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5 + in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 7/6

Transect: T3

Sample Plot: 5

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated?	Y	N
Depth to Water Table?	"/over 18"	
Depth to Saturated Soil?	"/over 18"	
Are watermarks present on woody vegetation?	Y	N
Are driftlines present?	Y	N
Are sediment deposits present?	Y	N
Is the area encrusted with detritus?	Y	N
Are drainage patterns present?	Y	N

Ambient weather conditions: 78° sunny

Recent precipitation: On and off rain 5-2 days ago, no rain past 2 days.

Date: 7/6

Transect: T3

Sample Plot: 6

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.	Fraxinus pennsylvanica	40	FACW
	2.	Ulmus rubra	20	FAC
	3.	Carya ovata	20	FACU-
	4.	Acer saccharinum	10	FACW
	5.	Tilia americana	5	FACU
			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.	Rhamnus cathartica	4'	FACU
	2.			
	3.			
	4.			
	5.			
			% Areal Cov.	
HERBS	1.	Polygonum virginianum	35	FAC
	2.	Impatiens capensis	20	FACW
	3.	Glyceria striata	10	OBL
	4.			
	5.			
			Stem #	
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

% of species that are OBL, FACW and/or FAC: 71%

Hydrophytic vegetation: Yes X No____

Basis: >50% of dominants are FAC, FACW and/or OBL

Known physiological or morphological adaptations:

Date: 7/6

Transect: 13
Sample Plot: 6

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: A *Depth:* 0 to 6 *Color:* 10YR 2/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

~~1. Silt~~	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
~~3. Loam~~	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	~~Coarse (thick)~~	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
~~Platy~~

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, ~~slightly~~ hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, ~~slightly sticky~~, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
~~C. Large~~	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5 + in.

Topography
Smooth - nearly a plane
~~Wavy~~ or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: [illegible]

Transect: 13
Sample Plot: 6

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B2 *Depth:* 6 to 13" *Color:* 10YR 4/2 *Mottling:* 7.5YR5/6

Abundance	Size	Contrast
1. Few - less than 2%	1. ~~Fine - less than 5 mm.~~	1. ~~Faint~~
2. Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. ~~Loam~~	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure:

Aggregation Characteristics of Soil Particles

Class (Size in mm.)		Prisms	Blocks	Plates and Granules
1.	Very fine (very thin)	0-10	0-5	0-1
2.	Fine (thin)	10-20	5-10	1-2
3.	Medium	20-50	10-20	2-5
4.	Coarse (thick)	50-100	20-50	5-10
5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5+ in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 7/6

Transect: T3

Sample Plot: 6

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated?	Y	N
Depth to Water Table?	"/over 18"	
Depth to Saturated Soil?	"/over 18"	
Are watermarks present on woody vegetation?	Y	N
Are driftlines present?	Y	N
Are sediment deposits present?	Y	N
Is the area encrusted with detritus?	Y	N
Are drainage patterns present?	Y	N

Ambient weather conditions: 78° sunny

Recent precipitation: On and off rain from 5-2 days ago, no rain past 2 days

Date: 7/6/06

Transect: T3

Sample Plot: 7

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.	Fraxinus pennsylvanica	10'	FACW
	2.	Rosa multiflora	6'	FACU
	3.			
	4.			
	5.			
			% Areal Cov.	
HERBS	1.	Anthoxanthum odoratum	30	FACU
	2.	Holcus lanatus	20	FACU
	3.	Vicia cracca	20	UPL
	4.	Carex vulpinoidea	15	OBL
	5.			
			Stem #	
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

% of species that are OBL, FACW and/or FAC: 33%

Hydrophytic vegetation: Yes____ No X

Basis: <50% of dominants are FAC FACW and/or OBL

Known physiological or morphological adaptations:

Date: 1/6

Transect: 13
Sample Plot: 7

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: Ap *Depth:* 0 to 9 *Color:* 10YR 4/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles
- A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
- B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
- C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
- Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
- Moist: Loose, very friable, friable, firm, very firm, extremely firm.
- Wet: Nonsticky, slightly sticky, sticky, very sticky
  Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5+ in.	Broken - parts unconnected

Date: 1/6/06

Transect: T3
Sample Plot: 7

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B2 *Depth:* 9" - 16" *Color:* 10YR 4/1 *Mottling:* 7.5YR 4/6

Abundance	Size	Contrast
1. Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2. Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles
A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5 + in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 7/6/06

Transect: T3

Sample Plot: 7

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated? Y N

Depth to Water Table? ____ "/over 18"

Depth to Saturated Soil? ____ "/over 18"

Are watermarks present on woody vegetation? Y N

Are driftlines present? Y N

Are sediment deposits present? Y N

Is the area encrusted with detritus? Y N

Are drainage patterns present? Y N

Ambient weather conditions: 78° sunny

Recent precipitation: On and off rain 5 to 2 days ago, no rain past 2 days

Date: 7/7/06

Transect: WB1

Sample Plot: 1

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov.	
HERBS	1.	Lotus corniculata	25	FACU-
	2.	Holcus lanatus	20	FACU
	3.	Anthoxantum ordoratum	20	FACU
	4.	Rannuculus acris	15	FAC+
	5.	Trifolium pratense	15	FACU-
			Stem #	
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

…of species that are OBL, FACW and/or FAC: 20%

Hydrophytic vegetation: Yes____ No X

Basis: >50% of dominant species are FAC, FACW and/or OBL

Known physiological or morphological adaptations: ____________

Date: 1/1

Transect: WB1
Sample Plot: 1

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: Ap *Depth:* 0-10" *Color:* 10YR3/2 *Mottling:*

	Abundance		Size		Contrast
1.	Few - less than 2%	1.	Fine - less than 5 mm.	1.	Faint
2.	Common - 2-20%	2.	Medium - 5-15 mm.	2.	Distinct
3.	Many - more than 20%	3.	Coarse - more than 15 mm.	3.	Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure:

Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
Class (Size in mm.)	1.	Very fine (very thin)	0-10	0-5	0-1
	2.	Fine (thin)	10-20	5-10	1-2
	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky.
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5+ in.	Broken - parts unconnected

Date: 1/1/06

Transect: WB1
Sample Plot: 1

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B2 *Depth:* 10-16" *Color:* 10YR 4/2 *Mottling:* 7.5YR 5/4 + 5/6

Abundance	Size	Contrast
1. Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2. Common - 2-20%	2. Medium 5-15 mm.	2. Distinct
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other: sandy

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
Class (Size in mm.)	1.	Very fine (very thin)	0-10	0-5	0-1
	2.	Fine (thin)	10-20	5-10	1-2
	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5 + in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 7/7/06

Transect: WB1

Sample Plot: 1

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated?	Y	N
Depth to Water Table?	"/over 18"	
Depth to Saturated Soil?	"/over 18"	
Are watermarks present on woody vegetation?	Y	N
Are driftlines present?	Y	N
Are sediment deposits present?	Y	N
Is the area encrusted with detritus?	Y	N
Are drainage patterns present?	Y	N

Ambient weather conditions: 80° sunny

Recent precipitation: No rain past 3 days

Date: 7/7/06

Transect: WB1

Sample Plot: 2

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.	Fraxinus pennsylvanica	40	FACW
	2.	Acer rubrum	40	FAC
	3.	Carya ovata	10	FACU-
	4.	Tilia americana	10	FACU
	5.			

			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.			
	2.			
	3.			
	4.			
	5.			

			% Areal Cov.	
HERBS	1.	Impatiens capensis	30	FACW
	2.	Onoclea sensibilis	30	FACW
	3.	Aster tradescantii	25	FACW
	4.	Eupatorium perfoliatum	20	FACW+
	5.			

			Stem #	
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

of species that are OBL, FACW and/or FAC: 75%

Hydrophytic vegetation: Yes X No____

Basis: >50% of dominant species are FAC, FACW and/or OBL

Known physiological or morphological adaptations:

Date: 1/11/06

Transect: WB1
Sample Plot: 2

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: Ap *Depth:* 0-6 *Color:* 10YR 2/2 *Mottling:*

	Abundance		Size		Contrast
1.	Few - less than 2%	1.	Fine - less than 5 mm.	1.	Faint
2.	Common - 2-20%	2.	Medium - 5-15 mm.	2.	Distinct
3.	Many - more than 20%	3.	Coarse - more than 15 mm.	3.	Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: **Aggregation Characteristics of Soil Particles**

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky.
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5+ in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 1/1/06

Transect: WB1
Sample Plot: 2

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B2 *Depth:* 6 - 13" *Color:* 10YR4/2 *Mottling:* 7.5YR 5/6

Abundance	Size	Contrast
1. Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2. Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other: Sandy

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
Class (Size in mm.)	1.	Very fine (very thin)	0-10	0-5	0-1
	2.	Fine (thin)	10-20	5-10	1-2
	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5+ in.	Broken - parts unconnected

Date: 7/7/06

Transect: WB1

Sample Plot: 2

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated? Y **N**

Depth to Water Table? 12" "/over 18"

Depth to Saturated Soil? 10" "/over 18"

Are watermarks present on woody vegetation? Y **N**

Are driftlines present? Y **N**

Are sediment deposits present? Y **N**

Is the area encrusted with detritus? Y **N**

Are drainage patterns present? **Y** N

Ambient weather conditions: 80° sunny

Recent precipitation: No rain past 3 days

Date: 7/11

Transect: WB1

Sample Plot: 3

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.	Fraxinus pennsylvanica	7'	FACW
	2.	Rhamnus cathartica	7'	UPL
	3.	Rosa multiflora	5'	FACU
	4.			
	5.			
			% Areal Cov.	
HERBS	1.	Anthoxanthum odoratum	30	FACU
	2.	Solidago canadensis	30	FACU
	3.	Aster tradescantii	20	FACW
	4.	Poa pratensis	20	FACU
	5.	Rannuculus acris	10	FAC+
			Stem #	
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

% of species that are OBL, FACW and/or FAC: 38%

Hydrophytic vegetation: Yes____ No X

Basis: <50% dominant veg is FAC FACW and/or OBL

Known physiological or morphological adaptations: ____

Date: 7/11

Transect: INB1
Sample Plot: 3

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: Ap *Depth:* 0" to 9" *Color:* 10YR 4/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: **Aggregation Characteristics of Soil Particles**

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5 + in.	Broken - parts unconnected

Date: 7/11

Transect: WB1
Sample Plot: 3

WETLANDS INVESTIGATIONS SOIL DATA FORM

orizon: B2 Depth: 9-17" Color: 10YR 5/2 Mottling: 7.5YR 5/6

Abundance	Size	Contrast
1. Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2. Common - 2-20%	2. Medium 5-15 mm.	2. Distinct
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other: Sandy

Structure: Aggregation Characteristics of Soil Particles

		Prisms	Blocks	Plates and Granules
Class (Size in mm.)	1. Very fine (very thin)	0-10	0-5	0-1
	2. Fine (thin)	10-20	5-10	1-2
	3. Medium	20-50	10-20	2-5
	4. Coarse (thick)	50-100	20-50	5-10
	5. Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, ~~hard~~, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

oundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5+ in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 7/11

Transect: WB1

Sample Plot: 3

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated?	Y N
Depth to Water Table?	"/over 18"
Depth to Saturated Soil?	"/over 18"
Are watermarks present on woody vegetation?	Y N
Are driftlines present?	Y N
Are sediment deposits present?	Y
Is the area encrusted with detritus?	Y N
Are drainage patterns present?	Y N

Ambient weather conditions: 80° sunny, humid

Recent precipitation: Heavy precipitation on and off for the last day and a half

Date: 7/11

Transect: WB1

Sample Plot: 4

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

Layer		Species	Rel. Basal Area	Indicator Status
TREES	1.	Fraxinus pennsylvanica	50	FACW
	2.	Carya ovata	20	FACU-
	3.	Ulmus rubra	10	FAC+
	4.			
	5.			
			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.	Carpinus caroliniana	12'	FAC
	2.			
	3.			
	4.			
	5.			
			% Areal Cov.	
HERBS	1.	Carex scabrata	25	OBL
	2.	Carex tenuiflora	25	OBL
	3.	Impatiens capensis	25	FACW
	4.	Dactylis glomerata	10	FACU
	5.			
			Stem #	
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

of species that are OBL, FACW and/or FAC: 75%

Hydrophytic vegetation: Yes X No ____

Basis: over 50% of dominant species are FAC, FACW and/or OBL

Known physiological or morphological adaptations: ____

Date: 1/11

Transect: WB 1
Sample Plot 4

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: A *Depth:* 0 to 8" *Color:* 10YR 4/2 *Mottling:*

	Abundance		Size		Contrast
1.	Few - less than 2%	1.	Fine - less than 5 mm.	1.	Faint
2.	Common - 2-20%	2.	Medium - 5-15 mm.	2.	Distinct
3.	Many - more than 20%	3.	Coarse - more than 15 mm.	3.	Prominent

Textures: **Size of mineral particles**

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. ~~Silt~~	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: **Aggregation Characteristics of Soil Particles**

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5+ in.	Broken - parts unconnected

Date: 7/11

Transect: WB
Sample Plot: 4

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B2 *Depth:* 8 - 14 *Color:* 10YR 5/2 *Mottling:* 7.5YR 5/4 + 5/6

Abundance	Size	Contrast
1. Few - less than 2%	1. ~~Fine - less than 5 mm.~~	1. Faint
2. Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3. Many - more than 20%	3. ~~Coarse - more than 15 mm.~~	3. ~~Prominent~~

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam w/sandy layers grey	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other: 10% shale frag + gleying @ 14" very sandy

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. ~~Few~~
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	~~B. Medium~~
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5 + in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 7/11

Transect: WB1

Sample Plot: 4

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated? Y N

Depth to Water Table? 18 "/over 18"

Depth to Saturated Soil? 16 "/over 18"

Are watermarks present on woody vegetation? Y N

Are driftlines present? Y N

Are sediment deposits present? Y

Is the area encrusted with detritus? Y N

Are drainage patterns present? Y N

Ambient weather conditions: 80° sunny

Recent precipitation: Heavy rain on and off last day and a half.

Date: 7/31/06

Transect: WB1

Sample Plot: 5

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.	Fraxinus pennsylvanica	70	FACW
	2.	Carya ovata	30	FACU-
	3.			
	4.			
	5.			

		Species	% Areal Cov. or Height	Indicator Status
SAPLINGS & SHRUBS	1.	Fraxinus pennsylvanica		FACW
	2.			
	3.			
	4.			
	5.			

		Species	% Areal Cov.	Indicator Status
HERBS	1.	Holcus lantanus	30	FACU
	2.	Anthoxanthum odoratum	30	FACU
	3.	Poa pratensis	25	FACU
	4.	Carex vulpinoidea	20	OBL
	5.			

		Species	Stem #	Indicator Status
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

% of species that are OBL, FACW and/or FAC: 43

Hydrophytic vegetation: Yes____ No X

Basis: <50% of Dominant Vegetation is OBL, FACW and/or FAC

Known physiological or morphological adaptations:

Date: 7/31

Transect: UB1
Sample Plot: 5

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: Ap *Depth:* 0 - 9" *Color:* 10 YR 4/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5 + in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 7/31

Transect: WB1
Sample Plot: 5

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: A2 *Depth:* 9"-12" *Color:* 7.5YR 5/3 *Mottling:* 7.5YR 5/6

	Abundance		Size		Contrast
1.	Few - less than 2%	1.	Fine - less than 5 mm.	1.	Faint
2.	Common - 2-20%	2.	Medium - 5-15 mm.	2.	Distinct
3.	Many - more than 20%	3.	Coarse - more than 15 mm.	3.	Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5+ in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 7/31

Transect: WB1

Sample Plot: 5

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated? Y N

Depth to Water Table? ______ "/over 18"

Depth to Saturated Soil? ______ "/over 18"

Are watermarks present on woody vegetation? Y N

Are driftlines present? Y N

Are sediment deposits present? Y N

Is the area encrusted with detritus? Y N

Are drainage patterns present? Y N

Ambient weather conditions: 85° overcast

Recent precipitation: Heavy rains 2+3 days ago.

Date: 7/31

Transect: WB1-

Sample Plot: 6

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.	Acer rubrum	40	FAC
	2.	Fraxinus pennsylvanica	30	FACW
	3.	Carya ovata	20	FACU-
	4.			
	5.			
			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.	Ulmus rubra	12'	FAC
	2.			
	3.			
	4.			
	5.			
			% Areal Cov.	
HERBS	1.	Impatiens capensis	25	FACW
	2.	Aster lanceolatus	20	NI
	3.	Glyceria striata	20	OBL
	4.			
	5.			
			Stem #	
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

% of species that are OBL, FACW and/or FAC: 84%

Hydrophytic vegetation: Yes X No ____

Basis: > 50% of dominants are OBL, FACW and or FAC

Known physiological or morphological adaptations: ____

Date: 7/31/06

Transect: WB1
Sample Plot: 6

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: A *Depth:* 0 - 8" *Color:* 10YR3/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: **Aggregation Characteristics of Soil Particles**

			Prisms	Blocks	Plates and Granules
Class (Size in mm.)	1.	Very fine (very thin)	0-10	0-5	0-1
	2.	Fine (thin)	10-20	5-10	1-2
	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5+ in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 7/31

Transect: WB1
Sample Plot: 6

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: A2 *Depth:* 8 to 11" *Color:* 7.5YR 4/2 *Mottling:* 7.5YR 5/6

	Abundance	Size	Contrast
1.	~~Few - less than 2%~~	~~1. Fine - less than 5 mm.~~	1. ~~Faint~~
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	~~3. Prominent~~

Textures: **Size of mineral particles**

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. ~~Silt~~	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
~~3. Loam~~	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other: Shale @ 13"

Structure:

Aggregation Characteristics of Soil Particles

Class (Size in mm.)			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
	2.	Fine (thin)	10-20	5-10	1-2
	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
~~Abrupt 0-1 in.~~
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5 + in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 7/31/06

Transect: WB1

Sample Plot: 6

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated?	Y	N
Depth to Water Table?	"/over 18"	
Depth to Saturated Soil?	"/over 18"	
Are watermarks present on woody vegetation?	Y	N
Are driftlines present?	Y	N
Are sediment deposits present?	Y	N
Is the area encrusted with detritus?	Y	N
Are drainage patterns present?	Y	N

Ambient weather conditions: 85° overcast

Recent precipitation: Heavy rains 2-3 days ago

Date: 7/31

Transect: WB1

Sample Plot: 7

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.	Acer rubrum	50	FAC
	2.	Carya ovata	20	FACU-
	3.	Tilia americana	10	FACU
	4.			
	5.			

		Species	% Areal Cov. or Height	Indicator Status
SAPLINGS & SHRUBS	1.	Fraxinus pennsylvanica	15'	FACW
	2.			
	3.			
	4.			
	5.			

		Species	% Areal Cov.	Indicator Status
HERBS	1.	Parthenocissus quinquefolia	30	FACU
	2.	Carya ovata (seedlings)	5	FACU-
	3.			
	4.			
	5.			

		Species	Stem #	Indicator Status
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

% of species that are OBL, FACW and/or FAC: 33 %

Hydrophytic vegetation: Yes ___ No X

Basis: <50% of dominants are OBL, FACW and/or FAC

Known physiological or morphological adaptations: ___

Date: 7/31

Transect: WB1
Sample Plot: 7

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: A *Depth:* 0-8 *Color:* 10YR3/2 *Mottling:*

Abundance	Size	Contrast
1. Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2. Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: **Size of mineral particles**

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: **Aggregation Characteristics of Soil Particles**

			Prisms	Blocks	Plates and Granules
Class (Size in mm.)	1.	Very fine (very thin)	0-10	0-5	0-1
	2.	Fine (thin)	10-20	5-10	1-2
	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5+ in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 7/31

Transect: WB1
Sample Plot: 7

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B+A   Depth: 8 - 14"   Color: 10YR5/3   Mottling: 7.5YR5/6

Abundance	Size	Contrast
1. Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2. Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other: 10% coarse fragments - hard black shale @ 11 inches

Structure: Aggregation Characteristics of Soil Particles

Class (Size in mm.)			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
	2.	Fine (thin)	10-20	5-10	1-2
	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5+ in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 7/31

Transect: WB 1

Sample Plot: 7

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated?	Y	N
Depth to Water Table?	"/over 18"	
Depth to Saturated Soil?	"/over 18"	
Are watermarks present on woody vegetation?	Y	N
Are driftlines present?	Y	N
Are sediment deposits present?	Y	N
Is the area encrusted with detritus?	Y	N
Are drainage patterns present?	Y	N

Ambient weather conditions: 90 partly sunny

Recent precipitation: Heavy rains 2+3 days ago

Date: 7/31

Transect: WB1

Sample Plot: 8

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.	Acer rubrum	80	FAC
	2.	Carya ovata	20	FACU-
	3.			
	4.			
	5.			
			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.	Fraxinus pennsylvanica	10'	FACW
	2.			
	3.			
	4.			
	5.			
			% Areal Cov.	
HERBS	1.	Polygonum virginianum	20	FAC
	2.	Fraxinus pennsylvanica	15	FACW
	3.	Prunus pumila	15	UPL
	4.			
	5.			
			Stem #	
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

of species that are OBL, FACW and/or FAC: 66 %

Hydrophytic vegetation: Yes X No ____

Basis: ≥50 % of dominants are OBL, FACW and/or FAC

Known physiological or morphological adaptations: ____

Date: 7/31

Transect: WB1
Sample Plot: 8

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: A *Depth:* 0 – 8 *Color:* 10YR 3/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. ~~Silt~~	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, ~~slightly plastic~~, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5 + in.	Broken - parts unconnected

Date: 7/31

Transect: WB1
Sample Plot: 8

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: B2 *Depth:* 8 - 14 *Color:* 7.5YR 4/2 *Mottling:* 7.5YR 5/4 + 5/6

Abundance	Size	Contrast
1. Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2. Common 2-20%	2. Medium - 5-15 mm.	2. Distinct
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure:

Aggregation Characteristics of Soil Particles

Class (Size in mm.)		Prisms	Blocks	Plates and Granules
1.	Very fine (very thin)	0-10	0-5	0-1
2.	Fine (thin)	10-20	5-10	1-2
3.	Medium	20-50	10-20	2-5
4.	Coarse (thick)	50-100	20-50	5-10
5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5 + in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 7/31

Transect: WB1

Sample Plot: 8

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated? Y **N**

Depth to Water Table? 17" "/over 18"

Depth to Saturated Soil? 15" "/over 18"

Are watermarks present on woody vegetation? **Y** N

Are driftlines present? Y **N**

Are sediment deposits present? **Y** N

Is the area encrusted with detritus? Y **N**

Are drainage patterns present? **Y** N

Ambient weather conditions: 90 partly sunny

Recent precipitation: Heavy rains 2+3 days ago.

Date: 7/31/06

Transect: WB1

Sample Plot: 9

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.	Carya ovata	55	FACU-
	2.	Acer saccharum	25	FACU-
	3.	Fraxinus americana	10	FACU
	4.			
	5.			

		Species	% Areal Cov. or Height	Indicator Status
SAPLINGS & SHRUBS	1.	Acer saccharum	18'	FACU-
	2.	Fraxinus americana	18'	FACU
	3.			
	4.			
	5.			

		Species	% Areal Cov.	Indicator Status
HERBS	1.	Prunus pumila	20	UPL
	2.	Parthenocissus quinquefolia	5	FACU
	3.			
	4.			
	5.			

		Species	Stem #	Indicator Status
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

% of species that are OBL, FACW and/or FAC: 0

Hydrophytic vegetation: Yes___ No X

Basis:

Known physiological or morphological adaptations:

Date: 1/21

Transect: WB1
Sample Plot: 9

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: A *Depth:* 0 to 8" *Color:* 10YR4/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness
Abrupt 0-1 in.
Clear 1-2.5 in.
Gradual 2.5-5 in.
Diffuse 5 + in.

Topography
Smooth - nearly a plane
Wavy or undulating - pockets wider than deep
Irregular - pockets deeper than wide
Broken - parts unconnected

Date: 7/31

Transect: WB1
Sample Plot: 9

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: A2 *Depth:* 8-11" *Color:* 10YR5/3 *Mottling:* 10YR5/6

Abundance	Size	Contrast
1. ~~Few - less than 2%~~	1. ~~Fine - less than 5 mm.~~	1. ~~Faint~~
2. ~~Common - 2-20%~~	2. ~~Medium - 5-15 mm.~~	2. Distinct
3. ~~Many - more than 20%~~	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

- A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
- B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
- C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. ~~Clay loam~~	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other: 10 coarse fragments, sandy

Structure: Aggregation Characteristics of Soil Particles

Class (Size in mm.)		Prisms	Blocks	Plates and Granules
1.	Very fine (very thin)	0-10	0-5	0-1
2.	~~Fine (thin)~~	10-20	5-10	1-2
3.	Medium	20-50	10-20	2-5
4.	~~Coarse~~ (thick)	50-100	20-50	5-10
5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

- Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
- Moist: Loose, very friable, friable, firm, very firm, extremely firm.
- Wet: Nonsticky, slightly sticky, sticky, very sticky.
  Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	~~A. Fine~~
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5 + in.	Broken - parts unconnected

Date: 7/31

Transect: WB1

Sample Plot: 9

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated?	Y	N
Depth to Water Table?		"/over 18"
Depth to Saturated Soil?		"/over 18"
Are watermarks present on woody vegetation?	Y	N
Are driftlines present?	Y	N
Are sediment deposits present?	Y	N
Is the area encrusted with detritus?	Y	N
Are drainage patterns present?	Y	N

Ambient weather conditions: 90° partly sunny

Recent precipitation: Heavy rain 2 and 3 days ago.

Date: 7/31

Transect: WB1

Sample Plot: 10

HYDROPHYTIC VEGETATION DETERMINATION FORM

(Adapted from Part III, Paragraph 35 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Record the three (3) dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

		Species	Rel. Basal Area	Indicator Status
TREES	1.	Acer rubrum	30	FAC
	2.	Fraxinus pennsylvanica	25	FACW
	3.	Carya ovata	25	FACU-
	4.			
	5.			
			% Areal Cov. or Height	
SAPLINGS & SHRUBS	1.			
	2.			
	3.			
	4.			
	5.			
			% Areal Cov.	
HERBS	1.	Impatiens capensis	50	FACW
	2.	Toxicodendron radicans	30	FAC
	3.	Aster lateriflorus	15	FACW-
	4.			
	5.			
			Stem #	
WOODY VINES	1.			
	2.			
	3.			
	4.			
	5.			

of species that are OBL, FACW and/or FAC: 84%

Hydrophytic vegetation: Yes X No ____

Basis: >50% of dominant plants are OBL, FACW and/or FAC

Known physiological or morphological adaptations: ____

Date: 11/1

Transect: WB1
Sample Plot: 10

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: A *Depth:* 0 - 8 *Color:* 10YR 3/2 *Mottling:*

	Abundance	Size	Contrast
1.	Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2.	Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3.	Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles

A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure: Aggregation Characteristics of Soil Particles

			Prisms	Blocks	Plates and Granules
	1.	Very fine (very thin)	0-10	0-5	0-1
Class	2.	Fine (thin)	10-20	5-10	1-2
(Size in mm.)	3.	Medium	20-50	10-20	2-5
	4.	Coarse (thick)	50-100	20-50	5-10
	5.	Very coarse (very thick)	100+	50+	10+

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation

Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

Boundary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5+ in.	Broken - parts unconnected

Date: 7/31

Transect: WBL
Sample Plot: 10

WETLANDS INVESTIGATIONS SOIL DATA FORM

Horizon: A2 *Depth:* 8-11 *Color:* 7.5YR 4/2 *Motling:* 7.5YR 5/6

Abundance	Size	Contrast
1. Few - less than 2%	1. Fine - less than 5 mm.	1. Faint
2. Common - 2-20%	2. Medium - 5-15 mm.	2. Distinct
3. Many - more than 20%	3. Coarse - more than 15 mm.	3. Prominent

Textures: Size of mineral particles
A. Sands: very coarse, coarse sand, sand, fine sand, very fine sand.
B. Loamy Sands: Loamy coarse sand, loamy sand, loamy fine sand.
C. Sandy Loams: Sandy loam, fine sandy loam, very fine sandy loam.

1. Silt	1. Silty clay loam	1. Silty clay
2. Silt loam	2. Clay loam	2. Clay
3. Loam	3. Sandy clay loam	3. Sandy clay

Adjectives: Gravelly, cobbly, channery, flaggy, stony may apply to any of the above textures.

Other:

Structure:

Aggregation Characteristics of Soil Particles

Class (Size in mm.)		Prisms	Blocks	Plates and Granules
1.	Very fine (very thin)	0-10	0-5	0-1
2.	Fine (thin)	10-20	5-10	1-2
3.	Medium	20-50	10-20	2-5
4.	Coarse (thick)	50-100	20-50	5-10
5.	Very coarse (very thick)	100 +	50 +	10 +

Other:

Grade: Distinctness
Structureless, very weak, weak, moderate, strong, very strong.

Type: Form
Prismatic, columnar
Blocky, angular blocky, subangular blocky
Granular, crumb
Platy

Consistence: Cohesion and adhesion and resistance to deformation
Dry: Loose, soft, slightly hard, hard, very hard, extremely hard.
Moist: Loose, very friable, friable, firm, very firm, extremely firm.
Wet: Nonsticky, slightly sticky, sticky, very sticky
Nonplastic, slightly plastic, plastic, very plastic

Roots:

1. Abundant	2. Moderate	3. Few
A. Fine	A. Fine	A. Fine
B. Medium	B. Medium	B. Medium
C. Large	C. Large	C. Large

undary: Transition from one horizon to another

Distinctness	Topography
Abrupt 0-1 in.	Smooth - nearly a plane
Clear 1-2.5 in.	Wavy or undulating - pockets wider than deep
Gradual 2.5-5 in.	Irregular - pockets deeper than wide
Diffuse 5 + in.	Broken - parts unconnected

Date: 7/31

Transect: WB1

Sample Plot: 10

WETLANDS HYDROLOGY DETERMINATION FORM

INDICATOR CHECKLIST

(Adapted from Part III, Paragraph 49 - Army Corps of Engineers Wetlands Delineation Manual, January, 1987)

Is the area inundated? Y **N**

Depth to Water Table? 4" "/over 18"

Depth to Saturated Soil? @ surface "/over 18"

Are watermarks present on woody vegetation? **Y** N

Are driftlines present? Y **N**

Are sediment deposits present? **Y** N

Is the area encrusted with detritus? Y **N**

Are drainage patterns present? **Y** N

Ambient weather conditions: 90° partly sunny

Recent precipitation: Heavy rain 2 + 3 days ago

REFERENCES

The Audubon Society Field Guide to North American Trees (Eastern Region), Elbert L. Little, 1980.

