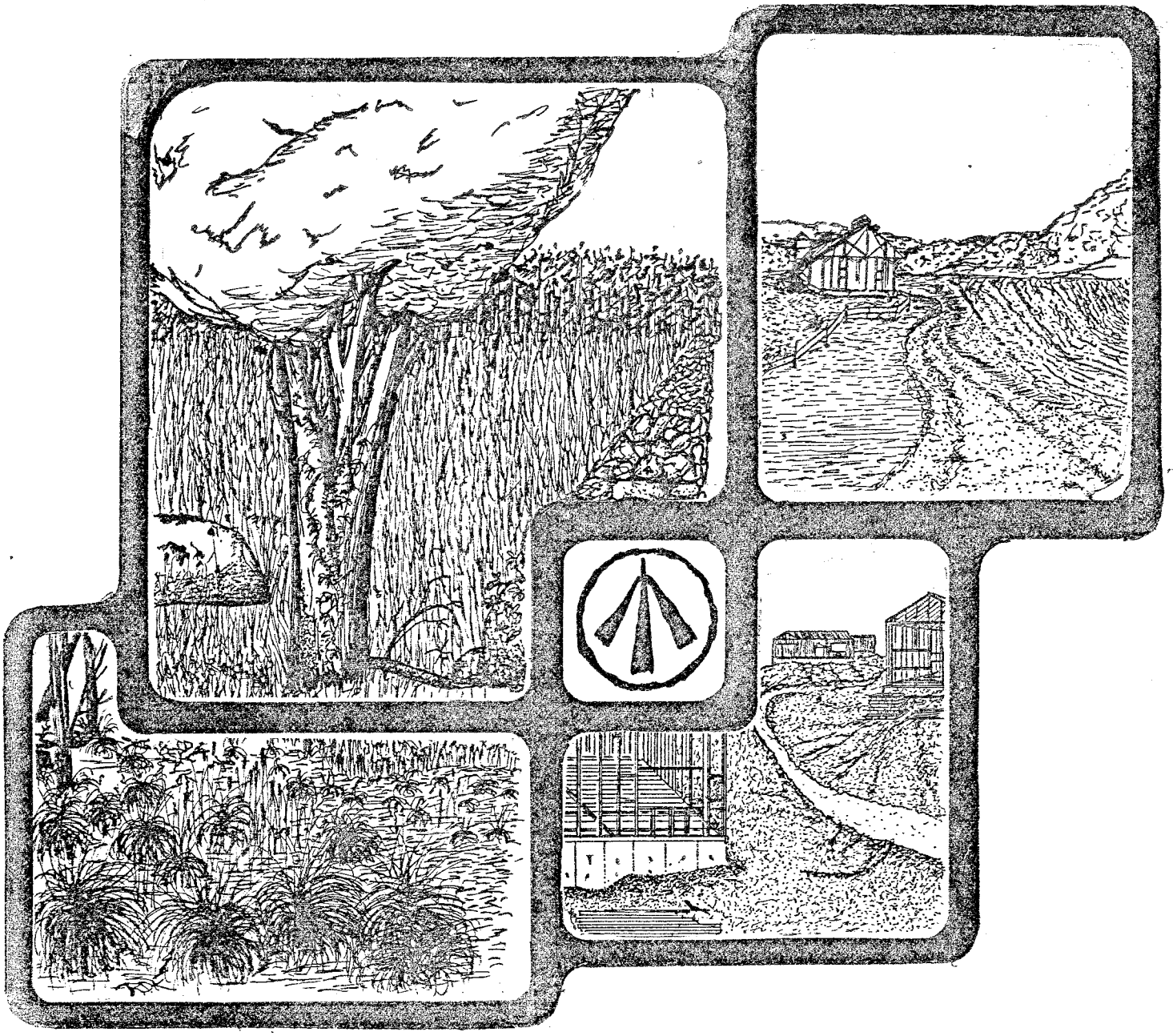
ENVIRONMENTAL REVIEW TEAM REPORT



ANSONIA—DERBY WATER COMPANY LANDS

KING'S MARK
RESOURCE CONSERVATION & DEVELOPMENT AREA

KING'S MARK
ENVIRONMENTAL REVIEW TEAM REPORT

ANSONIA—DERBY
WATER COMPANY LANDS
APRIL, 1984

King's Mark Resource Conservation and Development Area
Environmental Review Team
Sackett Hill Road
Warren, Connecticut 06754

ACKNOWLEDGMENTS

The King's Mark Environmental Review Team operates through the cooperative effort of a number of agencies and organizations including:

Federal Agencies
U.S.D.A. Soil Conservation Service

State Agencies
Department of Environmental Protection
Department of Health
University of Connecticut Cooperative Extension Service
Department of Transportation

Local Groups and Agencies
Litchfield County Soil and Water Conservation District
New Haven County Soil and Water Conservation District
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Fairfield County Soil and Water Conservation District
Northwestern Connecticut Regional Planning Agency
Valley Regional Planning Agency
Central Naugatuck Valley Regional Planning Agency
Housatonic Valley Council of Elected Officials
Southwestern Regional Planning Agency
Greater Bridgeport Regional Planning Agency
Regional Planning Agency of South Central Connecticut
Central Connecticut Regional Planning Agency
American Indian Archaeological Institute
Housatonic Valley Association

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FUNDING PROVIDED BY
State of Connecticut

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Sandra Bausch, ERT Cartographer
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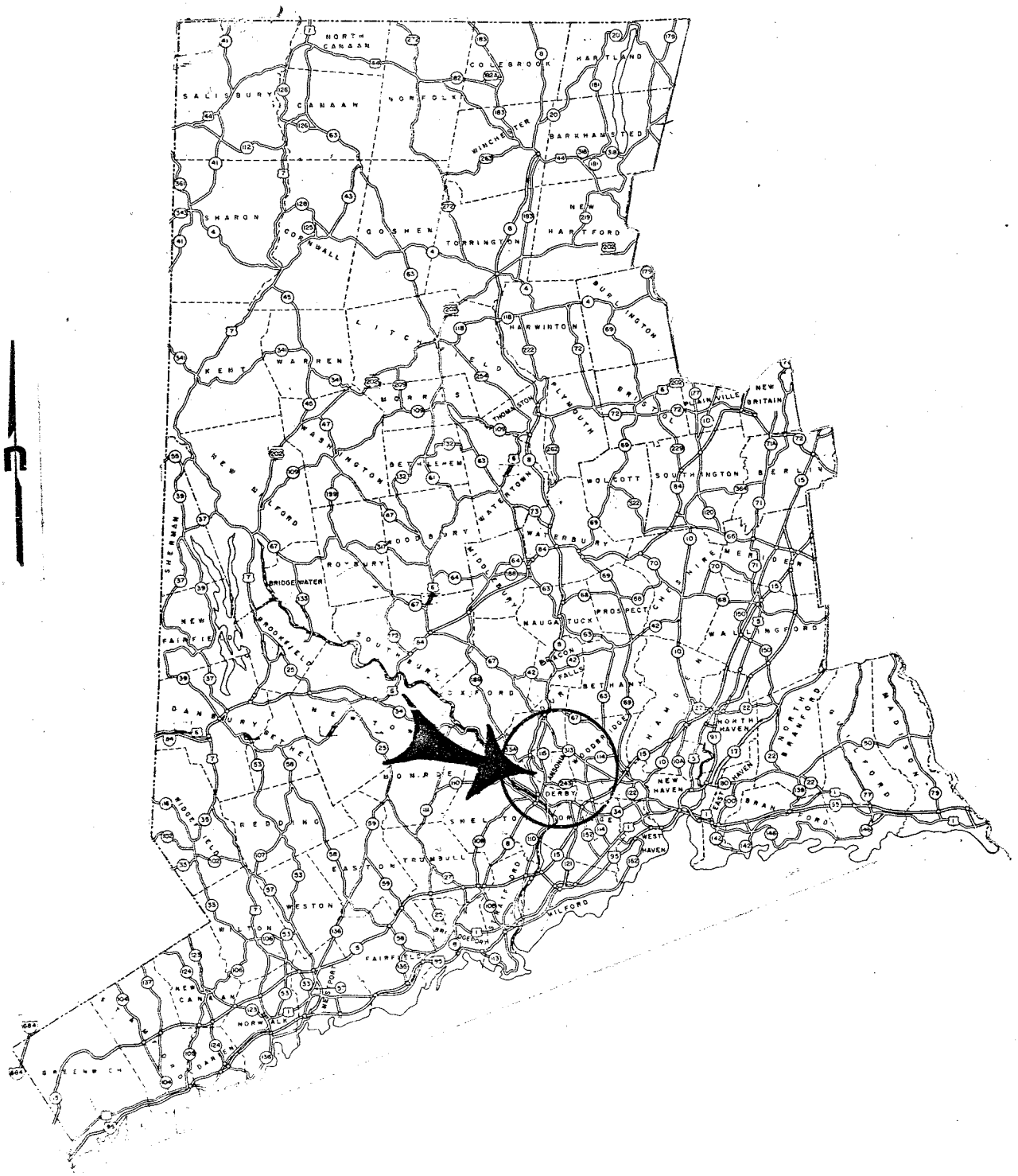


Scale 1" = 10 miles

10 0 5 10 miles

ENVIRONMENTAL REVIEW TEAM REPORT
ON
ANSONIA-DERBY WATER COMPANY LANDS

I. INTRODUCTION

The Ansonia-Derby Water Company is planning on selling its water company operations together with most of its land. This action is being taken due to the Water Company's inability to comply with the requirements of the Safe Drinking Water Act. The majority of the Ansonia-Derby Water Company land is being proposed for acquisition by the South Central Connecticut Regional Water Authority, based in New Haven. Approximately 1,426 acres, however, will be retained by the Ansonia-Derby Water Company and is expected to go on the market in the future.

As shown in Figure 1, the land to be retained by the Ansonia-Derby Water Company can be divided into five parcels. These include:

1) Great Hill Reservoir Tract, ± 802 acres, Oxford and Seymour
2) Steep Hill Road Area, ± 195 acres, Seymour
3) Fountain Lake Reservoir Tract, ± 185 acres, Seymour, Derby, Ansonia
4) Ansonia Reservoirs Tract, ± 211 acres, Ansonia, Derby
5) Peat Swamp Area, ± 33 acres, Woodbridge

The Valley Regional Water Study Committee was formed by special state legislation to recommend to the legislature appropriate action regarding the acquisition of the Water Company operations and its properties. The Water Study Committee requested this ERT study to become more aware of the environmental characteristics of the ± 1,426 acres of land to be retained by the Ansonia-Derby Water Company. Specifically, the ERT was requested to 1) provide a natural resources inventory of the subject sites, and 2) discuss the opportunities and limitations of the properties for alternate land uses. This information will assist the Water Study Committee in guiding future land use decisions within this ± 1,426 acre area.

The King's Mark Executive Committee considered the Water Study Committee's request and approved the project for review by the Team.

The ERT met and field reviewed the area on January 25, 1984. Team members for this review included:

William Hyatt	Fishery Biologist	CT Department of Environmental Protection
Richard Lynn	ERT Coordinator	King's Mark RC&D Area
Paul Rothbart	Wildlife Biologist	CT Department of Environmental Protection
Donald Smith	Forester	CT Department of Environmental Protection
William Warzecha	Geohydrologist	CT Department of Environmental Protection
Irene Winkler	Soil Conservationist	U.S.D.A. Soil Conservation Service

a. GENERAL LOCATION OF STUDY SITES

Prior to the review day, each team member was provided with a summary of the proposed study, a checklist of concerns to address, a detailed soil survey map, and a topographic map of the area. The day of the field review, the ERT met with representatives from the Valley Regional Water Study Committee and investigated the five sites. Following the field review, individual reports were prepared by each team member and forwarded to the ERT Coordinator for compilation and editing into this final report.

This report presents the team's findings and recommendations. It is important to understand that the ERT is not in competition with private consultants, and hence does not perform design work or provide detailed solutions to development problems. Nor does the team recommend what ultimate action should be taken on a proposed project. The ERT concept provides for the presentation of natural resources information and preliminary development considerations--all conclusions and final decisions rest with the towns and the Water Study Committee. It is hoped the information contained in this report will assist all parties in making environmentally sound decisions.

The report is divided into three major sections. The first section discusses the earth and water resources of the five sites. The second section discusses the vegetation, wildlife, and fisheries resources of the sites. The final section discusses various land use planning considerations with regard to the future use of the sites.

If any additional information is required, please contact Richard Lynn, (868-7342), Environmental Review Team Coordinator, King's Mark RC&D Area, Sackett Hill Road, Warren, CT 06754.

EARTH AND WATER RESOURCES

II. EARTH AND WATER RESOURCES

A. SITE 1 - GREAT HILL RESERVOIR TRACT

1. TOPOGRAPHY AND GEOLOGY

The "Great Hill Reservoir" tract is bisected nearly in half by the Seymour-Oxford town line. It is an irregularly shaped parcel of land, ± 802 acres in size, which lies generally southeast of Rockhouse Hill in the Town of Oxford.

The tract of land is characterized by gently rolling to very steep terrain (see Figure 1.1). The steepest slopes occur generally on the east and west side of Great Hill Reservoir, in the southern part of the tract, and are associated with rock outcrop areas. Maximum and minimum elevations on the site are 580 feet and 190 feet above mean sea level, respectively. Fourmile Brook, whose headwaters originate in the northernmost tip of the site, traverses the central portion of the property. It flows generally parallel to Great Hill Road and Squantuck Road. Great Hill Reservoir, which is one of the major topographic features on the parcel, is an impoundment of Fourmile Brook. It is located in the southwest portion of the property as shown in Figure 1.1.

The "Great Hill Reservoir" tract is located in an area encompassed by the Ansonia, Naugatuck, Southbury and Long Hill topographic quadrangles. Bedrock geologic maps have been completed for all of the above mentioned topographic quadrangles. Surficial geologic mapping has been published only for the Ansonia and Naugatuck topographic quadrangles. There is preliminary surficial geological information for the Long Hill topographical quadrangle, however, which is available for review purposes at the Department of Environmental Protection's Natural Resource Center in Hartford. There is no surficial geologic information available for the Southbury topographic quadrangle to date. All of the above mentioned bedrock geologic maps and the two published surficial geologic maps (Ansonia and Naugatuck) are available for purchase at the Natural Resources Center.

SURFICIAL GEOLOGY

Based on available surficial geologic mapping and the Soil Survey of New Haven County, prepared by the U.S. Department of Agriculture's Soil Conservation Service, the surficial (overburden) geologic materials overlying bedrock on the site are two glacially-derived materials: till and stratified drift (see Figure 1.2). Till, which is the most extensive of the two materials, is a nonsorted, unconsolidated sediment that was deposited directly from glacier ice. The till consists of a complex mixture of sand, silt, clay, gravel, and boulders. The texture of till is commonly sandy, stony, and relatively loose in the upper few feet. At depth, it becomes much more silty and compact. Due to the compact layers associated with till soils, it is often difficult to penetrate these layers with hand tools; hence, the name "hardpan". In addition, these compact layers often impede the downward movement of groundwater, resulting in a high groundwater table, especially during the wet times of the year. Thicknesses of the till range from zero, where rock outcrops, to probably not more than 10 feet at various points between outcrops.

