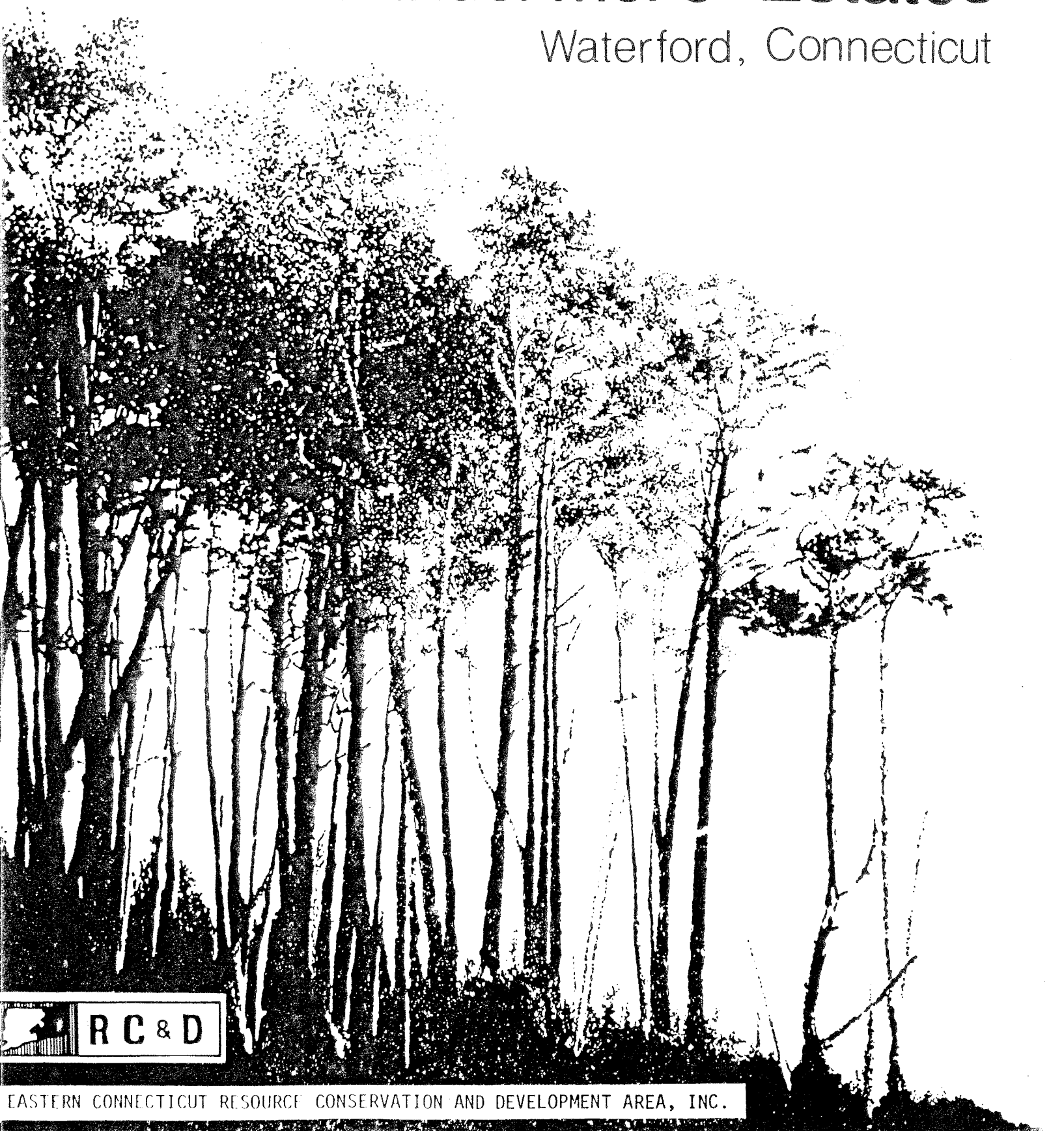
Environmental Review Team Report

Windermere Estates

Waterford, Connecticut



RC&D

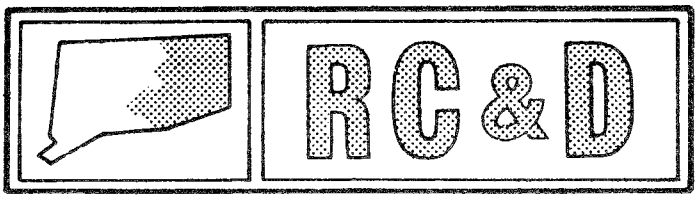
EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team
Report

Windermere Estates

Waterford, Connecticut

October 1984

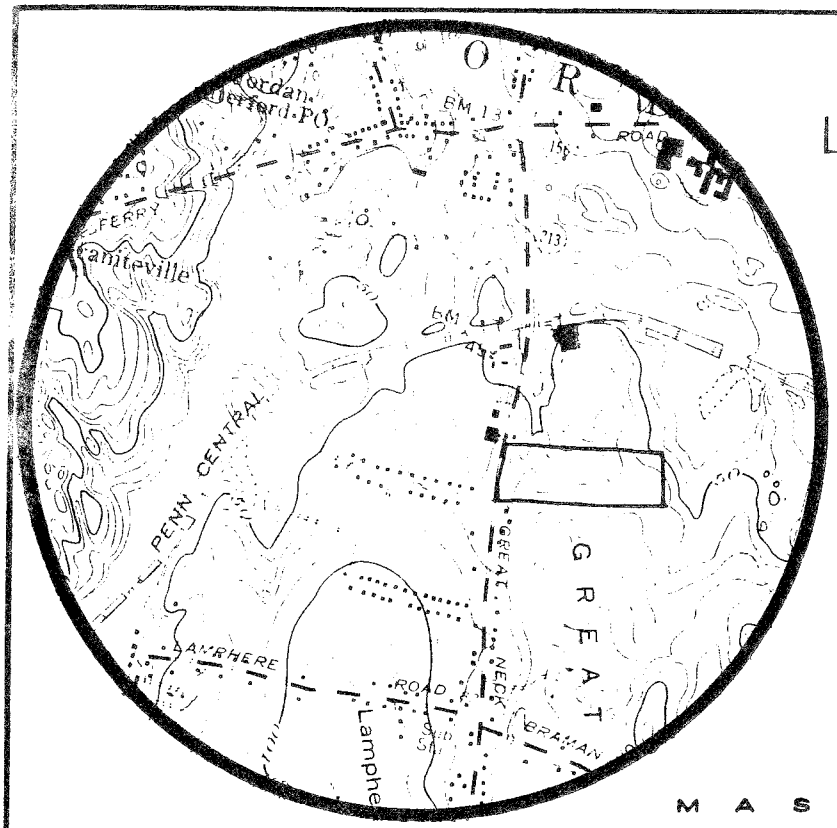


Eastern Connecticut Resource Conservation & Development Area

Environmental Review Team
PO Box 198
Brooklyn, Connecticut 06234

Location of Study Site

WINDERMERE ESTATES
WATERFORD, CONNECTICUT



ENVIRONMENTAL REVIEW TEAM REPORT
ON
WINDEMERE SUBDIVISION
WATERFORD, CONNECTICUT

This report is an outgrowth of a request from the Waterford Conservation Commission to the New London County Soil and Water Conservation District (S&WCD). The S&WCD referred this request to the Eastern Connecticut Resource Conservation and Development (RC&D) Area Executive Committee for their consideration and approval as a project measure. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The soils of the site were mapped by a soil scientist of the United States Department of Agriculture (USDA), Soil Conservation Service (SCS). Reproductions of the soil survey map as well as a topographic map of the site were distributed to all ERT participants prior to their field review of the site.