The Audubon Society Field Guide to North American Wildflowers, William A. Niering and Nancy C. Olmstead, 1979.

Classification of Wetlands and Deepwater Habitats of the United States, Lewis M. Cowardin, Virginia Carter, Francis C. Golet and Edward J. LaRoe, 1979.

Common Weeds of the United States....Prepared by the Agricultural Research Service of the United States Department of Agriculture.

Corps of Engineer Wetlands Delineation Manual, January, 1987.

Erie County Soils with Potential Hydric Inclusion - S.C.S. East Aurora, New York.

Field Guide to the Grasses, Sedges and Rushes of the United States - Edward Knobel.

Flora of the Niagara Frontier Region, Charles A. Zenkert, August, 1934.

Flora of the Niagara Frontier Region, Second Supplement and Checklist by Richard H. Zander and Gary J. Pierce, 1979.

Grasses; An Identification Guide, Lauren Brown, 1979.

Grays, Manual of Botany. Rewritten and Expanded by Merritt Lyndon Fernald, 1950.

Hydric Soils of Erie County, S.C.S. East Aurora, New York.

Hydric Soils - Niagara County, New York.

An Illustrated Flora of the Northern United States and Canada. Vol. I-III Nathaniel Lord Britton and Hon. Addison Brown, 1970.

A Key to the Genera of Grasses of the Conterminous United States - James P. Smith, Jr., 6th Edition, 1981.

Key to Woody Plants, W.C. Muenscher, Sixth Edition, 1950.

Manual of Grasses of the United States, Volumes I & II, A. S. Hitchcock, Revised by Agnes Chase, 1971.

REFERENCES *(continued)*

Manual of the Trees of North America, Volumes I & II, Charles Sprague Sargent, 1965.

Manual of Vascular Plants of Northeastern United States and Adjacent Canada, Henry A. Gleason, Ph.D., Arthur Cronquist, Ph.D., 1963.

Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics, Culture, Propagation and Uses, Michael A. Dirr Rev. 1983

National List of Plant Species that Occur in Wetlands: New York; U.S. Fish and Wildlife Service, St. Petersburg, Florida, May, 1988.

Native and Cultivated Conifers of Northeastern North America, Edward A. Cope, Illustrated by Bente Starcke King, 1986.

The Nature and Properties of Soils 8th Edition - Nyle C. Brady, 1974.

Newcombs Wild Flower Guide, Lawrence Newcomb, Illustrated by Gordon Morrison, 1977.

Soil Survey of Erie County United States Department of Agriculture Soil Conservation Service.

Soils and the Environment - A Guide to Soil Surveys and Their Applications, Gerald W. Olson, 1981.

Soils with Potential Hydric Inclusions, Niagara County, New York, S.C.S. of Niagara County.

The Shrub Identification Book, George W. D. Symonds, 1963.

The Tree Identification Book, George W. D. Symonds, 1958.

Weeds of Colorado, Robert L. Zimdahl.

Weeds Second Edition, Walter Conrad Muenscher, 1955.

Wetlands, William J. Mitsch, James G. Gosselink, 1986.

Clinton Herbarium Buffalo Science Museum.

Alfred Analytical Lab: Institute of Applied Technology and Professional Development.

APPENDIX D – SECTION 9

Geo-Technical Report

Geotechnical Engineering Report for
Proposed Villas at Brierwood Project
Southwestern Boulevard
Town of Hamburg, New York

Prepared For:

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S_RVICES, INC.

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Geotechnical Engineering Report for
Proposed Villas at Brierwood Project
Southwestern Boulevard
Town of Hamburg, New York

Prepared For:

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Prepared By:

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STATE OF NEW YORK
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2/26/07

Project No. BE-06-274
February 2007

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1.00 INTRODUCTION

1.10 GENERAL

This report presents the results of a subsurface exploration program and geotechnical engineering evaluation completed by Empire Geo-Services, Inc. (Empire) for the proposed Villas at Brierwood Project planned in the Town of Hamburg, New York. The approximate location of the project site is shown on Figure No. 1.

David Home Builders, Inc. of Hamburg, New York retained Empire to complete this work, which was done in accordance with our revised proposal dated January 17, 2006. SJB Services, Inc. (SJB), our affiliated drilling and testing company, completed the subsurface exploration program for the project, which consisted of a total of sixteen (16) test borings.

On this basis, Empire completed geotechnical engineering analyses and evaluations and prepared this report, which summarizes the subsurface conditions encountered by the test borings and presents geotechnical recommendations for planning design and construction of the commercial and residential foundations, the pavement construction and the site infrastructure, along with the associated site preparation for the proposed project.

1.20 PROJECT DESCRIPTION

The proposed Villas at Brierwood Project covers approximately 43 acres and is planned to be developed on a parcel of land located southeast of Southwestern Boulevard, south of Amsdell Road and north and west of Pleasant Road in the Town of Hamburg, Erie County, New York.

The project will include five commercial buildings surrounded by parking area and drives covering approximately 3.2 acres, three separate single family parcels for a total of 0.93 acres, and thirty-seven (37) residential four (4) unit structures each covering approximately 11,338 square feet with connecting asphaltic pavement drives. A clubhouse and pool area as well as a proposed walking path, which surrounds approximately 8 acres of open space are planned on the northern portion of the site within the complex. Two detention basin/retention ponds are also planned on the far northwest and mid north portion of the complex.

The main access drive to the complex is planned off of Southwestern Boulevard, which will be located west of the main access drive to the commercial lots. Two of the single family parcels' access drives will be located off Pleasant Road while the other will be located of Amsdell Road. A site plan showing the general project layout is presented on Figure 2.

The four unit residential structures are planned to include a 25 foot high, single story structure comprised of a mixture of Chateau, Villa, Abbey or Canterbury type living space with overhead storage. The Abbey and Canterbury type will include a two-car garage. A basement structure or depressed crawl space area is not anticipated for the condominium type structures. The residential structures are planned to be supported on a shallow spread foundation system with slab on grade construction. The finish floor elevations for each structure will vary across the site however, they are not known at this time.

Three single-story and two two-story commercial buildings are planned as part of the project. The retail and/or office buildings are planned to be supported on a shallow spread foundation system with slab on grade construction.

Specific information concerning the types and sizes of the individual homes planned were not available at the time of this report. However, we would anticipate the individual homes would generally be of a typical 2-story wood frame type construction, with attached garages and full basements.

We anticipate the homes will be designed in accordance with the Residential Code of New York State, including seismic conditions while the commercial structures will be designed in accordance with the Building Code of New York State. The four unit condominium structures should be designed as deemed appropriate by the designer.

1.30 SITE DESCRIPTION

The proposed Villas at Brierwood Project is located southeast of Southwestern Boulevard, south of Amsdell Road and north and west of Pleasant Road, which is generally surrounded by existing residential homes separated by a tree line. The site generally consists of an open lightly brush covered field on the western portion and an open field with light brush and small trees on the eastern portion. A swale within a tree line separates the fields and extends north into a more heavily brush and wooded area. A small stream runs across the far northeastern portion of the site.

A wetland area of approximately 2.5 ± acres is located on the northeast end of the proposed complex.

The proposed project area generally slopes up from the northern portion of the site towards the southern portion of the site, with ground surface elevations rising from El. 740 feet to El. 770 feet, as shown on the boundary survey prepared by Genzel Land Surveying, P.C. (Genzel).

2.00 SUBSURFACE EXPLORATION

The subsurface exploration program for the proposed Villas at Brierwood Project included a total of sixteen (16) test borings drilled by SJB on January 17th, 18th and 19th, 2007. The test borings are designated B-1 through B-16 and their approximate locations are shown on Figure 2.

The test boring locations were established on a site plan provided by David Homes, Inc. to provide general coverage over the project area. The test boring locations were then located and staked in the field by SJB. Optical survey level techniques were utilized to determine existing ground elevations at the test boring locations. The ground surface elevations were referenced to two control points (CP), CP 106 (Benchmark A) and CP 114 (Benchmark B), established by Genzel. The benchmark elevations are El. 757.40 feet for Benchmark A and El. 748.56 feet for Benchmark B and their approximate locations are shown on Figure 2.

SJB drilled the test borings using a Central Mine Equipment (CME) model 550 rubber tired all-terrain drill rig using hollow stem auger techniques. Split spoon samples and Standard Penetration Tests (SPT) were taken continuously from the ground surface to sample spoon refusal or to a depth of 10 feet and in 5 feet intervals or less below the zone of continuous sampling. The split spoon sampling and SPTs were completed in general accordance with *ASTM D 1586 - "Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils"*.

The test borings were advanced to depths varying from 6.2 feet (El. 733.9 feet) to 16.8 feet (El. 741.2 feet) below the existing ground surface where sample spoon refusal was encountered. Test borings B-3, B-10 and B-13 were advanced to auger refusal, which was encountered at depths varying from 7.5 feet (El. 732.6 feet) and 12.5 feet (El. 746.1 feet).

A geologist prepared the test boring logs based on visual observation of the recovered soil samples and review of the driller's field notes. The soil samples were described based on a visual estimation of the grain size distribution, along with characteristics such as color, relative density, consistency, moisture, etc. The test boring logs are presented in Appendix A, along with a summary sheet of general information and an explanation of terms and symbols used to prepare the logs.

3.00 SUBSURFACE CONDITIONS

3.10 GENERAL

The general stratigraphy encountered by the test borings consisted of indigenous clay, clayey silt, sand and silt soil deposits overlying Shale bedrock. No man placed fill soils were apparent at any of the test boring locations. The soil stratigraphy encountered and the groundwater conditions observed are described in more detail in the following sections and on the boring logs.

3.20 INDIGENOUS SOILS

At the ground surface, indigenous soils consisting of intermixed silty clay, clayey silt, sand and silt soils with trace amounts of shale rock fragments were encountered. Based on visual descriptions, these soils are generally classified as CL, ML, SC-SM and SM group soils using the Unified Soil Classification System (USCS).

Standard Penetration Test (SPT) "N" values obtained in the cohesive clay and clayey silt soils ranged from 3 to over 30 indicating the consistency of these soils varies from soft to hard. The SPT "N" values for the non-plastic sand and silt soils ranged from 6 to over 50 indicating the relative density of these soils to vary from loose to very compact. The softer and looser indigenous soils were generally encountered within the upper two feet at the test boring locations.

3.30 BEDROCK

Shale rock fragments were found intermixed within the overburden soils in most of the borings. A distinct zone of highly weathered to weathered Shale bedrock was also encountered at all the borings, except B-13, B-15 and B-16. The top of the more distinct weathered Shale bedrock zone was encountered at depths varying from 1.0 feet to 12.0 feet below the existing ground surface. At the majority of these locations the borings were able to be advanced several feet into the weathered bedrock material by augering and split spoon sampling methods.

Auger refusal was encountered at boring locations, B-3, B-10 and B-13 indicating the presence of a more competent bedrock.

The following table summarizes the depth/elevations where the top of the weathered Shale bedrock zone was encountered along with the final split spoon sample or auger refusal.

Depth/Elevation of Top of Weathered Shale Bedrock Zone and Final Split Spoon Sample or Auger Refusal			
Boring No.	Ground Surface Elevation (Feet)	Depth / Elevation of Top of Weathered Shale Bedrock Zone	Depth / Elevation of Final Sample Spoon (SS) or Auger (A) Refusal (Feet)
B-1	738.0	6.0 / 732.0	10.2 (SS) / 727.8
B-2	738.3	4.0 / 734.3	10.1 (SS) / 728.2
B-3	740.1	4.0 / 736.1	7.5 (A) / 732.6
B-4	740.8	3.0 / 737.8	10.1 (SS) / 730.7
B-5	750.5	2.0 / 748.5	10.0 (SS) / 740.5
B-6	739.8	4.0 / 735.8	10.1 (SS) / 729.7
B-7	745.9	3.0 / 742.9	10.2 (SS) / 735.7
B-8	744.3	4.0 / 740.3	10.2 (SS) / 734.1
B-9	751.7	1.0 / 750.7	10.4 (SS) / 741.3
B-10	758.6	9.5 / 749.1	12.5 (A) / 746.1
B-11	754.9	12.0 / 742.9	13.4 (SS) / 741.5
B-12	751.9	8.0 / 743.9	10.3 (SS) / 741.6
B-13	756.4	*NE*	10.7 (A) / 745.7
B-14	747.5	8.0 / 739.5	10.1 (SS) / 737.4
B-15	758.0	*NE*	16.8 (SS) / 741.2
B-16	759.2	*NE*	15.9 (SS) / 743.3

NE – Not Encountered

It appears the top of the weathered Shale bedrock is relatively inconsistent across the site ranging from an elevation of 732.0 feet to 750.7 feet. However, on the northern portion of the site, the top of the weathered Shale bedrock was generally encountered within the upper reaches at the test boring locations (i.e. within a depth of about 6 feet) and within the lower reaches (i.e. below a depth of about 8 feet) on the southern portion of the site.

3.40 GROUNDWATER CONDITIONS

Groundwater was not apparent in the majority of the test boring locations; however, freestanding water was recorded at depths of 8.0 feet and 11.5 feet corresponding to elevations of El. 743.7 feet and El. 743.4 feet at test boring locations B-9 and B-11, respectively. We note that groundwater might not have had sufficient time to accumulate and/or stabilize in the borings within the time period that had elapsed from the completion of overburden drilling operations and the time of measurement.

In addition, some perched groundwater zones should be expected in some of the more permeable indigenous soils, which overlie less permeable indigenous clayey soils and rock. It should be expected that groundwater conditions can vary with changes in soil conditions, precipitation and seasonal conditions.

The soil stratigraphy encountered and the groundwater conditions observed are described in more detail on the boring logs included in Appendix A.

4.00 GEOTECHNICAL CONSIDERATIONS AND RECOMMENDATIONS

4.10 GENERAL

Based on our analysis of the soil conditions encountered in the test borings, it is Empire's opinion that the proposed Villas at Brierwood Project site is suitable to support the residential and commercial structures using a conventional spread foundation design. The soils encountered are also considered suitable to support the complex infrastructure, including roadway construction, storm and sanitary sewers, waterlines and the detention pond structures.

The soils encountered are predominately intermixed sand, silt, clayey silt and silty clay soils. These soils are non-organic, and are considered to not be highly compressible, or highly susceptible to shrinkage, swelling, or liquefaction. In addition, these soils are considered to have adequate strength properties to support residential and commercial foundation loads. Therefore, the potential for either short-term or long-term detrimental impacts on foundation performance, because of latent unfavorable soil properties, should be generally non-existent.

From a geotechnical standpoint, the primary issues that will need to be addressed in development of the complex will be the presence of the upper loose or soft indigenous soils and proper preparation of the foundation bearing grades and subgrades for slab on grade and pavement construction.

In addition, it may be necessary to excavate shale bedrock for the deeper utility construction as well as some of the building foundations, particularly in the northern to mid portions of the site. In general, the ability to auger and split spoon sample through the upper weathered shale bedrock suggests that this material can generally be loosened and excavated using a conventional large size excavator (backhoe), equipped with rock teeth. The bedrock, however, is expected to become more competent with depth, therefore, it possible in some cases that it may be necessary to loosen the rock prior to excavation, using a backhoe equipped with a hydraulic/pneumatic breaker, where zones of more competent bedrock are encountered. The excavation effort required appears will be dependent on the actual design depth of the foundations and utilities, as well as the location on the site.

We recommend the foundations for an individual structure do not bear partially on bedrock and partially on the indigenous soils due to the potential for differential settlement to occur. Once the finish floor elevations are established, it may be beneficial to perform several test pits within some of the condominium units, especially on the mid-northern portion of the site, to determine if the bearing grade surface will be consistent across the building footprint and the type of bearing grade surface (i.e. indigenous soils or weathered bedrock) that will be encountered.

Permanent groundwater conditions are not expected to be encountered within the excavations for foundation or utility construction; however, construction dewatering may be necessary to control perched groundwater conditions, depending on the conditions present at the time of construction. As previously stated, perched groundwater conditions can be influenced by precipitation and seasonal conditions.

More detailed geotechnical considerations and recommendations are provided in the subsequent sections of this report to assist with planning for the design and construction of the proposed complex, including the associated infrastructure and residential/ commercial foundations.

4.20 FOUNDATION DESIGN

Spread foundations for the proposed Villas at Brierwood project should bear on suitable, relatively undisturbed indigenous soil bearing grades or on Structural Fill following removal of any topsoil and the upper unsuitable indigenous soils. Suitable indigenous soil bearing grades should consist of stiff to very stiff clayey silt/silty clay, firm to very compact silty sand indigenous soils or weathered Shale bedrock which are free of organics, soft, loose, wet or otherwise deleterious conditions.

Suitable bearing grade depths/elevations encountered at the test boring locations are presented on the following table. In general foundations should bear at or below these grades or they should bear on structural fill, placed following excavation to these grades.

Recommended Suitable Subgrade Depth and Elevation for Spread Foundations or Engineered Fill		
Boring No.	**Ground Surface Elevation (feet)**	**Bearing Grade Depth/Elevation (feet)**
B-1	738.0	2.0 / 736.0
B-2	738.3	2.0 / 736.3
B-3	740.1	2.5 / 737.6
B-4	740.8	3.0 / 737.8*
B-5	750.5	2.0 / 748.5*
B-6	739.8	2.0 / 737.8
B-7	745.9	3.0 / 742.9*
B-8	744.3	2.0 / 742.3
B-9	751.7	1.0 / 750.7*
B-10	758.6	2.0 / 756.6
B-11	754.9	2.5 / 752.4
B-12	751.9	2.0 / 749.9
B-13	756.4	2.5 / 753.9
B-14	747.5	2.0 / 754.5
B-15	758.0	2.0 / 756.0
B-16	759.2	2.0 / 757.2

*Indicates expected Shale Bedrock Bearing Grade Surface

Based on the above table, it appears that the suitable bearing grades were generally encountered within a depth of about 1.0 feet to 3.0 feet below the existing ground surface. Subsurface conditions between and away from the test boring locations, however, may vary and require adjustments in the suitable subgrade elevation based on actual conditions encountered at the time of construction. Accordingly, close inspection of the foundation bearing grades, by qualified geotechnical personnel, is recommended at the time of construction.

As noted above, we recommend the foundations for an individual structure do not bear partially on bedrock and partially on the indigenous soils due to the potential for differential settlement to occur. Therefore, when Shale bedrock is the expected bearing grade for a portion of the foundations within an individual structure, the remaining foundations should all extend to the shale bedrock. Alternatively, the bedrock could be undercut a minimum of 12-inches and replaced with structural fill. This will provide a more uniform bearing stratum beneath the foundations and will reduce the potential for differential settlement of the foundations between the two types of bearing stratums.

If it is necessary to place Structural Fill beneath the foundations, it should be placed beyond the foundation limits a horizontal distance equal to at least 0.5 times the thickness of the Structural Fill layer beneath the foundation. Excavations, therefore, will need to be planned and sized accordingly. Recommendations for Structural Fill material along with its placement and/or compaction are presented in Appendix B.

Spread foundations constructed on suitable indigenous soil bearing grades or on structural fill placed and compacted over the suitable bearing grades can be sized based on a maximum net allowable bearing pressure of 2,000 pounds per square foot. Spread foundations constructed directly on the Shale bedrock can be sized based on a maximum net allowable bearing pressure in excess of 4,000 pounds per square foot.

Continuous wall footings should be at least 1.5 feet in width and any column/isolated footings should be at least 2.5 feet in width. Exterior foundations should be embedded a minimum of 4.0 feet below finished exterior grades for frost protection.

Construction of spread foundations on undisturbed and properly prepared indigenous soil bearing grades or on properly placed and compacted controlled fill should undergo normal consolidation settlement, which should not exceed a total of about ¾-inch. Spread foundations bearing directly on the weathered Shale bedrock should undergo insignificant settlement.

4.30 FLOOR SLABS

As mentioned above the finish ground floor grade for the proposed condominium and commercial structures are not currently known. If filling to raise subgrade for slab on grade construction is necessary, the site grade filling can be accomplished using a Suitable Granular Fill or suitable on-site soils, as recommended in Appendix B. Prior to raising site grades, the subgrades for slab on grade construction should be prepared as outlined in Section 4.80.2.

A minimum of 8 inches of Structural Fill, as described in Appendix B, is recommended directly beneath lightly loaded interior floor slabs. To limit potential frost heaving of non-vehicle loaded exterior slabs (i.e. sidewalks, concrete pads, etc.) we recommend that the slab be constructed over compacted backfill consisting of at least 10 inches of Structural Fill. In areas where heavier loading will occur (i.e. storage areas within commercial building, garage floors, etc.), a minimum of 12 inches of Subbase Stone should be placed beneath these floors.

We note that the above subbase stone thicknesses are not designed for carrying construction vehicle loads. Therefore, it may be desirable for the Contractor to temporarily increase the Subbase Stone thickness within the building pad areas to provide a suitable working surface to stage the construction, carry construction vehicle loads and protect the underlying subgrades. This will be particularly important if construction proceeds during seasonally wet periods. The additional subbase stone material could then be removed in preparation for the actual floor construction and re-used as foundation backfill or as otherwise determined appropriate.

The building floor slabs and any exterior slabs can be designed in accordance with procedures recommended by the Portland Cement Association or the American Concrete Institute, using a modulus of subgrade reaction of 150 pounds per cubic inch (pci) at the top of the subbase layer. It is recommended that the slab-on-grade be constructed such that it floats on the subbase and is not structurally connected to, or resting directly on, perimeter walls or column footings in order to limit differential settlement effects.

A suitable moisture barrier is recommended beneath the basement area slab-on-grade, to reduce the potential for dampness. A moisture barrier does not appear warranted where upper at-grade slabs are constructed at or above final site grades.

4.40 BASEMENT WALL DESIGN

The basement foundation walls for the individual residential homes should be designed for "at rest" lateral earth pressures computed on the basis of an "equivalent fluid unit weight" of 65 pounds per cubic foot (pcf). This is based on the assumption that exterior foundation drainage will be provided, as discussed below and that the walls will be backfilled with a suitable generally low to non-plastic granular soil material, or Structural Fill or Suitable Granular Fill, as described in Appendix B. The use of predominately fine grained clay soils to backfill the walls is not recommended as they are more susceptible to shrinkage/swelling and may cause more substantial lateral pressures on the walls.

4.50 FOUNDATION DRAINAGE SYSTEM DESIGN

Basement foundation walls, which retain soil and are subject to lateral earth pressures, should include an exterior foundation drainage system to intercept groundwater and relieve potential hydrostatic pressures from developing against the walls. The foundation drainage system should be properly designed, installed and maintained for long-term performance and should drain to a sump and pump system. The foundation drainage system should comply with the requirements of the Residential Code of New York State (NYS Residential Code), as a minimum.

The following are suggested options for the foundation drainage system design to supplement the requirements of the NYS Residential Code.

1. It is suggested that a sump pump, which can continue to operate in the case of power failure, be provided. The design should include such features as clean-outs to properly maintain the system. The foundation drain pipes should be set at a depth of at least 1 foot below the top of the basement floor grade.

2. We recommend that the exterior of the foundation wall(s) be coated with an appropriate damp proofing material.

3. The foundation drainage system should include a drainage/separation geotextile installed around drainage stone, which surrounds a slotted under-drain pipe. The drainage stone should be sized in accordance with the pipe slotting. A crushed aggregate conforming to NYSDOT Standard Specifications Section 703-02, Size Designation No. 1 (½-inch washed gravel or stone) is generally acceptable for slotted under-drain pipe.

4. A pervious granular backfill or a suitable geosynthetic drainage composite (i.e. Miradrain, Delta MS, etc.) should be placed against the foundation wall, above the drainage system, to allow infiltration to the drainage system. Concrete Sand, which meets the minimum requirements of NYSDOT Standard Specifications Section 703-07 (100 percent passing 3/8 inch sieve to maximum of 3 percent passing a No. 200 sieve), is

generally acceptable as pervious granular backfill. Crusher run stone is also acceptable. The pervious granular backfill against the wall should be a nominal 1.5 feet in width. The drainage media against the wall should extend to about 1 to 2 feet below the finished grade surface, where it may be capped off with the on site soil.

4.60 SEISMIC DESIGN CRITERIA

The subsurface conditions encountered at the site generally consist of stiff to very stiff and firm to very compact overburden overlying weathered Shale bedrock, which was encountered within a depth of 12 feet. Accordingly, the site can be classified as Seismic Site Class "C" in accordance with Table 1615.1.1 of the Building Code of New York State.

The spectral accelerations in the project area for Site Class "B" were obtained from the United States Geological Survey (USGS) web site (www.usgs.gov) by using the Zip Code 14075 for the project site. The spectral response acceleration in the Hamburg, New York area (Zip Code 14075) for Site Class "B" are approximately 0.292g for the short period (0.2 second) response (S_s) and 0.067g for the 1 second period response (S_1).

Adjusted Spectral Response Acceleration for Site Class "C":

- Short Period Response (S_{MS}) = 0.350g
- 1 Second Period Response (S_{M1}) = 0.114g

The corresponding five percent damped design spectral response accelerations (S_{DS} and S_{D1}) are as follows:

- S_{DS} = 0.234g
- S_{D1} = 0.076g

4.70 PAVEMENT DESIGN

Pavement design recommendations are provided for both a Heavy Duty Pavement (i.e. for use in the development access drive areas) and for a Light Duty Pavement (i.e. for use in automobile only parking/driveway areas). The pavement sections recommended are based on the assumption that the subgrades will be prepared as discussed in Section 4.80.2 below.

Heavy Duty Asphalt Concrete Pavement:

- 1.5 inches – Top Course
- 3.5 inches – Binder Course
- 18 inches – Subbase Course*
- Geotextile

Light Duty Asphalt Concrete Pavement:

- 1.5 inches – Top Course
- 2.0 inches – Binder Course
- 12 inches – Subbase Course*
- Geotextile

*It may be necessary to increase the subbase thickness in some areas to improve subgrade conditions and to promote drainage to underdrains, etc. as discussed below.

The above proposed pavement sections were analyzed using the NYSDOT Thickness Design Manual for New and Reconstructed Pavement, along with the American Association of State Highway and Transportation Officials (AASHTO) "Interim Guide Method for Design of Flexible Pavements".

The pavement sections recommended above are based on the following design conditions and assumptions:

- It is estimated that the existing subgrade soils will have a minimum CBR value of 2 or greater in a saturated condition. This correlates to a soil resilient modulus of about 2500 psi, which has been used for the flexible pavement design.

- Based on our analyses, the Heavy Duty and Light Duty pavement sections will provide approximately 475,000 and 40,000 18-kip equivalent axle loads (EAL's), respectively, over their design life.

The installation of underdrains and/or edge drains is recommended to drain the pavement subbase course and subgrades in order to limit the potential for frost action and improve pavement structure performance and design life. Alternatively, the pavement subbase course can also be allowed to daylight/drain to an adjacent perimeter drainage swale.

Proper grading of the pavement structure subgrades is also recommended Accumulation of water on pavement subgrades should be avoided by grading the subgrade to a slope of at least 2 percent to allow drainage to the underdrains or drainage swale.

Materials for the above pavement structure components should consist of the following:

A. Asphalt Concrete Top Course - NYSDOT Standard Specifications, Item No. 403.198902 M - Hot Mix Asphalt, Type 7 Top Course.

B. Asphalt Concrete Binder Course - NYSDOT Standard Specifications, Item No. 403.138902 M - Hot Mix Asphalt, Type 3 Binder Course.

C. Subbase Course – Should comply with NYSDOT Standard Specifications, Item No. 304.12 M - Type 2 Subbase.

D. Geotextile - Woven polypropylene stabilization/separation geotextile (i.e., Mirafi 500X or approved suitable equivalent).

4.80 SITE PREPARATION AND CONSTRUCTION

4.80.1 Construction Dewatering

Based on the water level measurements obtained in the test borings it appears that permanent groundwater conditions will not be encountered within the excavations for foundation or utility construction. Perched groundwater, however, may be encountered in the excavations. The amount of perched groundwater will vary with location on the site and will be dependent on the size and depth of the excavation, the actual soil and groundwater conditions present along with the time period the excavation must remain open.

Dewatering should be implemented in conjunction with excavation work such that the work generally proceeds in the dry. Groundwater levels should be maintained below the proposed excavation bottom. It is anticipated that diversion berms, proper site grading, cut-off trenches, and sump and pump methods of dewatering should be sufficient to control surface water and perched groundwater conditions. Surface water and groundwater dewatering plans should include implementation of measures to control erosion, sedimentation, and the migration of soil fines.

4.80.2 Subgrade Preparation

The site preparation work should be performed during dry periods to minimize potential degradation of the subgrade soils and undercuts which may be required to establish a stable base for construction. It should be understood that the existing subgrade soils will be sensitive and can be expected to degrade and lose strength when they are wet and disturbed by construction equipment traffic.

Accordingly, efforts should be made to maintain the subgrades in a dry and stable condition at all times, and minimize construction traffic directly over these soils. These efforts should include installation of drainage swales and underdrains (i.e. "French drains") to intercept and divert surface runoff and groundwater away from the construction areas, proper grading and sloping of the subgrade and "sealing" of the surface, at the end of each day or when rain is anticipated, with a smooth drum roller to promote runoff, and restricting construction equipment traffic from traveling directly over the subgrade surfaces, especially when they are wet.

All trees, vegetation, topsoil, etc., and any other deleterious materials within the proposed fill and pavement areas should be removed. Following stripping of the surface materials (topsoil), the exposed subgrades should be proof-rolled. The proof-rolling should be performed, prior to the overlying fill placement, using a smooth drum roller weighing at least 7 tons. The roller should be operated in the static mode and complete at least two (2) passes over the exposed subgrades.