FIGURE 1:1
TOPOGRAPHIC MAP

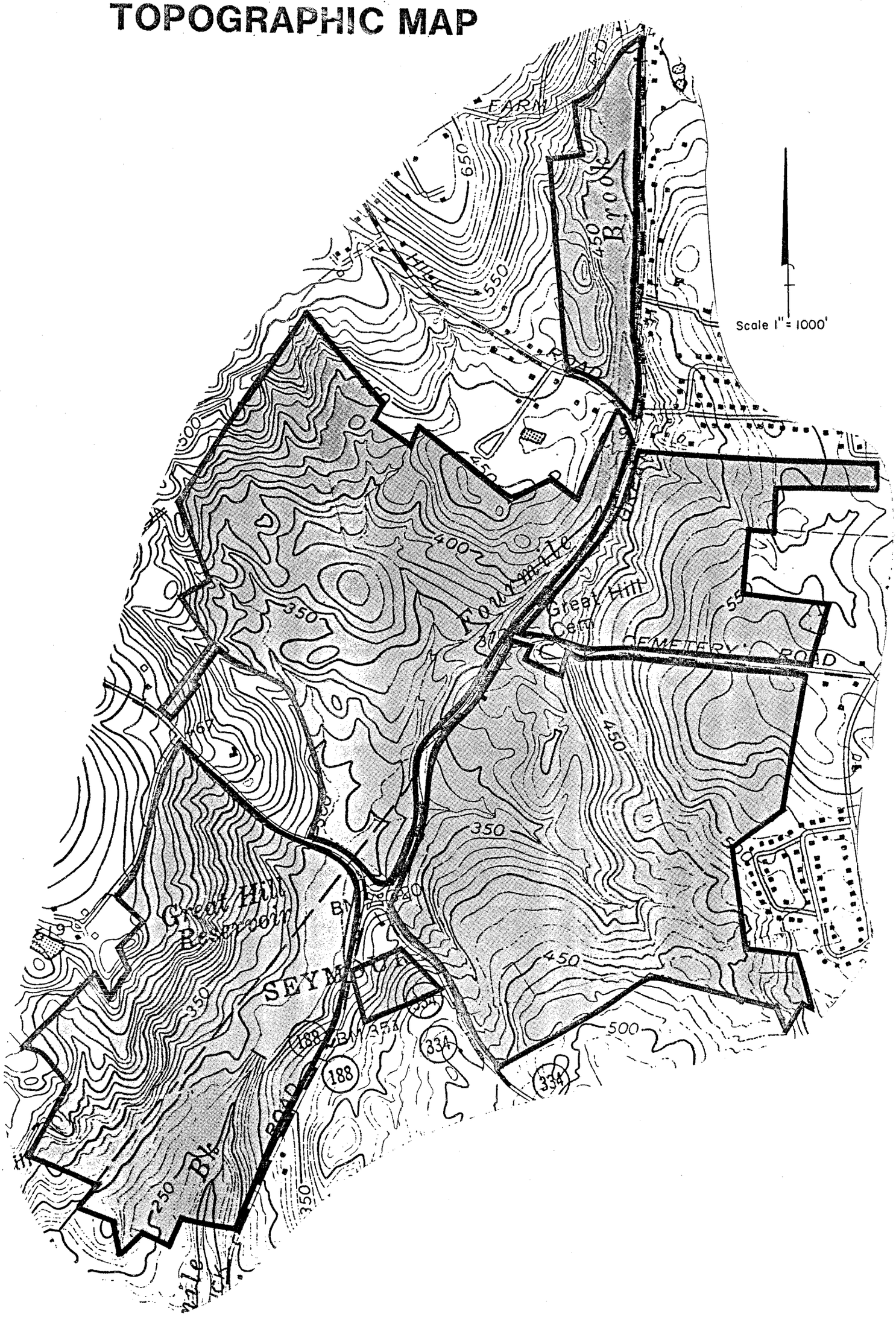


FIGURE 1:2
SURFICIAL GEOLOGY

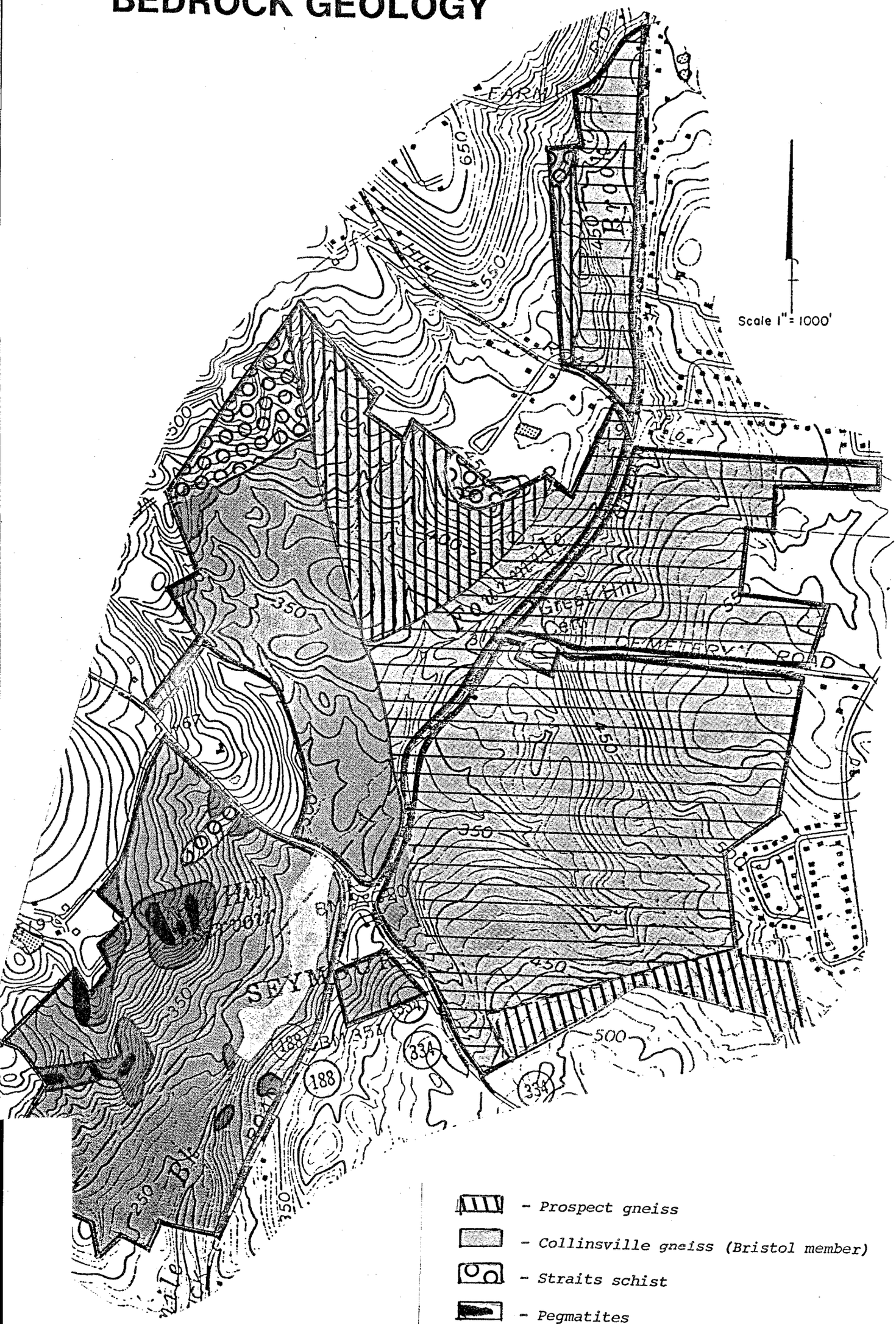
Stratified drift, the other surficial geologic material found on the site, is also a product of glacial processes. Unlike till, it was transported and deposited away from the main ice mass or adjacent to wasting ice by meltwater streams. Because they were transported and deposited by water, they commonly are well-sorted by grain size and are layered (stratified). The main components of stratified drift are sand and gravel. These deposits, which are delineated as HkB and HkC (Hinckley soils), HmE (Hinckley and Manchester soils), and Nr (Ninigret soils) on the accompanying soils map, are located mainly in the central and east central portions of the site. Thicknesses of the stratified drift deposits range from 2-3 feet at the contact of till-stratified drift to probably not more than 10 feet.

Overlying till and/or stratified drift sediments, mainly along watercourses and intermittent drainage channels and in low, topographic depressions, are sediments referred to as swamp deposits. "Swamp deposits" consist of decayed organic materials interbedded with sand, silt, and clay. Based on the Soil Survey for New Haven County, they comprise nearly 25 percent of the site and are delineated by the symbols RN (Ridgebury, Leicister, and Whitman soils) and Rd (Ridgebury soils) on the accompanying soils map. Due to the high groundwater table associated with the above mentioned soils, residential development would not be well suited in these areas. From a hydrological viewpoint, these areas, which are also referred to as 'inland-wetlands', serve many valuable functions. They act as natural runoff retention basins, reducing downstream floodflows during storms. They trap sediment from upstream areas. They change water quality through biochemical processes, often resulting in cleaner water. In addition, they serve as habitat for many species of animals and plants. For these reasons and others, construction in wetlands or wetland filling should be avoided.

BEDROCK GEOLOGY

Rock types found on the site consists of an assemblage of schists, gneisses, and pegmatites (see Figure 1.3). A schist is a crystalline metamorphic rock (metamorphic means altered from a previously existing rock type) in which mineral grains that are flaky, platy, or elongate have been aligned into distinct layers. A gneiss is a crystalline metamorphic rock, in which granular minerals are interlayered with thin bands of elongate or flaky mineral grains. A pegmatite is a crystalline igneous rock (igneous means formed directly from molten magma liquid) generally dominated by very large crystals of feldspar and quartz. It also includes rare tourmaline and beryl as accessary minerals. Close examination of pegmatite outcrops may yield quality minerals to mineral collectors and/or rock hounds. Pegmatites outcrop generally along the west side of Great Hill Reservoir. Because pegmatites are more resistant to weathering than the gneissic rocks surrounding them, they are commonly found in association with outcrops of that unit. It should be pointed out that pegmatites are not part of the rock unit (Bristol member of the Collinsville Formation) but are younger rocks which intruded the gneisses as a liquid then solidified. Included with this report is a bedrock geologic map showing the approximate distribution of the rock units described above as adapted from published bedrock geologic maps for all the topographic quadrangles encompassing the site.

FIGURE 1:3
BEDROCK GEOLOGY



GEOLOGIC DEVELOPMENT CONCERNS

The areas most suitable for residential development from a geologic standpoint are the thick till areas north and south of Cemetary Road, and the stratified drift area at the intersection of Great Hill Road and Cemetary Road. In addition, based on visual inspection of the property, soil survey maps and topographic maps, areas west of Fourmile Brook in the west central portions of the property appear to be moderately well suited for residential development. However, areas of seasonal wetness (areas designated RN on the soils map) scattered throughout this portion of the site as well as shallow to bedrock areas (areas designated by HpE on the soils map) particularly along the western limits will limit development. Shallow to bedrock conditions and seasonally wet areas will weigh heaviest on the ability to provide adequate on-site sewage disposal systems, which will be required, since public sewers are not available to the site.

Due to extensive wet areas and thin soil (till) cover, the usefulness of the northern limits of the site for residential development will be low. Although some southern portions of the site (area east and west of Great Hill reservoir) could be developed, the topography (moderate to very steep slopes) and geology (i.e. thin soil cover, scattered rock outcrops, etc.) lends itself to only low intensity development. If the parcel is developed, it will be necessary to conduct detailed soil testing and percolation tests throughout any proposed development sites in order to determine whether or not the land is suitable for subsurface sewage disposal. This testing should be conducted by, or witnessed by, the local health departments and/or health districts.

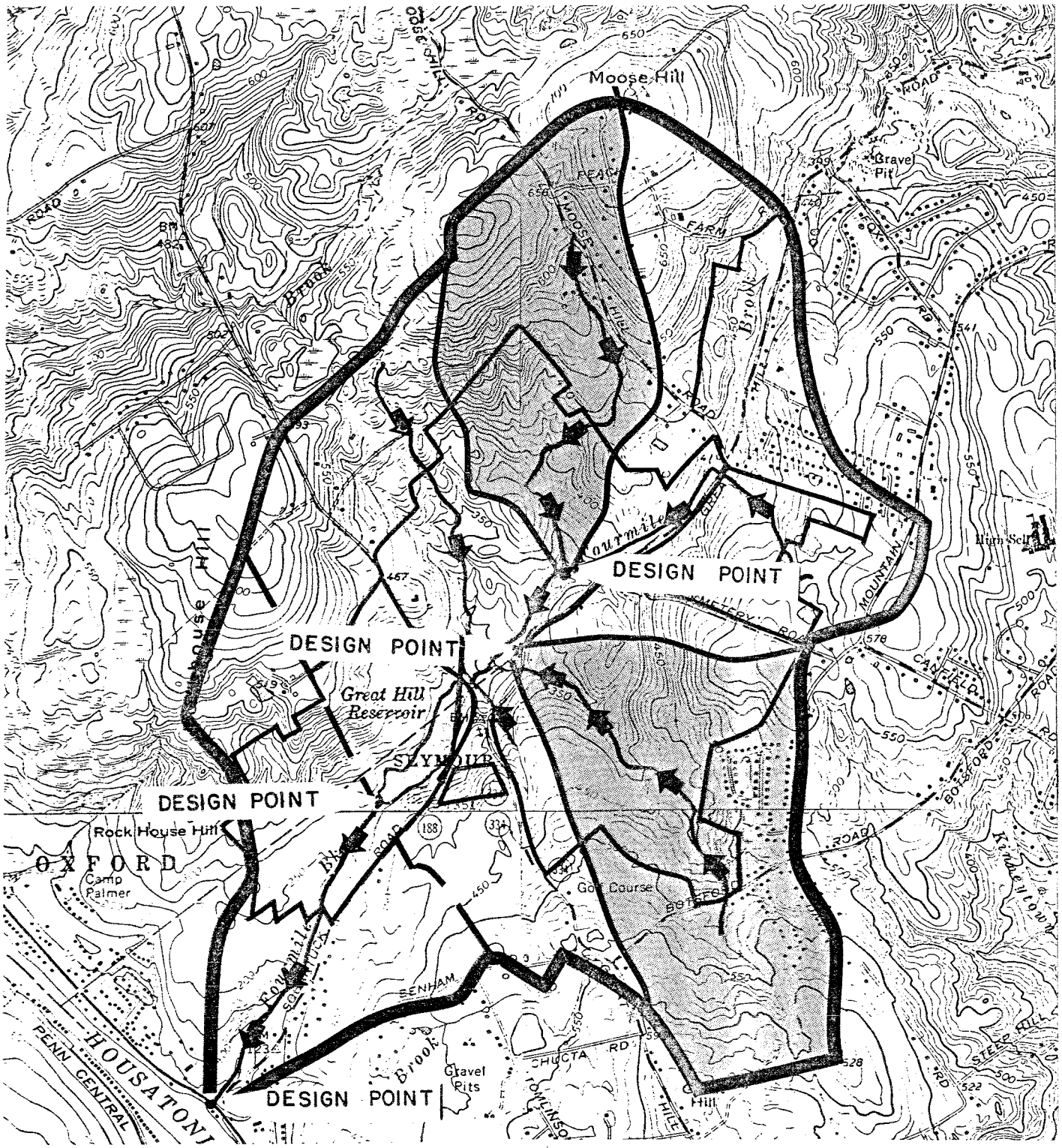
From a recreational viewpoint the entire site would be conducive to passive recreational development, especially in view of the attractive surface water bodies (i.e., Great Hill Reservoir and Fourmile Brook). Seasonally wet areas may limit some passive recreational use, (e.g., hiking during the spring), however this would probably not be a major problem. Some of the flatter upland areas (areas north and south of Cemetary Road) would be suitable for active recreational development such as baseball, soccer and/or football fields, tennis courts, etc.

2. HYDROLOGY AND WATER RESOURCES

Nearly all of the "Great Hill Reservoir" area lies within the watershed of Fourmile Brook. This Brook, which originates in the northern portions of the parcel, bisects the central portions of the site enroute to Great Hill Reservoir and ultimately the Housatonic River. It is located west of Great Hill Road and Squantuck Road and flows generally parallel to the two roads. The watershed boundary for Fourmile Brook is shown in Figure 1.4. As can be noted from Figure 1.4, the watershed boundaries tend to follow the crests of local hills and ridges. The watershed of Fourmile Brook as shown, comprises approximately 2,000 acres (about 3.115 square miles). Also shown are the smaller watersheds for two of the larger unnamed tributories to Fourmile Brook in the central portions of the property.

As indicated earlier "Great Hill Reservoir" which is located in the southern part of the site, is one of the main topographic features of the parcel. It is an inactive distribution reservoir for the Ansonia-Derby

FIGURE 1:4
WATERSHED BOUNDARY MAP



- Watershed boundary for two tributaries of Four Mile Brook
- Watershed boundary for Four Mile Brook
- Watercourses showing direction of flow
- Subwatershed boundary for Great Hill Reservoir
- Design point
- Approximate property line

Water Company. The total capacity of the Reservoir is 35.1 million gallons. The Reservoir, which has a surface area of 12 acres, drains an area of about 2.7 square miles (about 1,728 acres). Figure 1.4 shows the drainage area of the Reservoir.

Since public water lines are not available to the site, individual on-site wells would be required to serve potential residential development and/or recreation sites. As mentioned earlier in this report, the central and east-central portions of the site contain stratified drift. Stratified drift deposits have potential for high yielding wells depending on hydrogeologic conditions such as thickness, texture, areal extent of the deposits, closeness to major watercourses, size of drainage area, and other factors. It does not appear as though the thicknesses of the stratified drift found on the site would be adequate for high yielding wells.

Because most families only need well yields of 2-3 gallons per minute, it would seem likely that the underlying bedrock would be an adequate source of water to individual on-site wells. Wells drilled in bedrock generally supply small but reliable yields of groundwater. However, since the yield of a given well depends upon the number and size of water-bearing fractures that it intersects, and since the distribution of fractures in bedrock is irregular, there is no practical way of predicting the yield of a well drilled in a specific location.

The quality of groundwater would be expected to be satisfactory on the site. Bedrock underlying the site, especially the Straits Schist, contains relatively high percentages of iron bearing minerals. As a result, there may be some elevated concentrations of iron or manganese that occurs in well water drawn from parts of the site. There are filters available which can treat these above mentioned conditions.

FLOOD HAZARD AREAS

Flood hazard maps have been prepared for the Towns of Seymour and Oxford, in which the subject site lies. These maps which were prepared by the Federal Emergency Management Agency, delineate the boundaries for the 100 and 500-year flood. A "100-year flood" is a flood with a one percent chance of occurring in any given year while the "500-year flood" is a flood with one in 500 or .2% chance of occurring in any given year. As shown in Figure 1.5, which is adapted from the F.E.M.A. map, the areas subject to flooding during the 100-year storm appear to lie principally along Fourmile Brook (mainly in the southwest portion of the site), along an unnamed tributory of Fourmile Brook north of the Great Hill Reservoir, and in the low-lying areas surrounding Great Hill Reservoir. The areas subject to flooding during the "500-year flood" lie mainly along Fourmile Brook in the central and northern sections of the site. Also, the upstream areas along the unnamed tributory of Fourmile Brook, which flows parallel to Great Hill Road in the southcentral portion of the tract, would be subject to inundation during the "500-year flood" (see Figure 1.5).

It should be pointed out that there may be other low-lying, swampy areas along intermittent drainage channels, particularly in the northern portions of the site, which may be subject to flooding during the "100" or "500" year storm or during periods of heavy rainfall.