The ERT that field checked the site consisted of the following personnel: Barry Cavanna, District Conservationist, Soil Conservation Service (SCS); Liz Rogers, Soil Conservationist, (SCS); Bill Warzecha, Geologist, Department of Environmental Protection (DEP); Pete Merrill, Forester, (DEP); Al Roberts, Soil Specialist, (SCS), Tom Seidel, Regional Planner, Southeastern Connecticut Regional Planning Agency; and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

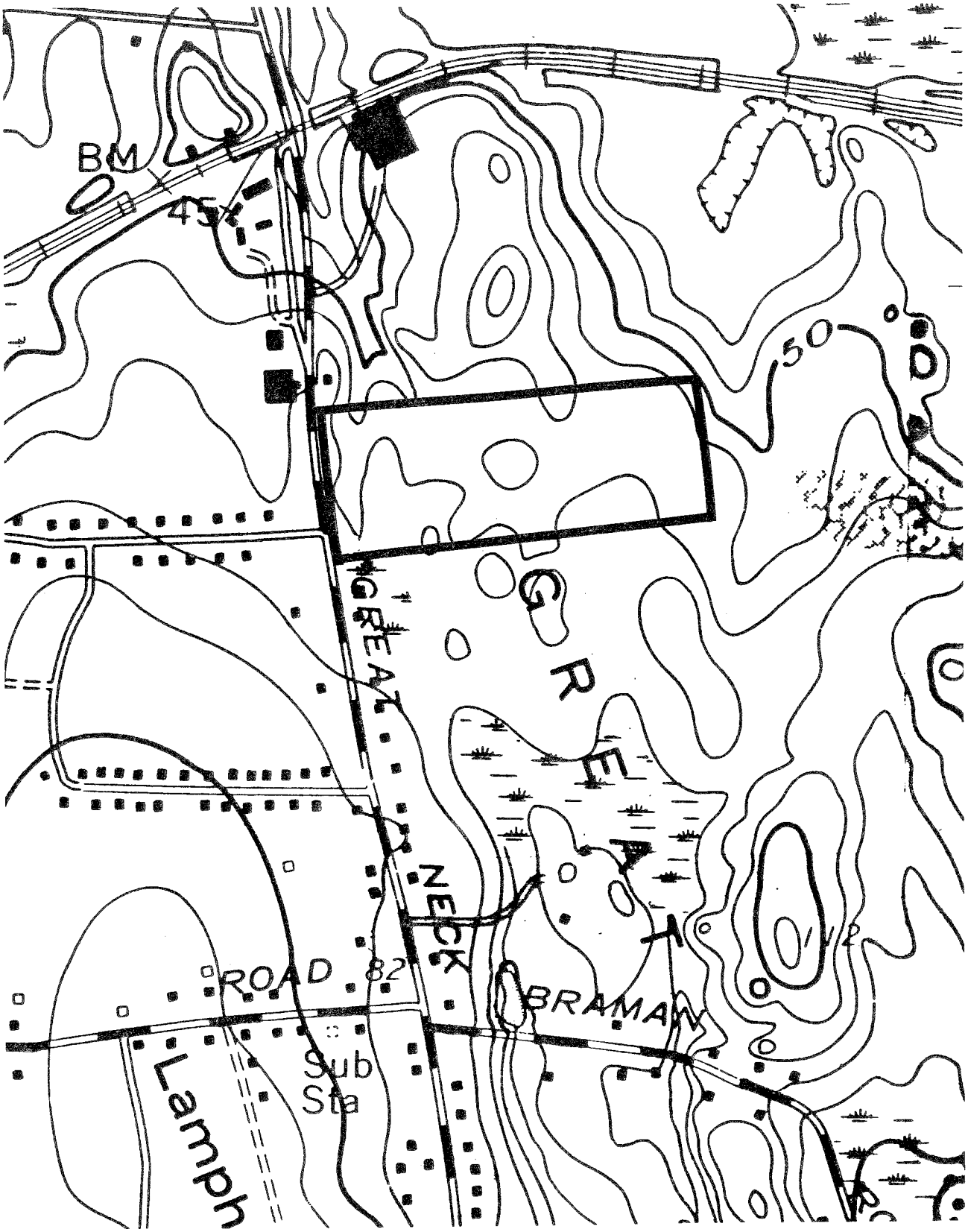
The Team met and field checked the site on Thursday, August 16, 1984. Reports from each Team member were sent to the ERT Coordinator for review and summarization for the final report.

This report is not meant to compete with private consultants by supplying site designs or detailed solutions to development problems. This report identifies the existing resource base and evaluates its significance to the proposed development and also suggests considerations that should be of concern to the developer and the Town of Waterford. The results of this Team action are oriented toward the development of a better environmental quality and the long-term economics of the land use.

The Eastern Connecticut RC&D Project Committee hopes you will find this report of value and assistance in making your decisions on this particular site.

If you require any additional information, please Contact: Ms. Jeanne Shelburn, Environmental Review Team Coordinator, Eastern Connecticut R&CD Area, Box 198, Route 205, Brooklyn, Connecticut 06234, 774-1253.

Topography	Site Boundary	0 660' scale	N



INTRODUCTION

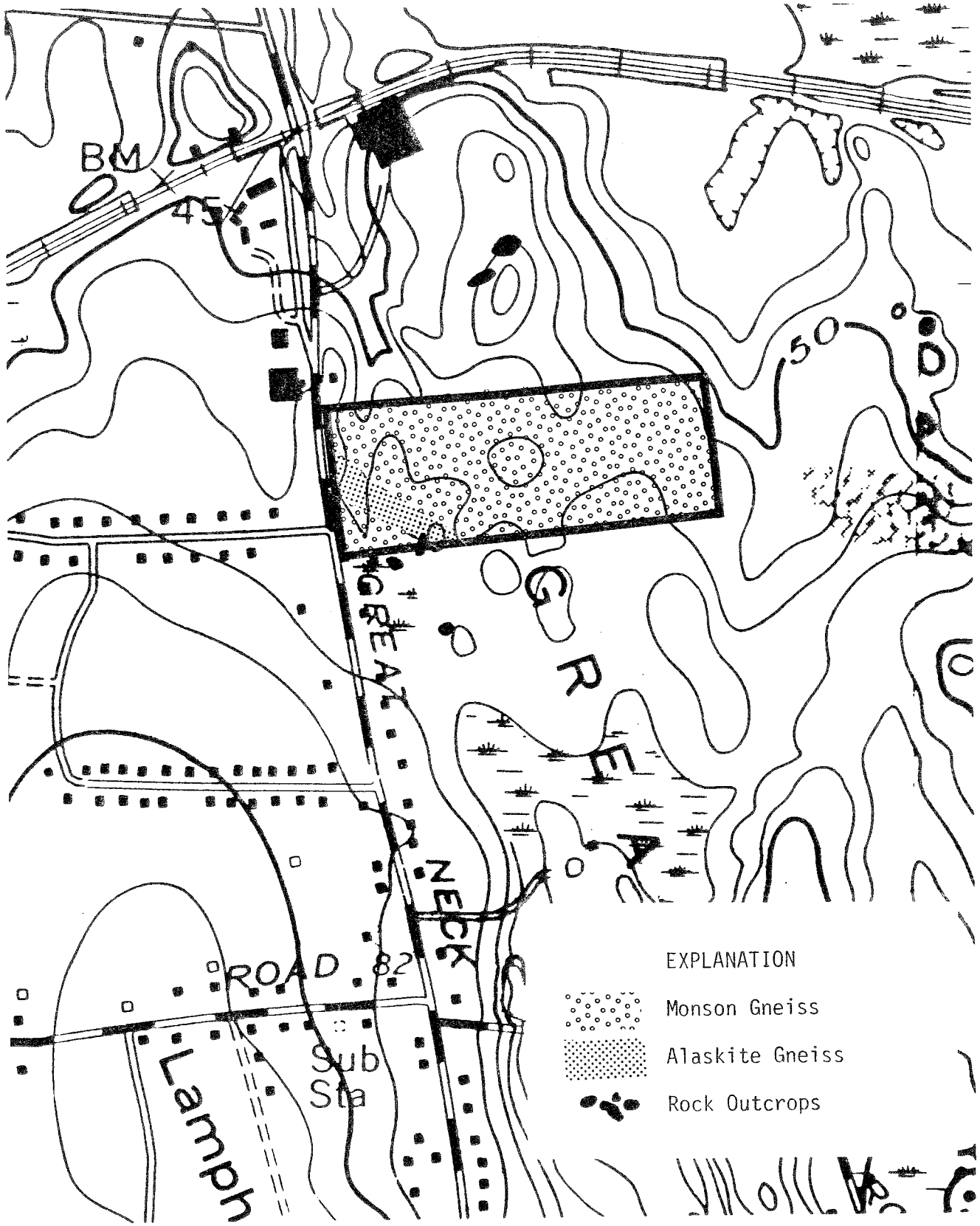
The Eastern Connecticut Environmental Review Team was asked to prepare an environmental assessment for a proposed subdivision in the Town of Waterford. "Windemere Estates" is approximately 30 acres in size and is located on Great Neck Road. The property is presently in the private ownership of the Victor family and will be developed by the Waterford Development Group. Rowley Engineering has prepared preliminary plans for this site.