The subgrade proof-rolling should be done under the guidance of, and observed by, a representative of Empire. Accordingly, it may be necessary to waive the proof-rolling requirement if wet subgrades are present. This should be determined by Empire. Any undercuts, which may be required as the result of the proof-rolling, should be performed based on guidance and evaluation of the conditions by Empire. Any undercuts should be backfilled with a suitable material as recommended by Empire.

It is recommended that the majority of the fill (i.e. to within about 1 foot of final grade) required to raise site grades in the proposed building areas be placed prior to the foundation construction. This would allow the settlement associated with the site grade increases to occur prior to the foundation construction and thus minimize post construction foundation settlement.

Suitable Fill or suitable on-site soil materials as described in Appendix B, can be used to raise existing site grades for building pad areas and pavement construction.

All fill placement to raise existing site grades should be carefully monitored and tested as recommended in Appendix B. It is recommended that utility trenches located within driveway and road areas be backfilled with controlled Structural Fill, as described in Appendix B.

4.80.3 Foundation Construction

Excavation to the proposed foundation bearing grades should be performed using a method, which minimizes disturbance to the soils. All loose, disturbed or otherwise unsuitable soil material should be removed. The proposed bearing grade should be observed and evaluated by a representative of Empire. Where controlled fill is placed beneath the foundation, the placement and compaction should be observed and tested by a representative of Empire.

Excavation of the bedrock, where necessary to establish the subgrades and foundation bearing grades, should be performed using methods, which minimize over breakage and disturbance to the bedrock bearing grades. As mentioned above, the upper weathered shale bedrock can generally be loosened and excavated using a conventional large size excavator (backhoe), equipped with rock teeth.

Bedrock bearing grades should be free of soil material and loose or fractured rock particles. Following excavation and cleaning of the bedrock surface, it may be desirable to level the bearing grade for the foundation construction using a lean concrete (f'c > 500 psi) fill or "mud mat".

All soil bearing grades for foundation construction should be protected from precipitation and surface water. Water should not be allowed to accumulate on the soil bearing grades and the bearing grades should not be allowed to freeze, either prior to or after construction of foundations. If bearing grades are not protected and degrade, they must be undercut/removed accordingly.

Foundation excavations should be backfilled as soon as possible prior to construction of the superstructure, however, the basement walls should not be backfilled until the ground level floor framing diaphragm is in place. As discussed above, the basement area foundations should be backfilled with a suitable generally low to non-plastic granular on-site soil material or Structural Fill or Suitable Granular Fill, as described in Appendix B. The exterior of non-earth retaining foundations (i.e. commercial, condominium structures and garage area foundations) can be backfilled with on-site clayey soils, provided they are free of organics or other unsuitable material, and can be properly compacted. The backfill should be placed in lifts and properly compacted. Care must be exercised when placing and compacting the fill against the foundation walls so as not to induce additional lateral loads on the walls.

4.80.4 Pavement Construction

Placement of the pavement subbase stone can proceed, following proper subgrade preparation, proof-rolling and subgrade filling as described in Section 4.80.2. The subbase stone should be placed and compacted in accordance with the recommendations presented in Appendix B for Structural Fill. Underdrains should be considered to drain the pavement subbase and subgrades in order to improve pavement performance. Construction of the asphalt concrete courses (i.e., binder and top) should be performed in accordance with NYSDOT Standard Specification Section 400.

5.00 CONCLUDING REMARKS

This report was prepared to assist in evaluating the site conditions and planning development of the proposed Villas at Brierwood project planned in the Town of Hamburg, New York. The report has been prepared for the exclusive use of David Home Builders, Inc. and other members of the design team, for specific application to this site and this project only.

The recommendations were prepared based on Empire Geo-Services, Inc.'s understanding of the proposed site development, based on the information known at this time, and through the application of generally accepted soils and foundation engineering practices. No warranties, expressed or implied are made by the conclusions, opinions, recommendations or services provided.

Empire Geo-Services, Inc. should be informed of any changes to the planned construction so that it may be determined if any changes to the recommendations presented in this report are necessary. Empire Geo-Services, Inc. should also review final plans and specifications to verify that the recommendations were properly interpreted and implemented.

Important information regarding the use and interpretation of this report is presented in Appendix C.

Respectfully Submitted:

EMPIRE GEO-SERVICES, INC.

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John J. Danzer, P.E.
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FIGURES

APPROXIMATE SITE LOCATION

NOTE:

SITE LOCATION PLAN DEVELOPED FROM MICROSOFT STREETS & TRIPS

EMPIREGEO SERVICES INC
a subsidiary of SJB Services, Inc.

PROPOSED VILLAS AT BRIERWOOD
SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK

SITE LOCATION PLAN	DR BY: -	SCALE: NTS	PROJ NO.: BE-06-234
	CHKD BY: -	DATE: 02/16/07	FIGURE NO: 1

EMPIRE GEO SERVICES INC

a subsidiary of SJB Services, Inc.

SUBSURFACE EXPLORATION PLAN

PROPOSED VILLAS AT BRIERWOOD
SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK

PROJ NO.: BE-06-274

SCALE: AS SHOWN (APPROX.)

DATE: 02/16/07 | FIGURE NO.: 2

MODIFIED BY: WMP | CK BY: JJD

LEGEND:

B-1 INDICATES APPROXIMATE TEST BORING LOCATION AND DESIGNATION

NOTE:

BASE MAP (TOPO) PREPARED BY GENZEL LAND SURVEYING, P.C. - "BOUNDARY SURVEY".

PROPOSED PROJECT LAYOUT DEVELOPED FROM "CONCEPT SITE PLAN" PREPARED BY EVANS, MECHWART, HAMBLETON & TILTON, INC.

APPENDIX A

TEST BORING LOGS

DATE STARTED ______ FINISHED ______ SHEET ____ OF ____	SJB SERVICES, INC.	**SJB SERVICES, INC. SUBSURFACE LOG**	PROJ. No. ______ HOLE No. ______ SURF. ELEV. ______ G.W. DEPTH ______

PROJECT ______________________ LOCATION ______________________

DEPTH (ft)	SAMPLES	SAMPLE No.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	BLOWS ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	3	3	4	8	7	10	3" TOPSOIL	Groundwater at 10' upon completion, and 5' 24 hrs. after completion
								15	Brown SILT, some Sand, trace clay, ML (Moist-Loose)	
								50/.3		
5									Gray SHALE, medium hard, weathered, thin bedded, some fractures	Run#1, 2.5'-5.0' 95% Recovery 50% RQD
①	②	③	④	④	④	④	④	⑤	⑥ ⑦ ⑧	⑨ ⑩

⑦ (numbered features explained on reverse)

TABLE I

Symbol	Sample Type
	Split Spoon Sample
	Shelby Tube Sample
	Geoprobe Macro-Core
	Auger or Test Pit Sample
	Rock Core

TABLE II

Identification of soil type is made on basis of an estimate of particle sizes, and in the case of fine grained soils also on basis of plasticity.

Soil Type	Soil Particle Size	
Boulder	>12"	
Cobble	3" - 12"	
Gravel - Coarse	3" - 3/4"	Coarse Grained (Granular)
- Fine	3/4" - #4	
Sand - Coarse	#4 - #10	
- Medium	#10 - #40	
- Fine	#40 - #200	
Silt - Non Plastic (Granular) Clay - Plastic (Cohesive)	<#200	Fine Grained

TABLE III

The following terms are used in classifying soils consisting of mixtures of two or more soil types. The estimate is based on weight of total sample.

Term	Percent of Total Sample
"and"	35 - 50
"some"	20 - 35
"little"	10 - 20
"trace"	less than 10

(When sampling gravelly soils with a standard split spoon, the true percentage of gravel is often not recovered due to the relatively small sampler diameter.)

TABLE IV

The relative compactness or consistency is described in accordance with the following terms:

Granular Soils Term	Blows per Foot, N	Cohesive Soils Term	Blows per Foot, N
Very Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Firm	10 - 30	Medium	4 - 8
Compact	30 - 50	Stiff	8 - 15
Very Compact	>50	Very Stiff	15 - 30
		Hard	>30

(Large particles in the soils will often significantly influence the blows per foot recorded during the penetration test)

TABLE V

Varved	Horizontal uniform layers or seams of soil(s).
Layer	Soil deposit more than 6" thick.
Seam	Soil deposit less than 6" thick.
Parting	Soil deposit less than 1/8" thick.
Laminated	Irregular, horizontal and angled seams and partings of soil(s).

TABLE VI

Rock Classification Term		Meaning
Hardness	- Soft	Scratched by fingernail
	- Medium Hard	Scratched easily by penknife
	- Hard	Scratched with difficulty by penknife
	- Very Hard	Cannot be scratched by penknife
Weathering	- Very Weathered - Weathered - Sound	Judged from the relative amounts of disintegration, iron staining, core recovery, clay seams, etc.

Rock Classification Term		Meaning	
Bedding	- Laminated	(<1")	
	- Thin Bedded	(1" - 4")	
	- Bedded	(4" - 12")	Natural breaks in Rock Layers
	- Thick Bedded	(12" - 36")	
	- Massive	(>36")	

(Fracturing refers to natural breaks in the rock oriented at some angle to the rock layers)

DATE		
START	1/18/2007	
FINISH	1/18/2007	
SHEET	1 OF 1	

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-1
SURF. ELEV 738.0'
G.W. DEPTH See Notes

PROJECT: PROPOSED VILLAS AT BRIERWOOD
PROJ. NO.: BE-06-274
LOCATION: SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	2			Orange- Brown Mottled Silty CLAY, tr. sand, tr. shale	
		3	4		5	(moist, medium, CL)	
	2	6	7				
		7	7		14		
5	3	4	9			Grey Clayey SILT, tr. sand, tr. shale	
		16	15		24	(moist, v. stiff, ML)	
	4	50/0.4			REF	Black SHALE Rock (moist)	REF= Sample Spoon Refusal
	5	50/0.2			REF		
10	6	50/0.2			REF		
						Boring Complete with Sample Spoon Refusal at 10.2'	No Free Standing Water Reading Obtained at Boring Completion
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW   CLASSIFIED BY Geologist

DRILLER K. FULLER   DRILL RIG TYPE CME- 550

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			
START	1/18/2007		
FINISH	1/18/2007		
SHEET	1 OF 1		

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-2
SURF. ELEV 738.3'
G.W. DEPTH See Notes

PROJECT: PROPOSED VILLAS AT BRIERWOOD LOCATION: SOUTHWESTERN BOULEVARD
PROJ. NO.: BE-06-274 HAMBURG, NEW YORK

DEPTH FT.	SMPL NO.	0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	2			Brown- Grey and Orange Mottled Silty CLAY, tr. sand	
		5	7		7	(moist, medium, CL)	
	2	7	8			Brown- Grey Clayey SILT, and f-c Sand	
		10	16		18	(moist, v. stiff, ML)	
5	3	50/0.4			REF	Black SHALE Rock (moist)	REF= Sample Spoon Refusal
	4	50/0.2			REF		
	5	50/0.4			REF		
10						Becomes Grey- Black	
	6	50/0.1			REF		
						Boring Complete with Sample Spoon Refusal at 10.1'	No Free Standing Water Reading Obtained at Boring Completion
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER K. FULLER DRILL RIG TYPE CME- 550

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 1/18/2007
FINISH 1/18/2007
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

SJB SERVICES, INC.

HOLE NO. B-3
SURF. ELEV 740.1'
G.W. DEPTH See Notes

PROJECT: PROPOSED VILLAS AT BRIERWOOD
PROJ. NO.: BE-06-274
LOCATION: SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	2			Orange- Brown Mottled Silty CLAY, tr. sand, tr. shale	
		3	4		5	(moist, medium, CL)	
	2	5	7			Brown f-c SAND, some- and Clayey Silt, tr. shale	
		7	10		14	(moist, firm, SC- SM)	
5	3	7	10			Brown- Black SHALE Rock (moist)	
		22	50/0.3		32		REF= Sample Spoon Refusal
	4	50/0.2			REF		
						Boring Complete with Sample Spoon Refusal at 6.2' and Auger Refusal at 7.5'	No Free Standing Water Reading Obtained at Boring Completion
10							
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12 INCHES WITH A 140 LB. PIN WT. FALLING 30 INCHES PER BLOW   CLASSIFIED BY: Geologist
DRILLER: K. FULLER   DRILL RIG TYPE: CME- 550
METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 1/19/2007
FINISH 1/19/2007
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-4
SURF. ELEV 740.8'
G.W. DEPTH See Notes

PROJECT: PROPOSED VILLAS AT BRIERWOOD
PROJ. NO.: BE-06-274
LOCATION: SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	1			Brown- Black Clayey SILT, little f-c Sand, tr. organics	
		4	7		5	(moist, medium, ML)	
	2	4	7				
		15	29		22	Black SHALE Rock (moist)	
5	3	50/0.3			REF		REF= Sample Spoon Refusal
	4	50/0.1			REF		
	5	50/0.3			REF		
10	6	50/0.1			REF		
						Boring Complete with Sample Spoon Refusal at 10.1'	No Free Standing Water Reading Obtained at Boring Completion
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW
CLASSIFIED BY: Geologist
DRILLER: K. FULLER
DRILLING TYPE: CME- 550
METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 1/19/2007
FINISH 1/19/2007
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-5
SURF. ELEV 750.8'
G.W. DEPTH See Notes

PROJECT: PROPOSED VILLAS AT BRIERWOOD
LOCATION: SOUTHWESTERN BOULEVARD HAMBURG, NEW YORK
PROJ. NO.: BE-06-274

DEPTH FT	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	2			Orange- Brown and Black Mottled Silty CLAY, tr. sand	
		3	4		5	(moist, medium, CL)	
	2	7	7			Black Highly Weathered SHALE Rock (moist)	
		7	8		14		
5	3	9	17			Black SHALE Rock (moist)	
		29	31		48		
	4	37	50/0.2		REF	(wet)	REF= Sample Spoon Refusal
	5	50/0.2			REF		
10							No Recovery Sample #6
	6	50/0.0			REF		
						Boring Complete with Sample Spoon Refusal at 10.0'	No Free Standing Water Reading Obtained at Boring Completion
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: K. FULLER

DRILL RIG TYPE: CME- 550

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		SJB SERVICES, INC. SUBSURFACE LOG	HOLE NO. B-6
START	1/17/2007		SURF. ELEV 739.8'
FINISH	1/17/2007		G.W. DEPTH See Notes
SHEET	1 OF 1		

PROJECT: PROPOSED VILLAS AT BRIERWOOD LOCATION: SOUTHWESTERN BOULEVARD
PROJ. NO.: BE-06-274 HAMBURG, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	3	3			Brown Clayey SILT, little- some f-c Sand, tr. shale	
		5	11		8	(moist, medium, ML)	
	2	12	13			Brown- Black f-c SAND, some- and Clayey Silt,	
		13	13		26	tr. shale (moist, firm, SC- SM)	
5	3	13	78		REF	Brown- Black SHALE Rock (moist)	REF= Sample Spoon Refusal
	4	50/0.2			REF		
	5	50/0.2			REF	(wet)	
10	6	50/0.1			REF		
						Boring Complete with Sample Spoon Refusal at 10.1'	No Free Standing Water Encountered at Boring Completion
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: K. FULLER DRILL RIG TYPE: CME- 550

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

DATE	
START	1/18/2007
FINISH	1/18/2007
SHEET	1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-7
SURF. ELEV 745.9'
G.W. DEPTH See Notes

PROJECT: PROPOSED VILLAS AT BRIERWOOD
PROJ. NO.: BE-06-274
LOCATION: SOUTHWESTERN BOULEVARD, HAMBURG, NEW YORK

DEPTH FT.	SMPL NO.	0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	3			Brown- Black Clayey SILT, little- some f-c Sand, tr. shale (moist, medium, ML)	
		3	8		6		
	2	6	8				
		17	25		25	Black SHALE Rock (moist)	
5	3	32	50/0.4		REF		REF= Sample Spoon Refusal
	4	50/0.1			REF		
	5	50/0.2			REF		
10	6	50/0.2			REF		
						Boring Complete with Sample Spoon Refusal at 10.2'	No Free Standing Water Reading Obtained at Boring Completion
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: K. FULLER

DRILL RIG TYPE: CME- 550

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		**SJB SERVICES, INC.**	HOLE NO. B-8
START	1/17/2007	**SUBSURFACE LOG**	SURF. ELEV 744.3'
'ISH	1/17/2007		G.W. DEPTH See Notes
SHEET	1 OF 1		

PROJECT: PROPOSED VILLAS AT BRIERWOOD LOCATION: SOUTHWESTERN BOULEVARD
PROJ. NO.: BE-06-274 HAMBURG, NEW YORK

DEPTH FT.	SMPL NO.	0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	4			Orange- Brown Mottled Clayey SILT, tr.- little f-c Sand,	
		5	8		9	tr. shale (moist, medium, ML)	
	2	16	19				
		22	31		41	Becomes Brown- Grey, contains "and" f-c Sand (hard)	
5	3	50/0.1			REF	Brown- Black SHALE Rock (moist)	REF= Sample Spoon Refusal
	4	50/0.2			REF		
	5	50/0.2			REF		
10	6	50/0.2			REF		
						Boring Complete with Sample Spoon Refusal at 10.2'	No Free Standing Water Reading Obtained at Boring Completion
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER K. FULLER DRILL RIG TYPE CME- 550

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			HOLE NO.	B-9
START	1/19/2007	**SJB SERVICES, INC.**	SURF. ELEV.	751.7'
NISH	1/19/2007	**SUBSURFACE LOG**	G.W. DEPTH	See Notes
SHEET	1 OF 1			

PROJECT: PROPOSED VILLAS AT BRIERWOOD
LOCATION: SOUTHWESTERN BOULEVARD, HAMBURG, NEW YORK
PROJ. NO.: BE-06-274

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	2			Brown Highly Weathered SHALE Rock (moist)	
		20	15		22		
	2	15	37	50/0.4	REF	Black SHALE Rock (moist)	
5	3	33	34				REF= Sample Spoon Refusal
		33	30		67		
	4	50/0.4			REF	(wet)	
	5	50/0.4			REF		
10							
	6	50/0.4			REF		
						Boring Complete with Sample Spoon Refusal at 10.4'	Free Standing Water Recorded at 5.0' at Boring Completion
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY Geologist

DRILLER K. FULLER DRILL RIG TYPE CME- 550

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			
START	1/15/2007		
'ISH	1/15/2007		
SHEET	1 OF 1		

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-10
SURF. ELEV 758.6'
G.W. DEPTH See Notes

PROJECT: PROPOSED VILLAS AT BRIERWOOD
PROJ. NO.: BE-06-274
LOCATION: SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK

DEPTH FT	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	1			Orange- Brown Silty CLAY, tr. sand, tr. shale	
		3	4		4	(moist- wet, medium, CL)	
	2	6	7			Brown Clayey SILT and f-c Sand, tr. gravel	
		7	7		14	(moist, stiff, ML)	
5	3	11	15			Grey- Brown f-m SAND and Silt, tr. shale	
		20	32		35	(moist, compact, SM)	
	4	32	35	50/0.4	REF		REF= Sample Spoon
						(v. compact)	Refusal
	5	17	32				
10		31	50/0.4		63		
	6	50	50/0.4		REF	Grey- Black SHALE Rock (moist)	
						Boring Complete with Sample Spoon Refusal at 10.9' and Auger Refusal at 12.5'	No Free Standing Water Reading Obtained at Boring Completion

15
20
25
30
35
40

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: K. FULLER DRILL RIG TYPE: CME- 550

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		SJB SERVICES, INC.	HOLE NO. B-11
START	1/17/2007	SUBSURFACE LOG	SURF. ELEV 754.9'
FINISH	1/17/2007		G.W. DEPTH See Notes
SHEET	1 OF 1		

PROJECT: PROPOSED VILLAS AT BRIERWOOD
PROJ. NO.: BE-06-274

LOCATION: SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	2			Brown- Black Silty CLAY, little f-c Sand, tr. shale	
		2	4		4	(moist- wet, medium, CL)	
	2	8	5				
		7	14		12	Becomes Brown, contains tr. gravel (stiff)	
5	3	15	19			Brown- Black Fine SAND, some- and Silt	
		24	40		43	(moist, compact, SM)	
	4	50/0.3			REF	Contains tr. shale (v. compact)	REF= Sample Spoon Refusal
	5	48	46				
10		48	50		94		
	6	48	49			Contains numerous Shale fragments (moist- wet)	
		48	50/0.3		97		
						Black SHALE Rock (wet)	
	7	50/0.4			REF		
15						Boring Complete with Sample Spoon Refusal at 13.4'	Free Standing Water Recorded at 11.5' at Boring Completion
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW   CLASSIFIED BY: Geologist

DRILLER: K. FULLER   DRILL RIG TYPE: CME- 550

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

DATE

START 1/18/2007

IISH 1/18/2007

SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-12

SURF. ELEV 751.9'

G.W. DEPTH See Notes

PROJECT: PROPOSED VILLAS AT BRIERWOOD

PROJ. NO: BE-06-274

LOCATION: SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK

DEPTH FT	SMPL NO	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	2			Orange- Brown f-c SAND, some Silt, tr. shale	
		4	10		6	(moist, loose, SM)	
	2	12	14				
		12	12		26	Becomes Black (firm)	
5	3	7	12			Orange- Brown Mottled Clayey SILT, little f-c Sand,	
		13	12		25	tr. shale (moist, firm, ML)	
	4	27	50/0.4		REF	Grey- Black f-m SAND, some Silt, tr. shale	REF = Sample Spoon
						(moist, v. compact, SM)	Refusal
	5	50/0.4			REF	Black SHALE Rock (wet)	
10							
	6	50/0.3			REF		
						Boring Complete with Sample Spoon Refusal at 10.3'	No Free Standing Water Reading Obtained at Boring Completion
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: K. FULLER

DRILL RIG TYPE: CME- 550

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		SJB SERVICES, INC. SUBSURFACE LOG	HOLE NO. B-13
START	1/18/2007		SURF. ELEV 756.4'
FINISH	1/18/2007		G.W. DEPTH See Notes
SHEET	1 OF 1		

PROJECT: PROPOSED VILLAS AT BRIERWOOD LOCATION: SOUTHWESTERN BOULEVARD, HAMBURG, NEW YORK
PROJ. NO.: BE-06-274

DEPTH FT.	SMPL NO.	0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	1			Orange- Brown Mottled Silty CLAY, tr. sand	
		2	3		3	(moist, soft, CL)	
	2	6	7			Brown f-c SAND and Silty Clay, tr. shale	
		7	11		14	(moist- wet, firm, SC- SM)	
5	3	11	19			Brown f-m SAND, some Silt, tr. shale	
		24	29		43	(moist, compact, SM)	REF= Sample Spoon Refusal
	4	50/0.4			REF		
	5	50/0.0			REF		No Recovery Sample #5
10	6	50/0.4			REF		
						Boring Complete with Sample Spoon Refusal at 10.4' and Auger Refusal at 10.7'	No Free Standing Water Reading Obtained at Boring Completion
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: K. FULLER

DRILL RIG TYPE: CME- 550

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

SJB SERVICES, INC.
SUBSURFACE LOG

DATE
START 1/17/2007
FINISH 1/17/2007
SHEET 1 OF 1

HOLE NO. B-14
SURF. ELEV 747.5'
G.W. DEPTH See Notes

PROJECT: PROPOSED VILLAS AT BRIERWOOD
PROJ. NO.: BE-06-274
LOCATION: SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	3	2			Brown- Black Clayey SILT, little f-c Sand, tr. shale	
		3	5		5	(moist, medium, ML)	
	2	12	13			Brown- Grey Silty CLAY, tr. sand (moist, v. stiff, CL)	
		16	16		19		
5	3	26	28			Brown f-c SAND, some- and Silt, tr. shale	
		18	16		46	(moist, compact, SM)	REF= Sample Spoon Refusal
	4	14	24				
		29	31		43	Becomes Grey- Black	
	5	50/0.4			REF	Black SHALE Rock (wet)	
10							
	6	50/0.1			REF	Boring Complete with Sample Spoon Refusal at 10.1'	No Free Standing Water Reading Obtained at Boring Completion
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW   CLASSIFIED BY: Geologist

DRILLER: K. FULLER   DRILL RIG TYPE: CME- 550

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

DATE	
START	1/18/2007
FINISH	1/18/2007
SHEET	1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO.	B-15
SURF. ELEV	758.0'
G.W. DEPTH	See Notes

PROJECT: PROPOSED VILLAS AT BRIERWOOD LOCATION: SOUTHWESTERN BOULEVARD, HAMBURG, NEW YORK
PROJ. NO.: BE-06-274

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	3	3			Orange- Brown Mottled Silty CLAY, tr.- little f-c Sand,	
		4	5		7	tr. shale (moist, medium, CL)	
	2	12	22			Brown f-c SAND, some Silt, tr. shale	
		12	15		34	(moist, compact, SM)	
5	3	15	18				
		15	22		33	Becomes Grey- Black, contains numerous Shale	
	4	33	50/0.2		REF	fragments	REF= Sample Spoon Refusal
	5	27	50/0.4		REF	Contains occasional Boulder fragments	
10	6	50/0.4			REF		
15	7	26	46			Grey- Brown f-m SAND, some Silt, tr. shale	
		48	50/0.3		94	(moist, v. compact, SM)	
20						Boring Complete with Sample Spoon Refusal at 18.8'	No Free Standing Water Reading Obtained at Boring Completion
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist
DRILLER: K. FULLER DRILL RIG TYPE: CME- 550
METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 1/18/2007
FINISH 1/18/2007
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-16
SURF. ELEV 759.2'
G.W. DEPTH See Notes

PROJECT: PROPOSED VILLAS AT BRIERWOOD
PROJ. NO.: BE-06-274
LOCATION: SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	1			Brown Silty CLAY, tr. sand, tr. shale (moist, soft, CL)	
		2	3		3		
	2	6	7				
		8	10		15	Becomes Brown- Black (stiff)	
5	3	9	15			Brown- Grey f-m SAND, some Silt, tr. shale	
		19	23		34	(moist, compact, SM)	
	4	24	28			Grey- Black SILT, tr. sand, tr. shale	
		33	37		61	(moist, v. compact, ML)	
	5	11	12			Grey- Black f-m SAND, some- and Silt, tr. shale	
10		34	50/0.4		46	(moist, compact, SM)	
	6	32	50/0.4		REF		REF= Sample Spoon Refusal
15							
	7	37	50/0.4		REF		
						Boring Complete with Sample Spoon Refusal at 15.9'	No Free Standing Water Reading Obtained at Boring Completion
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist
DRILLER: K. FULLER DRILL RIG TYPE CME- 550
METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

APPENDIX B

FILL MATERIAL AND EARTHWORK RECOMMENDATIONS

APPENDIX B

FILL MATERIAL AND EARTHWORK RECOMMENDATIONS

I. Material Recommendations

A. Structural Fill

Structural Fill should consist of a crusher run stone, free of clay, organics and friable or deleterious particles. As a minimum, the crusher stone should meet the requirements of New York State Department of Transportation, Standard Specifications, Item 304.12 M – Type 2 Subbase, with the following gradation requirements.

Sieve Size Distribution	Percent Finer by Weight
2 inch	100
¼ inch	25-60
No. 40	5-40
No. 200	0-10

B. Subbase Stone

The subbase stone course placed as the aggregate course beneath slab-on-grade and pavement construction should conform to the same material requirements as Structural Fill as stated above.

C. Suitable Granular Fill

Suitable soil material, classified as GW, GP, GM, SW, SP and SM soils using the Unified Soil Classification System (ASTM D-2487) and having no more than 85-percent by weight material passing the No. 4 sieve, no more than 20- percent by weight material passing the No. 200 sieve and which is generally free of particles greater than 4 inches, will be acceptable as Suitable Granular Fill. It should also be free of topsoil, asphalt, concrete rubble, wood, debris, clay and other deleterious materials.

Suitable Granular Fill can be used as foundation backfill and as subgrade fill to raise site grades beneath foundation and slab-on-grade and pavement construction. Material meeting the requirements of New York State Department of Transportation, Standard Specifications, Item 203.07M – Select Granular Fill, or Item 203.20 Select Granular Subgrade is acceptable for use as Suitable Granular Fill.

D. On-Site Soil Fill

On-Site Soil Fill, consisting of suitable on-site soils obtained from excavations and cut areas of the site, can be used as foundation backfill and as subgrade fill to raise site grades beneath residential foundation and slab-on-grade and pavement construction or they may be used for site grading in non-loaded areas outside of the residential building pad areas. On-Site Soil Fill should be free of topsoil, organics, debris and any other deleterious conditions and should be of a moisture content suitable to obtain proper compaction, as discussed below.

We point out that the existing subgrade soils are expected to be generally wet of their optimum moisture content and will require considerable drying in order to properly place and compact them. Drying of the on-site soils can be particularly difficult in the early spring and late fall months when limited dry weather periods occur. Therefore, this should be considered in their re-use.

II. Placement and Compaction Requirements

All fill placed beneath foundations, slab-on-grade construction and pavement construction, and beneath utilities should be compacted to a minimum of 95 percent of the maximum dry density as measured by the modified Proctor test (ASTM D1557). Fill placed in non-loaded grass/landscape areas beyond proposed building setback lines can be compacted to a minimum of 90 percent of the maximum dry density (ASTM D1557).

Placement of fill should not exceed a maximum loose lift thickness of 6 to 9 inches with the exception of subbase course beneath pavement construction, which can be placed in a single lift not exceeding 12 inches. The loose lift thickness should be reduced in conjunction with the compaction equipment used so that the required density is attained.

Fill should have a moisture content within two percent of the optimum moisture content prior to compaction. Subgrades should be properly drained and protected from moisture and frost. Placement of fill on frozen, soft, wet or unstable subgrades is not acceptable. It is recommended that all fill placement and compaction be monitored and tested by a representative of Empire Geo-Services, Inc.

III. Quality Assurance Testing

The following minimum laboratory and field quality assurance testing frequencies are recommended to confirm fill material quality and post placement and compaction conditions. These minimum frequencies are based on generally uniform material properties and placement conditions. Should material properties vary or conditions at the time of placement vary (i.e. moisture content, placement and compaction, procedures or equipment, etc.) then additional testing is recommended. Additional testing, which may be necessary, should be determined by qualified geotechnical personnel, based on evaluation of the actual fill material and construction conditions.