FIGURE 1:5
FLOOD BOUNDARY MAP

- 500 year flood boundary

- 100 year flood boundary

* Adapted from The Flood Insurance Study Map

3. SOILS

According to the Soil Survey of New Haven County, the following soils occur on the Great Hill Reservoir Tract:

CfC - Charlton fine sandy loam, 8-15% slopes.
CfD - Charlton fine sandy loam, 15-25% slopes.
ChB - Charlton very stony fine sandy loam, 3-8% slopes.
ChC - Charlton very stony fine sandy loam, 8-15% slopes.
CnC - Charlton extremely stony fine sandy loam, 3-15% slopes.
CrC - Charlton-Hollis fine sandy loams, 3-15% slopes.
HkB - Hinckley gravelly sandy loam, 3-8% slopes.
HkC - Hinckley gravelly sandy loam, 8-15% slopes.
HME - Hinckley and Manchester soils, 15-35% slopes.
HpE - Hollis-Charlton fine sandy loams, 15-35% slopes.
HSE - Hollis-Rock Outcrop complex, 15-35% slopes.
Nn - Ninigret fine sandy loam.
PdB - Paxton very stony fine sandy loam, 3-8% slopes.
PdC - Paxton very stony fine sandy loam, 8-15% slopes.
PbC - Paxton fine sandy loam, 8-15% slopes.
PbD - Paxton fine sandy loam, 15-25% slopes.
PeC - Paxton extremely stony fine sandy loam, 3-15% slopes.
Rd - Ridgebury fine sandy loam.
RN - Ridgebury, Leicester and Whitman extremely stony fine sandy loams.
RP - Rock Outcrop-Hollis complex.
Wa - Walpole sandy loam.
WxB - Woodbridge fine sandy loam, 3-8% slopes.
WyB - Woodbridge very stony fine sandy loam, 3-8% slopes.
WzC - Woodbridge extremely stony fine sandy loam, 3-15% slopes.

The location of these soils is shown in Figure 1.6. The critical soils (i.e., those soils having severe limitations for urban development) on the tract are shown in Figure 1.7.

This tract of land is sloping to very steep and consists of excessively drained to poorly drained loamy soils on glacial till uplands where relief is often affected by the underlying bedrock. Charlton and Hollis soils occupy the majority of this land. Charlton soils are deep, well drained, and loamy. They are dominantly gently sloping or sloping and occupy hilltops and convex side slopes of the till plain. Stones and boulders are common on the surface of the land.

Hollis soils are somewhat excessively drained, loamy and underlain by bedrock at a depth of 10 to 20 inches. Hollis soils are gently sloping to steep and occupy hilltops, small ridges, and side slopes in bedrock-controlled areas. Slopes are mainly complex. Stones and boulders are on the surface, and bedrock outcrops are common in most places.

Ridgebury, Leicester and Whitman extremely stony fine sandy loams occupy depressions and drainageways. They are poorly and very poorly drained soils, are dominantly nearly level or gently sloping. Stones and boulders are common on the surface in most places.

Minor soils make up the remaining portions of this tract. These are mainly Paxton, Woodbridge, Hinckley and Walpole. Paxton and Woodbridge

FIGURE 1:6
SOILS MAP

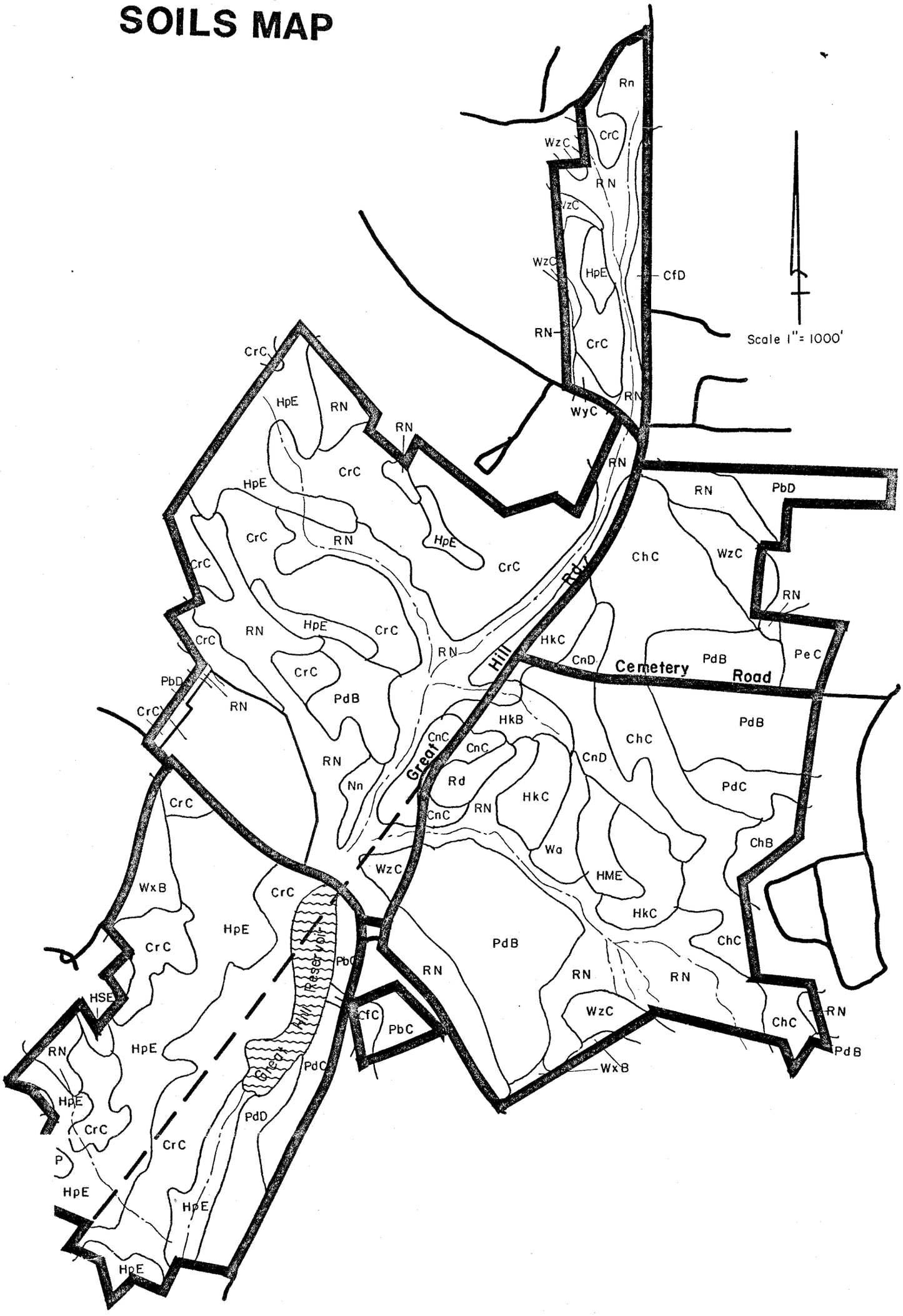
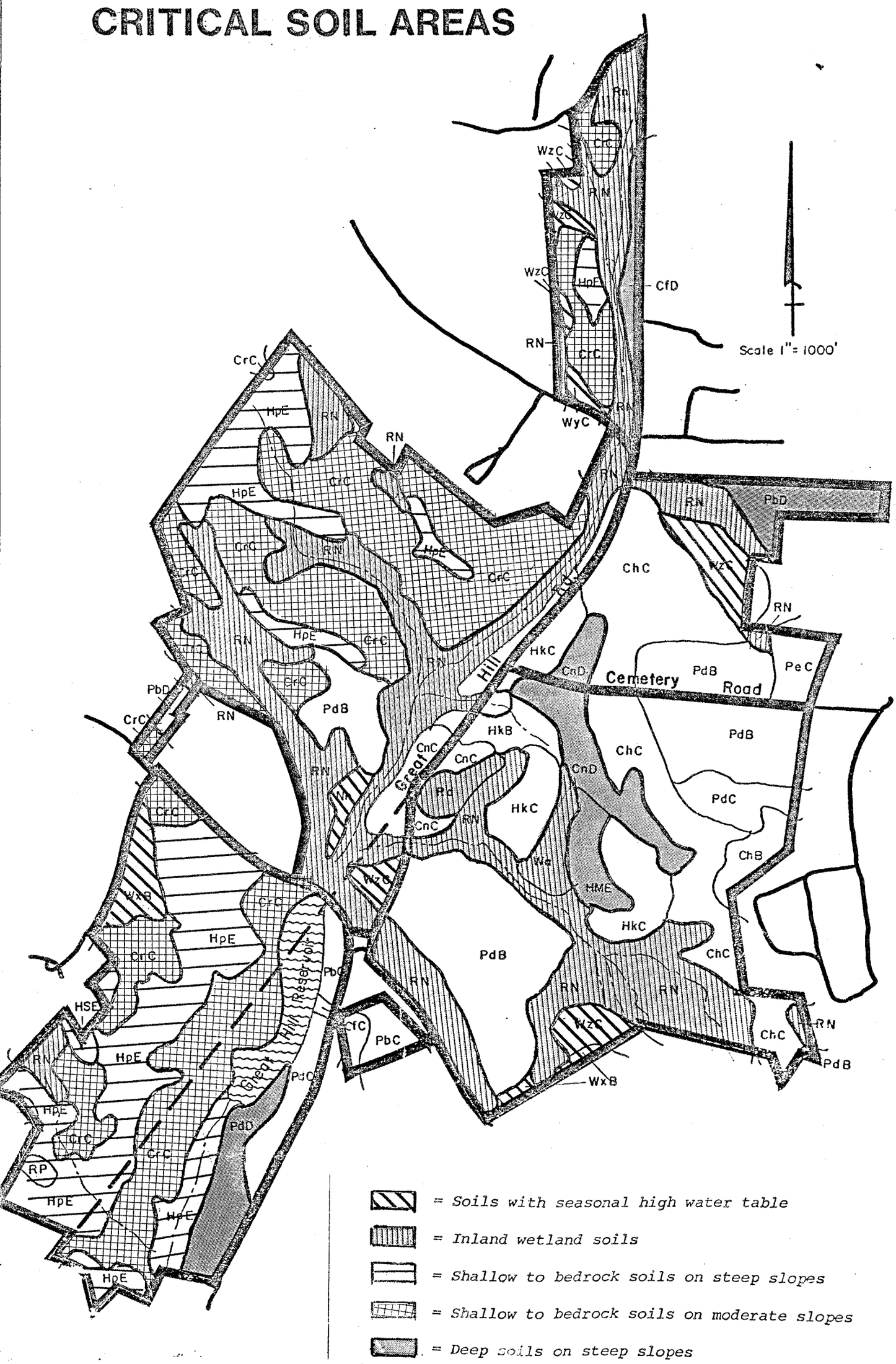


FIGURE 1:7
CRITICAL SOIL AREAS



Note: All of the above designated soils have severe limitations for residential development according to USDA Soil Conservation Service criteria.

soils have a slowly permeable fragipan and occupy small drumloidal positions on the till plain. Paxton soils are well drained. Woodbridge soils are moderately well drained. Hinckley soils are deep, excessively drained, coarse textured soils that formed in sand and gravel. They are gently sloping and sloping and occupy terraces of the narrow stream valley. Walpole are deep, poorly drained, sandy soils. They are nearly level and occupy low depressions of glacial outwash plains and terraces.

SOIL SUITABILITY FOR URBAN DEVELOPMENT

Each of the soil types mapped for the property are discussed below with regard to their suitability for urban development (i.e., residential, commercial, and active recreational development).

Ridgebury, Leicester and Whitman extremely stony fine sandy loams (RN) are poorly and very poorly drained soils. The Ridgebury and Leicester soils have a seasonal high water table at a depth of about 8 inches from late fall until mid-spring. The Whitman soils have a water table at the surface from fall through spring and after heavy rains. The soils of this unit have very poor potential for community development. They are limited mainly by their seasonal high water table and their stoniness. The Ridgebury and Whitman soils are also limited by a slowly permeable substratum. These soils are difficult to excavate because of the high water table and stoniness. The steep slopes of excavations tend to slump when saturated. These soils have poor potential for building foundations and basements because footings are placed below the depth of the high water table. Because of the slowly permeable substratum and the high water table, waste disposal systems, such as septic tank absorption fields, do not function satisfactorily without very unusual and costly design and installation. Even if carefully designed, they often have a high failure rate. During periods of construction, conservation measures are needed to prevent excessive siltation, runoff, and erosion.

Walpole sandy loam (Wa) is a poorly drained soil. From late fall until mid-spring, this soil has a water table at a depth of about 8 inches. This soil has poor potential for community development. It is easy to excavate. Because of the high water table, excavations are inundated. Steep slopes of excavations are not stable if the soil is saturated. This soil has poor potential for waste disposal systems. Septic systems can pollute the groundwater. Much attention must be given to properly designing and constructing foundations and basements to insure a stable foundation and prevent wet basements. This soil is poorly suited to landscaping because of its wetness. During construction of community developments, conservation measures are needed to prevent excessive siltation, erosion and runoff.

Charlton fine sandy loam, 3-8% slopes (CfB), Charlton fine sandy loam, 8-15% (CfC), and Charlton fine sandy loam, 15-25% slopes (CfD) exist within this tract. CfB soils are gently sloping, well drained and are located on broad hilltops, ridge tops, and glacial till plains. This soil has good potential for community development. It is fairly easy to excavate but commonly has stones and boulders. Waste disposal systems such as onsite septic systems generally function satisfactorily with normal design and

installation. This soil has good potential for landscaping. During construction of community developments, conservation measures are needed to prevent excessive runoff, erosion and siltation.

CfC is located on side slopes of hills and ridges and at the foot slopes of steep slopes. This soil has fair potential for community development. It is limited mainly by the steepness of slopes. The steeper slopes cause additional expense in building roads, installing sewer and water lines, building homes, and designing and installing onsite septic systems. This soil is fairly easy to excavate but commonly has stones and boulders. Waste disposal systems such as onsite septic systems need careful design and installation to insure that effluent does not seep to the surface downslope from the disposal system. Intensive conservation measures are needed to prevent excessive erosion, runoff and siltation during construction.

CfD is located on the side of hills and ridges and at the foot slopes of steep hills that have been highly influenced by underlying bedrock. This soil has poor potential for community development. It is limited mainly by steepness of slopes. The steepness of slopes causes additional expense in building homes, roads, and onsite septic systems, and installation of water and sewer lines. This soil is fairly easy to excavate, but it commonly contains stones and boulders. Waste disposal systems require very careful design and installation to insure that effluent does not seep to the surface downslope from the system. Intensive conservation measures are needed to prevent excessive runoff, erosion, and siltation during construction of the community developments.

Charlton very stony fine sandy loam, 3-8% slopes (ChB) have up to 3 percent of the surface covered with stones and boulders. This soil has good potential for community development. It is fairly easy to excavate but commonly has stones and boulders below the surface as well as on the surface. Waste disposal systems such as onsite septic systems generally function satisfactorily with normal design and installation; however, surface stones and boulders may interfere with the installation. Surface stones may interfere with landscaping. During periods of construction for community development, conservation measures are needed to prevent excessive runoff, erosion and siltation. ChC, Charlton very stony fine sandy loam, 8-15% slopes react much the same way as ChB except they have only fair potential for community development. It is mainly limited by the steepness of slope and stoniness. Waste disposal systems need careful design and installation to insure that effluent does not seep to the surface downslope from the disposal system. Rather intensive conservation measures are needed to prevent excessive runoff, erosion, and siltation during periods of construction of community developments.

Charlton extremely stony fine sandy loam, 3-15% slopes (CnC). About 3 to 25 percent of the surface are covered with stones and boulders. This soil has fair potential for community development. It is limited mainly by stoniness and, in places, the steepness of the slope. Removal of the stones and boulders is costly. Waste disposal systems can function satisfactorily, however, stones and boulders hinder their installation. If a disposal system is placed on the steeper slopes, careful design and installation will be needed to prevent effluent from seeping to the surface

downslope. Stoniness severely limits this soil for landscaping; however, large stones and boulders are sometimes desired for their esthetic value and are left undisturbed. During periods of construction of community developments, conservation measures are needed to prevent excessive run-off, erosion, and siltation.

Hinckley gravelly sandy loam, 3-8% slopes (HkB) are excessively drained soils on outwash terraces of stream valleys. This soil has good potential for community development. It is easy to excavate; however, the steep slopes of excavations are unstable. The droughtiness of this soil is a major concern in landscaping. Waste disposal systems such as onsite septic systems will function satisfactorily with normal design and installation; however, the very rapid permeability requires that caution be taken in order to prevent pollution of the groundwater. The soil has fair potential for use as sites for commercial buildings and is limited mostly by steep slopes. During periods of construction, simple conservation measures generally are adequate to prevent excessive runoff, erosion, and siltation.

Hinckley gravelly sandy loam, 8-15% (HkC) has fair potential for community development. It is limited mainly by steep slopes and droughtiness. It is easy to excavate; however, the steep slopes of excavations are unstable. Waste disposal systems may need to be carefully designed and installed so that effluent does not seep to the surface downslope from the leaching system. Because of the rapid permeability of the soil, precautions may need to be taken to ensure that the disposal system does not pollute the groundwater. Intensive conservation measures may be needed to prevent excessive runoff, erosion, and siltation during construction.

HME, Hinckley and Manchester soils 3-15% slopes have poor potential for community development. They are limited mainly by the steep slopes. These soils too are easy to excavate; however, the side slopes of excavations are unstable. The same precautions should be taken with onsite septic systems as are listed above. The soils in this unit can provide sites for unusually designed buildings or houses. Intensive conservation measures generally are needed to prevent excessive runoff, erosion, and siltation during periods of construction.

HpE, Hollis-Charlton fine sandy loams, 15-35% have poor potential for community development. The map unit is limited mainly by steep slopes, shallowness to bedrock, rock outcrops, and stoniness. Excavation is difficult because of the shallowness to bedrock in many places. Waste disposal systems, such as onsite septic systems require very careful and often unusual design and installation to ensure that effluent does not seep to the surface downslope. Sites of more than two acres are often needed to locate a sufficiently deep soil for installation of a septic tank absorption field. In addition, there is a hazard of effluent seeping into cracks in the bedrock and polluting the groundwater. Many of these areas provide a very scenic and picturesque setting for homes. Intensive conservation measures such as the use of diversions, vegetative cover, mulching, and siltation basins are frequently needed to prevent excessive runoff, erosion, and siltation.