Preliminary plans, dated May 24, 1984, show 37 lots, ranging from 15,000 square feet to 28,800 square feet in size. Each lot will be served by the municipal water and municipal sewer lines. An access road, Peggy Lane, will extend east into the site and form a loop in the eastern/central section of the property. Approximately six acres of the site will remain as open space. A watercourse and its associated wetland area is located in the western section of the site. Smaller wetland areas cross the site in a north-south direction to the eastern boundary.

The Team is concerned with the impact of this proposed development on the natural resource base of this site. Although many severe limitations to development can be overcome with proper engineering techniques, these measures can become costly, making a project financially unfeasible for a developer. Major limitations to development of this site are caused by the large wetland soil areas which cross the property. Although a portion of these wetland areas will be designated as "open space," lots 6, 7, 8, 9, 17 and 18 have a substantial amount of their acreage in regulated wetland soil areas (P.A. 155). In some of these lots, the wetland area would appear to be from 25 to 50% of the lot acreage. This would restrict usable area on these lots unless future landowners were given permits to fill the wetlands. In some cases, filling these areas would reduce the amount of stormwater flood storage which the wetlands would provide for the additional runoff caused by site development. Wetlands will also be crossed a minimum of four times by the proposed loop roadway, "Peggy Lane."

The following sections of this report discuss the development limitations of this site, and potential mitigation measures in detail. In the Team's opinion, wetland modification/filling should be minimized when developing this site. Sediment and erosion control measures included with the plan should be improved and implemented prior to construction.

Bedrock Geology



ENVIRONMENTAL ASSESSMENT

TOPOGRAPHY

The "Windemere Estates" site, which is ±25 acres in size is located in southcentral Waterford off of Great Neck Road. As shown by the accompanying topographic map, land surface on the site ranges from nearly flat to some gently sloping areas.

One small stream traverses the western section of the site in a north to south direction enroute to Jordan Cove. Two small intermittent streams wind through wetland areas in the central and eastern parts of the property. Both streams drain northward, ultimately discharging into Jordan Cove.

GEOLOGY

The site is encompassed by the Niantic topographic quadrangle. A surficial geologic map (GQ-329) and a bedrock geologic map (GQ-575) for the quadrangle prepared by Richard Goldsmith have been published by the United States Geological Survey.

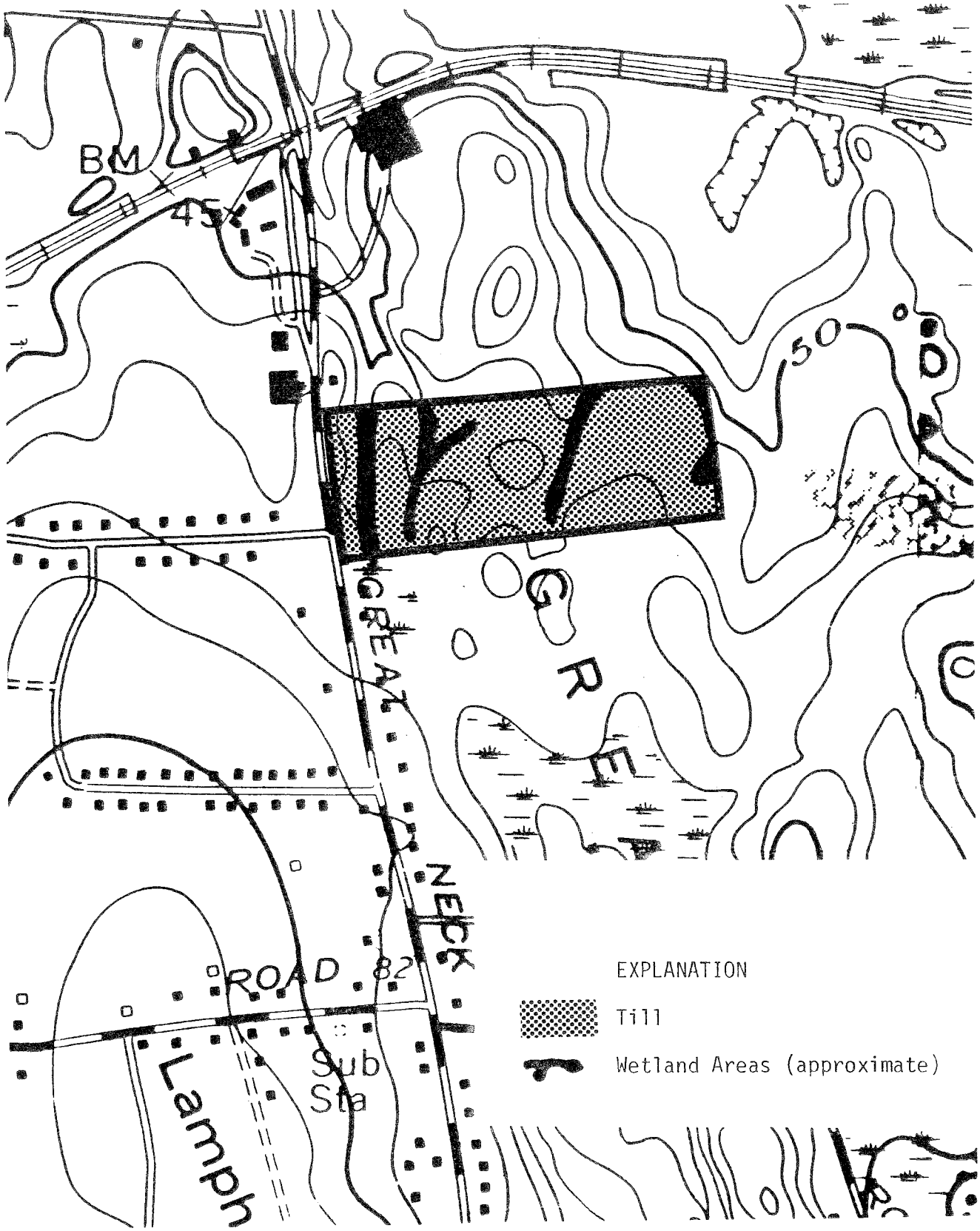
The predominant rock type underlying the project site has been classified as Monson Gneiss. This rock unit consists of a gray to dark-gray, medium to coarse grained gneiss composed of the minerals biotite, hornblende, quartz, and plagioclase. A relatively thin band of alaskitic gneiss traverses the southeast corner. Unlike the Monson Gneiss, this rock unit is composed predominantly of light-colored minerals such as orthoclase feldspar, microcline, mica, and quartz. These rocks were originally formed from magma; they are referred to as "igneous rocks."