A. Laboratory Testing of Material Properties

- Moisture content (ASTM D-2216) - 1 test per 4,000 cubic yards or no less than 2 tests per each material type.
- Grain Size Analysis (ASTM D-422) - 1 test per 4,000 cubic yards or no less than 2 tests per each material type.
- Liquid and Plastic Limits (ASTM D-4318) 1 test per 4,000 cubic yards or no less than 2 tests per each material type. Liquid and Plastic Limit testing is necessary only if appropriate, based on material composition (i.e. clayey or silty soils).
- Modified Proctor Moisture Density Relationship (ASTM D-1557) 1 test per 4,000 cubic yards or no less than 1 test per each material type. A maximum/minimum density relationship (ASTM D-4253 and ASTM D-4254) may be an appropriate substitute for ASTM D-1557 depending on material gradation.

B. Field In-Place Moisture/Density Testing (ASTM D-3017 and ASTM D-2922)

- Backfilling along trenches and foundation walls - 1 test per 50 lineal feet per lift.
- Backfilling Isolated Excavations (i.e. column foundations, manholes, etc.) 1 test per lift.
- Filling in open areas for slab-on-grade and pavement construction - 1 test per 2,500 square feet per lift.

APPENDIX C

INFORMATION REGARDING THIS
GEOTECHNICAL ENGINEERING REPORT

GEOTECHNICAL REPORT LIMITATIONS

Empire Geo-Services, Inc. (Empire) has endeavored to meet the generally accepted standard of care for the services completed, and in doing so is obliged to advise the geotechnical report user of our report limitations. Empire believes that providing information about the report preparation and limitations is essential to help the user reduce geotechnical-related delays, cost over-runs, and other problems that can develop during the design and construction process. Empire would be pleased to answer any questions regarding the following limitations and use of our report to assist the user in assessing risks and planning for site development and construction.

PROJECT SPECIFIC FACTORS: The conclusions and recommendations provided in our geotechnical report were prepared based on project specific factors described in the report, such as size, loading, and intended use of structures; general configuration of structures, roadways, and parking lots; existing and proposed site grading; and any other pertinent project information. Changes to the project details may alter the factors considered in development of the report conclusions and recommendations. *Accordingly, Empire cannot accept responsibility for problems which may develop if we are not consulted regarding any changes to the project specific factors that were assumed during the report preparation.*

SUBSURFACE CONDITIONS: The site exploration investigated subsurface conditions only at discrete test locations. Empire has used judgement to infer subsurface conditions between the discrete test locations, and on this basis the conclusions and recommendations in our geotechnical report were developed. It should be understood that the overall subsurface conditions inferred by Empire may vary from those revealed during construction, and these variations may impact on the assumptions made in developing the report conclusions and recommendations. *For this reason, Empire should be retained during construction to confirm that conditions are as expected, and to refine our conclusions and recommendations in the event that conditions are encountered that were not disclosed during the site exploration program.*

USE OF GEOTECHNICAL REPORT: Unless indicated otherwise, our geotechnical report has been prepared for the use of our client for specific application to the site and project conditions described in the report. *Without consulting with Empire, our geotechnical report should not be applied by any party to other sites or for any uses other than those originally intended.*

CHANGES IN SITE CONDITIONS: Surface and subsurface conditions are subject to change at a project site subsequent to preparation of the geotechnical report. Changes may include, but are not limited to, floods, earthquakes, groundwater fluctuations, and construction activities at the site and/or adjoining properties. *Empire should be informed of any such changes to determine if additional investigative and/or evaluation work is warranted.*

MISINTERPRETATION OF REPORT: The conclusions and recommendations contained in our geotechnical report are subject to misinterpretation. *To limit this possibility, Empire should review project plans and specifications relative to geotechnical issues to confirm that the recommendations contained in our report have been properly interpreted and applied.*

Subsurface exploration logs and other report data are also subject to misinterpretation by others if they are separated from the geotechnical report. This often occurs when copies of logs are given to contractors during the bid preparation process. *To minimize the potential for misinterpretation, the subsurface logs should not be separated from our geotechnical report and the use of excerpted or incomplete portions of the report should be avoided.*

OTHER LIMITATIONS: Geotechnical engineering is less exact than other design disciplines, as it is based partly on judgement and opinion. For this reason, our geotechnical report may include clauses that identify the limits of Empire's responsibility, or that may describe other limitations specific to a project. These clauses are intended to help all parties recognize their responsibilities and to assist them in assessing risks and decision making. Empire would be pleased to discuss these clauses and to answer any questions that may arise.

APPENDIX D – SECTION 10

Phase I Environmental

PHASE I ENVIRONMENTAL SITE ASSESSMENT

FOR:
SOUTHWESTERN BOULEVARD
(SBL NOS.182.00-4-13.1 AND 182.00-4-19)
HAMBURG, NEW YORK

LEADER PROFESSIONAL SERVICES, INC.
2813 WEHRLE DRIVE, SUITE NO. 1
WILLIAMSVILLE, NEW YORK 14221
716-565-0963

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Southwestern Boulevard Parcel
(SBL Nos.182.00-4-13.1 and 182.00-4-19)
Southwestern Boulevard
Hamburg, New York

Prepared For:
Lifestyle Communities, Inc.
P.O. Box 945
Hamburg, NY 14075

Prepared By:
LEADER PROFESSIONAL SERVICES, INC.
2813 Wehrle Drive, Suite 1
Williamsville, New York 14221

December 28, 2006

Project No. 075 001

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1. EXECUTIVE SUMMARY

Leader Professional Services, Inc. ("Leader") was retained by Lifestyle Communities, Inc., ("Lifestyle"), to conduct a Phase I Environmental Site Assessment ("ESA") at the property located on Southwestern Boulevard, Hamburg, Erie County, New York. Pertinent project information is summarized below:

Client:	Lifestyle Communities, Inc.
Site Name:	Southwestern Boulevard Parcel
Site Location:	Southwestern Boulevard, Hamburg, New York 14075
Current Site Owner:	Wilfred H. Jones
Acreage:	Approximately 42.2 Acres
Zoning:	Residential / Agricultural
No. Buildings:	Vacant Parcel
Current Site Usage:	Vacant
Past Site Usage:	Vacant property that was part of a larger parcel that was split.
SBL Nos:	182.00-4-13.1 and 182-4-19

At the request of Lifestyle, this ESA was conducted in general accordance with the American Society of Testing and Materials ("ASTM") Standard Practice for Environmental Site Assessments, E 1527-00 and Leader's proposal/contract dated December 8, 2006. Jonathan Neubauer of Leader completed the ESA, including a reconnaissance of the Site conducted on December 14, 2006. County, City/Town/Village, and the New York State Department of Environmental Conservation ("NYSDEC") regulatory files were reviewed regarding the Site's history and public utilities. Consistent with ASTM E 1527-00, Environmental FirstSearch ("FirstSeach") provided the regulatory database search.

Based on the scope of work, including Leader's Site visit, interviews and file reviews, there is no visual or historical evidence that regulated materials, with the exception of some reported pesticide and herbicide usage, have been released to the Site's environment. However, the following potential environmental issues were identified during this ESA:

- A small debris pile was observed at the southern tip of the treed hedgerow located in the central portion of the Site. The debris pile contained various building materials (wood, fencing, etc) as well as at least two (2) empty 55 gallon drums. The drums that were observed were rusted and destroyed. Although no evidence of environmental impact was observed, additional drums may be buried under or within the debris pile.

- As the property was formerly used for agricultural purposes, the potential for pesticide and / or herbicide usage exists. Interviews indicate that pesticides and herbicides were used on the Site. However, no evidence of pesticides or herbicides were discovered during the Site reconnaissance.

Based on the fact that the total contents of the debris pile could not be observed and that potential waste containers or contaminated materials may be present, a Phase II ESA, to assess the contents of the debris pile, is recommended. Alternatively, the debris pile could be completely removed by the current owner prior to acquisition and the soil beneath the pile visually inspected for potential staining or indications of environmental impact.

2. INTRODUCTION

2.1 Purpose

This Phase I ESA was conducted in general accordance with the ASTM Standard Practice for Environmental Site Assessments, E 1527-00 and Leader's proposal/contract dated December 8, 2006. The purpose of the Phase I ESA was to evaluate the current and past operations at the Site and the uses of immediately surrounding properties to identify recognized environmental conditions in connection with the Site. In general, a Phase I ESA consists of historical and regulatory records review, a Site reconnaissance, and interviews with current owners and/or occupants of the Site. State and federal regulatory agency database file records were reviewed to identify reported spills, hazardous activities, and adjacent properties of concern. The Site reconnaissance consisted of a walkthrough of the Site and visual observations of surrounding properties.

2.2 Scope of Services

The objective of the Phase I ESA was to identify areas and substances on or near the property, which may pose an environmental liability or hazard. The ASTM 1527-00 scope of work effectively accomplishes the above-referenced objective.

Task 1: Site Reconnaissance

A Reconnaissance of the Site was conducted to document environmental conditions and to identify obvious signs of contamination (e.g., storage tanks, stained soil, stressed vegetation, waste disposal facilities, PCB containing electrical equipment, or other hazardous substances of concern). Additionally, Leader observed the uses of the directly adjacent properties, as seen from the Site's perimeter. Our ESA review was limited to the potential for CERCLA (i.e., Superfund) environmental impact issues.

Task 2: Historic Use Review and Interviews

A review of readily ascertainable historic documentation was conducted to assess past uses of the Site that may have resulted in adverse environmental impacts. We attempted to establish past ownership and use of the property by reviewing available tax records, aerial photographs, street address directories, Sanborn maps, and available documentation provided by municipal building and planning departments, etc. Leader also interviewed past and current owners, property managers, tenants, and other knowledgeable individuals, as necessary and available.

Task 3: Regulatory Records Review

FirstSearch provided a search of the NYSDEC, and United States Environmental Protection Agency ("USEPA") regulatory databases. The FirstSearch database review identifies reported hazardous waste disposal issues, hazardous material storage issues, reported hazardous material and petroleum product spills, leaking underground storage tanks, and other incidents of environmental concern known to have occurred at the Site, or within the ASTM standard specified distances.

Leader also submitted a written Freedom of Information Act ("FOIA") request to the NYSDEC and other governmental agencies of pertinence for information pertaining to the Site. We reviewed records made available by these agencies, as of the date of this report, through our FOIA request. The USEPA website was reviewed for information.

Task 4: Written Report

This written report was prepared, summarizing the findings and conclusions of the ESA. The full Scope-of-Work is subject to the use limitations included as Appendix A.

2.3 Assumptions

Leader assumes no liability for losses resulting from errors or omissions arising from the use of inaccurate/incomplete information or misrepresentations made by others during the completion of this Phase I ESA.

2.4 Limitations and Exceptions of Assessment

As appropriate within the project schedule and budget, Leader reviewed available historical aerial photographs, state and local environmental records, and other public documents regarding the Site and surrounding areas. We cannot guarantee that these reviews necessarily yielded complete or usable information. Lack of knowledge of prior uses of the subject property may have affected our ability to completely assess associated risks or hazards. Our ESA review was limited to the potential for CERCLA (i.e. Superfund) environmental impact issues. All of the responses from the regulatory agencies were not received at the time this report was issued. Potential information from these agencies will be forwarded at a later date, should it impact the findings of this ESA.

2.5 Limiting Conditions

This ESA was performed in general conformance with the scope and limitations of ASTM Practice E 1527-00. This report was prepared in a format consistent with that recommended in ASTM Practice E 1527-00. No significant deviations from ASTM Practice E 1527-00 were encountered during the performance of this assessment.

Lifestyle was informed of the November 2006 ASTM 1527-05 scope of work requirements; however, opted to conduct this ESA under ASTM 1527-00.

2.6 User Reliance

There are no third-party rights or benefits conferred under this report. Use of this report is strictly limited to Lifestyle Communities, Inc., which is the only party to whom Leader intends to confer any rights. Any reliance on the contents of this report by a third party other than those prescribed is the sole responsibility of that party.

Further user reliance matters are included in the ESA Limitations provided in Appendix A and incorporated by reference as an integral part of this ESA Report.

3. SITE DESCRIPTION

3.1 Location

The Site's location is south of the intersection of Southwestern Blvd and Amsdell Road, in the Town of Hamburg, Erie County, New York. The Site is comprised of two parcels that do not have street addresses, but are designated by SBL numbers 182.00-4-13.1 (western parcel) and 182.00-4-19 (eastern parcel). The two parcels combined make up an area totaling approximately 42.2-acres (i.e., "the Site").

The Site is located at the approximate latitude of 42.733216 N and at the approximate longitude of -78.8824 W. A Site Location Map is provided as Figure 1 and Figure 2 is a Site Plan.

3.2 Site Characteristics

The Site is irregular in shape and is located south of the intersection of Southwestern Blvd. and Amsdell Road. The property has frontage along Southwester Blvd. to the west, Amsdell Road to the north, and Pleasant Ave. to the south. The Site has reportedly never been developed and has been used for agriculture. The central portion of the Site is heavily wooded and appears to contain a wetland area on the Eastern boundary. Standing water was observed at various locations throughout the Site.

3.3 Current Uses of the Property

The Site currently is vacant with no established use.

3.4 Description of Structure(s)

There are currently no structures located on the Site.

3.5 Site Utility Information

The Site is serviced by the following utilities:

Potable water:	Not Applicable;
Sanitary Sewer System:	Not Applicable;
Storm Sewer System:	Not Applicable;
Electric:	Not Applicable;
Natural Gas:	Not Applicable; and
Fire Department:	Hamburg Fire District.

SOURCES: 1996 USGS BUFFALO, NEW YORK QUADRANGLE.

Title: SITE LOCATION MAP SOUTHWESTERN BOULEVARD, HAMBURGH, NEW YORK (SBL #'S 182.00-4-13.1 & 182.00-4-19) Prepared For: LIEFSTYLE COMMUNITITES, INC.	LEADER	Project: 575.001 Date: 12/2006 Scale: N.T.S.	Drawn: HDK Checked: JAW File Name:	Figure: 1

Source: Erie County Mapping System

Title: SITE PLAN Southwestern Boulevard, Hamburg, New York (SBL #'s 182.00-4-13.1 & 182.00-4-19)	LEADER	Project: 575.001	Drawn: HDK	Figure:
Prepared For: LIFESTYLE COMMUNITIES, INC.	Leader Professional Services, Inc.	Date: 12/2006	Checked: JAW	2
		Scale: N.T.S.	File Name:	

3.6 Current/Past Uses of Directly Adjoining Property

Current and past land use, directly adjoining the Site, was evaluated by visual observations and review of historical information. Based on this review, the past and current use of directly adjoining properties was residential, agricultural, and commercial. The following properties abut the Site.

North: Vacant unused land and the Hamburg Fire Department;

South: Residential;

East: Residential and vacant unused land

West: Southwestern Boulevard and vacant unused land.

4. HISTORICAL USE AND OTHER SITE INFORMATION

4.1 Historical Use Information

4.1.1 Recorded Land Title Records

Below is the historical Site ownership information provided by the Town of Hamburg Assessor's Office.

Ownership	Date Site was purchased
Wilfred H. Jones	1957

4.1.2 City Directories

Historical city directories were not available for the Site.

4.1.3 Topographic Map

The 1965 USGS 7.5-minute quadrangle maps provided for the Site is Buffalo SE, New York. No demarcation symbols are visible on the topographic map for the Site. Based on this map, the ground surface elevation at the Site is approximately 730 feet above mean sea level.

4.1.4 Aerial Photographs

The aerial photographs available for review were 1926, 1951, 1995, and 2002 (see Appendix D). The aerial photographs show the Site to be undeveloped throughout the years.

4.1.5 Historical Sanborn Maps

Historical Sanborn (i.e., fire insurance) maps were not available for the Site (see Appendix D).

4.1.6 Other Historical Sources

A neighbor, residing at 5681 Southwestern Boulevard, was interviewed on December 14, 2006. The neighbor recalls the Site being used for agricultural and recreational purposes as a "Maize Maze" and reported the use of several pesticides / herbicides on Site.

4.1.7 Zoning/Land Use Records

On December 14, 2006, Jonathan Neubauer of Leader contacted the Town of Hamburg Engineering Department to review reasonably ascertainable information relating to the Site. The current zoning for the Site is Residential / Agricultural.

4.1.8 Tax File Information

On December 14, 2006, Jonathan Neubauer of Leader contacted the Town of Hamburg Assessor's Office to review reasonably ascertainable records of the Site. Portions of this review were used to supplement this report.

4.2 Physical Setting Source(s)

This section briefly describes the regional geologic and hydrogeologic setting of the Site. In preparing this report, Leader reviewed: 1) published information found in Geology of Erie County, New York, Buffalo Society of Natural Sciences, Vol. 21, No. 3, 1963, by E.J. Buehler and I. H. Tesmer; and 2) various geological maps produced by the NYS Museum and Sciences Service.

This Site is located on the Lake Erie plain, which is approximately six to twelve miles wide extending from the Onondaga Escarpment (northern border) to northern Chautauqua County (southern border). This plain was once covered by glacial lakes in recent geologic times and is relatively flat lying near the Site.

The lacustrine clay unit was deposited when the Lake Erie plain was occupied by glacial Lake Warren, Approximately 11,000 to 12,000 years ago. This unit typically consists of medium to stiff, gray to brown silty clay to clayey silt and is typically not conducive to groundwater flow.

The bedrock underlying the Site is a middle Devonian Age shale, deposited approximately 375 million years ago, and is reportedly known as the Levanna Shale Formation. Groundwater may be encountered at fissure and cleavage plains across the formation, and in the upper weathered surface.

Based on the topography and the relative location of nearby water bodies, the probable groundwater flow is generally from east to west, toward Lake Eire. It should be recognized that local groundwater flow directions and elevation in the vicinity of the Site may vary considerably as a result of underground utilities or heterogeneous subsurface conditions.

4.3 Environmental Liens or Activity and Use Limitations

Leader is unaware of environmental liens, deed restrictions or use limitations placed on the Site.

4.4 User Information/Specialized Knowledge

Previous environmental reports were not made available to Leader as part of this ESA.

4.5 Reason for Performing Phase I

It is our understanding that this Phase I ESA was being performed at the request of Lifestyle for the purpose of property acquisition.

5. REGULATORY INFORMATION

Below is a summary of the regulatory information provided in the FirstSearch report, and available information from local government agencies. Regulatory information requested directly from NYSDEC (see Appendix E) was not available at the time that this report was prepared. The FirstSearch report is provided in Appendix B.

5.1 Standard Environmental Record Source(s)

5.1.1 Federal NPL Sites

There are no National Priority List ("NPL") facilities listed within a one-mile radius of the Site.

5.1.2 Federal CERCLIS Site List

There are no Federal Comprehensive Environmental Response, Compensation, and Liability Information System ("CERCLIS") facilities listed within a one-half mile radius of the Site.

5.1.3 Federal CERCLIS/NFRAP Site List

There are no Federal Comprehensive Environmental Response, Compensation, and Liability Information System ("CERCLIS")/No Further Action Required ("NFRAP") facilities listed within a one-quarter mile radius of the Site.

5.1.4 Federal RCRA CORRACTS Facilities

There are no facilities within a one-mile radius of the Site that are reported on the Resource Conservation and Recovery Act ("RCRA") Corrective Actions list.

5.1.5 Federal RCRA non-CORRACTS TSD Sites

There are no Federal RCRA non-Corrective Action ("non-CORRACTS") Treatment, Storage, or Disposal ("TSD") facilities listed within a one-half mile radius of the Site.

5.1.6 Federal RCRA Generators List

There are no facilities within a one-eighth mile radius of the Site that are reported on the Resource Conservation and Recovery Act ("RCRA") - Large-Quantity Generator's list (i.e., >1000kg of RCRA waste/month).

5.1.7 Federal ERNS List

There are no facilities within a one-eighth-mile radius of the Site that are reported on the Federal Emergency Response Notification System ("ERNS") list.

5.1.8 State Equivalent Priority List

There are no facilities within a one-mile radius of the Site that is reported on the State Hazardous Waste Disposal Sites/State Priority List ("SPL").

5.1.9 State Equivalent CERCLIS Sites

There are no facilities listed on the state equivalent Comprehensive Environmental Response, Compensation, and Liability Information System ("CERCLIS") within a one-half mile radius of the Site.

5.1.10 State Solid Waste Landfill Sites/Incinerators/Transfer Stations

There are no facilities within a one-half mile radius of the Site that are reported on the State Landfill/Solid Waste Disposal Site ("SWLF") list.

5.1.11 State Spills Registry

There are no spills within a one-eighth of a mile radius of the Site, which are listed in New York State's Spills Registry.

5.1.12 State Leaking Underground Storage Tanks

No leaking underground storage tank facilities were reported within a one-half mile radius of the Site as reported on the New York State Leaking Underground Storage Tank ("LUST") List.

5.1.13 State Underground/Aboveground Storage Tank Sites

There are no facilities within one-quarter mile of the Site that are listed on New York State's Underground/Aboveground Storage Tank Facility Registry.

6. SITE RECONNAISSANCE OBSERVATIONS

On December 14, 2006, Mr. Jonathan of Leader completed a reconnaissance of the Site. Reconnaissance activities included a visual assessment of the property and adjacent areas. Copies of selected photographs taken during the Site reconnaissance are included as Appendix C. Visual observations of exterior Site conditions were limited due to brush coverage and heavily forested areas. Additional information regarding the Site and area history was obtained from research at various public agencies.

6.1 Drains and Sumps

No floor drains were observed during the Site reconnaissance.

6.2 Drums

Leader observed several discarded 55 gallon drums located on the property. One of the drums was located within the treed hedgerow located in the central portion of the Site. This drum was corroded and had visible rust holes throughout. The drum did not appear to contain any substances and there was no evidence of contamination near or around the drum. At least two (2) other 55 gallon drums were observed in a small debris pile located at the southern tip of the treed hedgerow that is located in the central portion of the Site. These drums were also corroded and rusted throughout. There was no evidence of any substances in the drums and no indication of contamination near or around the containers.

6.3 Petroleum Products

No Petroleum products (e.g., motor oil or gasoline) were observed on-Site.

6.4 Hazardous Substance Containers

Leader observed no hazardous substance containers throughout the Site reconnaissance.

6.5 Odors

Leader encountered no odors during the Site reconnaissance.

6.6 Polychlorinated Biphenyls

Leader encountered no evidence of PCB's during the Site walkthrough.

6.7 Pits, Ponds, or Lagoons

Leader observed no pits, ponds or lagoons during the Site reconnaissance. However, numerous areas of standing water were observed throughout the Site.

6.8 Pools of Liquid

Leader observed no pools of liquid, other than surface water, during the Site reconnaissance.

6.9 Solid Waste

No solid waste is currently generated on the Site.

6.10 Stained Soil and Distressed Vegetation

Due to current heavy brush and trees, Leader observed no stained soil or signs of distressed vegetation. The Western portion of the Site along Southwestern Boulevard appears to have undergone recent construction activities. The area was disturbed and tracks from heavy construction equipment were observed throughout the area.

6.11 Stains and Corrosion

Leader observed no staining or corrosion during the Site reconnaissance.

6.12 Storage Tanks

Leader observed no storage tanks on-Site during the reconnaissance.

6.13 Surface Water and Storm Water

Surface water was puddled throughout the Site. This water was most likely due to heavy rains preceding the Site reconnaissance.

6.14 Unidentified Substance Containers

Leader observed no unidentified substance containers, with the exception of the empty drums, during the Site reconnaissance.

6.15 Wastewater and Septic Systems

No process wastewater is currently generated on-Site.

6.16 Wells

Leader observed no wells on-Site during the reconnaissance.

6.17 Other Conditions or Concerns

The following additional concern was identified during the Site reconnaissance:

- An interview with a Site neighbor indicated that pesticides and herbicides were used on the property within the last ten (10) years.

7. INTERVIEWS

7.1 Interview with Owner

The current owner of the Site is Wilfred Jones. Leader was unable to reach Mr. Jones for an interview at the time of this report.

7.2 Interview with Site Manager

The Site is currently vacant and unused.

7.3 Interview with Occupants

The Site is currently vacant and unused.

7.4 Interviews with Government Officials

7.4.1 Assessor's Office

On December 14, 2006, Leader contacted the Town of Hamburg Assessor's Office, for available records for the Site. Information obtained through this agency was used to supplement the findings of this ESA.

7.4.3 New York State Department of Environmental Conservation

On December 14, 2006, Leader sent a request for information to the NYSDEC under the Freedom of Information Act. The purpose of this request was to determine if this agency has files for the Site. This request is included in Appendix E. Leader will forward any pertinent information received from the NYSDEC.

7.4.4 United States Environmental Protection Agency

Leader conducted an internet search for information from the USEPA, Region II Office in New York under the Freedom of Information Act. The purpose of this search was to determine if this agency has any files for the Site. Any information obtained is included in Appendix E.

7.4.7 County Health Department

On December 14, 2006, Leader contacted the Erie County Health Department ("ECHD"). Leader will forward any pertinent information received from the ECHD regarding the Site.

7.4.8 Local Fire Department

On December 14, 2006, Leader contacted the Town of Hamburg – Fire Inspector. No permits relating to hazardous waste or petroleum products are reportedly on file for the Site.

8. DEVIATIONS

There were no significant deviations to the ASTM Standard Practice for Environmental Site Assessments, E 1527-00 for this ESA. All of the responses from the regulatory agencies were not received at the time this report was issued. Potential information from these agencies will be forwarded at a later date, should it impact the findings of this ESA.

9. SUMMARY AND FINDINGS

9.1 Summary

Leader was retained by Lifestyle to conduct an ESA at the property located on Southwestern Boulevard, Hamburg, New York 14075. The Site is comprised of two (2) parcels totaling approximately 42.2 acres with no Site structures. The Site is currently owned by Mr. Wilfred Jones and is vacant and unused.

The ESA was conducted in general accordance with the ASTM Standard Practice for Environmental Site Assessments, E 1527-00 and Leader's proposal dated December 8, 2006. Jonathan Neubauer of Leader completed the ESA, including a reconnaissance of the Site on December 14, 2006. County, City/Town/Village, NYSDEC and the New York EPA regulatory files were reviewed regarding the Site's history and public utilities. Consistent with ASTM E 1527-00, FirstSearch was retained to perform a regulatory database search.

9.2 Findings

Based on the scope of work, including Leader's Site visit, interviews and file reviews, there is no visual or historical evidence that regulated materials, with the exception of some reported pesticide and herbicide usage, have been released to the Site's environment. However, the following potential environmental issues were identified during this ESA:

- A debris pile and several discarded 55 gallon drums were observed at the southern tip of the hedgerow that is located in the central portion of the Site. The debris lies within overgrown vegetation. Due to the nature of the debris, there is a possibility that asbestos, additional drums, or other contaminants may be present.
- Usage of pesticides and herbicides on the Site was reported during an interview with a Site neighbor.

9.2.1 On-Site Recognized Environmental Conditions

Leader identified no on-Site Recognized Environmental Conditions ("REC's") during the Site reconnaissance.

9.2.2 Off-Site Recognized Environmental Conditions

Leader identified no off-Site RECs during the Site reconnaissance.

9.2.3 Historical Recognized Environmental Conditions

Leader identified no historical RECs during the Site reconnaissance.

9.2.4 Additional Areas of Concern

The additional areas of concern are summarized above in Section 9.2.

10. CONCLUSIONS

Based on information provided or reasonably ascertained, interviews, and the Site reconnaissance, a Phase I ESA was completed in general conformance with the scope and limitations of ASTM Practice E 1527-00 of the Southwestern Boulevard Parcel, Hamburg, Erie County, New York. Exceptions to, or deletions from, this practice are described in Section 2.4 of this report.

Based on the fact that the contents of the total debris pile could not be observed and that potential waste containers or contaminated materials may be present, a Phase II ESA, to assess the contents of the debris pile, is recommended. Alternatively, the debris pile could be completely removed by the current owner prior to acquisition and the soil beneath the pile visually inspected for potential staining or indications of environmental impact.

11. REFERENCES

Below is a summary of the references used during this Phase I ESA.

Erie County Department of Public Works. Internet mapping program review. December 27, 2006.

FirstSearch Technology Corporation. Environmental FirstSearch Site Information Report. December 27, 2006.

Town of Hamburg Fire District. Interview. December 14, 2006.

Town of Hamburg Engineering Office. Interview. December 14, 2006.

United States Geological Survey (USGS). *Lancaster, New York.* 7.5-Minute Topographical Map Series. 1982.

12. SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Below are the signatures of the Environmental Assessors who completed the ESA for the Site.

Jonathan Neubauer
Project Manager

Jeffrey A. Wittlinger, P.E., BCEE
Principal

13. QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

Resumes of the environmental professionals who conducted this ESA are included in Appendix F.

APPENDIX A
ESA LIMITATIONS

ESA LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

The purpose of an environmental assessment is to reasonably evaluate the potential for or actual impact of past practices on a given site area. In performing an environmental assessment, it is understood that a balance must be struck between a reasonable inquiry into the environmental issues and an exhaustive analysis of each conceivable issue of potential concern. The following paragraphs discuss the assumptions and parameters under which such an opinion is rendered.

No investigation is thorough enough to exclude the presence of hazardous materials at a given site. If hazardous conditions have not been identified during the assessment, such a finding should not therefore be construed as a guarantee of the absence of such materials on the site, but rather as the result of the services performed within the scope, limitations, and cost of the work performed.

Environmental conditions may exist at the site that cannot be identified by visual observation. Where subsurface work was performed, our professional opinions are based in part on interpretation of data from discrete sampling locations that may not represent actual conditions at unsampled locations.

Except where there is express concern of our client, or where specific environmental contaminants have been previously reported by others, naturally occurring toxic substances, potential environmental contaminants inside buildings, or contaminant concentrations that are not of current environmental concern may not be reflected in this document.

APPENDIX B
FIRST SEARCH REPORT – DATABASE SEARCH

FirstSearch Technology Corporation

Environmental FirstSearch™ Report

TARGET PROPERTY:

5681 SOUTHWESTERN BLVD

HAMBURG NY 14075

Job Number: 575.001

PREPARED FOR:

Leader Professional Services, Inc.