HSE, Hollis-Rock outcrop complex, 15-25% slopes is moderately steep and steep, somewhat excessively drained soils on uplands and areas of Rock outcrop. This map unit has poor potential for community development. It

is limited mainly by shallowness to bedrock, steep slopes and rock outcrops. Excavation is difficult and requires blasting in places. This map unit has poor potential for waste disposal systems such as onsite septic systems. They generally require very unusual design and installation, and there is a hazard that they may fail or that effluent may seep into cracks in the bedrock and pollute the groundwater. This groundwater can be a source of drinking water in many areas. Areas of this map unit provide sites for creative home design. If this map unit is disturbed for construction, intensive conservation measures such as mulching, temporary vegetative cover, and siltation basins are generally needed to control excessive runoff, erosion, and siltation.

Nn, Ninigret fine sandy loam is nearly level and moderately well drained. This soil has a seasonal high water table at a depth of about 20 inches from late fall until mid-spring. This soil has poor potential for community development. It is easy to excavate; however, the steep slopes of excavations are unstable. It has poor potential for onsite septic systems, because of the seasonal high water table. Waste from the septic system may pollute the groundwater. Foundations and basements need to be properly designed and constructed to ensure a stable foundation and to prevent wet basements. This soil is well suited to landscaping. During periods of construction, conservation measures are needed to prevent excessive runoff, erosion, and siltation.

PbB, Paxton fine sandy loam, 3-8% slopes are well drained soils that have a substratum that is described as very firm gravelly fine sandy loam. This soil has fair potential for community development. It is easy to excavate, but the substratum is very firm (hardpan) and commonly has stones and boulders. Waste disposal systems and onsite septic systems will generally not function satisfactorily because of the slowly permeable substratum. Very careful design and installation are required to ensure a satisfactory system. During periods of construction, conservation measures are needed to prevent excessive runoff, erosion, and siltation.

PbC, Paxton fine sandy loam, 8-15% slopes are well drained soils that have a very firm substratum, hardpan. This soil has fair potential for community development. It is limited mainly by the slowly permeable substratum and the steepness of slopes. The steeper slopes cause additional expense in building roads, installing sewer and water lines, building homes, and in designing and installing septic systems. This soil is fairly easy to excavate, but the substratum is very firm and generally has stones and boulders. Waste disposal systems generally do not function satisfactorily without very careful design and installation because the substratum is slowly permeable. Care is needed to ensure that effluent does not seep to the surface in areas downslope from the disposal system. Fairly intensive conservation measures are needed to prevent excessive runoff, erosion, and siltation during periods of construction.

PbD, Paxton fine sandy loam, 15-25% slopes, are moderately steep and well drained soils that have a very firm substratum, hardpan. This soil has poor potential for community development. It is limited mainly by steepness of slope and the slowly permeable substratum. Building houses and roads, installing septic systems, and installing water and sewer lines are more expensive on this soil than on less sloping soils. This soil is fairly easy to excavate, but the substratum is very firm and generally

has stones and boulders. Because of the slowly permeable substratum, onsite septic systems generally do not function satisfactorily without careful design and installation. Intensive conservation measures are needed to prevent excessive runoff, erosion, and siltation during periods of construction.

PdB, Paxton very stony fine sandy loam, 3-8% slopes are gently sloping and well drained and also have a very firm substratum (hardpan) of gravelly fine sandy loam. This soil has fair potential for community development. The limitations are much like those of PbB, listed above, with the addition of surface stones and boulders possibly interfering with the installation of the onsite septic systems.

PbC, Paxton very stony fine sandy loam, 8-15% slopes are sloping, well drained and have a very firm substratum. This soil has fair potential for community development and is mainly limited by steepness of slopes and surface stones and boulders. Again, limitations are similar to those listed above with the addition that precautions need to be made to ensure that effluent does not seep to the surface in areas downslope of the system. Stones and boulders may interfere with installation of the system. Intensive conservation measures are needed to prevent excessive runoff, erosion, and siltation during periods of construction.

PeC, Paxton extremely stony fine sandy loam, 3-15% slopes are gently sloping well drained soils with 3 to 25 percent of the soil surface covered with stones and boulders. This soil also has a very firm substratum. This soil has fair potential for community development. It is limited mainly by steepness of slopes and surface stoniness. Removal of stones and boulders is costly. Waste disposal systems and onsite septic systems must be carefully designed and installed to ensure that the system functions properly and effluent does not seep to the surface downslope from the system. During construction periods, conservation measures are needed to prevent excessive runoff, erosion, and siltation.

RP, Rock Outcrop-Hollis complex consists of gently sloping to steep, somewhat excessively drained soils and Rock Outcrop on glacial uplands. The relief is affected by underlying bedrock. This complex has poor potential for community development. It is limited mainly by rock outcrops, shallowness to bedrock, and steepness of slopes. Excavation is difficult and requires blasting in most places. This complex has poor potential for waste disposal systems and onsite septic systems. Septic systems generally require very unusual design and installation. Even then, systems may fail or effluent may seep into cracks in the bedrock and reach groundwater, which is a source of drinking water in some places. Areas of more than five acres are generally needed to locate a site where the soils are deep enough for a septic system. If this site is disturbed for construction, intensive conservation measures, such as mulching, temporary vegetative cover, and siltation basins, generally are needed to control excessive runoff, erosion, and siltation.

WxB, Woodbridge fine sandy loam, 3-8% slopes are gently sloping, moderately well drained soil. Woodbridge soils also have a very firm substratum, hardpan. From late in the fall to mid-spring, this soil has a water table at a depth of about 20 inches. This soil has fair potential

for community development. It is mainly limited by the seasonal high water table and by the slowly permeable substratum. It is fairly easy to excavate; however, the substratum is very firm and in many places, there are stones and boulders. Because of the seasonal high water table, excavations are inundated. Steep slopes of excavations are unstable when soil is saturated and tend to slump. Onsite septic systems will not function satisfactorily with normal design and installation because of the seasonal high water table and slowly permeable substratum. Very careful and often costly design and installation are required to ensure that a system works satisfactorily. During construction of community developments, conservation measures are needed to prevent excessive runoff, erosion, and siltation.

WyB, Woodbridge very stony fine sandy loam, 3-8% slopes are moderately well drained and have a very firm substratum, hardpan. This soil has very much the same limitations as the Woodbridge soil listed above. This soil is limited due to its seasonally high water and surface stones and boulders.

B. SITE II - STEEP HILL ROAD

1. TOPOGRAPHY AND GEOLOGY

The "Steep Hill Road Area" is located in the southcentral part of Seymour. It is an irregularly shaped parcel of land, ±195 acres in size. Nearly 38 percent of the site in the southern and southcentral portions are characterized by a rough and rocky terrain. Slopes are moderate to steep (15-30%) in this area. The steepest slopes, which are associated with rock outcrop areas occur along a tributary of Kinneytown Brook that bisects the central portions of the site.

The remaining portions of the property especially to the north and along Davis Road in the extreme southern limits are characterized by moderate slopes.

Numerous intermittent drainage channels, most of which are tributary to the unnamed watercourse flowing through the central portions, are visible on the site.

Approximately 17% of the site comprises wetland areas, which are delineated on the accompanying soils map as Ridgebury, Leicester, and Whitman (RN) soils. These areas are found mainly along the watercourse in the central portions of the site and also along intermittent drainage channels.

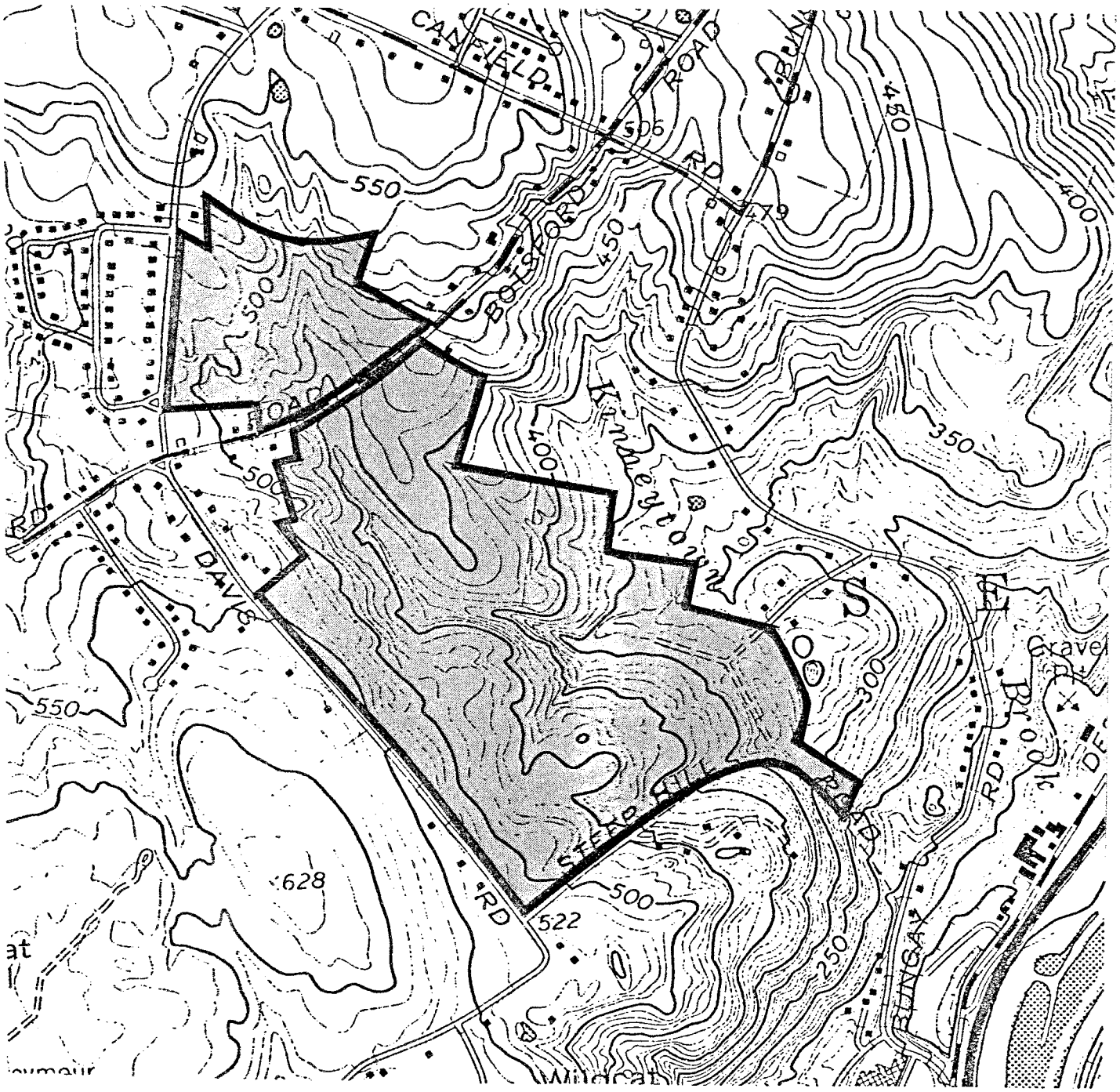
Elevations range from about 540 feet above mean sea level at the northernmost property line to a low of approximately 250 feet above mean sea level in the southeastern limits of the property.

Approximately 76% of the "Steep Hill Road Area" site lies in the Ansonia topographic quadrangle while the remainder (northern limits) lies in the Naugatuck topographic quadrangle.

The surficial geologic maps for both the Ansonia and Naugatuck topographic quadrangles were prepared by Richard Foster Flint and subsequently published by the Connecticut Geological and Natural History Survey. The bedrock geologic map for the Ansonia quadrangle was prepared by Crawford E. Fritts and published by the U.S. Geological Survey. Michael H. Carr prepared the bedrock geologic map for the Naugatuck quadrangle which has been published by the Connecticut Geological and Natural History Survey. All of the above-mentioned maps are available for review or purchase at the Department of Environmental Protection's Natural Resource Center in Hartford.

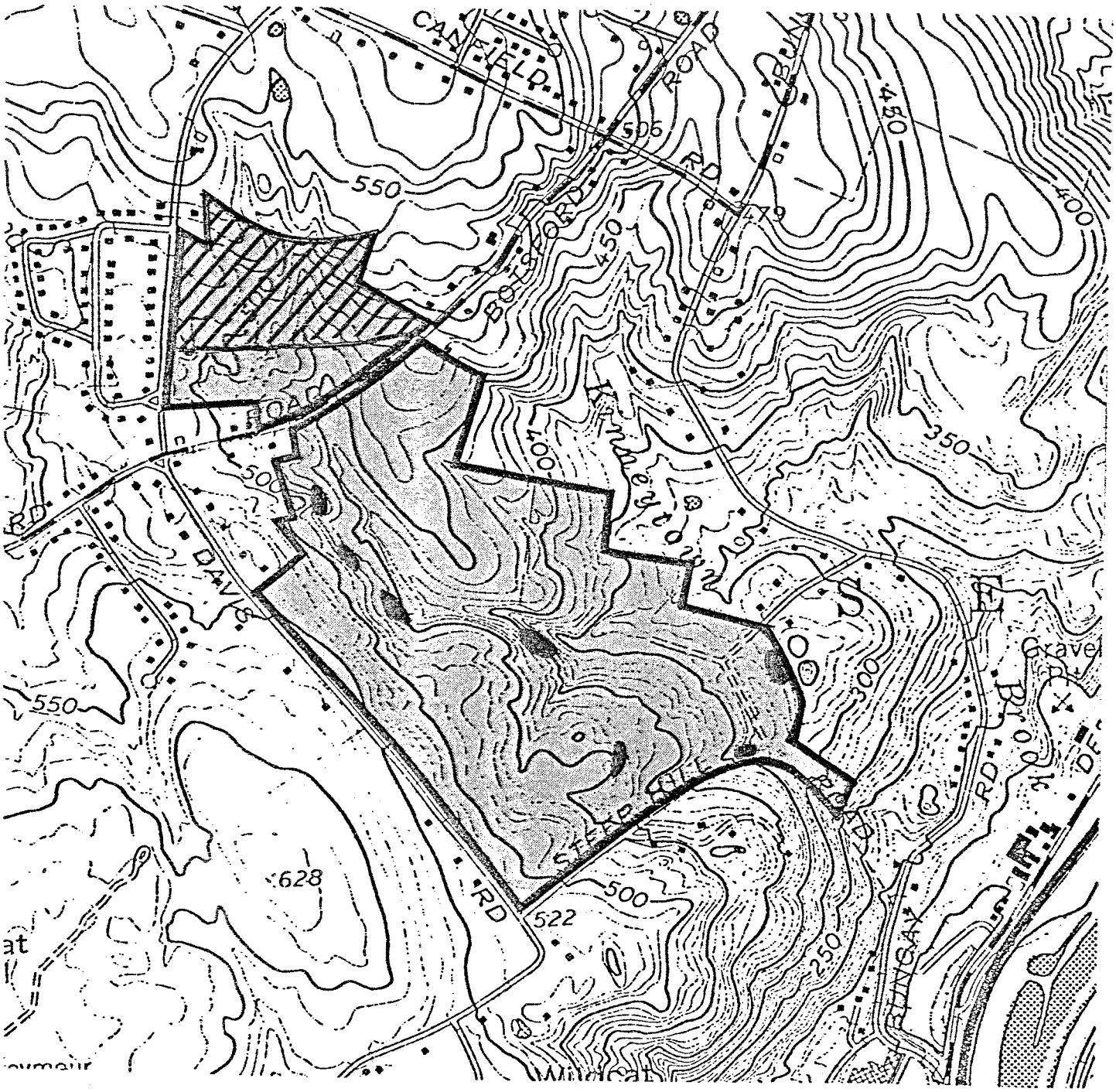
According to the published bedrock geologic information compiled for the quadrangles, bedrock underlying or cropping out on most of the site has been classified as Prospect Gneiss. Prospect Gneiss is a medium to coarse grained dark gray gneiss composed largely of the minerals quartz, plagioclase and biotite. The minerals hornblend, microcline, sphene and garnet are found in lesser amounts. Portions of the property in the northern limits may be underlain by the Straits Schist formation (see Figure 2.2). The "Straits Schist" is a coarse grained muscovite-biotite schist. Due to a thick glacial cover in this area, the exact locations of the contacts between the rock units is not known. Bedrock exposures are visible primarily in the central sections

FIGURE 2:1
TOPOGRAPHIC MAP



Scale 1" = 1000'

FIGURE 2:2
BEDROCK GEOLOGY



- *Prospect Gneiss*
- *Rock Outcrop Areas*
- *Area possibly underlain by the Straits Schist*

of the site. These areas are delineated as HpE (Hollis-Charlton), CrC (Charlton-Hollis) and HSE (Hollis-Rock outcrop complex) on the accompanying soils map. Depth to bedrock on the site ranges from zero in rock outcrop areas to probably not more than 10 feet.

Overlying bedrock on the site is a glacial sediment called till that was deposited directly from the glacier ice. It is composed of a complex mixture of rock fragments comprised of sand, silt, clay, gravel and boulders. Commonly till is sandy and loose in the upper few feet while at depth till becomes siltier and more compact.

GEOLOGIC DEVELOPMENT CONCERNS

Residential development on this site will require the installation of on-site sewage disposal systems. A public water supply line appears to be accessible only to the southern limits of the property. Unless the public water supply line was extended to serve the remaining portions, individual on-site wells will also be required.