The term "gneiss" refers to a crystalline, metamorphic rock (rocks geologically altered by great heat and pressure within the earth's crust) in which bands rich in granular minerals (i.e. quartz and feldspar) alternate with bands in which platy, flaky or elongated minerals (i.e. biotite, muscovite, hornblende) predominate.

Bedrock is visible at ground surfaces along the southern property line. Depth to bedrock is probably not much more than ten feet throughout most of the site.

Those unconsolidated mineral and organic materials overlying bedrock on this site consists primarily of glacial sediment called till. Till is a non-sorted, non-stratified mixture of rock particles and fragments, which range in size from clay to large boulders. These sediments were deposited

Surficial Geology



directly by a glacial ice as it moved through the region ±12,000 years ago. The texture of till commonly varies from place to place. It may be sandy, stony and loose or silty, less stony and tightly compact. The upper portions of the till are commonly stony, sandy and loose while at depth, it commonly becomes finer-grained and more compact. Numerous large and small boulders are strewn throughout the site.

Overlying the till deposits in the eastern and western units of the site are inland-wetland soils. They generally parallel the small streams in these areas.

The applicants' soil scientist has flagged these soils in the field and has subsequently superimposed the inland-wetland boundaries on the subdivision plan.

According to preliminary plans, the proposed 37-lot subdivision will be served by the Town's municipal sewer line and the city of New London's municipal water line. This will eliminate the need for on-site sewage disposal systems as well as individual on-site water supply wells. The availability of the municipal sewer line should reduce the risk of groundwater contamination.

From a geological standpoint, it appears the major site limitations in terms of the proposed project include the following: (1) a relatively shallow soil cover in portions of the site, particularly along the southern boundary; (2) the presence of till-based soils, which may impede subsurface drainage resulting in a high-water table and which are very stony; and (3) the presence of inland-wetland soils.

Although no bedrock outcrops were seen on the site during the review, bedrock is exposed just south of the property. The presence of shallow soils suggests that blasting may be required for the installation of foundations, roads and/or trenches for municipal water and sewer lines.

As mentioned earlier, wetness and frost action may be encountered with some of the till-based soils. If foundations are constructed with basement facilities, every effort should be made to protect them against flooding and/or wetness. In terms of road construction on till-based soils, road cuts should be protected from bleeding during wet times of the year and fill areas should be properly stabilized.

Inland-wetland areas served many important hydrological functions. Some of these functions include: (1) serving as important flood and storm-water retention areas, which reduces downstream flood flows during winter/spring thaws and during heavy precipitation; (2) they change surface water quality through biochemical processes, often resulting in cleaner water; and (3) trap sediments from upstream areas. In addition to other hydrological functions, wetlands also benefit wildlife by providing valuable habitat.

Based on preliminary site plans submitted to team members, it appears the proposed subdivision will infringe upon inland-wetland areas throughout the central portions of the site. The project calls for four wetland crossings of ±70 feet, ±145 feet, ±65 feet and ±80 feet. In addition, it appears

that driveways would also have to be constructed over wetland soils in order to provide access to higher areas where houses are likely to be constructed. As a result, wetland fillings and/or modifications will be required for this project.

Wetland fillings and/or modifications should be avoided where possible. However, in some instances a small amount of wetland filling may be necessary and justifiable (i.e., wetland filling for a road crossing). From a hydrological standpoint, it is often difficult to assess the risks involved in permitting a portion of a wetland area to be filled. For example, an isolated act of filling may not significantly impact the hydrological functions of a wetland. However, a series of fills or the filling in of significant portions of wetlands would lead to substantial detriment such as flooding and potential erosion.

Therefore, it is recommended the applicant first submit a detailed analysis of the potential effects of all wetland fillings and/or modifications for review by appropriate Town officials.

All wetland road or driveway crossings should be properly engineered. It is particularly important to properly size and place culverts. Provisions should be made for removing unstable material beneath the roadbed, backfilling with a permeable road base fill material, and installing culverts as necessary. When crossing wetland, the roads should be placed adequately above the surface elevation of wetlands. This will allow for better drainage of the roads. It will also decrease the frost heaving potential of the road. Road construction through wetland areas should preferably be done during the dry time of the year and should include provisions for effective erosion and sediment control. Consideration should be given to requesting the applicant's engineer supervise all wetland fillings and/or modifications.

Based on the inland-wetland boundaries depicted on the site plan by the applicant's soil scientist, several lots (Lots 6, 7, 8, 9, 17, 18 and 23) contain a moderate percentage of wetland soils on them. Once lots are sold, prospective property owners may wish to fill in wetlands to eliminate seasonally wet areas and/or to establish yards so that swimming pools, patios, etc., can be constructed. These potential fillings and/or modifications, in addition to road or driveway crossings, will undoubtedly further threaten the hydrologic and ecologic values of wetlands on the site. In this regard, town officials and Inland Wetland Commission members should carefully review all requested permits for filling in wetlands and/or portions of wetlands, keeping in mind their hydrologic and ecologic values. One possible alternative to this would be to combine the lots which have a high percentage of wetlands with an adjacent lot so that the amount of "dry area" is greater, thereby reducing a propsective homeowner's desire to fill a wetland.

HYDROLOGY

Surface runoff on the site flows generally downslope where it is intercepted by any of the local discharge points (i.e., watercourses, wetlands, intermittent drainage channels) traversing the property. Water is then