2813 Wehrle Drive, Suite 1

Williamsville, NY 14221

12-27-06

Tel: (781) 551-0470 *Fax: (781) 551-0471*

Environmental FirstSearch
Search Summary Report

Target Site: 5681 SOUTHWESTERN BLVD
HAMBURG NY 14075

FirstSearch Summary

Database	Sel	Updated	Radius	Site	1/8	1/4	1/2	1/2>	ZIP	TOTALS
NPL	Y	10-09-06	1.00	0	0	0	0	0	0	0
NPL Delisted	Y	10-09-06	1.00	0	0	0	0	0	0	0
CERCLIS	Y	11-08-06	0.50	0	0	0	0	-	0	0
NFRAP	Y	11-08-06	0.25	0	0	0	-	-	1	1
RCRA COR ACT	Y	04-16-06	1.00	0	0	0	0	0	0	0
RCRA TSD	Y	04-16-06	0.50	0	0	0	0	-	0	0
RCRA GEN	Y	04-16-06	0.25	0	0	0	-	-	2	2
ERNS	Y	12-31-05	0.25	0	0	0	-	-	2	2
State/Tribal Sites	Y	09-20-06	1.00	0	0	0	0	0	1	1
State Spills 90	Y	11-01-06	0.25	0	0	0	-	-	76	76
State/Tribal SWL	Y	05-03-06	0.50	0	0	0	0	-	1	1
State/Tribal LUST	Y	11-01-06	0.50	0	0	0	0	-	0	0
State/Tribal UST/AST	Y	01-01-02	0.25	0	0	0	-	-	2	2
- TOTALS -				0	0	0	0	0	85	85

Notice of Disclaimer

Due to the limitations, constraints, inaccuracies and incompleteness of government information and computer mapping data currently available to FirstSearch Technology Corp., certain conventions have been utilized in preparing the locations of all federal, state and local agency sites residing in FirstSearch Technology Corp.'s databases. All EPA NPL and state landfill sites are depicted by a rectangle approximating their location and size. The boundaries of the rectangles represent the eastern and western most longitudes; the northern and southern most latitudes. As such, the mapped areas may exceed the actual areas and do not represent the actual boundaries of these properties. All other sites are depicted by a point representing their approximate address location and make no attempt to represent the actual areas of the associated property. Actual boundaries and locations of individual properties can be found in the files residing at the agency responsible for such information.

Waiver of Liability

Although FirstSearch Technology Corp. uses its best efforts to research the actual location of each site, FirstSearch Technology Corp. does not and can not warrant the accuracy of these sites with regard to exact location and size. All authorized users of FirstSearch Technology Corp.'s services proceeding are signifying an understanding of FirstSearch Technology Corp.'s searching and mapping conventions, and agree to waive any and all liability claims associated with search and map results showing incomplete and or inaccurate site locations.

Environmental FirstSearch
Site Information Report

Request Date:	12-27-06	**Search Type:**	COORD
Requestor Name:	Jon Neubauer	**Job Number:**	575.001
Standard:	ASTM-00		

TARGET ADDRESS: 5681 SOUTHWESTERN BLVD
HAMBURG NY 14075

Demographics

Sites: 85 **Non-Geocoded:** 85 **Population:** NA

Radon: OF THE 567 HOMES TESTED, THE AVG. PCI/L LEVEL WAS 5.3

Site Location

	Degrees (Decimal)	Degrees (Min/Sec)		UTMs
Longitude:	-78.8824	-78:52:57	**Easting:**	673355.002
Latitude:	42.733216	42:43:60	**Northing:**	4733149.344
			Zone:	17

Comment

Comment:

Additional Requests/Services

Adjacent ZIP Codes: 0 Mile(s)

ZIP Code	City Name	ST	Dist/Dir	Sel

Services:

	Requested?	Date
Sanborns	No	
Aerial Photographs	No	
Historical Topos	No	
City Directories	No	
Title Search/Env Liens	No	
Municipal Reports	No	
Online Topos	No	

Environmental FirstSearch
Sites Summary Report

TARGET SITE: 5681 SOUTHWESTERN BLVD
HAMBURG NY 14075

JOB: 575.001

TOTAL: 85 **GEOCODED:** 0 **NON GEOCODED:** 85 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Page No.
	ERNS	324766/HIGHWAY RELATED	18 MILE CREEK HAMBURG NY 14075	NON GC	N/A
	ERNS	NRC-116909/MOBILE	COMMERSE PARKWAY HAMBURG NY 14075	NON GC	N/A
	NFRAP	HAMBURG LF NYD980506737/NFRAP-N	LAKEVIEW RD HAMBURG NY 14075	NON GC	N/A
	RCRAGN	NYSDOT BIN 1-00141.0 NYR000096495/LGN	PED BRIDGE OVER RTE. 5 HAMBURG NY 14075	NON GC	N/A
	RCRAGN	NYSDOT BIN 1-00145.0 NYR000096503/LGN	PED BRIDGE OVER RTE. 5 HAMBURG NY 14075	NON GC	N/A
	SPILLS	NIAGARA MOHAWK 0503630/CLOSED	4701 ROANOKE HAMBURG NY 14075	NON GC	N/A
	SPILLS	HYDRAULIC LINE BREAK 0175089/CLOSED	3821 LYN ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	HYDRAULIC LINE LEAK 0650381/CLOSED	BRADLEY LANE HAMBURG NY 14075	NON GC	N/A
	SPILLS	INTERSECTION OF 0517276/CLOSED	CAMP AND SUNSET ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	LACKAWANNA SHIP CANAL 9303274/CLOSED 08/16/1995	ROUTE 5 HAMBURG NY 14075	NON GC	N/A
	SPILLS	LAKE AV 0303015/ACTIVE	CSX CROSSING HAMBURG NY 14075	NON GC	N/A
	SPILLS	LEAKING DRUM 9975088/CLOSED 06/08/1999	BRIARCLIFF ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	MANHOLE #A147 0400351/CLOSED	WOODLAND AVE HAMBURG NY 14075	NON GC	N/A
	SPILLS	MATERIAL TO DITCH 0175391/CLOSED 10/25/2001	SMITH STREET HAMBURG NY 14075	NON GC	N/A
	SPILLS	MICHAUD S CAR IN CREEK 9301933/CLOSED 01/25/1994	OLD LAKE SHORE ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	FAIRWAY DAMING 0408440/CLOSED	SOUTHPARK AVENUE HAMBURG NY 14075	NON GC	N/A
	SPILLS	NIAGARA MOHAWK 9314972/CLOSED 03/30/1994	VERSAILLES ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	DRIVEWAY SEALER 9302749/CLOSED 06/01/1993	ST. FRANCIS DRIVE HAMBURG NY 14075	NON GC	N/A
	SPILLS	NIAGARA MOHAWK POLE #3713 9813179/CLOSED 01/27/1999	ROUTE 5 HAMBURG NY 14075	NON GC	N/A
	SPILLS	NIAGARA MOHAWK POLE #611 9807351/CLOSED 09/16/1998	LAKE SHORE ROAD HAMBURG NY 14075	NON GC	N/A

Environmental FirstSearch
Sites Summary Report

TARGET SITE: 5681 SOUTHWESTERN BLVD
HAMBURG NY 14075

JOB: 575.001

TOTAL: 85 **GEOCODED:** 0 **NON GEOCODED:** 85 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Page No.
	SPILLS	NIAGARA MOHAWK POLE 23 9813528/CLOSED 02/05/1999	OLD CAMP ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	NIMO #20 0402155/CLOSED	DURHAM / OXFORD ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	MM 436.2 EB 0302611/CLOSED	NYS THRUWAY HAMBURG NY 14075	NON GC	N/A
	SPILLS	CID 9401955/CLOSED 05/10/1994	7909 CAMP ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	ABANDONED DRUMS 9607786/CLOSED 10/23/1996	OLD LAKE SHORE ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	BEAR IN TOWN 9973211/CLOSED 07/09/1999	CHARLOTTE HAMBURG NY 14075	NON GC	N/A
	SPILLS	BELL ATLANTIC MANWAY 9914750/CLOSED 03/30/2000	BUFFALO AVENUE AT PALEA HAMBURG NY 14075	NON GC	N/A
	SPILLS	BIOLOGICAL WASTE/BOB EVAN 9911938/CLOSED 01/14/2000	COMMERCE PARKWAY HAMBURG NY 14075	NON GC	N/A
	SPILLS	BLACK ASH AT NIKE BASE 9806374/CLOSED 08/24/1998	LAKEVIEW ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	BLASDAL PUMP STATION 0606354/CLOSED	MILE STRIP RD HAMBURG NY 14075	NON GC	N/A
	SPILLS	BLASDELL CREEK 0275017/CLOSED	NEAR LAKE AVE HAMBURG NY 14075	NON GC	N/A
	SPILLS	ERIE CO. WWTP 0604790/CLOSED	SOUTHWESTERN BLVD HAMBURG NY 14075	NON GC	N/A
	SPILLS	BY-PASS PUMP STATION 0502897/CLOSED	WOODVIEW ST HAMBURG NY 14075	NON GC	N/A
	SPILLS	NYSDOT PROJECT/CATCH BASI 9875422/CLOSED 07/03/2003	ROUTE 179 HAMBURG NY 14075	NON GC	N/A
	SPILLS	CID REFUSE 9315005/CLOSED 03/22/1994	6330 CAMP ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	CID TRUCK 9710973/CLOSED 01/07/1998	SALEM STREET HAMBURG NY 14075	NON GC	N/A
	SPILLS	CLYDE S FEED 0651219/ACTIVE	UNION AVE HAMBURG NY 14075	NON GC	N/A
	SPILLS	CONSOLIDATED FREIGHTWAY 9011556/CLOSED 02/02/1991	I90 MP 442 HAMBURG NY 14075	NON GC	N/A
	SPILLS	DEBRIS BEHIND APARTMENTS 0075345/CLOSED 09/01/2000	CLARK STREET HAMBURG NY 14075	NON GC	N/A
	SPILLS	ODOR IN VILLAGE OF HAMBUR 9610295/CLOSED 11/18/1996	BUFFALO AND MCKINLEY AREA HAMBURG NY 14075	NON GC	N/A

Environmental FirstSearch
Sites Summary Report

TARGET SITE: 5681 SOUTHWESTERN BLVD
HAMBURG NY 14075

JOB: 575.001

TOTAL: 85 **GEOCODED:** 0 **NON GEOCODED:** 85 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Page No.
	SPILLS	DRUM IN 18 MILE CREEK 8911030/CLOSED 08/24/1990	SOUTH CREEK ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	BLASDELL PUMP STATION 0604784/CLOSED	MILE STRIP RD. HAMBURG NY 14075	NON GC	N/A
	SPILLS	TRUCK AT CONSTRUCTION SIT 9601821/CLOSED 10/24/1996	MILESTRIP ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	NYSDOT CONSTRUCTION PROJ 9975173/CLOSED 06/22/1999	LAKE STREET HAMBURG NY 14075	NON GC	N/A
	SPILLS	SPILL IN DITCH 0375055/CLOSED	BOWLES ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	STORM DRAIN 0514262/CLOSED	SOUTH BUFFALO ST HAMBURG NY 14075	NON GC	N/A
	SPILLS	STORM SEWER DISCHARGE 9104317/CLOSED 07/23/1991	SUNSET DRIVE HAMBURG NY 14075	NON GC	N/A
	SPILLS	SW MISSOURI TRANSPORT 9012837/CLOSED 08/19/1991	CAMP ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	TANK IN LAKE ERIE BEACH 9605519/CLOSED 08/02/1996	HOOVER ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	TIGER TRUCK ACCIDENT 0412968/CLOSED	NYS THRUWAY I90 MM437EB HAMBURG NY 14075	NON GC	N/A
	SPILLS	SMOKES CREEK 0301236/CLOSED	WILLET MCKINLEY PRWY BRDG HAMBURG NY 14075	NON GC	N/A
	SPILLS	TRACTOR TRAILER ACCIDENT 9315344/CLOSED 03/23/1994	ROUTE 5 HAMBURG NY 14075	NON GC	N/A
	SPILLS	SJB - RADIOACTIVE 0404445/CLOSED	TO RT 400 , TO NYS 90 HAMBURG NY 14075	NON GC	N/A
	SPILLS	TRUCK AT HAMBURG BEACH 9975283/CLOSED 07/13/1999	ROUTE 5 HAMBURG NY 14075	NON GC	N/A
	SPILLS	UNDERDRAIN EXCAVATION 0075484/CLOSED 12/01/2000	MIRIAM AVENUE HAMBURG NY 14075	NON GC	N/A
	SPILLS	UNKNOWN OIL IN RUSH CREEK 9600740/CLOSED 04/15/1996	7TH STREET HAMBURG NY 14075	NON GC	N/A
	SPILLS	VILLAGE OF HAMBURG DPW 9314019/CLOSED 03/07/1994	LONG AVENUE HAMBURG NY 14075	NON GC	N/A
	SPILLS	YELLOW PLUME HOOVER BEACH 9802001/CLOSED 05/18/1998	ROUTE 5 HAMBURG NY 14075	NON GC	N/A
	SPILLS	8501154/CLOSED	THRUWAY I 90 HAMBURG NY 14075	NON GC	N/A
	SPILLS	9408737/CLOSED	RICHMOND AVE HAMBURG NY 14075	NON GC	N/A

Environmental FirstSearch
Sites Summary Report

TARGET SITE: 5681 SOUTHWESTERN BLVD
HAMBURG NY 14075

JOB: 575,001

TOTAL: 85 **GEOCODED:** 0 **NON GEOCODED:** 85 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Page No.
	SPILLS	TOWN OF HAMBURG RECREATIO 9800617/CLOSED 06/22/1998	TAYLOR ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	RAW SEWAGE RELEASE 0412153/CLOSED	BROWNING DR HAMBURG NY 14075	NON GC	N/A
	SPILLS	OIL FROM SEWER 9309258/CLOSED 11/01/1993	ROUTE 5 HAMBURG NY 14075	NON GC	N/A
	SPILLS	OIL IN CREEK TO LAKE ERIE 9712664/CLOSED 02/12/1998	ROGERS ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	OIL SLICK ON ABBOTT ROAD 9003665/CLOSED 01/01/1993	ABBOTT ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	OIL SPILL ON ROAD 0475232/CLOSED	ROUTE 5 & LAKE HAMBURG NY 14075	NON GC	N/A
	SPILLS	PAPER ON RTE 179 0406134/CLOSED	179 5301 1002 WB HAMBURG NY 14075	NON GC	N/A
	SPILLS	POLE #11 0200566/CLOSED	WARWICK HAMBURG NY 14075	NON GC	N/A
	SPILLS	SMOKES CREEK-BUFF&PITTS 9502873/CLOSED 06/07/1995	CITY VIEW AVENUE HAMBURG NY 14075	NON GC	N/A
	SPILLS	POLE 12 0600948/CLOSED	CLOVERBANK RD HAMBURG NY 14075	NON GC	N/A
	SPILLS	SHEEN IN VACANT LOT 0275162/CLOSED	BURKE ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	RIEFLER TRUCK 0175161/CLOSED 06/20/2001	MCKINLEY PARKWAY HAMBURG NY 14075	NON GC	N/A
	SPILLS	RITE AID 0483303/CLOSED	BUFFALO ST HAMBURG NY 14075	NON GC	N/A
	SPILLS	RV SEPTIC LEAK 0550627/CLOSED	CAMP ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	SCHRADER - 190 0402684/CLOSED	I90 MM 437.25 EB HAMBURG NY 14075	NON GC	N/A
	SPILLS	SEHTLER LUMBER TRUCK 9606128/CLOSED 10/08/1996	I90 THRUWAY MP 432.4 HAMBURG NY 14075	NON GC	N/A
	SPILLS	SEWAGE OVERFLOW 9012100/CLOSED 02/14/2001	BROWNING DRIVE SEWER HAMBURG NY 14075	NON GC	N/A
	SPILLS	SEWER OVERFLOW 0502300/CLOSED	EAST EDEN ROAD HAMBURG NY 14075	NON GC	N/A
	SPILLS	SHEEN FROM CULVERT 0475103/CLOSED	NEAR LAKE AVE& MCKINLEY HAMBURG NY 14075	NON GC	N/A
	SPILLS	SHEEN IN DITCH 0275006/CLOSED	BROOKWOOD HAMBURG NY 14075	NON GC	N/A

Environmental FirstSearch
Sites Summary Report

TARGET SITE: 5681 SOUTHWESTERN BLVD
HAMBURG NY 14075

JOB: 575.001

TOTAL: 85 **GEOCODED:** 0 **NON GEOCODED:** 85 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Page No.
	SPILLS	POLE #111 0503730/CLOSED	MORGAN PARKWAY HAMBURG NY 14075	NON GC	N/A
	STATE	HAMBURG TOWN LANDFILL 915097	LAKEVIEW AVENUE HAMBURG NY 14075	NON GC	N/A
	SWL	HAMBURG LANDFILL 9-15S20/INACTIVE	LAKEVIEW ROAD HAMBURG NY 14075	NON GC	N/A
	UST	NYSDOT PBS9-223751/UNREGULATED BY PBS	RT 438 HAMBURG NY 14075	NON GC	N/A
	UST	MT VERNON #2 PUMP STATION PBS9-431478/UNREGULATED BY PBS	LAKE SHORE RD HAMBURG NY 14075	NON GC	N/A

Environmental FirstSearch
Street Name Report for Streets within .25 Mile(s) of Target Property

TARGET SITE: 5681 SOUTHWESTERN BLVD
HAMBURG NY 14075

JOB: 575.001

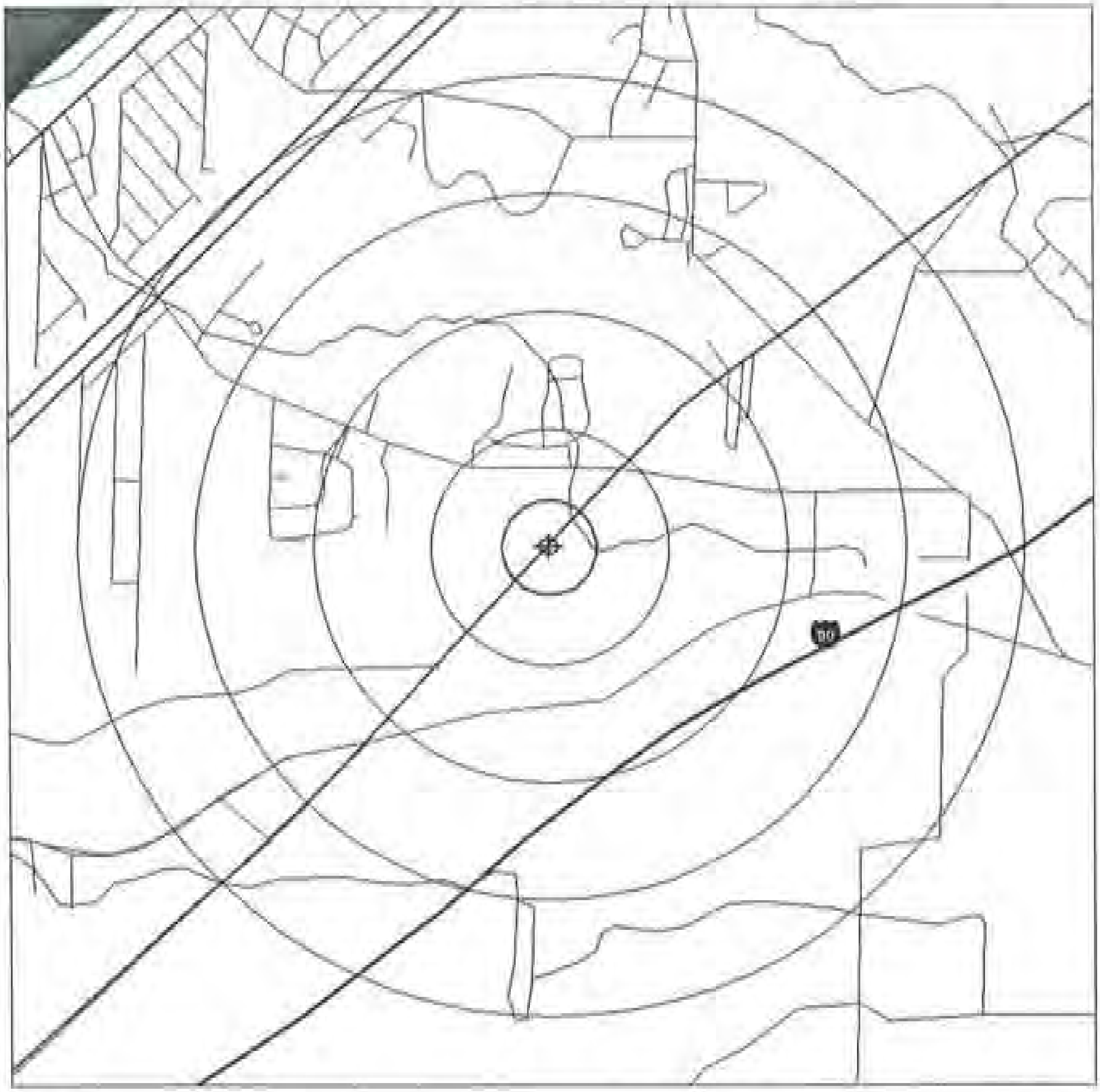
Street Name	Dist/Dir	Street Name	Dist/Dir
Amsdell Rd	0.18 N-		
Country Club Ln	0.23 NW		
Country Club Ln EAST	0.18 NE		
Southwestern Blvd	0.00 --		

Environmental FirstSearch

1 Mile Radius

ASTM Map: NPL, RCRACOR, STATE Sites

5681 SOUTHWESTERN BLVD, HAMBURG NY 14075



Source: 2003 U.S. Census TIGER Files

Target Site (Latitude: 42.733316 Longitude: -78.8424)

Identified Site, Multiple Sites, Receptor

NPL, Delisted NPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand

Railroads

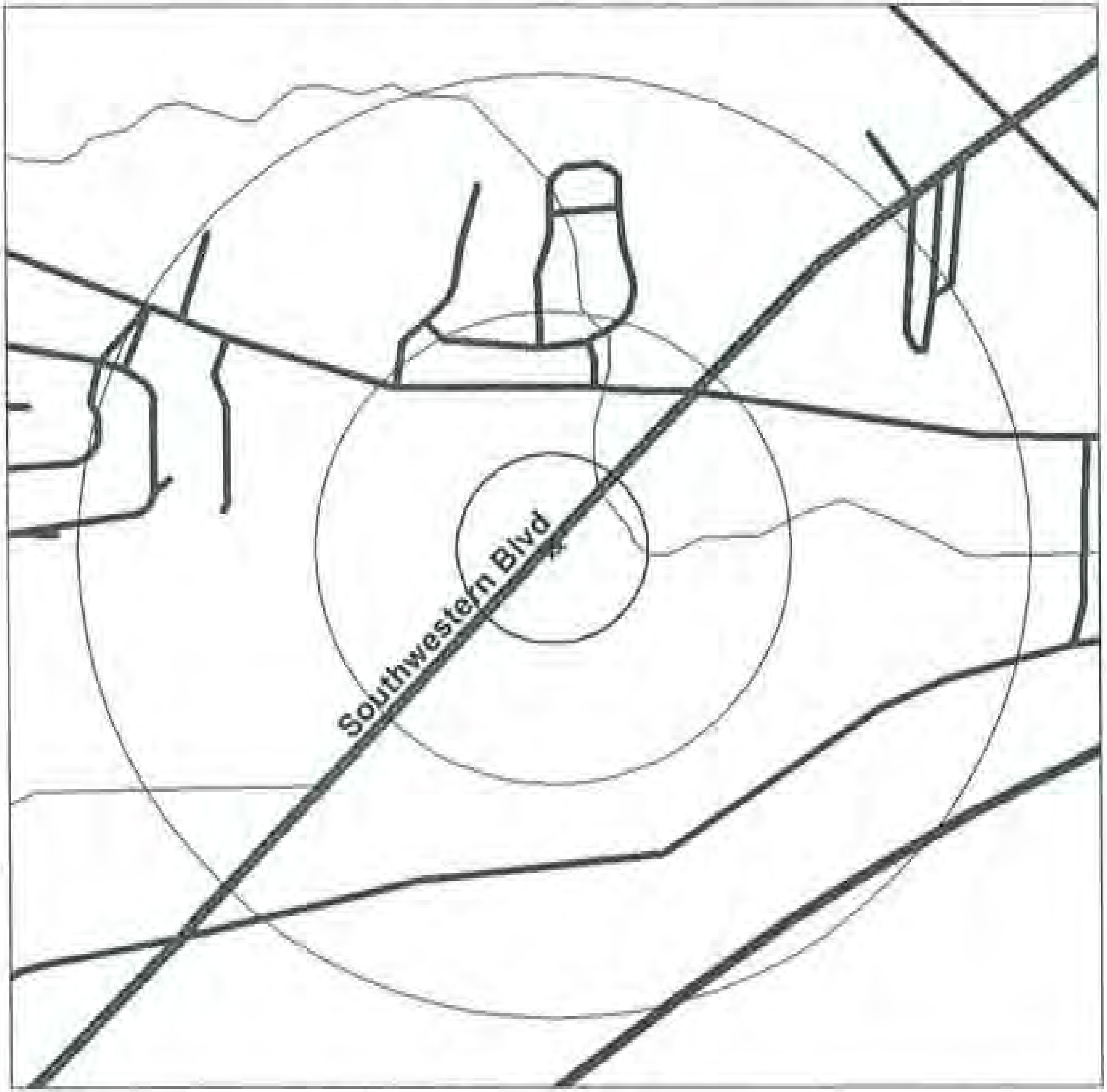
Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius

Environmental FirstSearch

.5 Mile Radius

ASTM Map: CERCLIS, RCRATSD, LUST, SWL

5681 SOUTHWESTERN BLVD, HAMBURG NY 14075



Source: 2003 U.S. Census TIGER Files

Target Site (Latitude: 42.735316 Longitude: -78.8834)

Identified Site, Multiple Sites, Receptor

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Tribal land

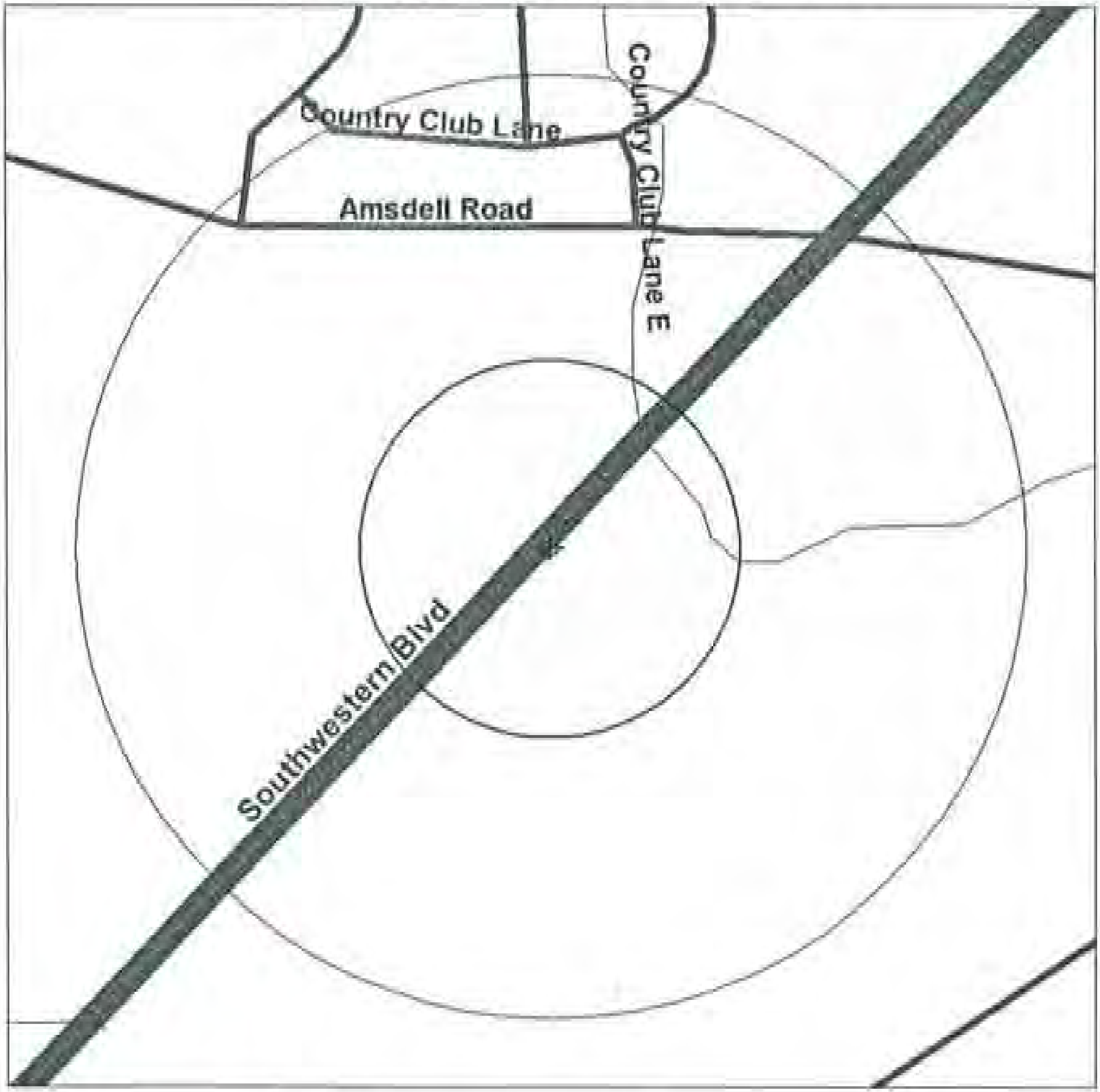
Railroads

Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius

Environmental FirstSearch

.25 Mile Radius
ASTM Map: RCRAGEN, ERNS, UST

5681 SOUTHWESTERN BLVD, HAMBURG NY 14075



Source: 2005 U.S. Census TIGER Files

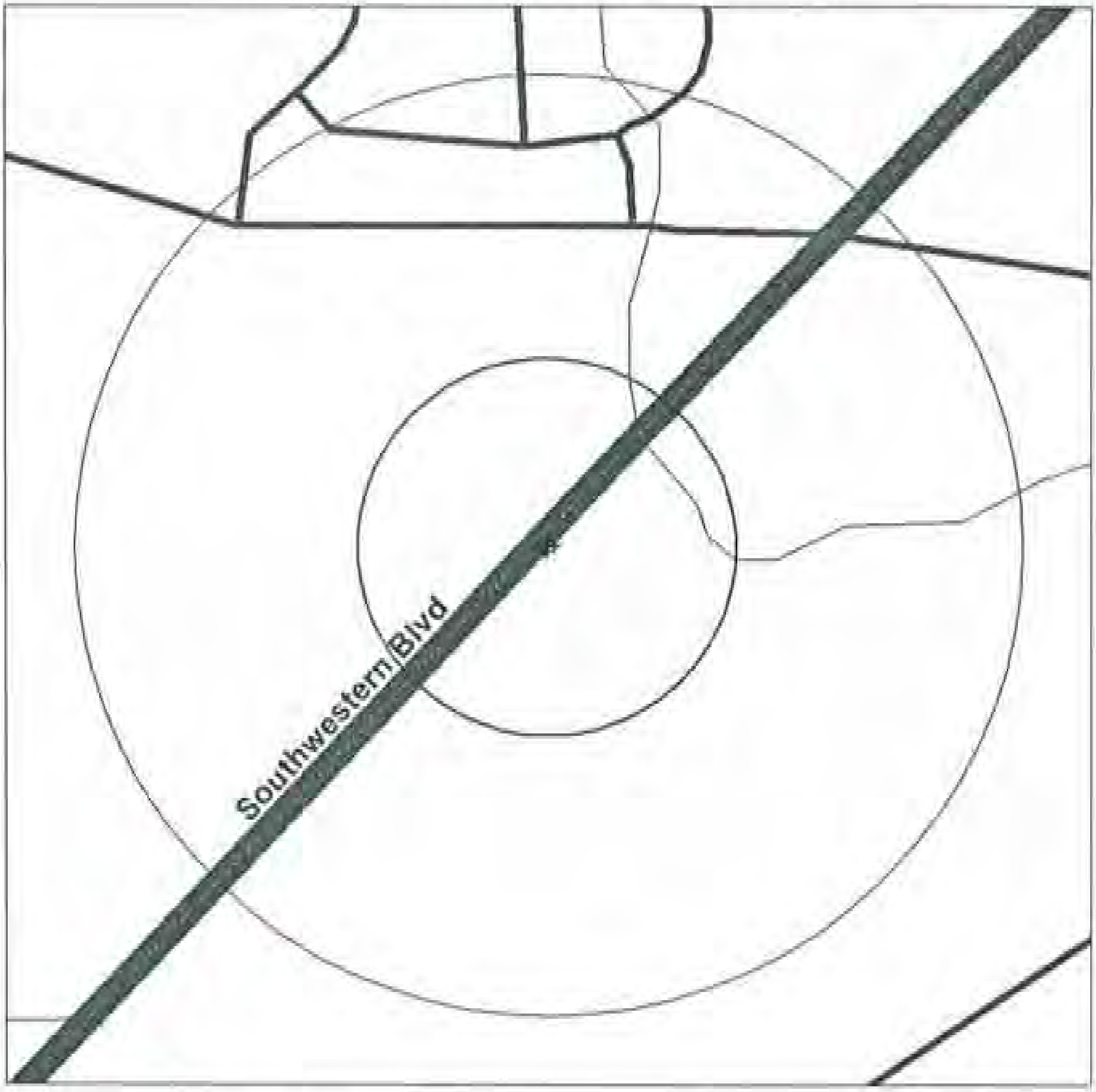
Target Site (Latitude: 42.733216 Longitude: -78.8824)
Identified Site, Multiple Sites, Receptor
NPL, DEL NPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste
Wetland
Railroads
Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius

Environmental FirstSearch

.25 Mile Radius

Non-ASTM Map: No Sites Found

5681 SOUTHWESTERN BLVD, HAMBURG NY 14075



Source: 2005 U.S. Census TIGER Files

Target Site (Latitude: 42.733316 Longitude: -78.8824)

Identified Site, Multiple Sites, Receptor

NPL, Delisted NPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Wetland

National Historic Sites and Landmark Sites

Railroads

Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius

APPENDIX C
PHOTOGRAPHS OF THE SITE RECONNAISSANCE

Photograph No. 1: View of abandoned drum in hedgerow.