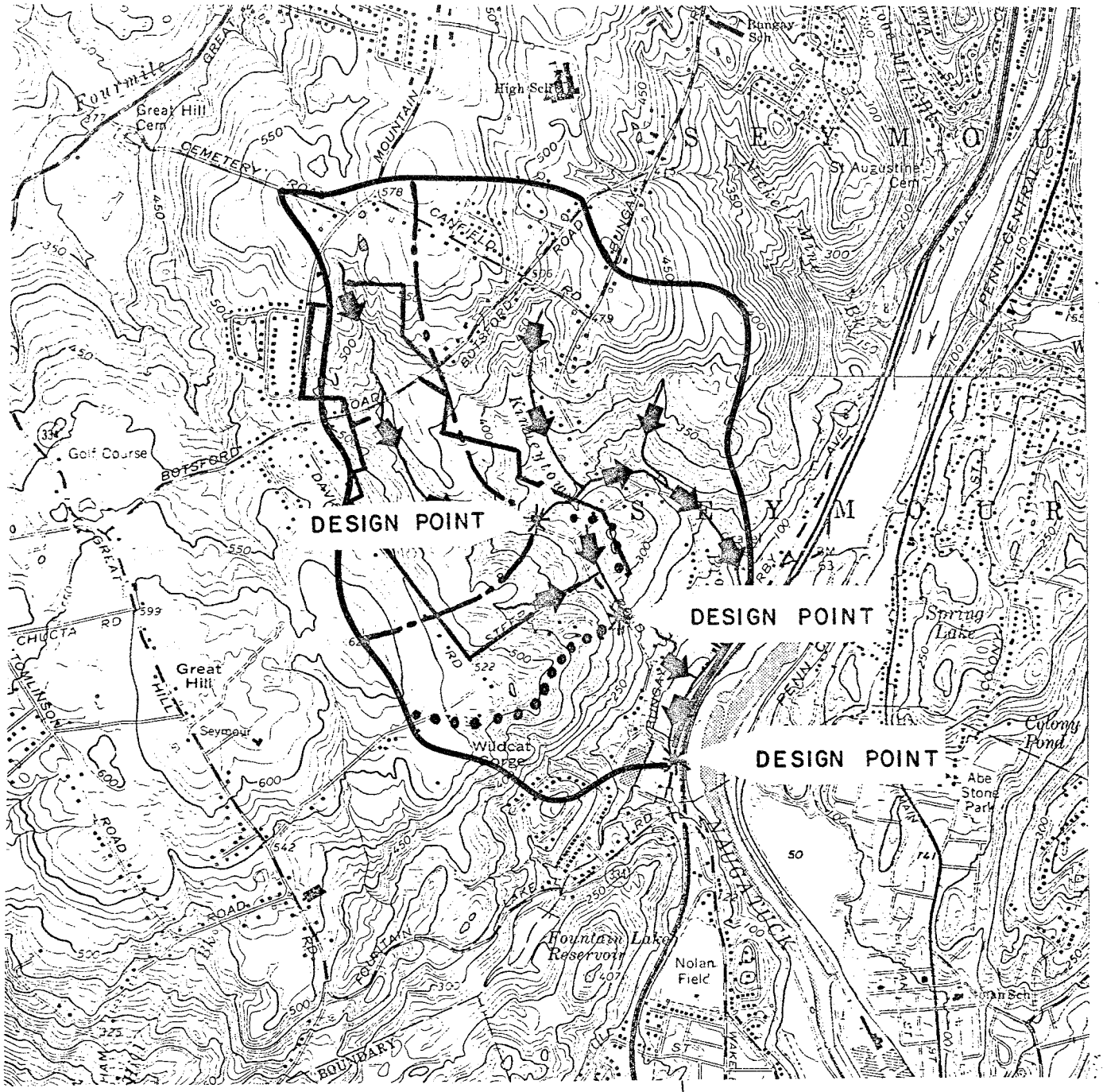
From a geological perspective, it appears that the following conditions will limit development potential on the site: (1) shallow to bedrock conditions, which occur mainly in the central portions; (2) the moderate to steep slopes in the central portions of the site; (3) the presence of compact till soils; and (4) seasonally high groundwater tables associated with wetland soils along the watercourse bisecting the property and in low topographic depressions. These geologic conditions will weigh heaviest on the ability to provide adequate subsurface sewage disposal systems. However, properly engineered septic systems may be able to surmount some of these limitations. The most favorable areas for potential residential development appear to be those delineated as Paxton soils (PbC, PdC, PeC, PdB, PbB). These areas front Davis Road in the southern limits, Mountain Road in the northern limits as well as north and south of Botsford Road. Development in wet areas should be discouraged.

Based on the topography and geological limitations mentioned earlier, it appears that at least portions of the site would be best suited for passive recreation. Wet areas may hamper recreational usage during the springtime; however they should not pose any major problems. The flatter areas fronting Mountain Road and Botsford Road may be able to support some active recreational facilities such as a football, baseball, and/or soccer fields.

2. HYDROLOGY AND WATER RESOURCES

By definition, a watershed is all the land area from which surface water runoff may drain to a stream or other surface water body. All watershed areas thus terminate at a specified point on a stream or at the outlet of a pond or reservoir. A raindrop falling on the watershed boundary would have a 50% chance of passing into or out of the watershed. The subject parcel lies entirely within the watershed of Kinneytown Brook, which is east of the site. This brook drains an area of 1.275 square miles (or 816 acres) and ultimately discharges into the Naugatuck River. If the Kinneytown Brook

FIGURE 2:3
WATERSHED BOUNDARY MAP



- *Watershed boundary for Kinneytown Brook*
- *Watershed boundary for unnamed watercourse draining central sections*
- *Design point*
- *Watershed boundary for unnamed watercourse draining southern portions of site*
- *Watercourses showing direction of flow*

watershed was broken down into smaller watersheds, nearly 75 percent of the site lies within the watershed of the unnamed watercourse which traverses the central portions of the property. A small portion (±10 acres) of the site in the eastern limits drains southeastward by sheetflow directly into Kinneytown Brook. Approximately 43 acres in the southern and southeast sections of the parcel are drained mainly by sheetflow and intermittent drainage swales into an unnamed tributary of Kinneytown Brook. The accompanying watershed boundary map (see Figure 2.3) delineates the approximate Kinneytown Brook watershed as well as the watersheds for the unnamed watercourses flowing through the subject site.

As indicated by the mylar submitted to Team members by the Valley Regional Planning Agency, public water lines are presently accessible only along Steep Hill Road in the southern portions of the subject site. If, for some reason, an on-site well is desired in areas not accessible to the public water supply line, bedrock would probably have to be tapped. Based on a survey of 294 wells in the lower Housatonic River basin which tap the same type of bedrock underlying the site, any new well would have approximately an 80 percent chance of yielding at least 3 gallons per minute. (Source: Connecticut Water Resources Bulletin No. 19 Lower Housatonic River Basin.) A yield of 3 gallons per minute would probably be adequate for most household users. This yield should also be adequate for most recreational uses (e.g. bubblers, irrigation for playing fields, etc.) The natural groundwater quality should be generally satisfactory; however there may be a chance that it would have elevated concentrations of iron or manganese, particularly if the Straits Schist rock unit were tapped. This is mainly due to the mineralogical composition of the bedrock. There are several types of filters available for treating these types of problems.

FLOOD HAZARD AREAS

A Flood Boundary and Floodway Map has been prepared by the U.S. Department of Housing and Urban Development (Federal Insurance Administration) for the Town of Seymour. This map identifies the floodway fringe and those areas subject to flooding during the 100 and 500-year flood.

Based on the map, the site lies in an area of minimal flooding. Nevertheless, areas on the site, primarily along watercourses, intermittent drainage swales and in topographic low depressions may become inundated during periods of heavy rain.

3. SOILS

According to the Soil Survey of New Haven County, the following soils are present at the Steep Hill Road Area:

CfB-Charlton fine sandy loam, 3-8% slopes.
CfC-Charlton fine sandy loam, 8-15% slopes.
CrC-Charlton-Hollis fine sandy loams, 3-15% slopes.
HpE-Hollis-Charlton fine sandy loams, 15-35% slopes.
HSE-Hollis-Rock Outcrop complex, 15-35% slopes.
PbB-Paxton fine sandy loam, 3-8% slopes.
PbC-Paxton fine sandy loam, 8-15% slopes.
PdC-Paxton very stony fine sandy loam, 8-15% slopes.
PeC-Paxton extremely stony fine sandy loam, 3-15% slopes.
RN -Ridgebury, Leicester and Whitman extremely stony fine sandy loams.
SvB-Sutton fine sandy loam, 3-8% slopes.

The general location of these soil types is shown in Figure 2.4. The critical soils on this site are shown in Figure 2.5.

Paxton soils make up the majority of this tract of land. They are deep, well drained and loamy and have a slowly permeable fragipan. They are gently sloping to steep and are in convex positions on the landscape. Stones and boulders are common on the surface in places.

Ridgebury, Leicester and Whitman extremely stony fine sandy loams occupy depressions and drainageways. They are poorly and very poorly drained soils, are dominantly nearly level or gently sloping. Stones and boulders are common on the surface in most places.

Charlton and Hollis soils are sloping to steep, excessively drained and well drained loamy soils, on glacial till uplands where relief is often affected by the underlying bedrock. Charlton soils are deep, well drained, and loamy. They are dominantly gently sloping to sloping and occupy hilltops and convex side slopes of the till plain.

Hollis soils are somewhat excessively drained, loamy and underlain by bedrock at a depth of 10 to 20 inches. Hollis soils are gently sloping to steep and occupy hilltops and small ridges, and side slopes in bedrock-controlled areas. Slopes are mainly complex. Stones and boulders are on the surface and bedrock outcrops are common in places.

Sutton soils make up the remaining portion of the property. They are moderately well drained and are gently sloping to sloping. Sutton soils occupy concave and slightly depressional areas on the till plain.

SOIL SUITABILITY FOR URBAN LAND USE

Refer to soil potentials given for the Great Hill Reservoir Tract for the following soils: CfB, CfC, CrC, HpE, HSE, PbB, PbC, PdC, PeC, RN.

FIGURE 2:4
SOILS MAP

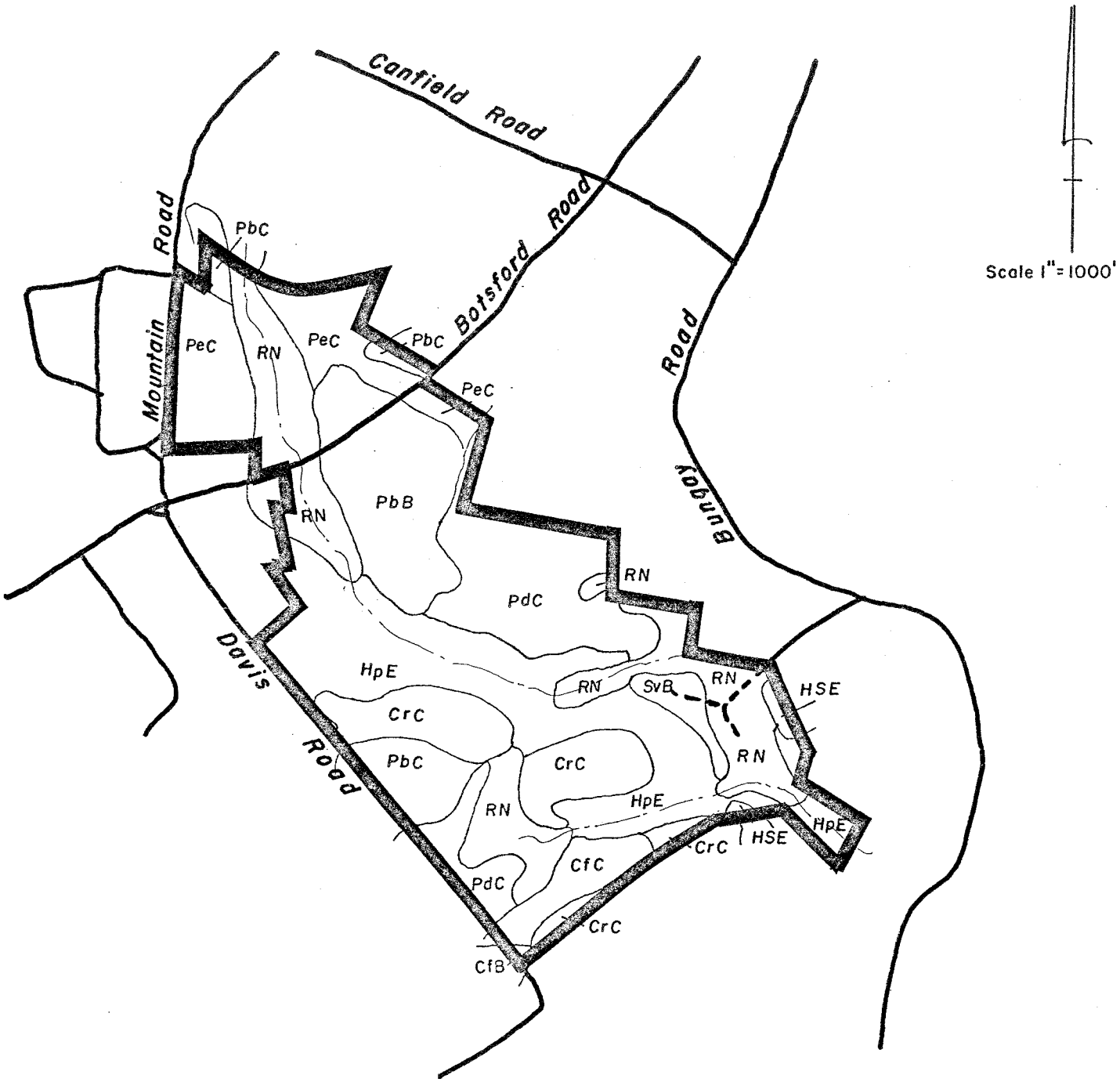
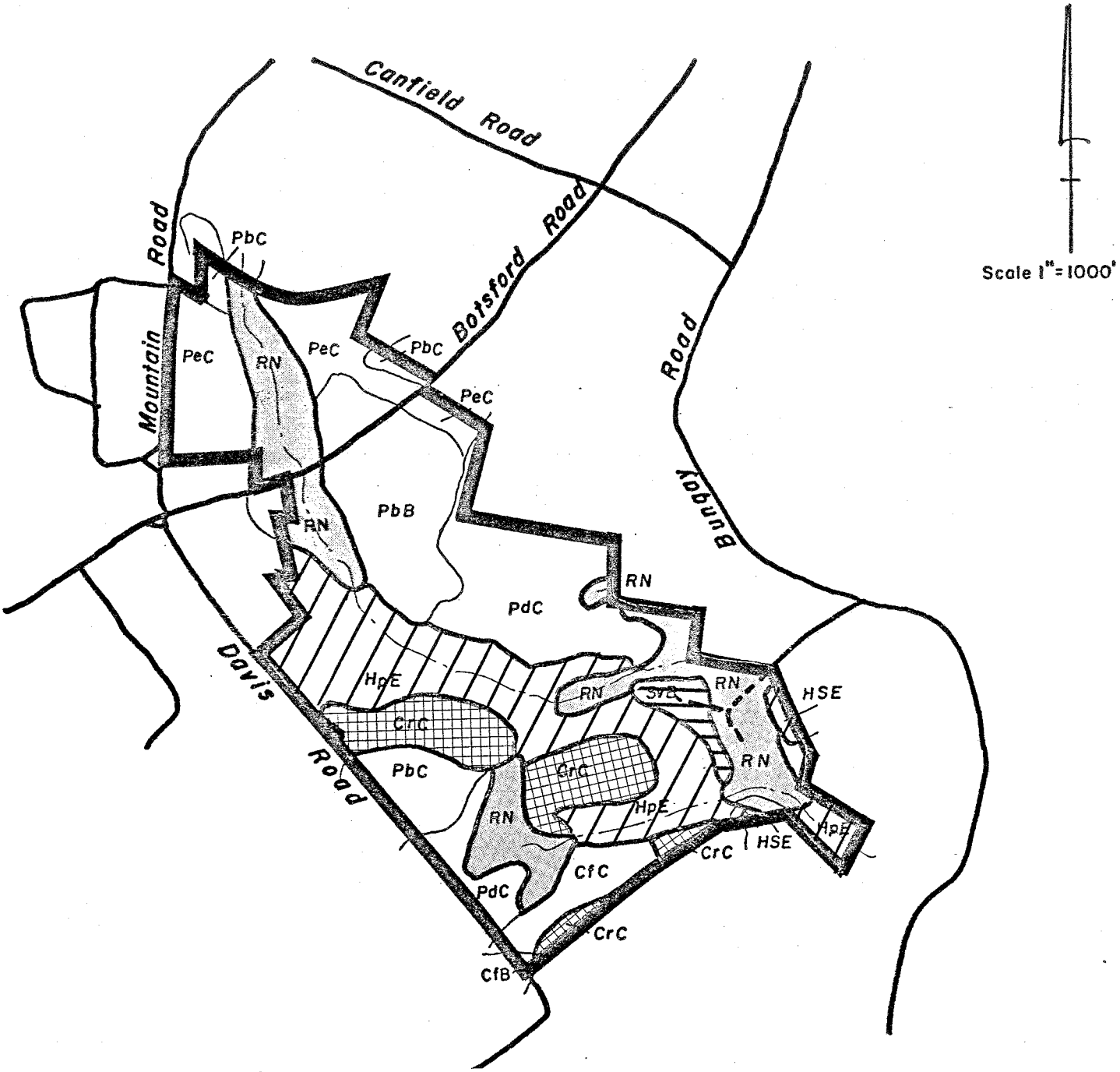


FIGURE 2:5
CRITICAL SOIL FEATURES



= Soils with seasonal high water table

= Inland wetland soils

= Shallow to bedrock soils on steep slopes

= Shallow to bedrock soils on moderate slopes

Note: All of the above designated soils have severe limitations for residential development according to USDA Soil Conservation Service criteria.

SvB, Sutton fine sandy loam, 3-8% slopes is gently sloping, moderately well drained. This soil has fair potential for community development. It is fairly easy to excavate but may have stones and boulders. The seasonal high water table that exists from late fall to midspring frequently inundates excavations. Particular attention needs to be given to houses with basements because the basements are generally below the depth of the water table. This results in wet basements, unless the houses are properly constructed. Onsite septic systems will generally not function satisfactorily with only normal design and installation because of the seasonal high water table. Very careful and often costly design and installation are required to insure that the septic systems function properly and are not flooded by the water table. During construction of community developments, conservation measures are needed to prevent excessive runoff, erosion and siltation.