Drainage Areas

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scale

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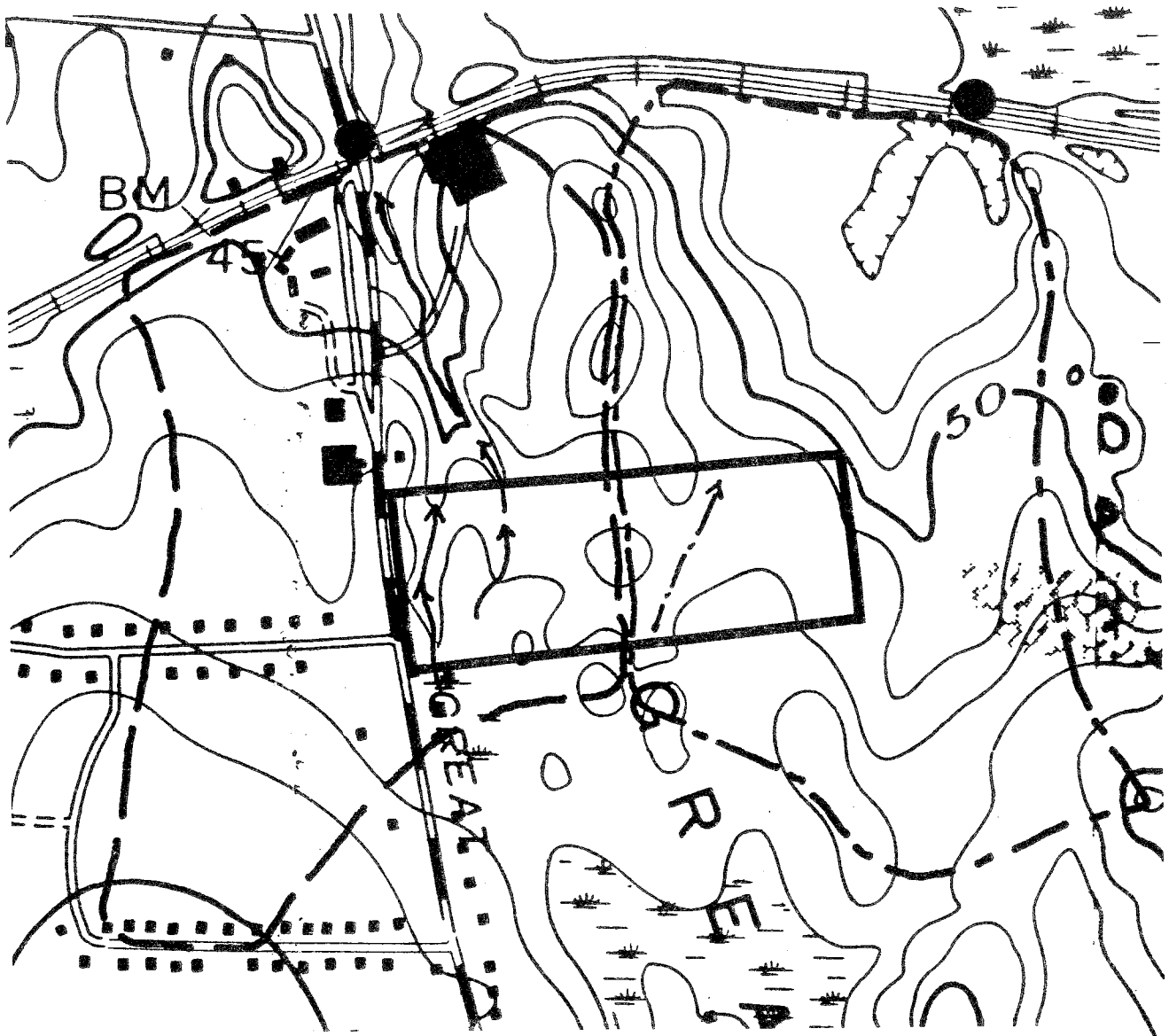
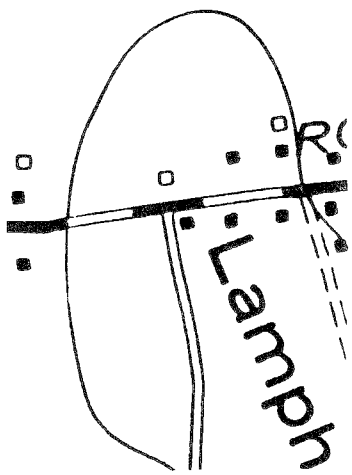




EXPLANATION

Watershed Boundary - Drainage Area I

Watershed Boundary - Drainage Area II

Design Point

Watercourses showing direction of flow

routed by these streams northward towards the wetland area situated between the Penn-Central Railroad grade and Route 156. This wetland drains to an unnamed stream which flows westward passing under Great Neck Road just south of its intersection with Route 156. The stream ultimately empties into Jordon Cove.

Development of the site would be expected to increase the volume of runoff from the site. These increases would be caused by removal of vegetation, compaction of soils, and creation of impervious surfaces, such as roofs and parking areas.

An estimate may be made of the runoff change likely to occur from land use modification alone. A simplified version of Technical Release No. 55 of the USDA Soil Conservation Service provides a technique which the Team's geohydrologist used in formulating the estimates. This method involves the determination of "runoff curve-numbers" which relate amounts of precipitation to amounts of runoff. It takes into consideration the vegetative cover, land use, slopes as well as other factors.

For the purpose of analyzing the runoff changes likely to occur under the present plans, the parcel was divided into two areas. These areas are delineated on the Watershed Boundary Map. It is assumed the project engineer for the subdivision will break the drainage areas down similarly when addressing pre- and post-runoff changes. Each drainage area is based upon a particular point of outflow and shows all the land from which surface runoff ultimately reaches that point. It should be noted that the watershed boundaries shown may not account for possible drainage re-routing through man made structures.

TABLE I. Runoff increases estimated under the proposed plan. (All estimates recorded in inches; curve number is shown in parenthesis for each drainage area under existing and proposed land use).

	10-year Storm	25-year Storm	50-year Storm	100-year Storm
DRAINAGE AREA I				
Under Existing Conditions Curve # (57)	1.10"	1.49"	1.86"	2.38"
Under Proposed Plan Curve # (59)	1.23"	1.65"	2.03"	2.58"
Percent Increase	12%	11%	9%	8%
DRAINAGE AREA II				
Under Existing Conditions Curve # (70)	2.04"	2.57"	3.04"	3.70"
Under Proposed Plan Curve # (72)	2.19"	2.75"	3.24"	3.91"
Percent Increase	7%	7%	6.5%	6%

It should be noted that these runoff amounts are only estimates and should not be used as exact data for any engineering purposes.

As shown by the above table, it is estimated that development in each of the drainage areas depicted would increase the curve number of the property by 2 (57 to 59 for drainage area I and 70 to 72 for drainage area II). The percent increases in runoff depths are slightly higher for Drainage Area I. Under these conditions, runoff depths for a 25-year storm event in Drainage Area I would increase from 1.49 inches to 1.65 inches; an increase of about 11 percent. In Drainage Area II, the runoff depths for a 25-year storm would increase from 2.57 inches to 2.75 inches; and increase of 7%. These increases are significant and underscore the need of judicious stormwater management on the site. Prior to subdivision approval, it is recommended the applicant be required to submit detailed hydrological information on pre- and post-development runoff volumes as well as peak flows from the site. Estimates should be provided for a 10, 25, 50 and 100-year design storm. In addition, the project engineer should take a close look at downstream culverts to assure that they have capacity to handle post-development flows from the site.

Based upon present plans, stormwater drainage emanating from Peggy Lane will be artificially collected in catch basins and ultimately discharged into wetland areas on the site. As mentioned earlier, wetland areas can act as natural runoff retention basins, thereby reducing downstream flooding during storms. For this reason, every effort should be made to minimize wetland fillings and/or modifications. The applicant's engineer should examine the wetland area receiving the stormwater runoff to determine if they can adequately store the projected peak flows following development.

SOILS

The soils are on the landscape generally as depicted on the soil map in the New London County Soil Survey Report. However, included areas that will classify as wetland soils were identified on-site and flagged in the field. The wetland soil boundaries were previously flagged in the field by a private soils consultant. The Team soils specialist inspected the boundaries and found them to be mostly accurate. Minor adjustments were made in the field and noted on the Engineer's plan. These areas were pointed out to the Town Environmental Planner and the Soils Consultant who originally flagged the area.

Wetland soil boundaries are shown on the engineer's plot plan. However, there are some inconsistencies with the location of some of the boundaries on the map versus the boundaries in the field.

The Team soils specialist suggests surveying the flags in the field before placing the boundaries on the plot plan. All flags are numbered consecutively and will provide an adequate reference for locating boundaries as they relate to building sites. This also will provide users with an accurate description of how the wetland soils dissect the parcel. This obviously was attempted, but some of the lines were not placed on the plan as they are in the field.

The wetland soils are interpreted for the Ridgebury, Leicester and Whitman soils. These nearly level, poorly drained and very poorly drained soils are in drainageways and depressions of glacial till upland hills, ridges, plains, and drumloidal landforms. Stones and boulders cover 8 to 25 percent of the surface. These soils were mapped together because there are no major differences in use and management. The Ridgebury and Leicester soils have a seasonal high water table at a depth of about 6 inches. Permeability is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. The available water capacity is moderate. Runoff is very slow or slow. The Whitman soil has a high water table at or near the surface for most of the year. Permeability is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. The available water capacity is moderate. Runoff is very slow, or the soil is ponded. The Ridgebury, Leicester and Whitman soils are identified on the soil map with the symbol "Rn" and within those areas delineated and flagged on the ground as wetlands. This parcel of land has gentle slopes with soils that are mostly deep. A few areas of shallow to bedrock soils are in and around the areas mapped with the symbol "CrC."