Photograph No. 2: View of abandoned water tank by the debris pile.

Photograph No. 3: View of debris pile in the south central portion of the Site.

Photograph No. 4: View of the abandoned drums in debris pile.

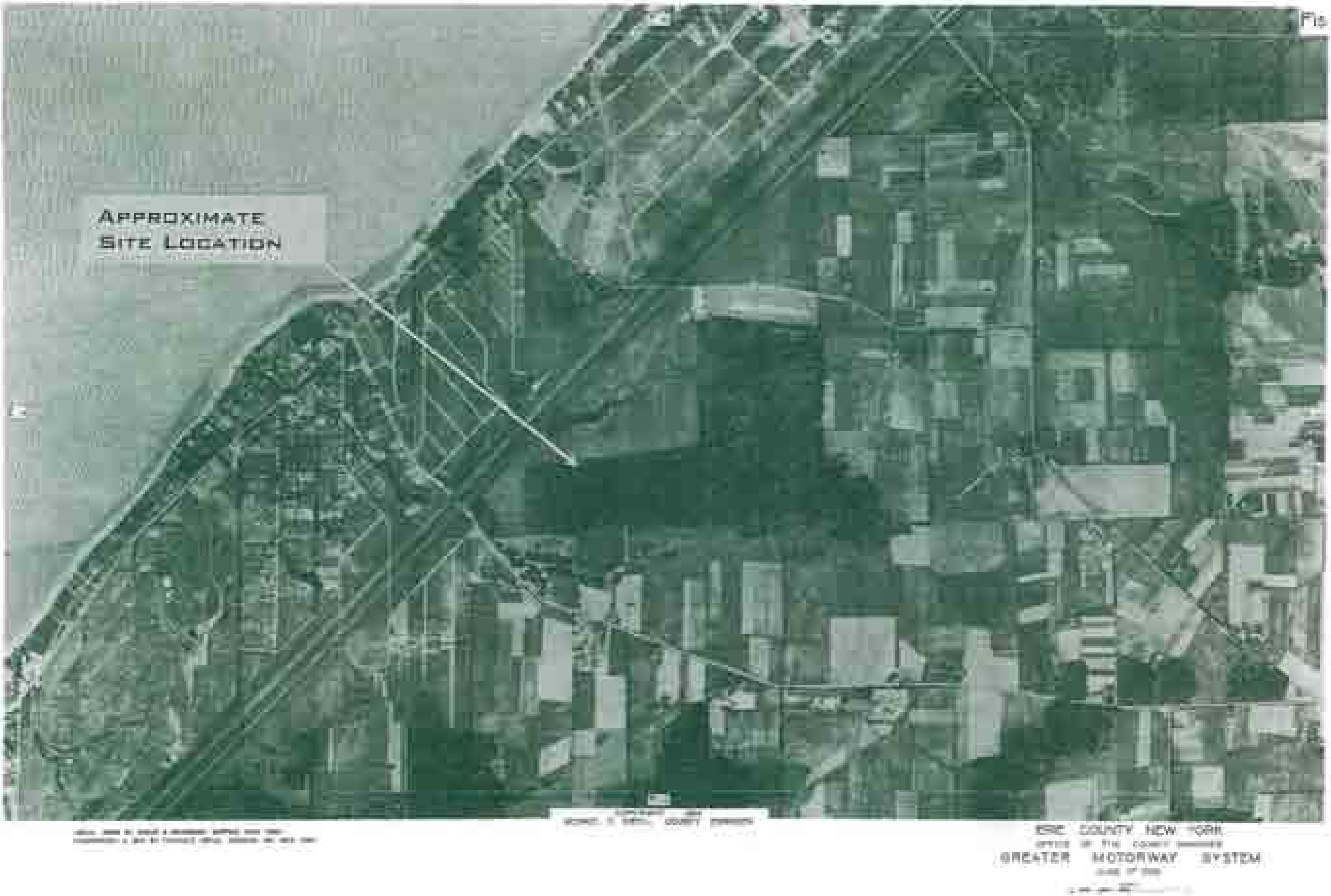
Photograph No. 5: View of Office Building across Ansdell Road from the Site.

Photograph No. 6: View of Hamburg Fire District Building North West of the Site.

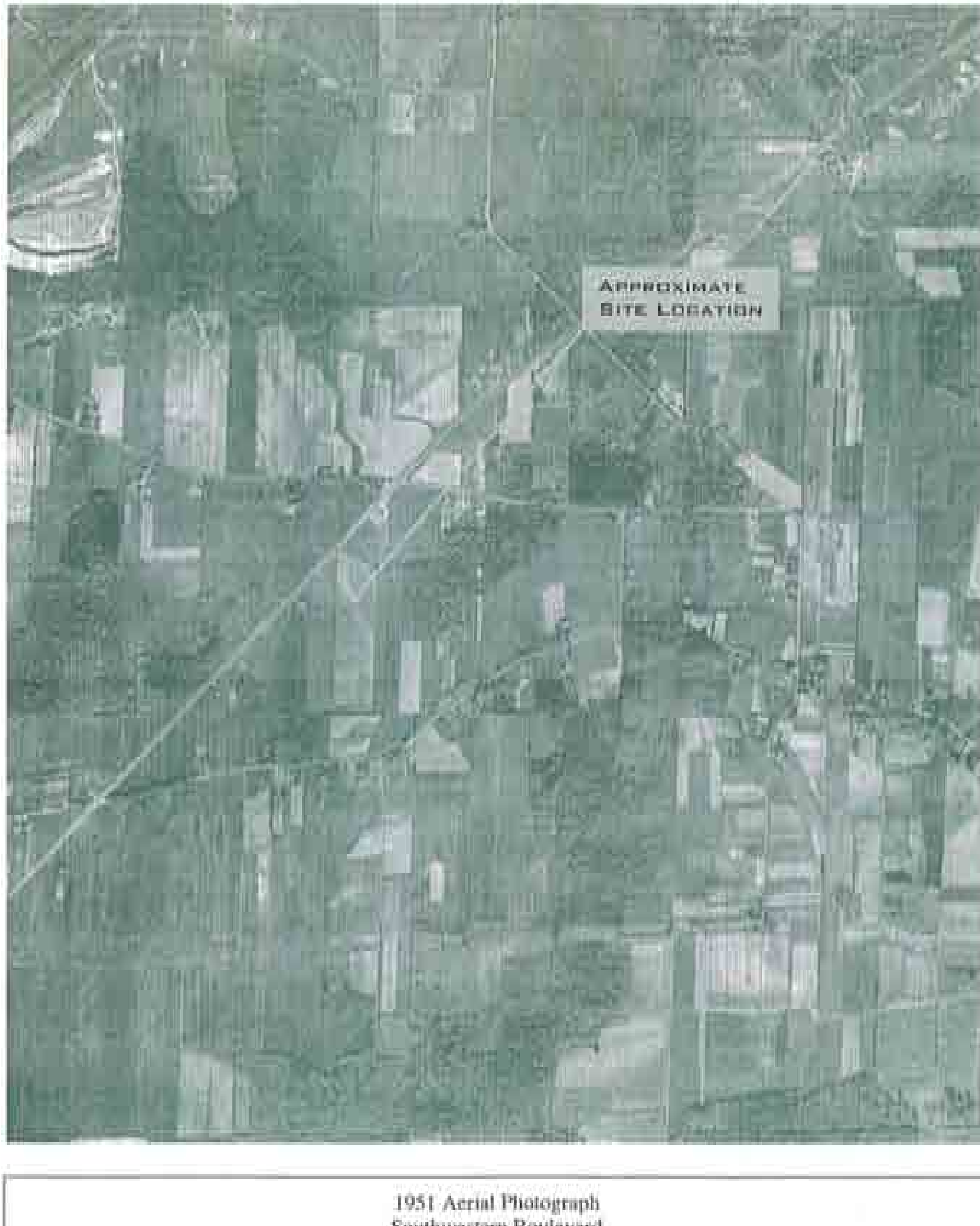
Photograph No. 7: View of the Site from Southwestern Boulevard.

Photograph No. 8: View of the Site from the South.

APPENDIX D
AERIAL PHOTOGRAPHS



1926 Aerial Photograph
Southwestern Boulevard
Hamburg, New York
Source: Erie County Department of Works



1951 Aerial Photograph
Southwestern Boulevard
Hamburg, New York
Source: United States Geological Survey ("USGS")

1995 AERIAL PHOTOGRAPH
SOUTHWESTERN BOULEVARD, HAMBURG, NEW YORK
SOURCE: TERRASERVER USA WEBSITE

2002 AERIAL PHOTOGRAPH
SOUTHWESTERN BOULEVARD, HAMBURG, NEW YORK
SOURCE: ERIE COUNTY MAPPING PROGRAM

APPENDIX E
FOIA REQUESTS/TOWN FILES

December 28, 2006

Mr. Matthew Forcucci
New York State Department of Health
584 Delaware Avenue
2nd Floor, Room 202
Buffalo, New York 14202

Re: FOIA Request
Vacant land (SBL #'s 182.00-4-13.1 & 182.00-4-19)
located directly north of
5681 Southwestern Blvd, Hamburg, New York

Dear Mr. Forcucci:

I am interested in reviewing any information on file with the New York State Department of Health ("NYSDOH") regarding environmental issues at the property identified above for the following topics:

- Air Quality
- Groundwater
- Solid Waste Management
- Hazardous Waste Management
- Tanks & Spills
- Notices of Violation
- Water Quality
- Hazardous Waste Generators
- Hazardous Waste Enforcement Actions
- Community Right-to-Know

If you have any questions or require additional information, please call me at (716) 565-0963.

Very truly yours,
LEADER PROFESSIONAL SERVICES, INC.

Halona D. Koch

Halona D. Koch
Environmental Specialist

December 28, 2006

Ms. Meaghan Boice-Green
Citizen Participation Specialist
NYSDEC
270 Michigan Avenue
Buffalo, New York 14203

Re: FOIA Request
Vacant land (SBL #'s 182.00-4-13.1 & 182.00-4-19)
located directly north of
5681 Southwestern Blvd, Hamburg, New York

Dear Ms. Boice-Green:

Leader Professional Services, Inc. ("Leader") is conducting an environmental site assessment at the above referenced site. Your office informed us requests for information from the New York State Department of Environmental Conservation ("NYSDEC") should be forwarded, in writing, to you.

Concerning the subject sites listed above, we would like to know the following information:

1. Does the site appear on the RCRA or CERCLA lists? If so, please send description of why the facility is on these lists.
2. Does the site have NPDES or SPDES permits? If so, which ones. Please provide copies of permits.
3. Is the site currently under investigation by NYSDEC or USEPA? If so, what is the status of the studies?
4. Does the site have underground storage tanks? Please send copies of tank registration summary, leak tests performed for the tanks and any action taken.
5. Does the site have air permits? Please send copies of all air permits.
6. Have any spills or releases of hazardous materials occurred at the site? If so please send spill summary reports.

Your timely response in this matter is greatly appreciated and should you have any questions regarding our request, please do not hesitate to call me at 716-565-0963.

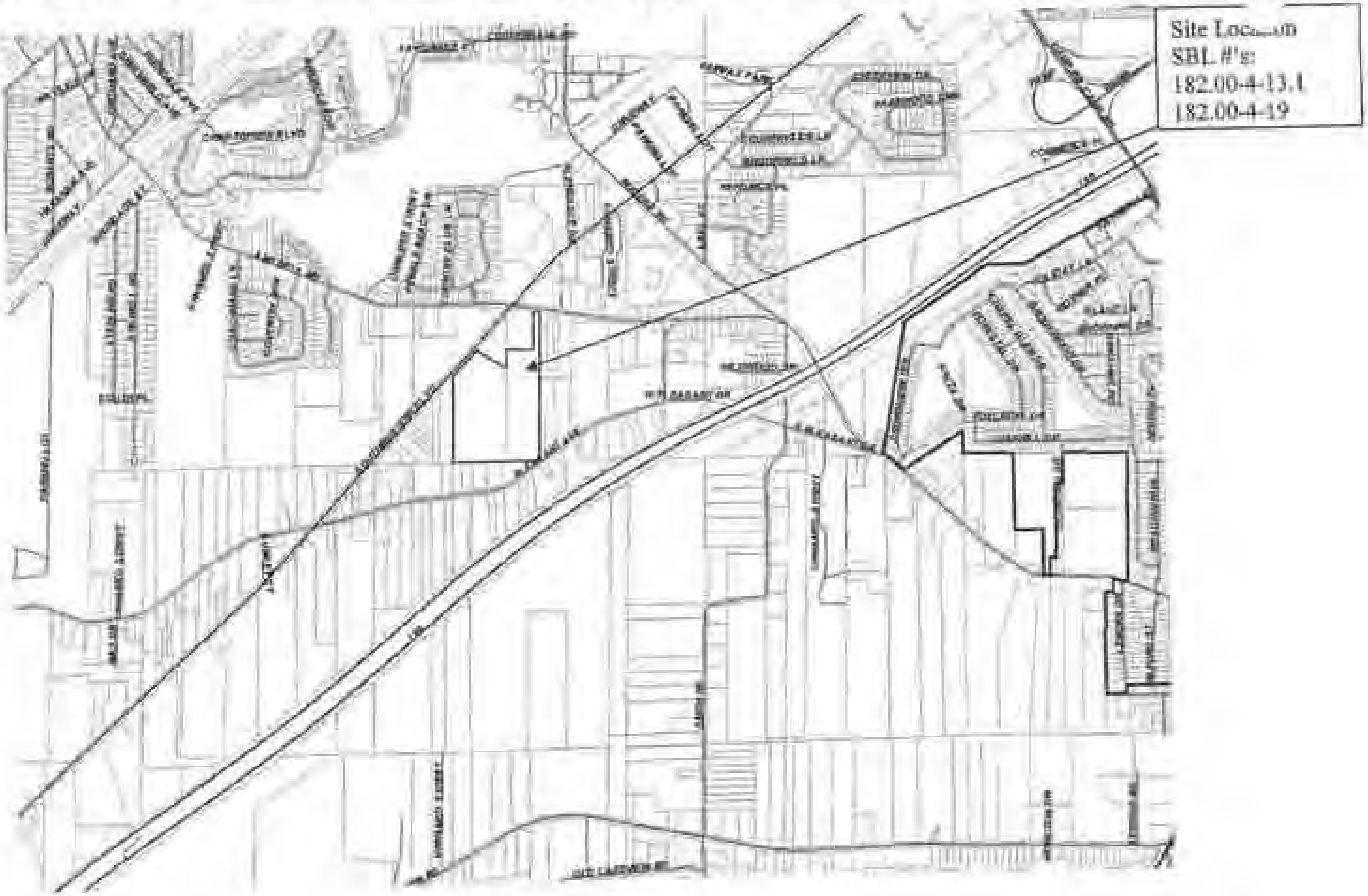
Very truly yours,

LEADER PROFESSIONAL SERVICES, INC.

Halona D. Koch

Halona D. Koch
Environmental Specialist

(att)


SBL #'s:
182.00-4-13.1
182.00-4-19

ACCOUNT NUMBER (PLOT / PARCEL)	MAILING ADDRESS / PROPERTY LOCATION		DISTRICT	COVER	SUB-LOT	TOWNSHIP RANGE	CHARACTER
11-332	Jones Wilfred H. S. Le R Blvd	$1200.00	9		+	28 9 5	24. 2 25 ~~24.5~~

FOUNDATION		BASEMENT		PLUMBING		NUMBER ROOMS	
Concrete		Excavation %		Baths		Basement	
Con. Block		Open		Showers		1st Floor	
Brick		Partitioned		Toilets		2nd Floor	
Stone		Walls Finish		Sinks		3rd Floor	
Piers		Floor Earth		Set Tubs		Attic	
		Floor Con.		Septic Tank			

OUTSIDE WALLS		HEATING		PLUMBING LINES		SERVICES	
Wood Frame		Vapor		Gal. Iron		Street Paved	
Steel Frame		Hot Water		Copper		Sidewalks	
Con. Block		Hot Air		**ELECTRIC SYSTEM**		Water	
Solid Masonry		Stove		Modern		Sewer	
WALL FACING		Gas		Old		Fire Protect.	
Wood Siding		Oil		Suitable		Electric	
Face Brick		Stoker		**EXTRAS**		Gas	
Con. Brick		Hand Fired		Tiling		School Bus	
Wood Shingle		**FLOORS**		Insulation			
Comp. Shingle		Pine		Fireplace		**LOT IMPRO.**	
Stucco		Hardwood		Basement Gar.			
Concrete		Composition		Attached Gar.			
Stone				Elevator			
ROOF TYPE		**PARTITIONS**		Air Cond.		**TOPOGRAPHY**	
Gable		Plaster					
Flat		Dry Wall					
Hip		Panel					
Gambrel		Painted					
ROOF MATERIAL		Papered					
Wood Shingle		**TRIM**					
Comp. Shingle		Pine or S'fw'd					
Slate		Hardwood					
Tile		Painted					
Metal		Nat. Finish					
Slag							

OCCUPIED BY	
Owner	Jones
Tenant	"
Rents for $	

LOT SIZE	UNIT FR.	COR. INF.	DEPTH F.	ADJUSTED F. FT. VAL.	APPR. VALUE
245' x 25'					$
x					$

SKETCH OF BUILDING

MAIN STRUCTURE

Class		Age	
Sty.	Dimensions	Sq. Ft.	
	x		
	x		
	x		
	x		

ESTIMATED REPRODUCTION COST

Sq. Ft. @		$
Sq. Ft. @		$
Sq. Ft. @		$
Sq. Ft. @		$
Total Sq. Ft. Est.		$
Add or Deduct %	+ —	
Net Adjustments %	+ —	$
Main Bldg. Est. Reproduction Cost		$
Less Depreciation And Obsolescence %	—	$
Est. Total Depreciated Value		$
Other Bldg. Depreciated Value		$
Land Value		$
1955 MARKET VALUE		$

OTHER STRUCTURES

Use	Construction	Size	Sq. Ft.	Sq. Ft. Cost	Est. Rep.	Dep.	Dep. Rep. Cost
		x			$		$
		x			$		$
		x			$		$
TOTAL OTHER STRUCTURES							$

RESIDENCE	
Phy. Depreciation	%
Obsolescence	%
Total Depreciation	%

Measured by: Listed by: Appraised by: Checked by:

OWNERSHIP RECORD — ASSESSMENT RECORD

Reputed Owner	Date Pur.	Liber	Page	Revenue Stamps	Amt. of Mortgage	Indicated Price
[illegible]						

BUILDING PERMITS

No.	Date	Est. Cost

MISCELLANEOUS INFORMATION

Land	1200	Land	29,000
Buildings		Buildings	Vacant
19[illegible] Total	1200	1990 Total	29,000
Land	1200	Land	
Buildings	—	Buildings	
19[illegible] Total	1200	19 Total	
Land	1200	Land	
Buildings	—	Buildings	
19[illegible] Total	1200	19 Total	
Land	1200	Land	
Buildings		Buildings	
19[illegible] Total	1200	19 Total	
Land	1200	Land	
Buildings		Buildings	
1968 Total	1200	19 Total	
Land		Land	
Buildings		Buildings	
1971 Total	1200	19 Total	
Land	[illegible]	Land	
Buildings		Buildings	
19[illegible] Total	[illegible]	19 Total	
Land	1200	Land	
Buildings		Buildings	
19 Total	—	19 Total	
Land	1200	Land	
Buildings		Buildings	
1984 Total	1200	19 Total	
Land	16,300	Land	
Buildings		Buildings	
1988 Total	16,300	19 Total	

LABEL CORRECTION

Field	Col.	Entry
001 SWIS CODE	01	
002 SECTION NUMBER	05	
003 BLOCK NUMBER	11	
004 LOT NUMBER	13	
005 SUB-LOT NUMBER	16	
006 SUFFIX NUMBER	19	
007 VALUATION UNIT	21	0 1
008 TRANSACTION CODE	23	1
*** CARD CODE	24	0 1
009 PROPERTY CLASSIFICATION	26	1 2 0
010 PROPERTY ADDRESS	29 / 45 / 61	
011 PROPERTY OWNER		

182.000-04-019.000　　312
11-332　　1448890110　　144309

JONES WILFRED H

5　　50 WESTERN BL

FR-496.3　　AC= 25.00

SALES VERIFICATION

Field	Col.	Entry
*** CARD CODE	24	0 3
101 VALID SALE 0 = No 1 = Yes	26	
102 SALE PRICE	27	
103 SOURCE 1 = Buyer 2 = Seller 3 = Fee 4 = Agent	34	
104 SALE TYPE 1 = Land 2 = Building 3 = Land & Building	35	
105 SALE YEAR	36	
106 SALE MONTH	38	

AUDIT CONTROL

Field	Col.	Entry
*** CARD CODE	24	0 0
501 FORM NUMBER	26	1
502 TOTAL FORMS	27	1
503 DATE LISTED	28	6 5 1 4 7 7
504 LISTED BY	34	[illegible]
505 DATE MEASURED	37	
506 MEASURED BY	43	
507 NUMBER OF VISITS 1 2 3	46	1
508 SOURCE 1 = Owner 2 = Spouse 3 = Tenant 4 = Other 5 = Estimate 6 = Refusal	47	5

SITE CHARACTERISTICS

Field	Col.	Entry
107 NEIGHBORHOOD TYPE 1 = Rural 2 = Cross-Roads 3 = Suburb 4 = Urban 5 = Subdivision 6 = Commercial	40	1
108 NEIGHBORHOOD CODE	41	
109 RD TYPE 0 = None 1 = Dirt 2 = Gravel 3 = Paved 4 = State	46	4
110 TRAFFIC 1 = Light 2 = Medium 3 = Heavy	47	3
111 ZONING	48	
112 WATER 0 = None 1 = Private 2 = Comm'l 3 = Public	52	3
113 SEWER 0 = None 1 = Private 2 = Comm'l 3 = Public	53	0
114 OTHER UTL'S 0 = None 1 = Gas 2 = Elec 3 = Gas & Elec	54	3
115 SITE COMP'BLTY 1 = Inferior 2 = Typical 3 = Superior	55	2
116 VIEW INFL 0 = None 1 = Detrimental 2 = Enhancing	56	0
117 SITE DESIR'BLTY 1 = Inferior 2 = Typical 3 = Superior	57	2
118 ELEVATION 1 = Below Street 2 = Level 3 = Above Street	58	
119 SETBACK (Nearest 10 Feet)	59	
120 DRIVEWAY TYPE 0 = Unpaved 1 = Concrete 4 = Asphalt	62	
121 DRIVEWAY WIDTH	63	
122 DRIVEWAY LENGTH	65	
123 PATIO TYPE 0 = None 3 = Concrete 6 = Asphalt 7 = Flagstone/Sand 8 = Flagstone/Concrete 9 = Brick	68	
124 PATIO WIDTH	69	
125 PATIO LENGTH	71	
126 FENCE TYPE 0 = None 1 = Chain 2 = Picket 3 = Stockade 4 = Rail 5 = Basketweave 6 = Iron 7 = Stone/Brick	74	
127 FENCE HEIGHT	75	
128 FENCE LENGTH	77	

MEMORANDA

[illegible]

Signature by Owner or Agent below indicates data on this form was collected in your presence. It does not mean that you have verified the information hereon.