C. SITE III - FOUNTAIN LAKE RESERVOIR TRACT

1. TOPOGRAPHY AND GEOLOGY

The Fountain Lake Reservoir tract consists of a ±185 acre, irregularly shaped parcel of land which lies partly in the Towns of Derby, Seymour and Ansonia.

Fountain Lake Reservoir, which is an emergency surface water supply for the Ansonia-Derby Water Company, is the major topographic feature on the site. A small surface water body is also located in the southern tip of the parcel.

The topography of the site is controlled largely by the underlying bedrock. Approximately 60 percent of site is characterized by rough and rocky terrain. These areas are delineated as HsE (Hollis-Rock outcrop complex), HpE (Hollis-Charlton) and RP (Rock outcrop-Hollis complex) on the soils map. Slopes on the site are moderate to very steep (see Figure 3.1). Steepest slopes are associated mainly with outcrop areas. Moderate slopes are found primarily south of the reservoir and in the northcentral parts of the site.

Maximum and minimum elevations on the site are 550 and 200 feet above mean sea level, respectively.

The Fountain Lake Reservoir tract is located entirely within the Ansonia topographic quadrangle. A bedrock geologic map by Crawford E. Fritts, and a surficial geologic map by Richard Foster Flint, of the quadrangle have been published by the U.S. Geological Survey and Connecticut Geological and Natural History Survey, respectively.

A thin blanket of till is the major unconsolidated material overlying bedrock on the site. Till is a non-stratified, non-sorted mixture of rock fragments consisting of boulders, cobbles, pebbles, silt and clay. These rock fragments were accumulated by a moving sheet of glacier ice and later redeposited directly from the ice. The texture of till is commonly sandy and loose in the upper 3-5 feet and at depth becomes much siltier and more compact.

Overlying till deposits in portions of the site are swamp deposits. "Swamp deposits" consist of silt, sand and clay mixed with organic matter in poorly drained areas. These areas are designated by the symbols AA (Adrian and Palms mucks) and RN (Ridgebury, Leicester and Whitman soils) on the accompanying soils map.

Five major types of bedrock are found within the site. These include Prospect Gneiss, Ansonia Gneiss, Southington Mountain Schist, Straits Schist and Pegmatites (see Figure 3.2). Prospect Gneiss is a medium to coarse grained, dark gray gneiss composed largely of the minerals quartz, plagioclase and biotite. The minerals hornblend, microcline, sphene and garnet are found in lesser amounts.

Ansonia Gneiss is a very pale bluish-gray to yellowish-gray, medium grained quartz monzonite gneiss. It is composed of the minerals quartz, sodic oligoclase, microcline, muscovite and biotite. Lesser minerals include apatite, zircon, tourmaline and garnet. The term "gneiss" refers to the

FIGURE 3:1
TOPOGRAPHIC MAP

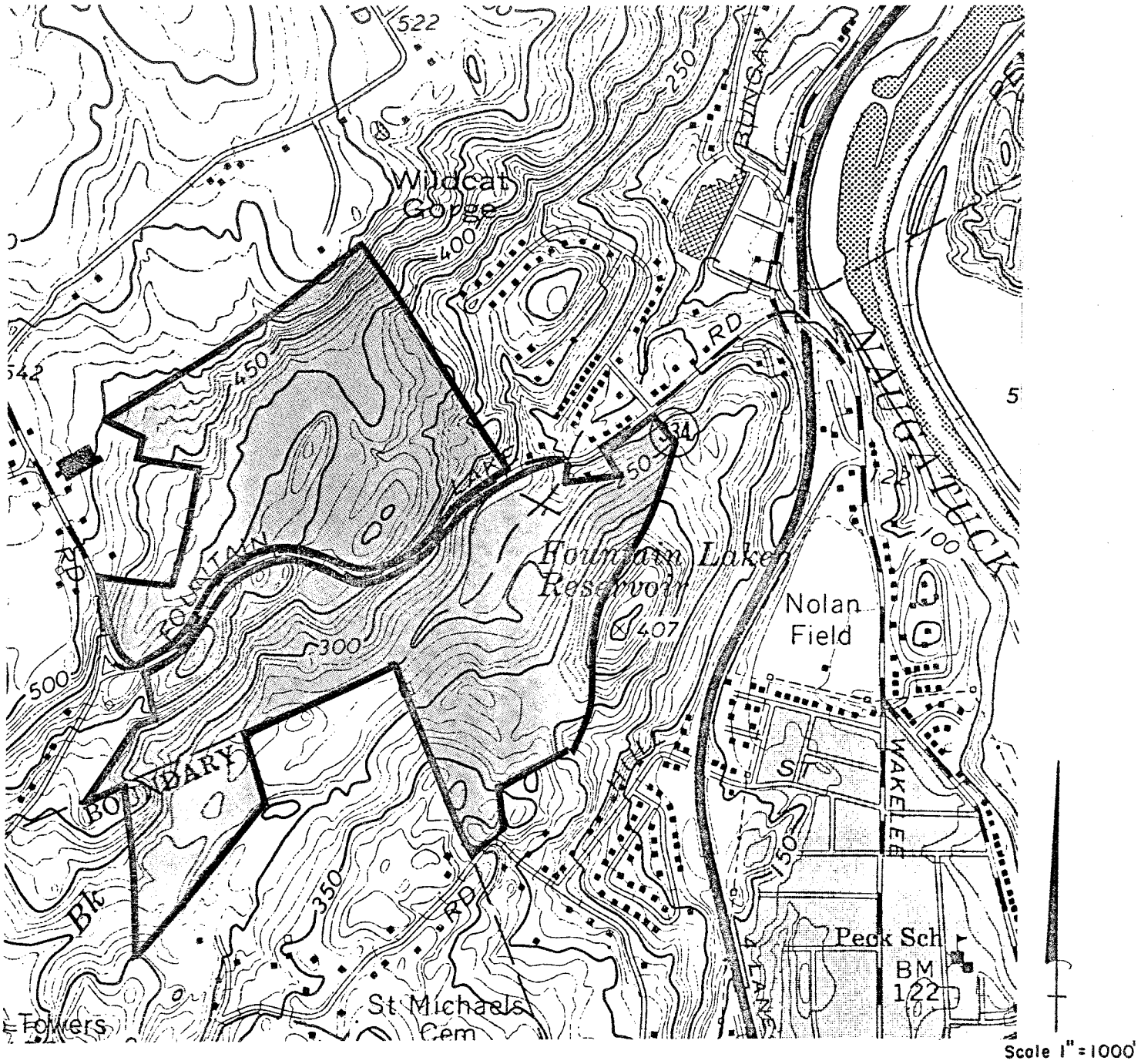
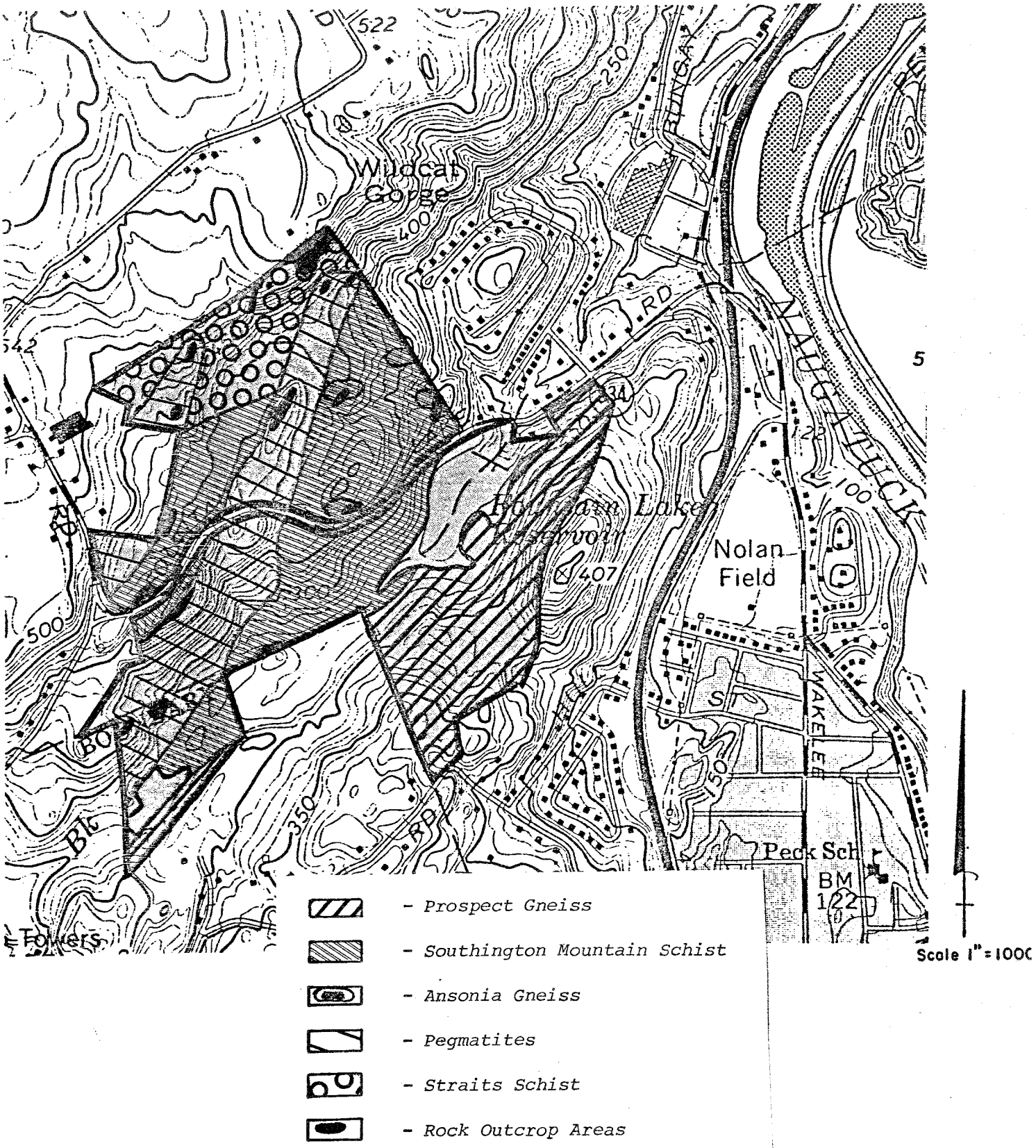


FIGURE 3:2
BEDROCK GEOLOGY



* *Adapted from Map (GQ-426) by Crawford E. Fritts. See text for bedrock description*

foliation in the rock that is caused by the alignment of elongate minerals such as biotite, hornblende and muscovite into thin bands or layers. Granular minerals such as quartz and feldspars distort the lineation produced by the mica minerals and hornblende in many places.

The Straits Schist is described as a coarse to very coarse grained, flaky, silvery-gray mica (muscovite) schist. It is composed largely of the minerals quartz, muscovite, biotite, sodic oligoclase, garnet, staurolite, kyanite and Ilmenite. Minor minerals include chlorite, apatite, tourmaline, zircon, rutile and graphite. Southington Mountain Schist consists of an interlayered medium to fine-grained silvery-gray to medium-gray muscovite schist and slabby medium light-gray to dark gray quartz-rich paragneiss (a gneiss rock which is derived from sedimentary rock). "Schists" are rocks which are characterized by pronounced foliation in the rock. The foliation is caused primarily by the layering of the mica minerals, i.e., muscovite, biotite.

Intruding the rocks west and northwest of Fountain Lake Reservoir are rocks referred to as pegmatites. Pegmatities are medium to coarse grained, light-colored (commonly white and pinkish-gray) rocks which contain the minerals quartz, microcline, albite or oligoclase, muscovite, and biotite with minor amounts of apatite, garnet and tourmaline. The pegmatite outcrops found on the site may be a source of rarer minerals (e.g., apatite, garnet, beryl and tourmaline) for mineral collectors. Pegmatites have been mined commercially for their more common minerals (i.e. mica, quartz and feldspar) in the State.

Prospect Gneiss has been quarried in the State for building stones. Schist rocks, where firm and resistant to erosion, have also been used locally as building stone.

GEOLOGIC DEVELOPMENT CONCERNS

The major limiting geologic factors in terms of developing this site will be: (1) shallow-to-bedrock conditions throughout most of the site, (2) areas of inland wetland soils, and (3) moderate to very steep slopes. The geologic factors mentioned above greatly limit development potential, possibly precluding it in areas where public sewers are not available. The reason for this is that these limiting factors may preclude the proper installation and functioning of on-site sewage disposal systems. Even if public sewers are extended into the area, problems may arise due to the shallow to bedrock conditions and steep slopes (e.g. blasting may be required, erosion control may be difficult). Based on information provided to the Team, the public sewer line currently terminates northeast of the spillway of Fountain Lake Reservoir.

Based on visual inspection of the site and soil mapping information, it appears the area surrounding the reservoir has at least some potential for development, especially if public water and sewer lines are extended. However if they cannot be extended it will be necessary to conduct deep observation pits and percolation tests in order to determine the suitability and density for any potential development of the site. This testing should be conducted and/or witnessed by the local health department. With proper planning and engineered septic systems, it may be possible to surmount some of the geologic limitations mentioned above in selected areas.

From a recreational development standpoint, the Fountain Lake Reservoir tract would have high potential for passive recreational uses such as hiking. Active recreational uses such as ballfields, tennis courts, etc. may be feasible in the flatter areas around the reservoir. In addition, the reservoir would be an attractive asset for waterbased recreation such as boating.

2. HYDROLOGY AND WATER RESOURCES

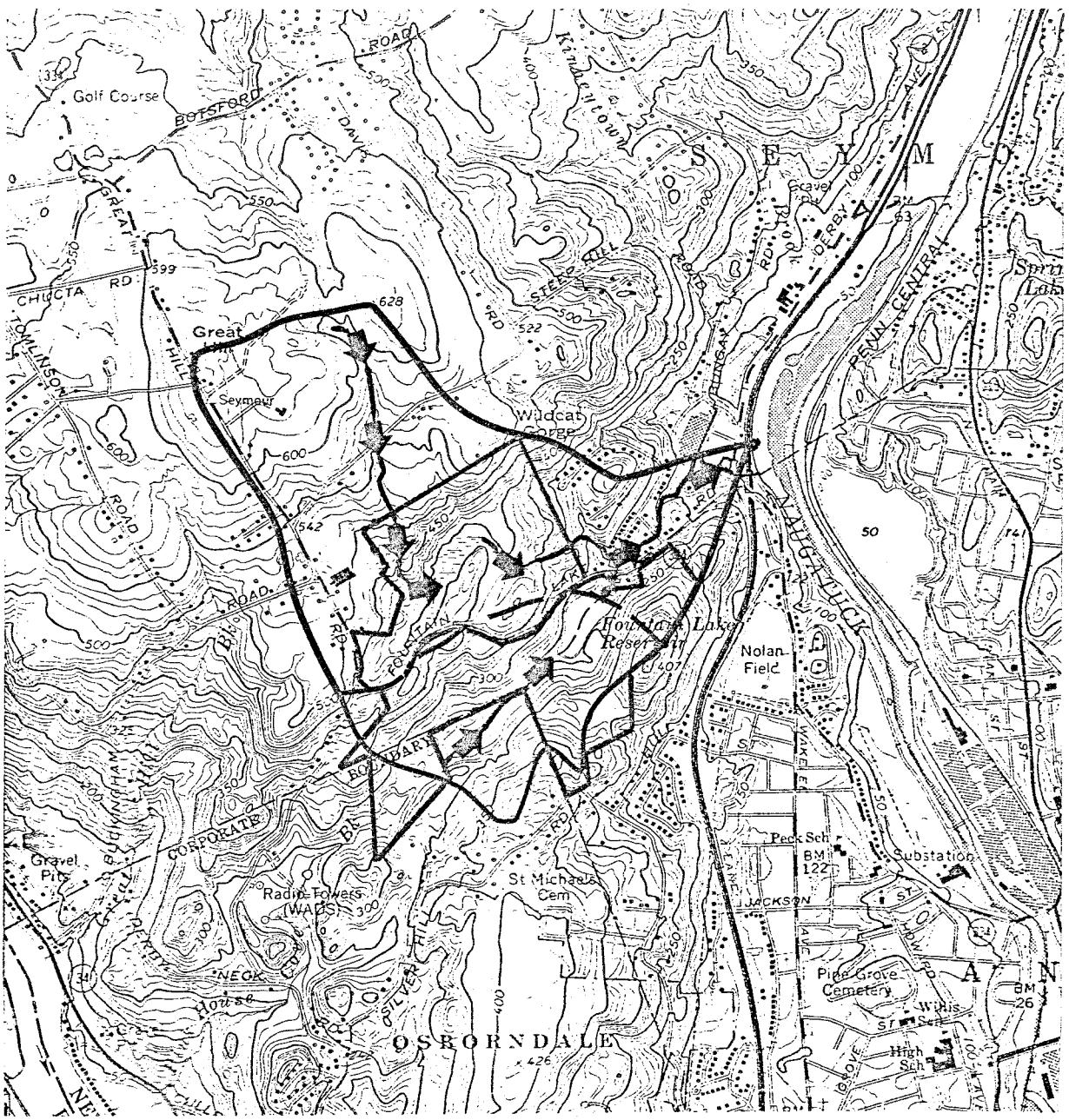
The Fountain Lake Reservoir tract lies within the watershed of an unnamed watercourse which flows north and northwest of the Reservoir (see Figure 3.3). The watershed drains an area of about .76 square miles or approximately 488 acres. Approximately 57 percent or 106 acres of the site, nearly all of which is located south of Fountain Lake Road, lies within the watershed of Fountain Lake Reservoir. This subwatershed is approximately .21 square miles or 136 acres. Surface water inflow to the reservoir is provided mainly by two unnamed watercourses. One is located at the southwestern end of the reservoir while the other is located west of the spillway. Based on visual inspection at the parcel, it appears that the latter watercourse is being diverted from a portion of the watercourse draining the larger watershed and subsequently directed into the Reservoir. Therefore, the watershed area north of Fountain Lake Road may be contributing inflow into the Reservoir. The watershed for the Reservoir, which comprises the entire area contributing surface runoff to a feeder stream or directly to the Reservoir is characterized by woodland cover and moderate to steep slopes. Fountain Lake Reservoir has a total capacity of 21 million gallons and surface area of 5.5 acres.