Soils delineated as "CrC" consists of somewhat excessively drained Hollis soils and well drained Charlton soils. These soils are on glacial till uplands with rock outcrops covering up to 10 percent of the surface. Stones and boulders cover 1 to 8 percent of the surface. The soils of this complex are so intermingled on the landscape that it was not practical to separate them in mapping at the map scale used. Permeability of the Hollis soil is moderate or moderately rapid above the bedrock. The available water capacity is low. Runoff is medium or rapid.

The deep, well drained soils are the Canton and Charlton soils found in the areas mapped with the symbols "CcB" and "CcC." These soils are of glacial till origin and are commonly found on upland hills, plains, and ridges. Stones and boulders cover 1 to 8 percent of the surface. They were mapped together because there are no major differences in their use and management. Permeability of the Canton soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. Permeability of the Charlton soil is moderate or moderately rapid throughout. The available water capacity of these soils is moderate and runoff is medium.

The deep moderately well drained soils are in the areas mapped with the symbols "SwB" and "WyB." These are the Sutton and Woodbridge soils. They are commonly on upland glacial till plains, hills, and ridges. Stones and boulders cover 1 to 8 percent of the surface. They have a seasonal high water table at a depth of about 18 inches. Permeability is moderate or moderately rapid in Sutton soils. Permeability is moderate in the surface layer and subsoil and slow or very slow in the substratum in Woodbridge soils. The available water capacity is moderate. Runoff is medium. Woodbridge and Sutton soils warms up and dries out slowly in the spring.

An interpretation chart for building site development for this area is included in the Appendix to this report. Soils are rated in their "natural state," that is, no unusual modification of the soil site or material is made other than that which is considered normal practice for the rated use.

Only the most restrictive features are listed. There may be other features that need to be treated to overcome soil limitations for a specific purpose. Therefore, a soil rated severe gives those soil features that cause the soil to be rated severe. Because a soil is rated severe does not mean it cannot be used. This rating only means major reclamation or special design is required. The definitions of the ratings are as follows:

Slight - The degree of limitation is minor and can be overcome easily

Moderate - This degree of limitation can be overcome or modified by special planning, design, or maintenance.

Severe - This degree of limitation generally requires major soil reclamation, special design, or intensive maintenance.

A general sediment and erosion control plan was submitted with the site plans. However, it will be necessary to add the following information to that plan:

1) A schedule of operations to include starting and completion dates for major development phases, such as land clearing and grading, street, sidewalk, and storm sewage installation, etc.

2) Seeding, sodding, or revegetation plans and specifications for all unprotected or unvegetated areas.

3) Timing of planned sediment control measures.

4) General information relating to the implementation and maintenance of the sediment control measures.

5) Provisions should be made to effectively accommodate the increased runoff caused by changed soil and surface conditions during and after development. Computations for runoff shall be in accordance with methods described in "Technical Release No. 55, Urban Hydrology, Engineering Division, Soil Conservation Service, U.S.D.A., January 1975, as amended."

6) Silt fence is recommended over the use of haybales as it provides better sediment control.

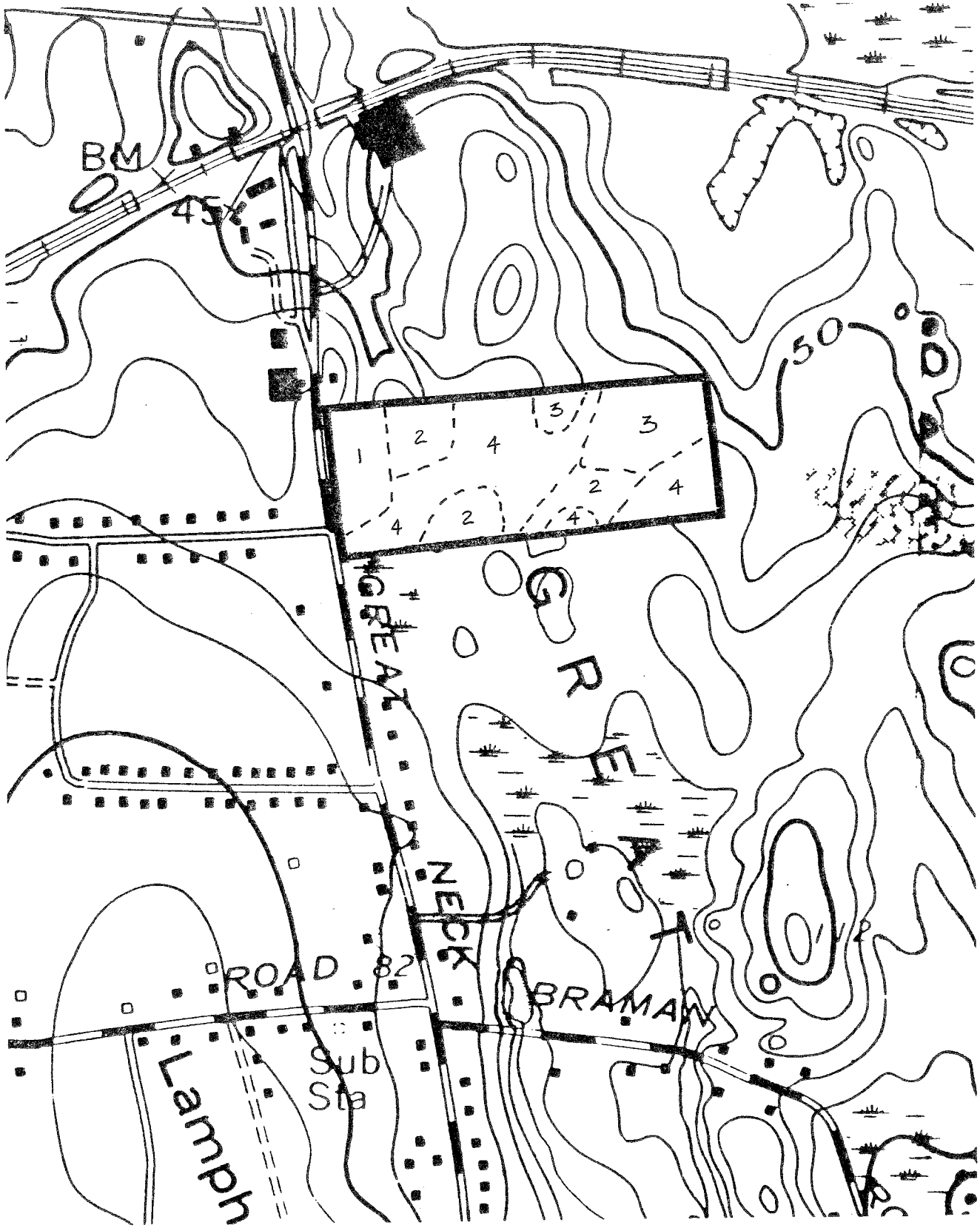
The Soil Conservation Service is available to review the sediment and erosion control plan when it is completed for this project.

VEGETATION

The following descriptions refer to the accompanying vegetation type map.

Area #1. This area, adjacent to Great Neck Road, has been partially cut over within the last five years. It appears that firewood was removed. The area is a jungle of brush with scattered larger trees, which include

Vegetation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red maple, white ash, black oaks, and Ailanthus (Tree of Heaven). The understory tangle includes climbing bittersweet, greenbrier, spicebush, sweet pepperbush, and arrowwood.