SIGNATURE　　DATE

RESIDENTIAL/FARM/VACANT

DATA COLLECTION FORM
ERIE COUNTY, NEW YORK
P.R.C. JACOBS CO. INC. 1976

LAND DESCRIPTION

*** CARD TYPE	301 MS. CD.	302 SITE CODE	303 ADJ FRONT	304 ADJ DEPTH	305 AREA (Decimal if acres)	306 UNIT PRICE (Always Decimal)	307 DEPTH FACTOR	308 INFLUENCE CODE	O/O	+/-	309 LAND VALUE (Manual)
24-26	26	27-28	29-31	32-34	35-40	41-46	47-49	50	51-52	53	54-60
1 1	0	3 5			25.000						
1 2											
1 3											
1 4											
1 5											
1 6											

RESIDENCE DESCRIPTION

*** CARD CODE 24 | 2 1

601 RESIDENCE STYLE 1 = Ranch 2 = Raised Ranch 26
3 = Split 4 = Cape Cod 5 = Colonial 6 = Contemporary
7 = Mansion 8 = Old Style 9 = Cottage 10 = Row House
11 = Mobile Home 12 = Duplex 13 = Other

602 EXTERIOR WALLS 1 = Frame 2 = Brick 3 = Brick/Frame
4 = Composition 5 = Concrete 6 = Stucco 7 = Stone 28
8 = Aluminum Siding 9 = Vinyl Siding

603 BRICK/STONE VENEER - Number of Partial Sides 29

604 BRICK/STONE VENEER - Number of Full Sides 30

605 BASEMENT TYPE 1 = None (Pier/slab) 2 = None (crawl)
3 = Partial 4 = Full 31

606 BASEMENT EARTH FLOOR 0 = No 1 = Yes 32

607 NUMBER OF BASEMENT GARAGE OPENINGS 33

608 PARTIAL BASEMENT AREA 34

609 FINISHED BASEMENT AREA 38

610 HEAT TYPE 0 = None 1 = Central 2 = Central w/A.C. 42
3 = Hot Water/Steam 4 = Electric

611 NUMBER OF KITCHENS 43

612 KITCHEN STYLE 0=None 1=Old 2=Semi-Mod 3=Modern 44

613 PLUMBING 0 = No 1 = Yes 45

614 NUMBER OF FULL BATHROOMS 46

615 NUMBER OF HALF BATHROOMS 47

616 BATH STYLE 0=None 1=Old 2=Semi-Mod 3 = Modern 48

617 NUMBER OF BEDROOMS 49

618 TOTAL NUMBER OF ROOMS 50

619 NUMBER OF STORIES 52

620 NUMBER OF FIREPLACES 54

21 NUMBER OF FIREPLACES ON SAME CHIMNEY 55

622 NUMBER OF SINGLE PLUMBING FIXTURES 56

623 NUMBER OF BAY WINDOWS 57

624 LINEAL FEET OF FINISHED DORMERS 58

625 LINEAL FEET OF UNFINISHED DORMERS 61

626 EXTERIOR CONDITION 1 = Poor 2 = Fair 64
3 = Normal 4 = Good

627 INTERIOR CONDITION 0 = Uninhabitable 1 = Poor 65
2 = Fair 3 = Normal 4 = Good

628 GRADE A = Expensive B = Good C = Average 66
D = Economy E = Minimum

629 RESIDENCE YEAR BUILT 67

630 RESIDENCE YEAR REMODELED 70

NOTES:

RESIDENCE MEASUREMENT

*** CARD CODE 24 | 2 2

701 FIRST FLOOR LIVING AREA 26

702 SECOND FLOOR LIVING AREA 30

703 ADDITIONAL FLOOR LIVING AREA 34

704 FINISHED ATTIC AREA 38

705 HALF STORY FINISHED AREA 42

706 HALF STORY UNFINISHED AREA 46

707 MAIN RESIDENCE UNFINISHED AREA 50

708 TOTAL LIVING AREA 54

GARAGE/PORCH DESCRIPTION

709 GARAGE TYPE 0 = None 1 = Attached 59
2 = Detached 3 = Carport

710 GARAGE GRADE A = Expensive B = Good 60
C = Average D = Economy E = Minimum

711 GARAGE YEAR BUILT 61

712 GARAGE NUMBER OF STORIES 64

713 GARAGE DEPTH 66

714 GARAGE WIDTH 68

715 MAIN PORCH TYPE 1 = Open 2 = Covered 3 = Screened
4 = Enclosed UPPER DECK 5 = Open 6 = Covered 70
7 = Screened 8 = Enclosed 9 = None

716 MAIN PORCH WIDTH 71

717 MAIN PORCH LENGTH 73

ADDITIONAL IMPROVEMENTS

*** CARD TYPE	801 STRUC. CODE	802 MODIF. CODE	803 UN	804 MEASURE ONE	805 MEASURE TWO	806 CN	807 CR	808 CN	809 YR BILT
24-25	26-28	29-31	32	33-37	38-41	42	43	44	45-46
4 1									
4 2									
4 3									
4 4									
4 5									
4 6									
4 7									
4 8									
4 9									
5 0									

NOTES:

RESIDENTIAL/MOBILE HOME MODIFICATIONS

*** CARD TYPE	901 STRUC CODE	902 MODIF CODE	903 UN	904 MEASURE ONE	905 MEASURE TWO	906 CN
24-25	26-28	29-31	32	33-37	38-41	42
3 1						
3 2						
3 3						
3 4						
3 5						
3 6						

ACCOUNT NUMBER (PLOT / PARCEL)	MAILING ADDRESS / PROPERTY LOCATION	DISTRICT	COVER	SUB-LOT	RANGE	CHARACTER	
11-371	Jones Wilfred H. & W. (W.) ~~So. H. Blvd~~ Amadell Rd. 2 1000	9		—	24 9 [illegible]	Vac ~~24~~	50 X 17.2 Ac

OCCUPIED BY	
Owner	Jones
Tenant	
Rents for	$

LOT SIZE	UNIT PR.	COR. INF.	DEPTH F.	ADJUSTED F. FT. VAL.	APPR. VALUE
x					$
x					$

FOUNDATION: Concrete, Con. Block, Brick, Stone, Piers

OUTSIDE WALLS: Wood Frame, Steel Frame, Con. Block, Solid Masonry

WALL FACING: Wood Siding, Face Brick, Con. Brick, Wood Shingle, Comp. Shingle, Stucco, Concrete, Stone

ROOF TYPE: Gable, Flat, Hip, Gambrel

ROOF MATERIAL: Wood Shingle, Comp. Shingle, Slate, Tile, Metal, Slag

BASEMENT: Excavation %, Open, Partitioned, Walls Finish, Floor Earth, Floor Con.

HEATING: Vapor, Hot Water, Hot Air, Stove, Gas, Oil, Stoker, Hand Fired

FLOORS: Pine, Hardwood, Composition

PARTITIONS: Plaster, Dry Wall, Panel, Painted, Papered

TRIM: Pine or S'flw'd, Hardwood, Painted, Nat. Finish

PLUMBING: Baths, Showers, Toilets, Sinks, Set Tubs, Septic Tank

PLUMBING LINES: Gal. Iron, Copper

ELECTRIC SYSTEM: Modern, Old, Suitable

EXTRAS: Tiling, Insulation, Fireplace, Basement Gar., Attached Gar., Elevator, Air Cond.

NUMBER ROOMS: Basement, 1st Floor, 2nd Floor, 3rd Floor, Attic

SERVICES: Street Paved, Sidewalks, Water, Sewer, Fire Protect., Electric, Gas, School Bus

LOT IMPRO.

TOPOGRAPHY

SKETCH OF BUILDING

MAIN STRUCTURE

Class | Age

Sty.	Dimensions	Sq. Ft.
	x	
	x	
	x	
	x	

ESTIMATED REPRODUCTION COST

Sq. Ft. @		$
Sq. Ft. @		$
Sq. Ft. @		$
Sq. Ft. @		$
Total Sq. Ft. Est.		$
Add or Deduct %	+	—
Net Adjustments %	+ —	$
Main Bldg. Est. Reproduction Cost		$
Less Depreciation And Obsolescence %	—	$
Est. Total Depreciated Value		$
Other Bldg. Depreciated Value		$
Land Value		$
1955 MARKET VALUE		$

OTHER STRUCTURES

Use	Construction	Size	Sq. Ft.	Sq. Ft. Cost	Est. Rep.	Dep.	Dep. Rep. Cost
		x			$		$
		x			$		$
		x			$		$
TOTAL OTHER STRUCTURES							$

RESIDENCE	
Phy. Depreciation	%
Obsolescence	%
Total Depreciation	%

Measured by: Listed by: Appraised by: Checked by:

OWNERSHIP RECORD — ASSESSMENT RECORD

Reputed Owner	Date Pur.	Liber	Page	Revenue Stamps	Amt. of Mortgage	Indicated Price
Jones Wilfred H. & w						

BUILDING PERMITS

No.	Date	Est. Cost

MISCELLANEOUS INFORMATION

Sold 4.5 ac. to Lakeshore Vol. Fire Co.
#500-36-10

Year	Land	Buildings	Total
1957	1000	—	1000
1965	1000	—	1000
1966	1000	—	1000
1967	1000		1000
1968	1000		1000
1971	1000		1000
1972	1000		1000
1974	1000		1000
1980	~~[illegible]~~		~~[illegible]~~
1984	860		860

Year	Land	Buildings	Total
1988	11,300		11,300
1990	20,400	Vacant	20,400
1991	26,500		26,500
19			
19			
19			
19			
19			
19			
19			

LABEL CORRECTION

001 SWIS CODE	01	
002 SECTION NUMBER	05	
003 BLOCK NUMBER	11	
004 LOT NUMBER	13	
005 SUB-LOT NUMBER	16	
006 SUFFIX NUMBER	19	
007 VALUATION UNIT	21	0 1
008 TRANSACTION CODE	23	1
*** CARD CODE	24	0 1
009 PROPERTY CLASSIFICATION	26	140
010 PROPERTY ADDRESS	29 / 45 / 61	
011 PROPERTY OWNER		

182.000-04-013.000   320
11-371   144889D110   144889

JONES WILFRED H & W

5   50 WESTERN BL

FR-3105   AC- 21.80

SALES VERIFICATION

*** CARD CODE	24	0 3
101 VALID SALE 0 = No 1 = Yes	26	
102 SALE PRICE	27	
103 SOURCE 1 = Buyer 2 = Seller 3 = Fee 4 = Agent	34	
104 SALE TYPE 1 = Land 2 = Building 3 = Land & Building	35	
105 SALE YEAR	36	
106 SALE MONTH	38	

AUDIT CONTROL

*** CARD CODE	24	0 0
501 FORM NUMBER	26	1
502 TOTAL FORMS	27	1
503 DATE LISTED	28	05 03 77
504 LISTED BY	34	529
505 DATE MEASURED	37	
506 MEASURED BY	43	
507 NUMBER OF VISITS 1-2 3	46	1
508 SOURCE 1 = Owner 2 = Spouse 3 = Tenant 4 = Other 5 = Estimate 6 = Refusal	47	5

SITE CHARACTERISTICS

107 NEIGHBORHOOD TYPE 1 = Rural 2 = Cross-Roads 3 = Suburb 4 = Urban 5 = Subdivision 6 = Commercial	40	1
108 NEIGHBORHOOD CODE	41	
109 RD TYPE 0 = None 1 = Dirt 2 = Gravel 3 = Paved 4 = State	46	3
110 TRAFFIC 1 = Light 2 = Medium 3 = Heavy	47	2
111 ZONING	48	
112 WATER 0 = None 1 = Private 2 = Comm'l 3 = Public	52	3
113 SEWER 0 = None 1 = Private 2 = Comm'l 3 = Public	53	3
114 OTHER UTL'S 0 = None 1 = Gas 2 = Elec 3 = Gas & Elec	54	3
115 SITE COMP'BLTY 1 = Inferior 2 = Typical 3 = Superior	55	2
116 VIEW INFL 0 = None 1 = Detrimental 2 = Enhancing	56	0
117 SITE DESIR'BLTY 1 = Inferior 2 = Typical 3 = Superior	57	2
118 ELEVATION 1 = Below Street 2 = Level 3 = Above Street	58	
119 SETBACK (Nearest 10 Feet)	59	
120 DRIVEWAY TYPE 0 = Unpaved 1 = Concrete 4 = Asphalt	62	
121 DRIVEWAY WIDTH	63	
122 DRIVEWAY LENGTH	65	
123 PATIO TYPE 0 = None 3 = Concrete 6 = Asphalt 7 = Flagstone/Sand 8 = Flagstone/Concrete 9 = Brick	68	
124 PATIO WIDTH	69	
125 PATIO LENGTH	71	
126 FENCE TYPE 0 = None 1 = Chain 2 = Picket 3 = Stockade 4 = Rail 5 = Basketweave 6 = Iron 7 = Stone/Brick	74	
127 FENCE HEIGHT	75	
128 FENCE LENGTH	77	

MEMORANDA

—low grade Woods—

Signature by Owner or Agent below indicates data on this form was collected in your presence. It does not mean that you have verified the information hereon.

SIGNATURE   DATE

RESIDENTIAL/FARM/VACANT

DATA COLLECTION FORM
ERIE COUNTY, NEW YORK
P.R.C. JACOBS CO. INC. 1976

LAND DESCRIPTION

*** CARD TYPE	301 MS. CD.	302 SITE CODE	303 ADJ FRONT	304 ADJ DEPTH	305 AREA (Decimal if acres)	306 UNIT PRICE (Always Decimal)	307 DEPTH FACTOR	308 INFLUENCE CODE	O/O	+/−	309 LAND VALUE (Manual)
24-25	26	27-28	29-31	32-34	35-40	41-46	47-49	50	51-52	53	54-60
1 1	A	05			110.00						
1 2	A	07			11.80						
1 3											
1 4											
1 5											
1 6											

RESIDENCE DESCRIPTION

*** CARD CODE	24	2 1
601 RESIDENCE STYLE 1 = Ranch 2 = Raised Ranch 3 = Split 4 = Cape Cod 5 = Colonial 6 = Contemporary 7 = Mansion 8 = Old Style 9 = Cottage 10 = Row House 11 = Mobile Home 12 = Duplex 13 = Other	26	
602 EXTERIOR WALLS 1 = Frame 2 = Brick 3 = Brick/Frame 4 = Composition 5 = Concrete 6 = Stucco 7 = Stone 8 = Aluminum Siding 9 = Vinyl Siding	28	
603 BRICK/STONE VENEER - Number of Partial Sides	29	
604 BRICK/STONE VENEER - Number of Full Sides	30	
605 BASEMENT TYPE 1 = None (Pier/slab) 2 = None (crawl) 3 = Partial 4 = Full	31	
606 BASEMENT EARTH FLOOR 0 = No 1 = Yes	32	
607 NUMBER OF BASEMENT GARAGE OPENINGS	33	
608 PARTIAL BASEMENT AREA	34	
609 FINISHED BASEMENT AREA	38	
610 HEAT TYPE 0 = None 1 = Central 2 = Central w/A.C. 3 = Hot Water/Steam 4 = Electric	42	
611 NUMBER OF KITCHENS	43	
612 KITCHEN STYLE 0=None 1=Old 2=Semi-Mod 3=Modern	44	
613 PLUMBING 0 = No 1 = Yes	45	
614 NUMBER OF FULL BATHROOMS	46	
615 NUMBER OF HALF BATHROOMS	47	
616 BATH STYLE 0=None 1=Old 2=Semi-Mod 3=Modern	48	
617 NUMBER OF BEDROOMS	49	
618 TOTAL NUMBER OF ROOMS	50	
619 NUMBER OF STORIES	52	
620 NUMBER OF FIREPLACES	54	
621 NUMBER OF FIREPLACES ON SAME CHIMNEY	55	
622 NUMBER OF SINGLE PLUMBING FIXTURES	56	
623 NUMBER OF BAY WINDOWS	57	
624 LINEAL FEET OF FINISHED DORMERS	58	
625 LINEAL FEET OF UNFINISHED DORMERS	61	
626 EXTERIOR CONDITION 1 = Poor 2 = Fair 3 = Normal 4 = Good	64	
627 INTERIOR CONDITION 0 = Uninhabitable 1 = Poor 2 = Fair 3 = Normal 4 = Good	65	
628 GRADE A = Expensive B = Good C = Average D = Economy E = Minimum	66	
629 RESIDENCE YEAR BUILT	67	
630 RESIDENCE YEAR REMODELED	70	

NOTES:

RESIDENCE MEASUREMENT

*** CARD CODE	24	2 2
701 FIRST FLOOR LIVING AREA	26	
702 SECOND FLOOR LIVING AREA	30	
703 ADDITIONAL FLOOR LIVING AREA	34	
704 FINISHED ATTIC AREA	38	
705 HALF STORY FINISHED AREA	42	
706 HALF STORY UNFINISHED AREA	46	
707 MAIN RESIDENCE UNFINISHED AREA	50	
708 TOTAL LIVING AREA	54	

GARAGE/PORCH DESCRIPTION

709 GARAGE TYPE 0 = None 1 = Attached 2 = Detached 3 = Carport	59	
710 GARAGE GRADE A = Expensive B = Good C = Average D = Economy E = Minimum	60	
711 GARAGE YEAR BUILT	61	
712 GARAGE NUMBER OF STORIES	64	
713 GARAGE DEPTH	66	
714 GARAGE WIDTH	68	
715 MAIN PORCH TYPE 1 = Open 2 = Covered 3 = Screened 4 = Enclosed UPPER DECK 5 = Open 6 = Covered 7 = Screened 8 = Enclosed 0 = None	70	
716 MAIN PORCH WIDTH	71	
717 MAIN PORCH LENGTH	73	

ADDITIONAL IMPROVEMENTS

*** CARD TYPE	801 STRUC CODE	802 MODIF CODE	803 U/M	804 MEASURE ONE	805 MEASURE TWO	806 QN	807 QR	808 CN	809 YR BILT
24-25	26-28	29-31	32	33-37	38-41	42	43	44	45-46
4 1									
4 2									
4 3									
4 4									
4 5									
4 6									
4 7									
4 8									
4 9									
5 0									

NOTES:

RESIDENTIAL/MOBILE HOME MODIFICATIONS

*** CARD TYPE	901 STRUC. CODE	902 MODIF CODE	903 U/M	904 MEASURE ONE	905 MEASURE TWO	906 QN
24-25	26-28	29-31	32	33-37	38-41	42
3 1						
3 2						
3 3						
3 4						
3 5						
3 6						

APPENDIX F
RESUMES

JEFFREY A. WITTLINGER, P.E., BCEE
Principal

Registration
Licensed New York State Professional Engineer
Diplomat American Academy of Environmental Engineers

Fields of Competence
Property Transfer Assessments
Regulatory Compliance Auditing
Emergency Response Planning
Clean Air Act and RCRA Regulations
SARA Title III Reporting and Planning

Experience Summary
Mr. Wittlinger has over twenty years of experience in Property Transfer Assessments and regulatory compliance auditing. He has extensive experience with SARA Title III, RCRA, TSCA, CWA, CAA and OSHA regulations. For industrial facilities, he has prepared numerous RCRA closure and contingency plans, and has been responsible for SARA Title III reporting and planning. Additionally, Mr. Wittlinger has been involved in numerous OSHA audits at industrial facilities.

Credentials
M.E., Civil Engineering, State University of N.Y. at Buffalo, 1989
B.S., Civil Engineering, (Magna Cum Laude with Departmental Honors), State University of New York at Buffalo, 1982

Professional Affiliations
Past Chairman Air and Waste Management Association
Diplomat American Academy of Environmental Engineers
American Society of Civil Engineers
New York State Society of Professional Engineers
Chi Epsilon Honor Society for Civil Engineering
Tau Beta Pi Engineering Honor Society

Key Projects
Project Manager for over 50 due diligence property transfer assessments (Phase I and II studies) at commercial and industrial facilities. These projects involved environmental and regulatory compliance issues. Several of these assessments were performed under Attorney Client Privilege.

Project manager for several regulatory compliance projects involving OSHA, RCRA, CAA, CWA, TSCA, CERCLA and FIFRA. Responsibilities included onsite audits, regulatory evaluation and permit and plan preparation.

Project Manager for development and implementation of a SPDES compliance program at an Akron, New York facility. Designed and implemented a surface water investigation program. Based on the results of the investigation, developed and evaluated remedial alternatives to bring the facility into SPDES compliance. Performed final remedial design for the selected alternative.

Project manager for an environmental regulatory compliance program at a Buffalo company involved with the production of thermal transfer ribbons. Responsibilities included SARA Title III reporting and planning. Prepared an Integrated Emergency Response Manual and an Environmental Standards Handbook for the facility. Conducted a regulatory compliance audit and an OSHA audit that included personal air monitoring.

JONATHAN NEUBAUER
SAFETY AND ENVIRONMENTAL PROJECT MANAGER

CERTIFICATIONS/TRAINING
OSHA 40-hour Hazwoper Certification
OSHA Health and Safety Training
Soil and Groundwater Remediation Training
OSHA Outreach Instructor

FIELDS OF COMPETENCE
OSHA Health and Safety Programs
Environmental Remediation
Environmental Monitoring and Measurement
Environmental Regulatory Law
Solid and Hazardous Waste Management
Air Emissions Management
Industrial Waste Water Management

EDUCATION
Bachelor of Science
Rochester Institute of Technology ("RIT")
5-Year Major: Environmental Management and Technology

EXPERIENCE SUMMARY
Mr. Neubauer has over 4 years experience in environmental and safety consulting encompassing a wide variety of OSHA and USEPA regulatory areas. He has served as the Project Manager and Safety Supervisor at numerous hazardous waste remediation projects in North America.

KEY PROJECTS
Health and Safety Supervisor – Responsibilities included managing all Health and Safety issues on environmental remediation projects of varying scope and size. Mr. Neubauer initiated and implemented all OSHA compliance programs for the projects. Provided on-site industrial hygiene monitoring and prepared and implemented health and safety plans.

Safety Trainer – Provided job site training of personnel involved in hazardous waste remediation projects. Conducted safety orientation training and daily safety meetings for project personnel.

Project Manager – Managed environmental remediation projects involving a variety of hazardous materials in soil and groundwater. Provided environmental and safety consulting services for engineering, construction and government agencies. Prepared and delivered presentations to regulatory agencies relating to the results of remediation projects he managed.

Environmental Field Technician – Conducted sampling and testing of a variety of media and contaminants. Responsibilities included performing work on environmental remediation sites, obtaining field samples, overseeing installation of Soil Vapor Extraction and Air Sparging remediation systems and Underground Storage Tank removal and cleaning.

APPENDIX D – SECTION 11

Rezoning Report
"Vanderbilt Property"
Southwestern Boulevard Near Amsdell Road

Rezoning Report
Vanderbilt Property
Southwestern Boulevard near Amsdell Road

I. Introduction

Vanderbilt Properties has requested that the Town of Hamburg rezone property that is located to the southeast of the intersection of Southwestern Blvd. and Amsdell Rd. (see site location map). The request is to rezone 42 acres of land from R-A, Residential Agriculture to PUD, Planned Unit Development to allow for the construction of 148 condominium units and 12,000 sf of commercial space.

The Hamburg Town Board entertained this request and referred it to the Planning Board for their review and comment. It has been noted that this rezoning would require the Comprehensive Plan to be amended.

During the initial review of this proposed rezoning, the Planning Board noted its concerns about amending the Comprehensive Plan, and was also concerned about setting an unsupportable precedent for future rezoning requests further down Southwestern Blvd.

The Planning Board then instructed the Town Planner to put together a report to illustrate how a rezoning could be supported for this property, but illustrate how it would not support further rezonings down Southwestern. At this time the Planning Board has not recommended for or against the rezoning; they would just like to see how a rezoning could be supported, and why this property and not others would warrant such a request.

The following report is the Planning Dept.'s attempt to meet the Planning Board's request. This is not a recommendation of the Town Planner, just a report as requested by the Planning Board.

II. Town of Hamburg 2010 Comprehensive Plan
(1997 Master Plan Update)

A. Related Goals and Objectives

1. "The Town will encourage balanced growth to provide for a diverse living environment for its people, at all income levels, that builds upon past development and creates a safe environment for the future:
   - Provide for adequate buffering of future development.
   - Accommodate a variety of residential housing types in the community."

2. "The Town will promote the full utilization of public facilities and services through the orderly development of future growth:

- Encourage the "infilling" of appropriate vacant developable areas by directing future growth into lands with adequate public services.

3. "The natural resources of the Town will be protected by respecting the development limitations of environmentally sensitive areas and preserving their integrity.

B. Land Use

The 1997 Master Plan update shows these lands as "Vacant Land" with commercial and residential (single family) nearby (see land use map).

C. Environmental

Mapping in the Master Plan update does not show any mapped Federal or State wetlands, but the land does show potential for hydric inclusions. There are no flood hazard areas or flood plains shown on this property, but the Open Space and Recreation Plan does show an area of high water table (corresponds to the potential for hydric inclusions). The Open Space and Recreation Plan shows no other features on the proposed property. Further south of this property are large areas of "Local Wildlife Habitats and Management Areas."

D. Infrastructure

1. Southwestern Blvd. is considered a Major Arterial, which provides circulation into and through the Town.

2. There is public water available on all of the surrounding roads.

3. Public sewer is only available on Southwestern north of Amsdell and along Amsdell west of Southwestern. The sewer district is only located to the northwest of the Southwestern/Amsdell intersection. It is also located on the east side of Southwestern, but up towards Rogers Rd.

E. Conclusions / Recommendations in the Master Plan Update

1. The property in question is shown in the Generalized Land Use Area defined as the Lakeview Area (northern bounds of this area is Amsdell Rd.)

2. "This area has been separated from the surrounding areas by these physical boundaries (in this case Amsdell Rd.), and is perceived to have a rural atmosphere from the rest of the Town. This atmosphere has fostered an "independence" in many of the people who live in this rural area. Most of Lakeview is residential and undeveloped land, with a small scattering of commercial properties and recreational uses. Recently, the area has come

under more and more development pressures, with several subdivisions presently being constructed and proposed."

3. Generally, residents in Lakeview feel that maintaining "rural" characteristics of this area is critical, and are not in favor of creating a suburban community.

4. Residential rezonings (in the Lakeview area) would only be considered for extenuating circumstances to preserve important features. The area has proper density; therefore any rezonings should be only considered for use, and not increased density.

5. Do not promote extensions of sewers in this area.

6. The Lakeview Overlay District is proposed for this area

III. Zoning

The zoning of the properties in question is R-A, Residential Agriculture. The general zoning in the area of these properties is as follows (see map):

1. Mostly all of the lands to the Northwest of the Southwestern/Amsdell intersection are zoned PUD, Planned Unit Development (The Brierwood PUD). This area is bounded by Rogers Rd., Southwestern, Amsdell and the railroad tracks. There are a few properties in this area zoned R-1, Single Family Residence and C-1, Local Retail Business District.

2. Northeast of the site, the properties along Southwestern are zoned C-2, General Commercial District, and the remaining lands (bordered by Amsdell and Rogers Rd. are zoned R-4, General Residence – Mobile Home Court, and R-1.

3. The lands across the street from this site are zoned R-A, but further to the west they are R-1 and R-2, Single-Family Residence, attached. There is also one property at the Southwest corner of Southwestern and Amsdell zoned B-1.

4. South of this site, the properties surrounding the Southwestern/Pleasant Ave. intersection are zoned C-2.

5. On the same side of the road as the site, almost all the properties between Southwestern, Pleasant and Amsdell are zoned R-A. There is a property adjoining this site on Southwestern that is zoned B-1.

IV. Issues to Resolve

- As can be seen from the existing 2010 Comprehensive Plan outtakes noted in Section II, the existing plan would not support the proposed rezoning of the subject property. Under the current plan, any rezoning if allowed, would not allow for an increase in density, which presently is 1 unit per 2 acres.

- If an amendment to the Comprehensive Plan is considered, where would the "new line" for the Lakeview Area be drawn?
- How far should any sewer and sewer district extensions be allowed in this area?

V. Potential Supportive Rezoning Reasons

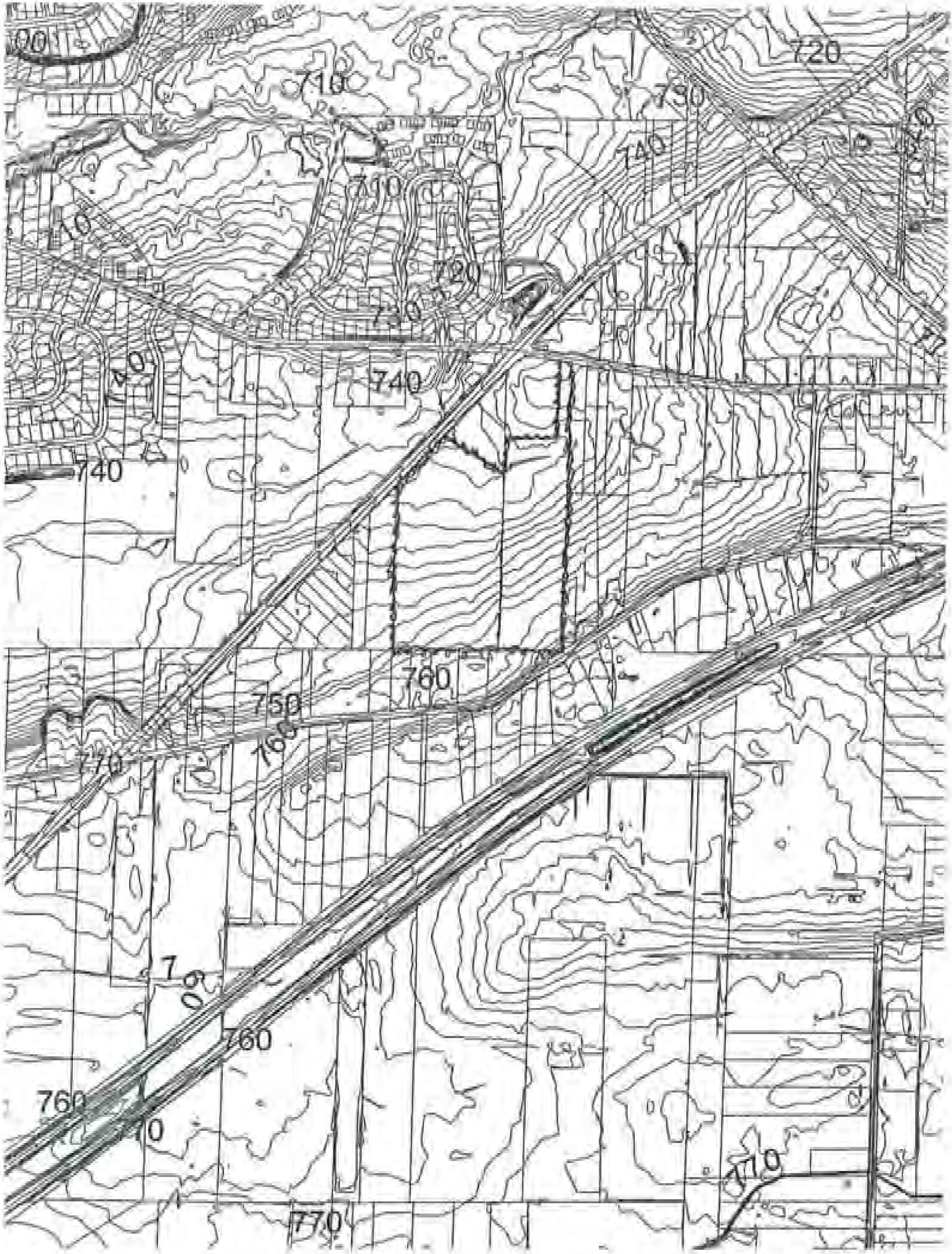
- The generalized land use and zoning in the vicinity is similar to the proposal. The large Brierwood PUD is located northwest of this site – large commercial zoning areas exist to the north and south (Southwestern and Pleasant) of the site.
- The project could be buffered from the surrounding rural residential properties on Pleasant Ave. through good design.
- Sewer, although not directly in "front" of the site, could easily be accessed at the intersection of Southwestern and Amsdell. This would be a private sewer system. It also may be possible to access this sewer without extending it down Southwestern.
- There are few environmental limitations on this property and no important lands were identified in the Open Space and Recreation Plan.
- This area, although shown in the 2010 Comprehensive Plan as in the Lakeview Area, is really not part of the true Lakeview neighborhood.
- The rezoning would support the goal of the Town to provide a diverse living environment. The type of housing proposed is different than much of the housing in the Town. It would also support a growing demographic in the Town (over 60 years of age).
- Larger areas of sensitive lands, as indicated in the Open Space and Recreation Plan, are located further south of this site.

VI. Area Rezoning Concept/Comprehensive Plan Update

The Town would rezone the properties with the reasoning elaborated in Section V.

The Comprehensive Plan would be updated to remove these lands from the Lakeview Area, and also remove the 3 properties to the north of this site (all fronting Southwestern). We would also recommend removing from the Lakeview Area, those properties on the other side of Southwestern that have frontage on Amsdell.