The outlet stream for the Reservoir flows northeast from the spillway for about 500 feet where it merges with the unnamed watercourse, which drains the watershed. The unnamed watercourse ultimately discharges into the Naugatuck River northeast of the site.

If residential or industrial development occurred on the site, it is expected that there would be an increase in the amount of runoff during periods of rainfall. Runoff increases would result mainly from the creation of impervious surfaces (e.g. roofs, pavement), removal of vegetation, and compaction of soils. Because industrial development commonly requires more impervious surface areas (i.e. bigger buildings and larger parking areas) the runoff increases for that type of development would probably be higher, for example, than residential development. If development does occur on the site, a storm water management plan should be formulated and implemented to ensure protection of water quality in Fountain Lake Reservoir.

Based on information supplied by the Valley Regional Planning Agency, public water supply lines are available on Fountain Lake Road, which bisects the property. Nevertheless, if an on-site well or wells were desired, bedrock underlying the parcel would be the site's principal groundwater supply resource. Bedrock wells are commonly capable of supplying small but reliable yields of groundwater to individual wells. While bedrock wells rarely provide high yields of greater than 50 gallons per minute, they also rarely produce an unproductive well. The natural quality of the groundwater should be good.

FIGURE 3:3
WATERSHED BOUNDARY MAP



Subwatershed boundary draining to Fountain Lake Reservoir

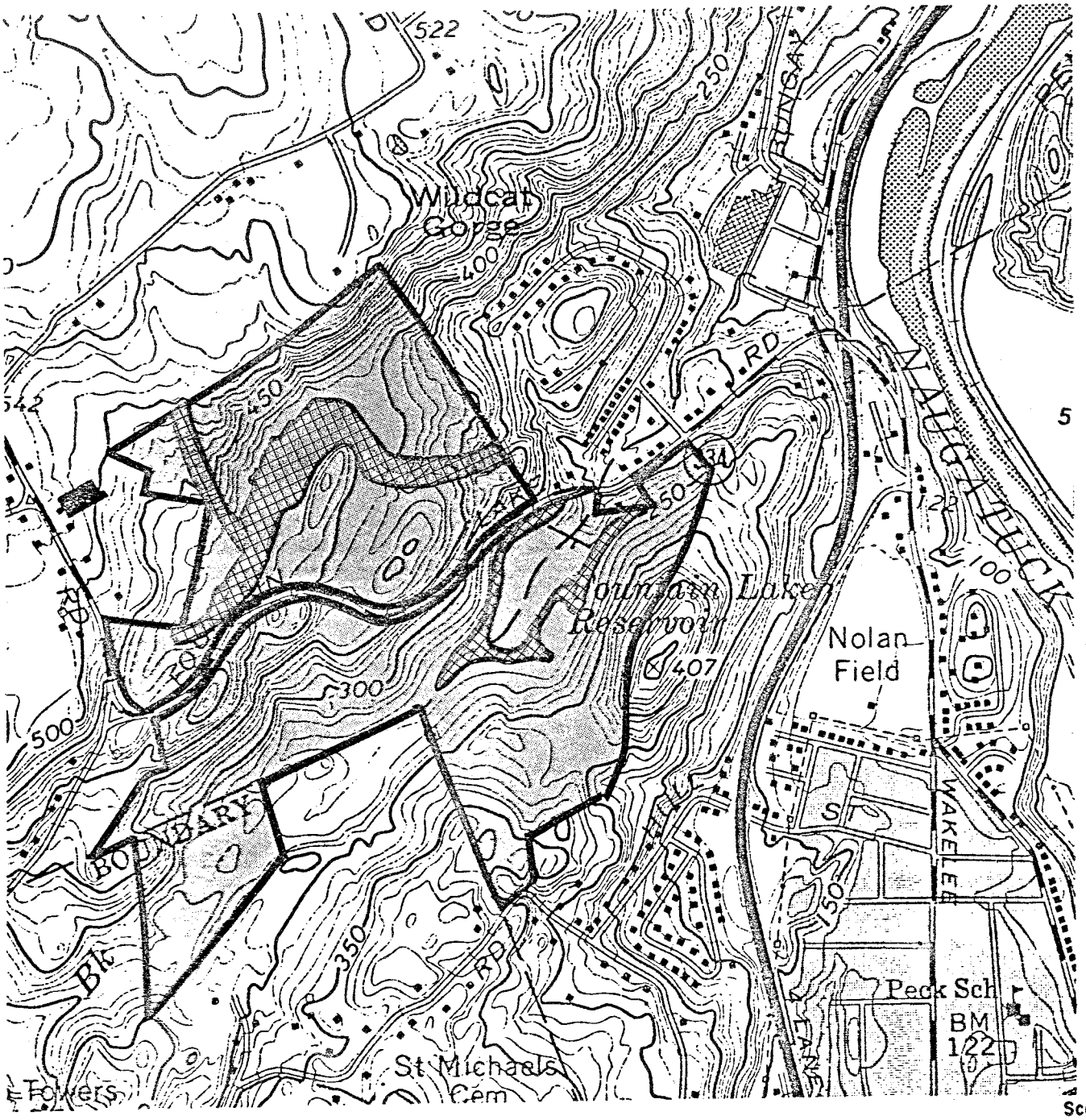
Watershed draining to watercourse flowing North of Fountain Lake Reservoir

Approximate property lines

Design point

Watercourses showing direction of flow

FIGURE 3:4
FLOOD BOUNDARY MAP



- 500 year flood boundary

* *Adapted from the Flood Insurance Study for Seymour, Ansonia, and Derby prepared by the U.S. Department of Housing & Urban Development*

FLOOD HAZARD AREAS

The principal flood hazard areas found on the site include: (1) the low-lying area surrounding Fountain Lake Reservoir, (2) wetland areas in the northern sections of the site, and (3) areas bordering the unnamed watercourse in the northern section of the property. (Source: Flood Boundary and Floodway Map for Seymour, Ansonia and Derby.) These areas lie primarily within the 500-year flood boundary (see Figure 3.4). A "500-year flood" would be a flood with a one in 500 or .2 percent chance of occurring during a given year. In addition to the areas mentioned above, there probably are other wetland or topographically low depressions within the site which may be inundated during periods of heavy rainfall. Because these areas function as retention basins (i.e. provide flood storage) during heavy rainfall, it is recommended that they be left in their natural state.

3. SOILS

According to the New Haven County Soil Survey, the following soils occur at the Fountain Lake Reservoir Tract:

AA -Adrian and Palms mucks.
CrC-Charlton-Hollis fine sandy loams, 3-15% slopes.
HpE-Hollis-Charlton fine sandy loams, 15-35% slopes.
HSE-Hollis-Rock outcrop complex, 15-35% slopes.
RN -Ridgebury, Leicester and Whitman extremely stony fine sandy loams.
RP -Rock outcrop-Hollis complex.

The location of these soils is presented in Figure 3.5. The critical soil features of the tract are shown in Figure 3.6.

This tract of land is sloping to very steep, somewhat excessively drained to poorly and very poorly drained. The landscape is mainly steep ridges, hills and knolls. Relief is affected by the underlying bedrock.

Hollis soils are somewhat excessively drained, loamy soils and are underlain by bedrock at a depth of 10 to 20 inches. Hollis soils are dominantly sloping to very steep and occupy the ridgetops, knolls and side slopes of the rougher areas of the landscape. Stones and boulders on the surface, and bedrock outcrops are common in most places.

Charlton soils are well-drained, deep loamy soils. They are gently sloping or sloping and occupy small, smooth hilltops and small areas between bedrock controlled ridges and knolls.

Rock outcrops are exposed unweathered rock, mostly gneiss and schist, on narrow ridgetops, on the top of knolls, or on steep side slopes. Slopes are mostly very steep.

Ridgebury, Leicester and Whitman extremely stony fine sandy loams occupy depressions and drainageways. They are poorly and very poorly drained soils and are dominantly nearly level or gently sloping. Stones and boulders are common on the surface in most places.

FIGURE 3:5
SOILS MAP

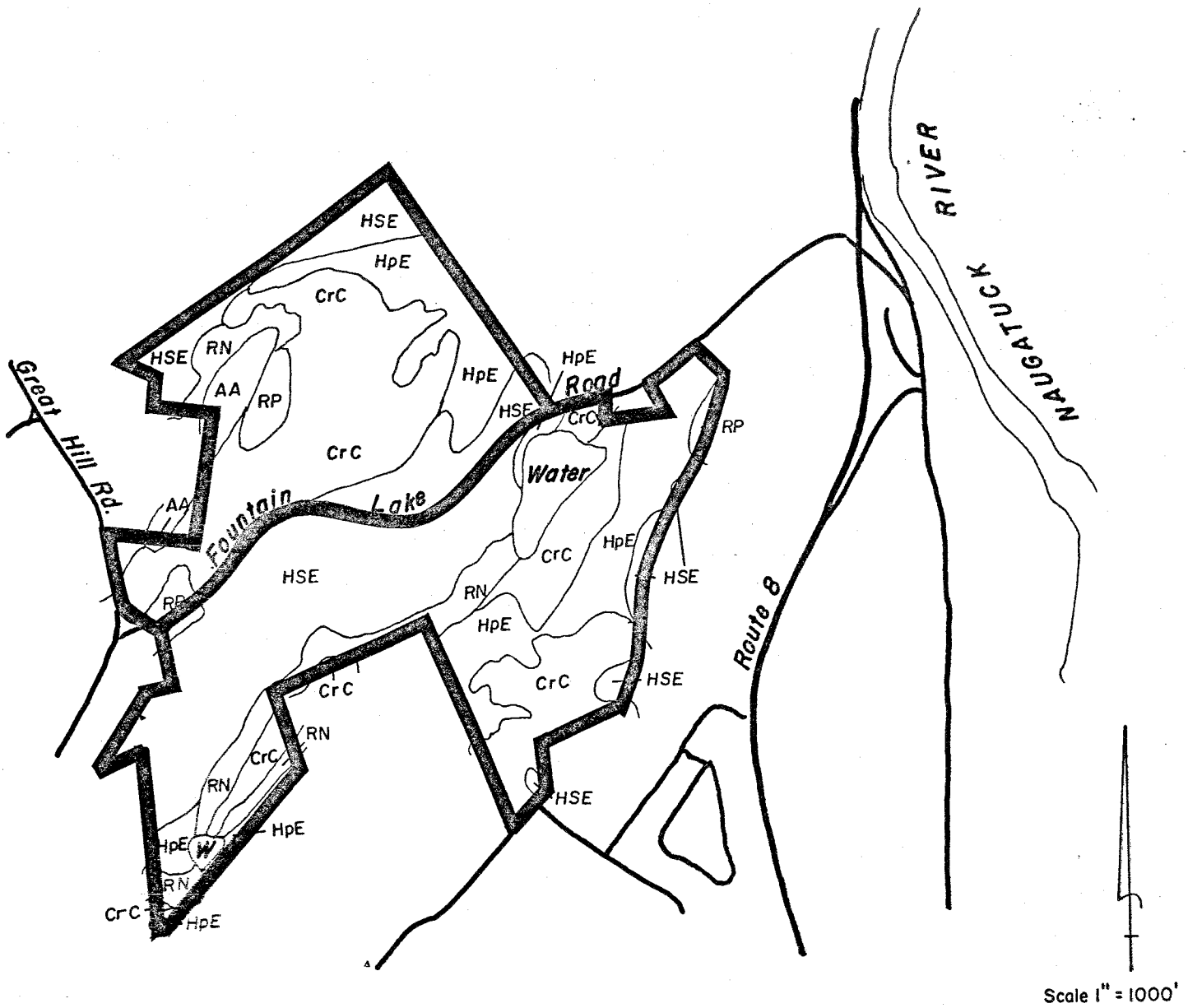
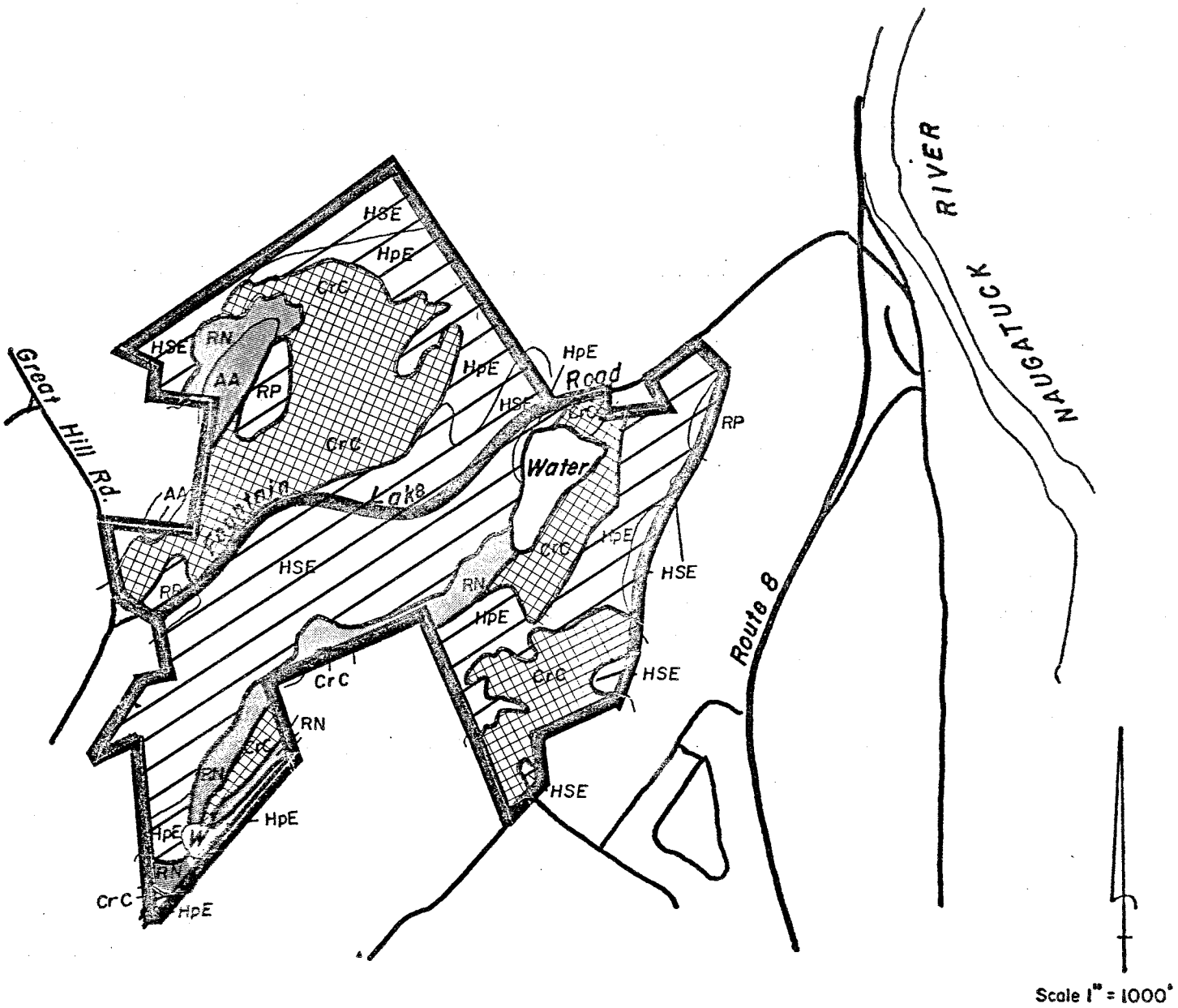


FIGURE 3:6
CRITICAL SOIL FEATURES



= *Inland wetland soils*

= *Shallow to bedrock soils on steep slopes*

= *Shallow to bedrock soils on moderate slopes*

Note: All of the above designated soils have severe limitations for residential development according to USDA Soil Conservation Service criteria.

Adrian and Palms mucks are organic soils in low depressions on glacial till plains. The organic layer of these soils is 16-50 inches thick, slopes are level to nearly level. Both Adrian and Palms soils are very poorly drained.

SOIL SUITABILITY FOR URBAN DEVELOPMENT

Refer to soil potentials given for Great Hill Reservoir Tract for:

CrC
HpE
HSE
RN
RP

AA, Adrian and Palms mucks are organic soils and are poorly and very poorly drained. The soils of this unit have poor potential for community development. They have a high water table at or near the surface most of the year and are subject to flooding or ponding. The organic layers have very low strength and stability. For most uses the removal of the organic layers is not feasible. If fill is placed on top of the layers, the fill will settle over a period of several years. If the soils are drained, the organic material shrinks and subsides, and the surface of the soil is lowered. Excavating is difficult because the side slopes are unstable; they slump readily, and the excavations fill with water. Onsite septic systems cannot feasibly be used on these soils.

D. SITE IV - ANSONIA RESERVOIRS TRACT

1. TOPOGRAPHY AND GEOLOGY

The Ansonia Reservoirs tract consists of a ± 211 acre parcel of land located in the Towns of Ansonia and Derby (see Figure 4.1). Approximately 28 percent or 59 acres of the site to the north is located in the Town of Ansonia. The remainder is located in the Town of Derby. It is situated between Derby Hill on the east and the Naugatuck River on the west. Two surface water bodies are included within the tract of land, Lower Derby Hill Reservoir and Upper Derby Hill Reservoir. A long narrow northern portion of Upper Derby Hill Reservoir lies in the Town of Ansonia. The surface areas of the two reservoirs are approximately 10 acres (Lower Derby Hill Reservoir) and 36 acres (Upper Derby Hill Reservoir), respectively. Both reservoirs are presently active public water supplies. Upper Derby Hill Reservoir provides storage to Lower Derby Hill Reservoir, which, in turn, is one of direct sources of water that is distributed to customers serviced by the Ansonia-Derby Water Company.