Area #2. This is undisturbed woods that shows good growth. Although water drainage is poor, the ground is just high enough to support a good stand of black or red oak, white ash, red maple, and yellow birch. The understory varies from very dense to moderately dense with mountain laurel, sweet pepperbush, arrowwood and greenbrier. In places there are seedlings and saplings of black birch and red maple.

Area #3. These are the best drained sites on the property, yet the areas are interlaced with small areas of poor drainage (red maple stands). The forest type is the typical oak-hickory type, containing black oak, scarlet oak, and white oaks, pignut hickory, black birch, and some red maple. The understory is not as dense as in the other stands, containing mostly seedlings and saplings of the overstory trees plus some sassafras, and in a few open spots some climbing bittersweet.

Area #4. This is basically a red maple swamp type. There is some variation from areas where the water table is high, but it does drain away to areas of dead standing water. The predominant species is red maple with some black gum (tupelo), yellow birch and white ash. In most places, the understory is quite thick with mountain laurel, sweet pepperbush, spicebush, and greenbrier. Along the banks of the perennial brook there is cardinal flower plus other other grasses and rushes.

Development of this property is going to require considerable fill on the roads, driveways, and on som eof the house lots. Although the plans provide for a series of culverts, it is inevitable that changes in the water table will occur, due either to impeded water flow or increased water volumes from the clearing and paving. This will have a disastrous effect on whole stands of trees. The mortality may take two to three years or more to become evident, and the homeowner who has bought a house on a wooded lot is going to be very disappointed in a few years time.

Another problem is going to be trees being blown over by the wind. Trees growing on these poorly drained soils have very shallow root systems and long thin boles, making them subject to storm damage. Severe tree loss problems should be expected if this site is developed as planned.

WILDLIFE

The proposed development site is 30 acres in size. It is located off Great Neck Road in Waterford.

There is a small brook on the property and some associated wetlands. There is also a small wetland site near the eastern boundary.

Wetlands cover a small area of the proposed project site. Wetlands are absolutely essential areas for many species of wildlife and important to all because they provide the habitat requirements needed for survival.

Not only are they important to wildlife, they are important to man also. They act as water storage and absorption areas that help prevent flooding. There is usually severe inherent limitations in developing wetlands due to poorly drained unstable soil types.

Wetland habitat provides a rich variety of food, cover, nesting and brood rearing sites for a great number of wildlife species. They provide breeding and nesting sites for waterfowl. More than 50 species of game and non-game species including beaver, bobcat, fox, mink, muskrat, opossum, white-tailed deer, snowshoe hare, woodcock, great blue herons, geese, ducks, songbirds and warblers use wetland habitat. Because of previous development, there is less wetlands available for use by wildlife. Developing any small area by building on it will leave the majority of the area unavailable for wildlife to use.

Development will decrease the amount of habitat simply because the land will be occupied by buildings. The quality of the habitat will be decreased because an undeveloped area of land will be broken up with buildings and human activity. Some species which require larger undeveloped areas will probably be forced out or will reduce their use of the area. They may be able to move into adjacent undeveloped areas if there is suitable habitat available and the competition with other species already occupying the area is not too great. Other species which are more adaptable to man's presence will probably remain. Some new species may even be attracted to the area.

Wildlife Recommendations

If carried out, the following wildlife recommendations can help lessen the impact to some species using the area. Some animals will leave the area, but others may find it even more attractive after development.

1) Design of Development/Wetlands

The impact on wildlife of the area can be lessened to some degree if some thought is given to the development. Housing developments can be designed in two basic ways. Houses can be built on larger house lots or they can be built on small lots or in clusters, leaving open space areas. Both designs leave more open space for wildlife as opposed to having small lots and developing the entire acreage.

As proposed, a 6 acre open space is to be left. Probably none of the wetland areas should be developed due to the severe limitations caused by soil capabilities and the regulations governing their development. The wetland areas should be left as the open space areas if possible.

A buffer area of uncut vegetation should be left along the entire length of the watercourse. This will provide food, cover and nesting sites for many species. Because the brook will remain shaded, water temperatures will not rise, making the brook uninhabitable for some species.

2) Clearing

When the initial clearing for building is done, try to leave as many trees and shrubs as possible, especially those useful to wildlife. Some useful species include:

white oak (Quercus alba)
red oak (Quercus rubra)
black cherry (Prunus Serotina)
quaking aspen (Populus tremuloides)
red-osier dogwood (Cornus Stolonifera)
apple (Malus spp.)

3) Landscaping

On small acreage with many buildings, landscaping can do a great deal to provide habitat and make an area attractive to wildlife. First, leave as many trees as possible around the buildings. This will not only benefit wildlife by providing food, cover and nesting sites (especially for songbirds), but will also be more aesthetically pleasing for the residents of the develo-ment. Leave as many snag trees (standing dead trees) and den trees (trees with holes) as possible. These trees are used by insect eating birds and cavity nesting birds and mammals.

Plant trees and shrubs which are useful to wildlife and landscaping such as:

japanese barberry (Berberis vulgaris)
flowering dogwood (Cornus florida)
honeysuckle (Lonicera spp.)
juniper (Juniperus spp.)
bayberry (Myrica pennsylvanica)
maple-leaved virburnum (Viburnum acerifolium)
red-osier dogwood (Cornus stolonifera)
alternate-leaf dogwood (Cornus alternifolia)
American holly (Ilex opaca)
American mountain ash (Sorbus americana)
autumn-olive (Elaegnus umbellata)
winterberry (Ilex verticillata)
American cranberrybush (Viburnum trilobum)
red maple (Acer rubrum)
chokecherry (Prunus virginiana)

A variety of trees and shrubs should be used. Most species of wildlife need to have cover when they move from place to place. By leaving corridors of vegetation, this will allow wildlife to utilize the area and also have access to adjacent areas. Large expanses of lawn with no trees or shrubs present should be discouraged. These factors will allow wildlife to better utilize the area and thus make it more attractive to wildlife.

PLANNING CONCERNS

Surrounding land uses are medium density residential and undeveloped land. The Town of Waterford bulky waste facility is located east of the site off of Miner Lane. Retail commercial uses are located north of the

site along Route 213. The Waterford civic triangle area is located about one mile north of the site along Route 156.

The proposed subdivision road, Peggy Lane, will enter Route 213 at a level stretch with good sight lines in both directions. The 1982 DOT traffic log indicated an average daily traffic count of 5,700 vehicles on Route 213 at this point. CONNDOT's data indicate a volume/capacity ratio of 0.4030 for this same section of Route 213. A ratio of 0.75 is considered congested and 1.25 is considered the intolerable threshold, so the road is well below the problem traffic levels. The peak-hour volume under this analysis is 806 vehicles per hour and the road has a capacity of 2,000 vehicles per hour.

Thirty-seven single family homes are scheduled to be constructed under this proposal. Data published by CONNDOT* indicate that a residential subdivision can be expected to generate 10.6 weekday trips per unit with an evening peak of 10.1% of average daily traffic. This will result in 393 more daily trips with an evening peak of 40 trips. The addition of this evening peak of 40 to the current peak of 806 vehicles per hour on Route 213, referred to above, results in a new peak-hour volume of 846 which is still well below the capacity of 2,000 vehicles per hour.