We believe that this is a supportable amendment to the Comprehensive Plan and would not induce further changes south of this area (protected by the lack of sewers, environmentally sensitive lands, and isolation of the remaining Lakeview area).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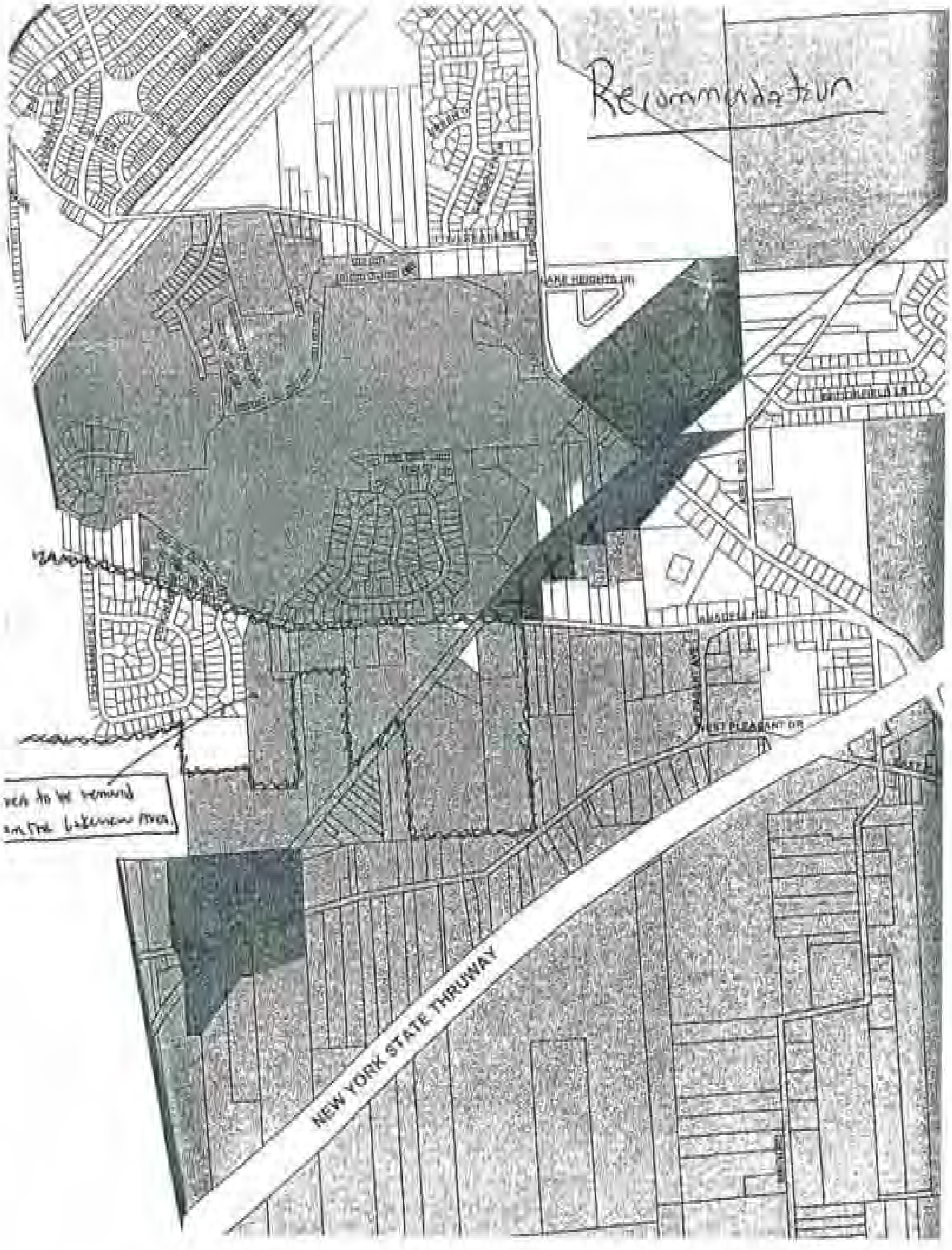
Sewer Locations


Recommendation
LAKE HEIGHTS DR
WEST PLEASANT DR
NEW YORK STATE THRUWAY

APPENDIX D – SECTION 12

NYS Office of Parks, Recreation and Historic Preservation – Historic Preservation Review

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189 518-237-8643

NEW YORK STATE
Bernadette Castro
Commissioner

fax
1/3/07

December 07, 2006

Attn:

Erik J. Krull
David Homebuilders, Inc
P.O. Box 945
Hamburg, New York 14075

Re: DEC
Villas at Brierwood
Southwestern Boulevard (Rt. 20),
Town of Hamburg, Erie County
06PR06360

Dear Mr. Krull:

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Parks, Recreation and Historic Preservation Law, Section 14.09.

Based upon this review, it is the OPRHP's opinion that your project will have No Impact upon cultural resources in or eligible for inclusion in the State and National Registers of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Ruth L. Pierpont

Ruth L. Pierpont
Director

JAN 0 5 2007

Lifestyle Communities, Inc.
PO BOX 945, Hamburg, NY 14075

Phone (716) 691-6900
Fax (716) 639-7254

November 14, 2006

Claire Ross
State Historic Preservation Office
Peebles Island State Park
PO Box 189
Waterford, NY 12188-0189

Dear Claire,
I am enclosing the information on a 42 acre site in the Town of Hamburg, NY for your review.

I have included photos with a site survey indicating the photo location/direction and a Archaeologic/ Historic Register map. There are tax records to verify the ages of the 4 structures over 50 years old that are adjacent to the site. Also included is a preliminary site plan and a long form EAF to describe the nature and extent of the project. In addition you will find a USGS location map.

Please let me know your determination at you earliest convenience. Thank you for your attention in this matter.

Sincerely,

Erik J. Krull

Erik J. Krull

The Historic Preservation Review Process In New York State

In order to insure that historic preservation is carefully considered in publicly-funded or permitted undertakings*, there are laws at each level of government that require projects to be reviewed for their potential impact/effect on historic properties. At the federal level, Section 106 of the National Historic Preservation Act of 1966 (NHPA) directs the review of federally funded, licensed or permitted projects. At the state level, Section 14.09 of the New York State Parks, Recreation and Historic Preservation Law of 1980 performs a comparable function. Local environmental review for municipalities is carried out under the State Environmental Quality Review Act (SEQRA) of 1978.
regulations on line at:
http://nysparks.com then select **HISTORIC PRESERVATION** then select **Environmental Review**

Project review is conducted in two stages. First, the Field Services Bureau assesses affected properties to determine whether or not they are listed or eligible for listing in the New York State or National Registers of Historic Places. If so, it is deemed "historic" and worthy of protection and the second stage of review is undertaken. The project is reviewed to evaluate its impact on the properties significant materials and character. Where adverse effects are identified, alternatives are explored to avoid, or reduce project impacts; where this is unsuccessful, mitigation measures are developed and formal agreement documents are prepared stipulating these measures.

ALL PROJECTS SUBMITTED FOR REVIEW SHOULD INCLUDE THE FOLLOWING MATERIAL(S).

☑ **Project Description** See Long Form EAF and Site Plan

Attach a full description of the nature and extent of the work to be undertaken as part of this project. Relevant portions of the project applications or environmental statements may be submitted.

☑ **Maps Locating Project**

Include a map locating the project in the community. The map must clearly show street and road names surrounding the project area as well as the location of all portions of the project. Appropriate maps include tax maps, Sanborn insurance maps, and/or USGS quadrangle maps.

☑ **Photographs**

Photographs may be black and white prints, color prints, or color laser/photo copies; standard (black and white) photocopies are NOT acceptable.

-*If the project involves rehabilitation*, include photographs of the building(s) involved. Label each exterior view to a site map and label all interior views.

-*If the project involves new construction*, include photographs of the surrounding area looking out from the project site. Include photographs of any buildings (more than 50 years old) that are located on the project property or on adjoining property.

NOTE: Projects submissions will not be accepted via facsimile or e-mail.

**Undertaking* is defined as an agency's purchase, lease or sale of a property, assistance through grants, loans or guarantees, issuing of licenses, permits or approvals, and work performed pursuant to delegation or mandate.

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island Resource Center, PO Box 189, Waterford, NY 12188-0189 (Mail)
Delaware Avenue, Cohoes 12047 (Delivery)

(518) 237-8643

PROJECT REVIEW COVER FORM

Rev. 5/05

Please complete this form and attach it to the top of any and all information submitted to this office for review. Accurate and complete forms will assist this office in the timely processing and response to your request.

This information relates to a previously submitted project.

☐ If you have checked this box and noted the previous Project Review (PR) number assigned by this office you do not need to continue unless any of the required information below has changed.

PROJECT NUMBER ____PR________

COUNTY ____________

2. This is a new project. ☒ If you have checked this box you will need to complete ALL of the following information.

Project Name Villa's at Brierwood

Location Southwestern Blvd. (Rt. 20)

You MUST include street number, street name and/or County, State or Interstate route number if applicable

City/Town/Village Hamburg

List the correct municipality in which your project is being undertaken. If in a hamlet you must also provide the name of the town.

County Erie

If your undertaking* covers multiple communities/counties please attach a list defining all municipalities/counties included.

TYPE OF REVIEW REQUIRED/REQUESTED (Please answer both questions)

A. Does this action involve a permit approval or funding, now or ultimately from any other governmental agency?

☐ No ☒ Yes

If Yes, list agency name(s) and permit(s)/approval(s)

Agency involved	Type of permit/approval	State	Federal
NYS DEC	Sewer App + SPDES permit	☒	☐
Erie Co. Health + Env + Planning	Sewer/Water approvals	☐	☐
Town of Hamburg	Rezoning + site plan	☐	☐

B. Have you consulted the NYSHPO web site at **http://nysparks.com to determine the preliminary presence or absence of previously identified cultural resources within or adjacent to the project area? If yes: ☒ Yes ☐ No

Was the project site wholly or partially included within an identified archeologically sensitive area? ☐ Yes ☒ No

Does the project site involve or is it substantially contiguous to a property listed or recommended for listing in the NY State or National Registers of Historic Places? ☐ Yes ☒ No

CONTACT PERSON FOR PROJECT

Name Erik Krull **Title** Land Manager

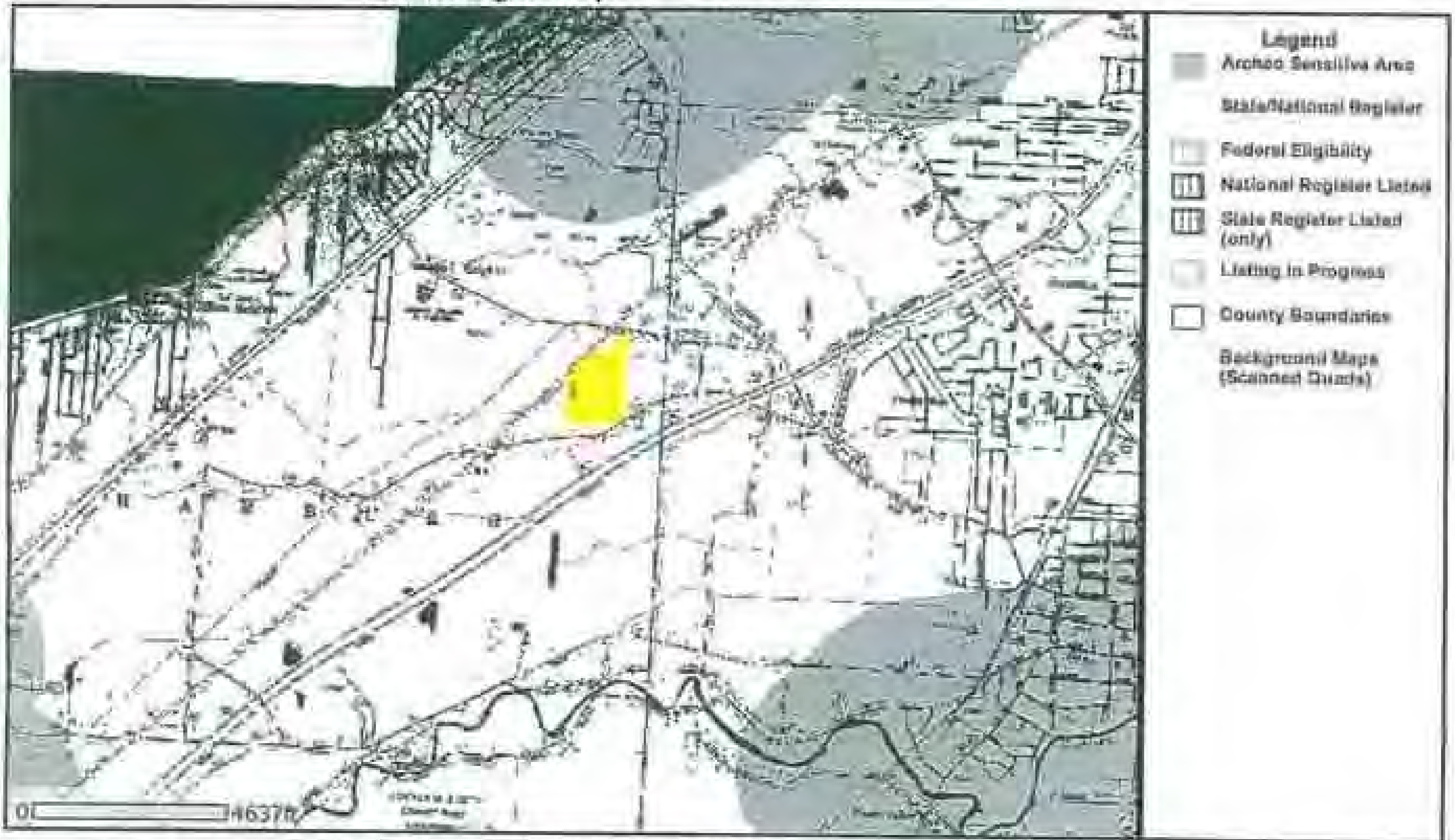
Firm/Agency Lifestyle Communities, Inc

Address PO Box 945 **City** Hamburg **STATE** NY **Zip** 14075

Phone (716) 691-6900 **Fax** (716) 639-7254 **E-Mail** Erik at DavidHomes.com

**http://nysparks.com then select HISTORIC PRESERVATION then select On Line Resources

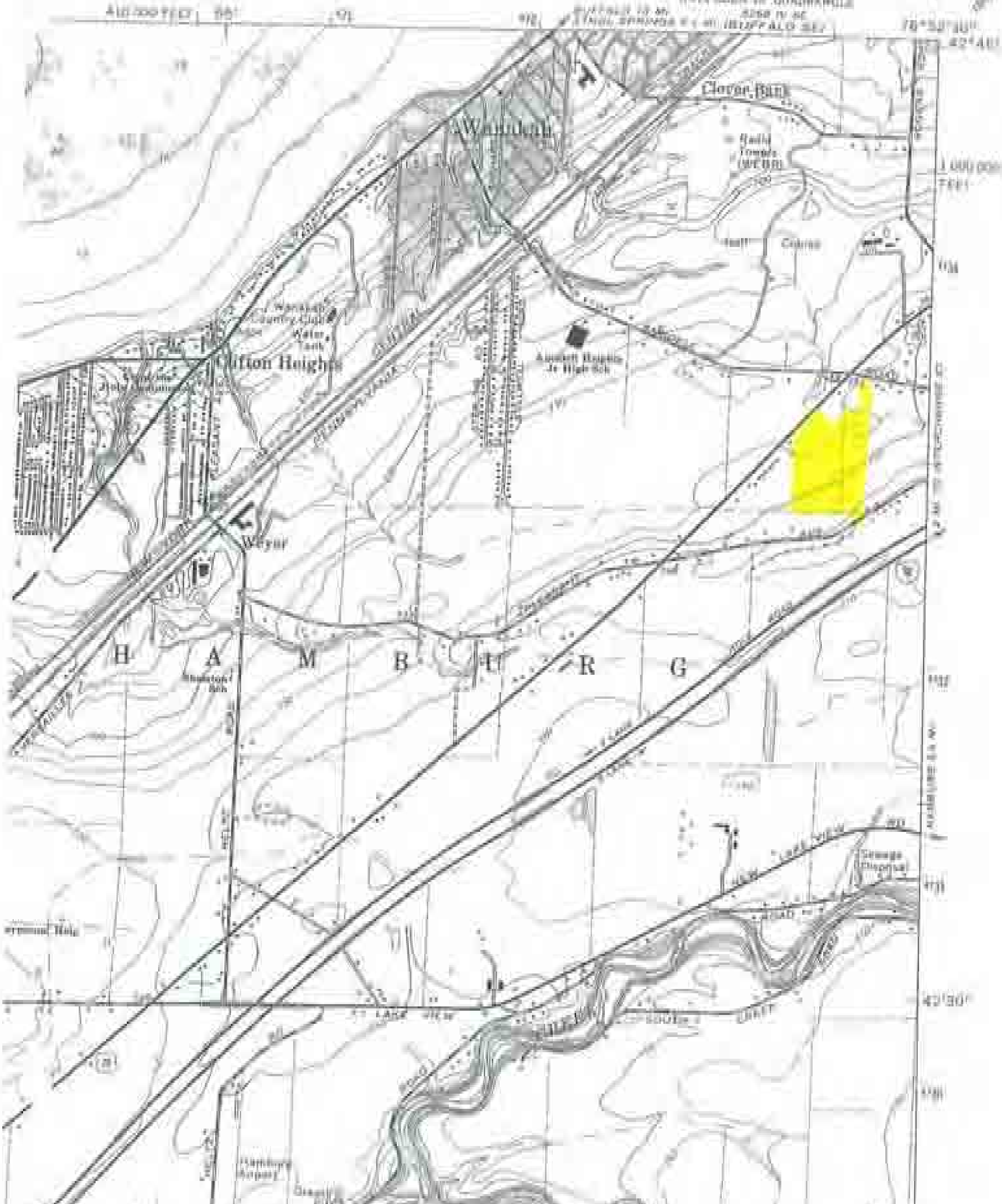
Archeaological Map



May 19, 2006

Disclaimer: This map was prepared by the New York State Parks, Recreation and Historic Preservation National Register Listing Internet Application. The information was compiled using the most current data available. It is deemed accurate, but is not guaranteed.

EDEN QUADRANGLE
NEW YORK - ERIE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)




GRAPHIC SCALE
SITE DATA:
BUILDING TYPES
No Scale
CONCEPTUAL PLAN ASSUMPTIONS
PRELIMINARY
* All dimensions shall be verified prior to any construction
VILLAS @ BRIERWOOD
EMHT

3079 Amsdell Rd - Built 1952

Garage / Apt 3079 Amsdell Rd.

REI Data Inc. reidi.propertyinfo.com - Map Name: maps/ERIE/144889/182_00.tif

☆ = 3079 AMSDELL RD

3058 Pleasant Ave. - Built 1954

3072 Pleasant Ave. - Built 1949

General Property Description

Prop. Address: 3058 PLEASANT AVE
Municipality: Town of HAMBURG
Town Swis Code: 144889
Owner: WOJDYLA AMY
Tax / Map Acct#: 182.000-0004-039.0000000
School Dist: FRONTIER
Owner 2:
Print Key: 182.00-4-39
School Code: 144804
Owner Mailing: 3058 PLEASANT AVE
HAMBURG, NY14075
Deed Book / Page: 11018 / 6453
Sub Div:
Phone Number:
Misc:

Structural Characteristics

Bldg Sq Feet: 1442
Built: 1954
Uses As 1:
1st Floor: 978
Story Height: 0
Uses As 2:
2nd Floor: 464
Heat: HOT AIR
No. Of Bldgs:
House Type: CAPE COD
Fireplaces: 0
Residential Units: 0
Bedrooms: 3.0
Fuel:
Exterior: BRICK
Bath: 1.0
Water: PRIVATE
Garage: 0
Basement: FULL
Sewer: PRIVATE
Number Stories: 1.5
Basement SF: 0
Utilities: GAS & ELEC
Improve 1: GAR,1.0 DET
Size 1: 24 X 24
Total SqFT 1: 576
Improve 2: PORCH,OPEN
Size 2: Dimensions not available
Total SqFT 2: 160
Improve 3:
Size 3: 0 X 0
Total SqFT 3: 0
Improve 4:
Size 4: 0 X 0
Total SqFT 4: 0

and Characteristics

Acreage : 1.00
Land SqFt: 43560
Class Code: 210
Class Name: 1 FAMILY HOUSE
Lot Size: 80 X 0
East / Longitude: 420782 / -78.878174
North / Latitude 994896 / 42.730268

Tax / Assessment Data

Tax / Map Acct #: 182.000-0004-039.0000000
School Tax: $1,252.13
Total Assessment: $67,500.00
County Tax: $1,115.62 actual
Land: $9,400.00
City Tax: $0.00
Old Assessment: $67,500.00
Account #:

Sales Information

Sales Price:	Sales Date:	Grantor:	Deed Book / Page:	Deed Type:	Deed Valid:	ARMS Length:
$92,200.00	11/08/2002	RUMFOLA CHARLES &	11018 / 6453			

REI Data Inc. reidi.propertyinfo.com - Map Name: maps/ERIE/144889/182_00.tif

☆ = 3058 PLEASANT AVE

General Property Description

Prop. Address: 3072 PLEASANT AVE
Owner: CRAVER WILLIAM & DARLENE
Owner 2:
Owner Mailing: 3072 PLEASANT AVE
HAMBURG, NY14075

Municipality: Town of HAMBURG
Tax / Map Acct#: 182.000-0004-040.2000000
Print Key: 182.00-4-40.2
Deed Book / Page: 09961 / 00315
Sub Div:
Misc:

Town Swis Code: 144889
School Dist: FRONTIER
School Code: 144804
Phone Number:

Structural Characteristics

Bldg Sq Feet: 2136
1st Floor: 1236
2nd Floor: 900
House Type: CAPE COD
Bedrooms: 3.0
Bath: 1.0
Basement: FULL
Basement SF: 0

Built: 1949
Story Height: 0
Heat: HOT AIR
Fireplaces: 0
Fuel: GAS
Water: PRIVATE
Sewer: PRIVATE
Utilities: GAS & ELEC

Uses As 1:
Uses As 2:
No. Of Bldgs:
Residential Units: 0
Exterior: ALUM/VINYL
Garage: 0
Number Stories: 1.7

Improve 1: GAR,1.0 DET
Size 1: Dimensions not available
Total SqFT 1: 500

Improve 2:
Size 2: 0 X 0
Total SqFT 2: 0

Improve 3:
Size 3: 0 X 0
Total SqFT 3: 0

Improve 4:
Size 4: 0 X 0
Total SqFT 4: 0

Land Characteristics

Acreage : 5.06
Class Code: 210
East / Longitude: 420870 / -78.877852

Land SqFt: 220414
Class Name: 1 FAMILY HOUSE
North / Latitude 995332 / 42.731465

Lot Size: 216 X 0

Tax / Assessment Data

Tax / Map Acct #: 182.000-0004-040.2000000
Total Assessment: $78,500.00
Land: $14,700.00
Old Assessment: $78,500.00

School Tax: $1,456.18
County Tax: $1,297.41 actual
City Tax: $0.00
Account #:

Sales Information

Sales Price:	Sales Date:	Grantor:	Deed Book / Page:	Deed Type:	Deed Valid:	ARMS Length:
$0.00	/ /		09961 / 00315			

REI Data Inc. reidi.propertyinfo.com - Map Name: maps/ERIE/144889/182_00.tif

☆ = 3072 PLEASANT AVE

5681 Southwestern Blvd. - Built 1948

Garage at 5681 Southwestern Blvd.

General Property Description

Prop. Address: 5681 SOUTHWESTERN BLVD

Municipality: Town of HAMBURG

Town Swis Code: 144889

Owner: PETERS DAVID S

Tax / Map Acct#: 182.000-0004-020.0000000

School Dist: FRONTIER

Owner 2:

Print Key: 182.00-4-20

School Code: 144804

Owner Mailing: S-5681 SOUTHWESTERN BLVD
HAMBURG, NY14075

Deed Book / Page: 10896 / 07666

Sub Div:

Phone Number:

Misc:

Structural Characteristics

Bldg Sq Feet: 1962
1st Floor: 1440
2nd Floor: 522
House Type: CAPE COD
Bedrooms: 4.0
Bath: 1.0
Basement: FULL
Basement SF: 0
Improve 1: GAR,1.0 DET
Improve 2: PORCH,ENCLSD
Improve 3:
Improve 4:

Built: 1948
Story Height: 0
Heat: HOT AIR
Fireplaces: 0
Fuel: GAS
Water: PUBLIC
Sewer: NONE
Utilities: GAS & ELEC
Size 1: Dimensions not available
Size 2: Dimensions not available
Size 3: 0 X 0
Size 4: 0 X 0

Uses As 1:
Uses As 2:
No. Of Bldgs:
Residential Units: 0
Exterior: ALUM/VINYL
Garage: 0
Number Stories: 1.5
Total SqFT 1: 1800
Total SqFT 2: 80
Total SqFT 3: 0
Total SqFT 4: 0

Land Characteristics

Acreage : 5.10
Class Code: 210
East / Longitude: 419406 / -78.883300

Land SqFt: 222156
Class Name: 1 FAMILY HOUSE
North / Latitude 895226 / 42.731160

Lot Size: 296 X 0

Tax / Assessment Data

Tax / Map Acct #: 182.000-0004-020.0000000
Total Assessment: $96,600.00
Land: $10,600.00
Old Assessment: $96,600.00

School Tax: $1,791.93
County Tax: $1,581.85 **actual**
City Tax: $0.00
Account #:

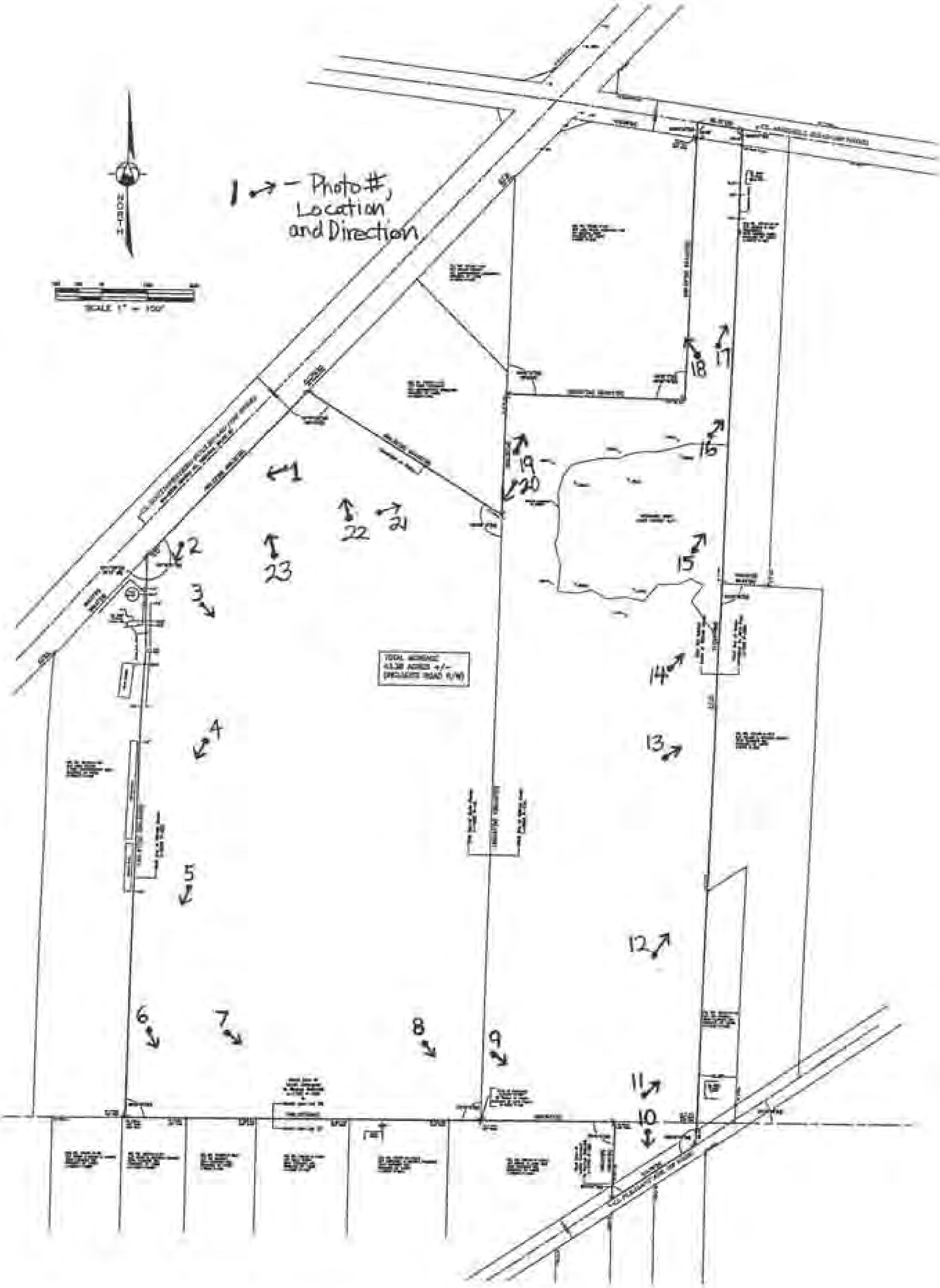
Sales Information

Sales Price:	Sales Date:	Grantor:	Deed Book / Page:	Deed Type:	Deed Valid:	ARMS Length:
$1.00	01/22/1996	PETERS DAVID S & LAURIE	10896 / 07666			
$1.00	01/22/1996	PETERS DAVID S & LAU	10896 / 07666		0	

REI Data Inc. reidi.propertyinfo.com - Map Name: maps/ERIE/144889/182_00.tif

☆ = 5681 SOUTHWESTERN BLVD

BOUNDARY SURVEY



Sheet 2 of 2	PROJECT: BOUNDARY SURVEY OF SBL NO. 182.00-4-13.1 SBL NO. 182.00-4-19	GENZEL LAND SURVEYING, P.C. 7033 COLE ROAD COLDEN, NEW YORK 14033 505 EAST 20TH STREET CHEYENNE WY 82001	PROJECT: 0663 DATE: 04/04/06 SURVEYOR: JAG

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