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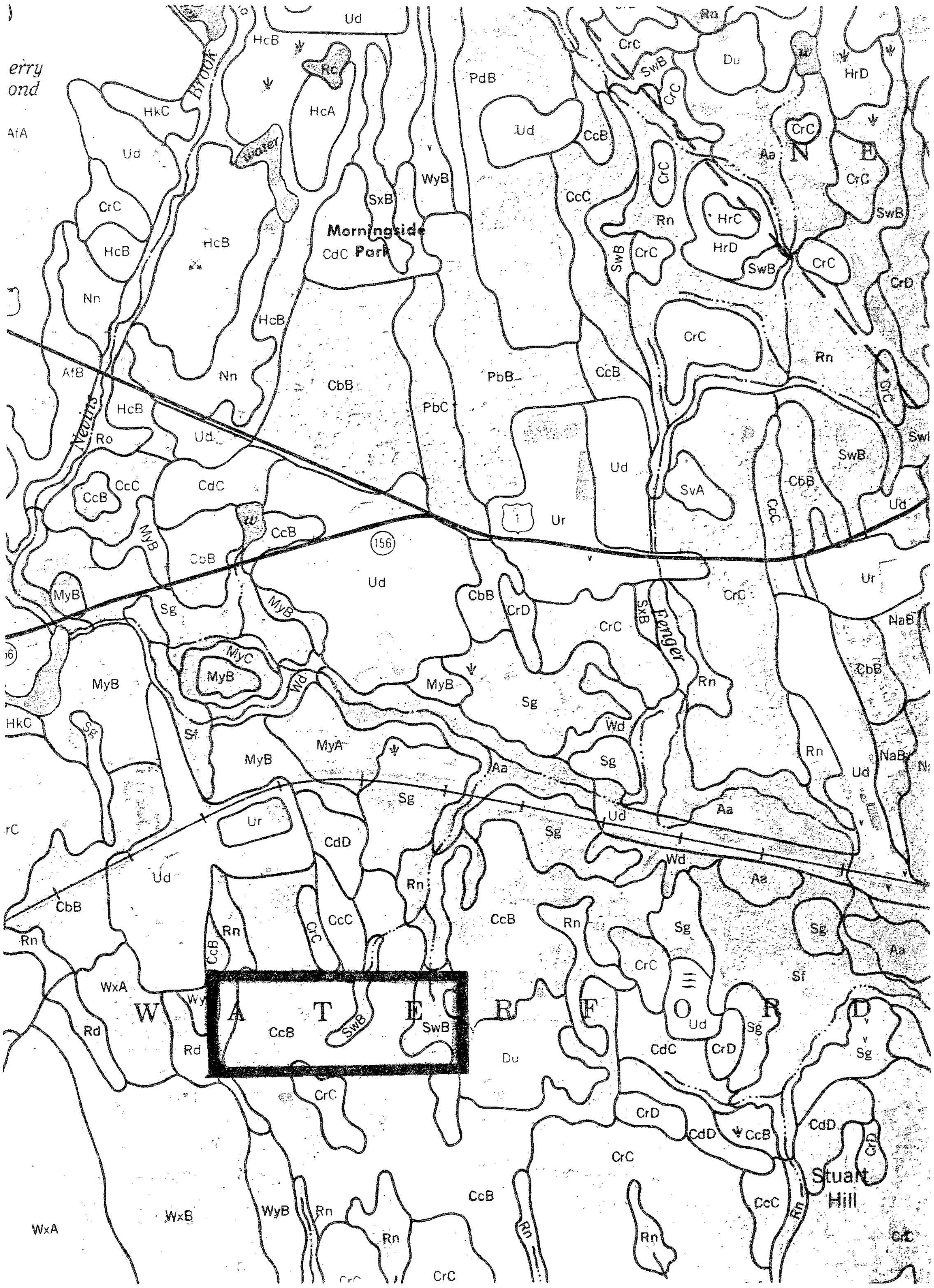
*Trip Generation Study of Various Land Uses, Supplement A, by Israel Zevin, Connecticut Department of Transportation, 1975.

Appendix

Soils



Morningside Park
Stuart Hill
W A T E R F O R D
N E
Brook
Nevins
Fenger
water

WINDERMERE ESTATES, PEGGY LANE, WATERFORD, CONNECTICUT - Soils Descriptions & Limitations

Soil Symbol	Soil Name	BUILDING SITE DEVELOPMENT				SANITARY FACILITIES	
		Dwellings w/o Basements	Dwellings w/ Basements	Local Roads & Streets	Lawns & Landscaping	Septic Tank Absorption Fields	Sewage Lagoon Areas
CcB*	Canton	Slight	Slight	Slight	Moderate: large stones.	Slight	Severe: seepage.
	Charlton	Slight	Slight	Slight	Severe: slope.	Slight	Severe: seepage.
CcC*	Canton	Moderate: slope.	Moderate: slope.	Moderate: slope.	Moderate: slope, lg.stones.	Moderate: slope.	Severe: slope, seepage.
	Charlton	Moderate: slope.	Moderate: slope.	Moderate: slope.	Moderate: slope, lg.stones.	Moderate: slope.	Severe: seepage, slope.
CrC*	Charlton	Moderate: slope.	Moderate: slope.	Moderate: slope.	Moderate: slope, lg.stones.	Moderate: slope.	Severe: seepage, slope.
	Hollis	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: thin layer.	Severe: depth to rock.	Severe: slope, depth to rock, seepage.
Rn*(1)	Ridgebury	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.	Severe: percs slowly, wetness.	Slight.
	Leicester	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.	Severe: wetness.	Severe: seepage, wetness.
	Whitman	Severe: ponding.	Severe: ponding.	Severe: frost action, ponding.	Severe: ponding.	Severe: percs slowly, ponding.	Slight.
SwB (2)	Sutton	Moderate: wetness.	Severe: wetness.	Moderate: frost action, wetness.	Moderate: large stones, wetness.	Severe: wetness.	Severe: wetness, seepage.
WyB	Woodbridge	Moderate: wetness.	Severe: wetness.	Severe: frost action.	Moderate: large stones, wetness.	Severe: percs slowly, wetness.	Moderate: slope.

(1) = Wetland soils regulated under P.A.155
(2) = Intermittent streams
* = See description of the map unit for composition and behavior characteristics.

About the Team

The Eastern Connecticut Environmental Review Team (ERT) is a group of professionals in environmental fields drawn together from a variety of federal, state, and regional agencies. Specialists on the Team include geologists, biologists, foresters, climatologists, soil scientists, landscape architects, archeologists, recreation specialists, engineers and planners. The ERT operates with state funding under the supervision of the Eastern Connecticut Resource Conservation and Development (RC&D) Area.

The Team is available as a public service at no cost to Connecticut towns.

PURPOSE OF THE TEAM

The Environmental Review Team is available to help towns and developers in the review of sites proposed for major land use activitis. To date, the ERT has been involved in reviewing a wide range of projects including subdivisions, sanitary landfills, commercial and industrial developments, sand and gravel operations, elderly housing, recreation/open space projects, watershed studies and resource inventories.

Reviews are conducted in the interest of providing information and analysis that will assist towns and developers in environmentally sound decision-making. This is done through identifying the natural resource base of the project site and highlighting opportunities and limitations for the proposed land use.

REQUESTING A REVIEW

Environmental reviews may be requested by the chief elected officials of a municipality or the chairman of town commissions such as planning and zoning, conservation, inland wetlands, parks and recreation or economic development. Requests should be directed to the Chairman of your local Soil and Water Conservation District. This request letter should include a summary of the proposed project, a location map of the project site, written permission from the landowner allowing the Team to enter the property for purposes of review, and a statement identifying the specific areas of concern the Team should address. When this request is approved by the local Soil and Water Conservation District and the Eastern Connecticut RC&D Executive Council, the Team will undertake the review on a priority basis.

For additional information regarding the Environmental Review Team, please contact Jeanne Shelburn (774-1253), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, P.O. Box 198, Brooklyn, Connecticut 06234.