The land east of the reservoirs flank the west side of Derby Hill. From the eastern shores of the reservoirs, the land rises steeply, then more moderately to the eastern property line. The steeply sloping areas are associated mainly with bedrock outcrops.

The topography west of the reservoir is characterized mainly by relatively flat and gently sloping areas.

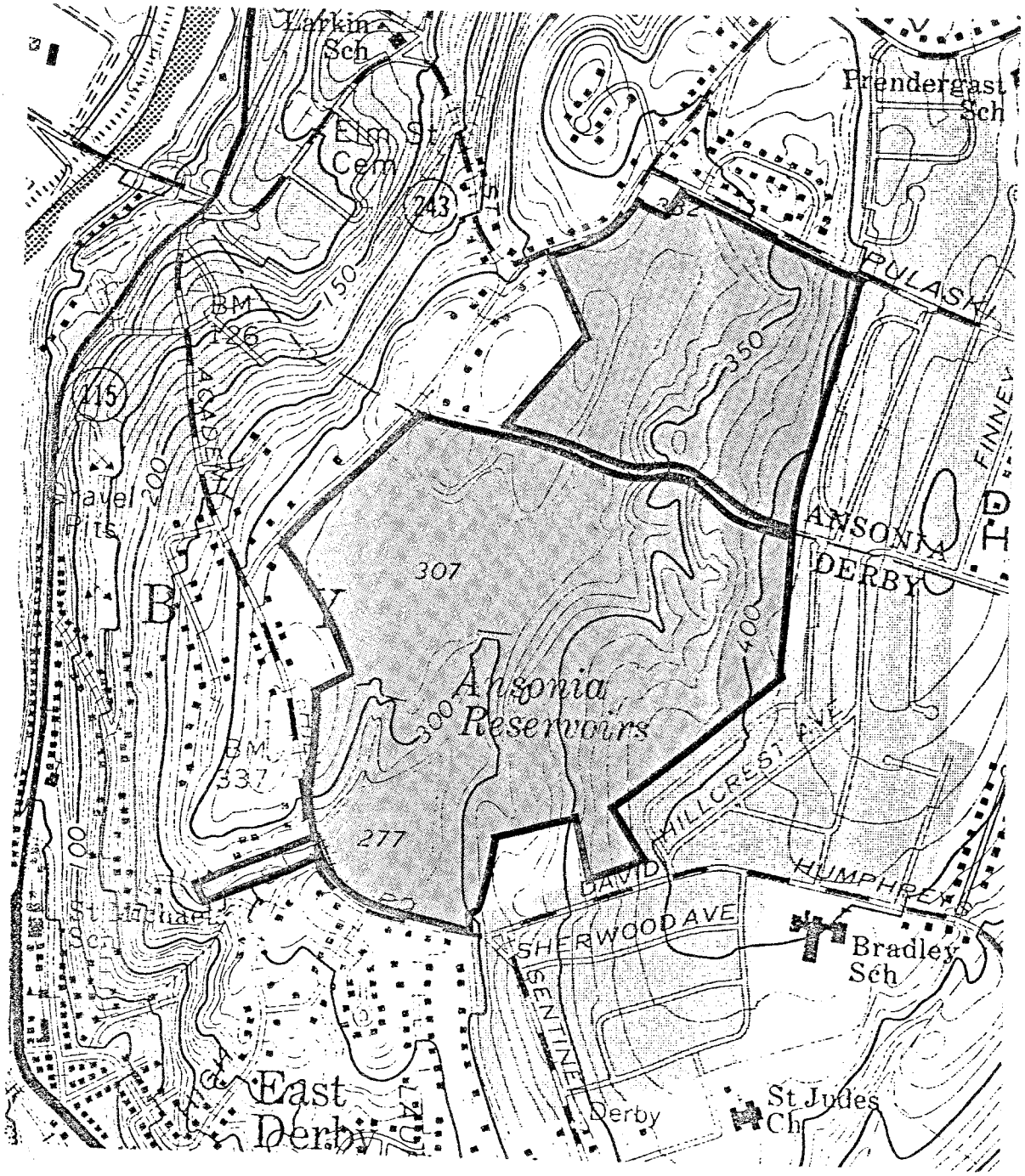
Elevations range from a low of 250 feet above mean sea level at the southwest point of the site (area which includes outlet stream for Lower Derby Hill Reservoir) to a high of 420 feet above mean sea level along the eastern property line.

The bedrock geology of the site, shown in Figure 4.2 is adapted from the Bedrock Geologic Map of the Ansonia Quadrangle prepared by Crawford E. Fritts. This map was published by the U.S. Geological Survey in 1965 and is available for purchase or review at the Department of Environmental Protection's Natural Resources Center in Hartford.

Numerous bedrock outcrops were visible within the site on the review day. Most bedrock exposures are east of the reservoirs. However, scattered outcrops are also visible on the west side, particularly along Coe Road. Coe Road traverses the property along the Ansonia-Derby town line in the northern section of the property. The majority of rock outcrops are found in areas delineated by the symbol HpE (Hollis-Charlton soils) on the accompanying soils map.

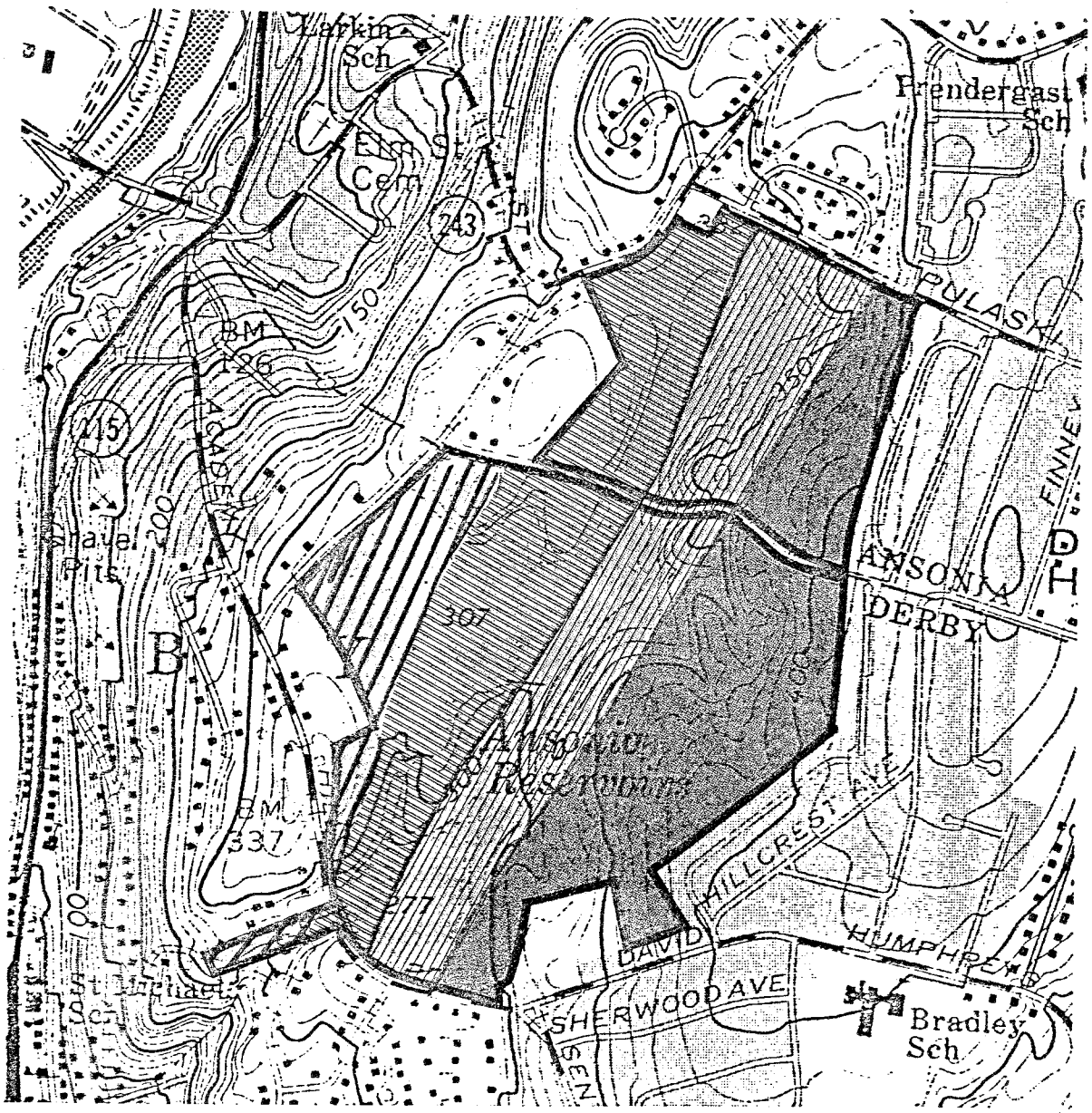
Four bedrock types are shown within the boundaries of the property: Prospect Gneiss, Derby Hill Schist, and two formations which form part of the Southington Mountain Schist. As noted in the preceding statement, the latter three units consist largely of various schist rocks. "Schists" are metamorphic rocks in which elongate, platy or flaky minerals such as micas are predominant and generally parallel. The term "metamorphic" refers to rocks which were geologically altered by great heat and pressure deep within the earth's crust. Common minerals in these rocks are quartz,

FIGURE 4:1
TOPOGRAPHIC MAP



Scale 1"=1000'

FIGURE 4:2
BEDROCK GEOLOGY



DERBY HILL SCHIST (medium to fine grained, greenish gray to medium dark gray chloritic muscovite schist)

SOUTHINGTON MOUNTAIN SCHIST (interlayered medium to fine grained silvery gray to medium gray muscovite schist and slabby medium light gray to dark gray quartz rich gneiss)

SOUTHINGTON MOUNTAIN SCHIST (medium grained, quartz rich gneiss and subordinate mica schist)

PROSPECT GNEISS (coarse to medium grained well foliated, light gray, granodoritic to quartzmon-zonitic gneiss)

Scale 1"=1000'

feldspar, muscovite, chlorite, biotite, garnet, and staurolite. Other minerals found in these rocks include ilmenite, rutile, tourmaline zircon, and apatite.

Bedrock that underlies or crops out along the western limits of the site has been classified as a member of the Prospect Gneiss. This unit consists of rocks composed of the minerals quartz, oligoclase, microcline, muscovite, and biotite. Minor minerals include sphere, garnet, apatite, tourmaline, ilmenite, and epidote. "Gneisses" are also metamorphic rocks characterized by banding which results from alternating layers of granular minerals (e.g., quartz, feldspars) with thin bands of elongate minerals (e.g., muscovite, biotite). The granular minerals are commonly more abundant than the elongate minerals in gneisses. No economic concentrations of minerals are thought to be present in the rocks found on the site.

The unconsolidated (overburden) material overlying bedrock on the site consists almost entirely of a glacial sediment called till (see Figure 4.3). Till, which was deposited directly by the glacier ice, is composed of rock particles that range in size from clay to boulders. Its textural components generally show very little sorting (i.e., fine and coarse particles may be thoroughly mixed). The upper portion of a till deposit is commonly sandy, stony, and friable. At depth, it becomes siltier and more compact. The thicknesses of till range from zero where rock outcrops to probably not more than 10 feet.

Another surficial deposit found on the site is swamp sediment. These deposits overlie till primarily along the northern tip of Upper Derby Hill Reservoir and also in small areas east of it. Swamp sediments consist of accumulated sand, silt, clay, and partly decayed organic matter in wet, low-lying areas. They are depicted on the soils map by the symbol RN (Ridgebury, Whitman, and Leicester soil).

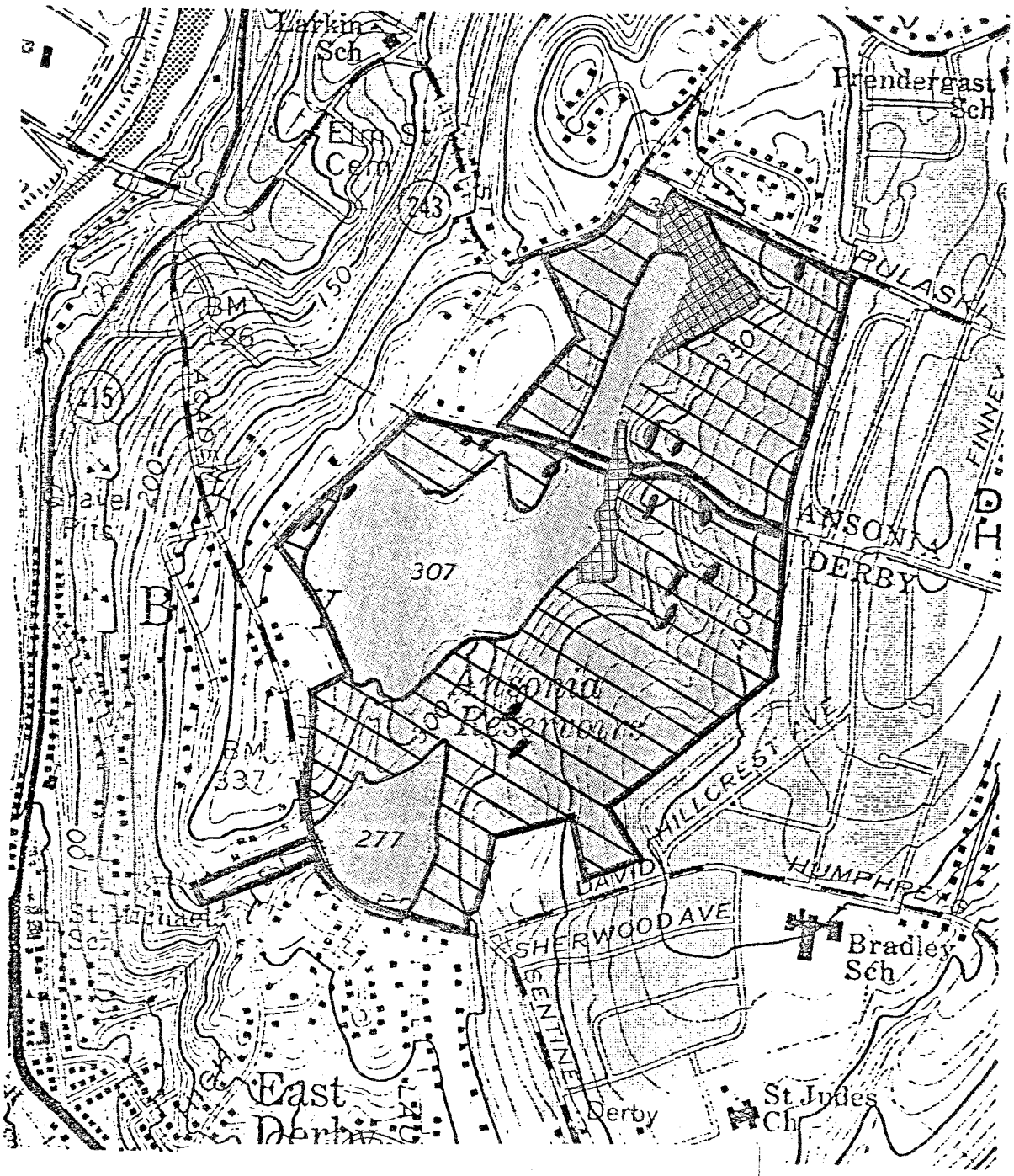
GEOLOGIC DEVELOPMENT CONCERNS

Public water supply and sewer lines are available to the Ansonia Reservoir site, which will preclude the need for onsite sewage disposal systems and wells.

The major limiting geologic factors in terms of residential development potential of the site include: 1) shallow depth to bedrock and rock outcrop areas, which are found primarily in the east-central portions of the site, 2) moderate to steep slopes, which are associated primarily with the rock outcrop areas, 3) numerous scattered boulders, and 4) the presence of some till-based soils, which are susceptible to frost damage where the water table is high (compact layers impede the downward movement of water). These geologic conditions will weigh heaviest on the location and construction of building foundations and roads. However, with proper planning and engineering, the above mentioned limitations should not pose major problems in most areas.

If any blasting (for installation of public water or sewer lines, foundations, roads, etc.), filling/grading, or any other type of site preparation is required, it is strongly recommended that a detailed erosion

FIGURE 4:3
SURFICIAL GEOLOGY



Till

Swamp sediments

Rock outcrop areas

* Adapted from map QR-23 and Soil Survey map for New Haven County

and sediment control plan be formulated and implemented for the project. The areas of most concern would be 1) the moderate to steeply sloped areas, 2) areas in close proximity to the reservoirs, and 3) near watercourses and wetlands.

The eastern and western limits (gentle to moderate sloped areas, deep soils, dry areas, etc.) of the site appear to be the most suitable areas for development.

In terms of recreational development, the site appears to be well-suited for passive recreation and in some of the flatter areas for active recreational development. Rock outcrop and wet areas would best be left in their natural state.

2. HYDROLOGY AND WATER RESOURCES

Upper Derby Hill Reservoir and Lower Derby Hill Reservoir are the major surface waters found on the site. The watershed for these reservoirs may be defined as the entire area from which surface runoff may be carried into the reservoirs, either by sheetflow or by streamflow. The watershed boundary for each reservoir, which trends along the upper crests surrounding the site is delineated in Figure 4.4. Upper Derby Hill Reservoir and Lower Derby Hill Reservoir are fed by watersheds which are approximately .43 square miles (± 275 acres) and .56 square miles (± 358 acres), respectively.

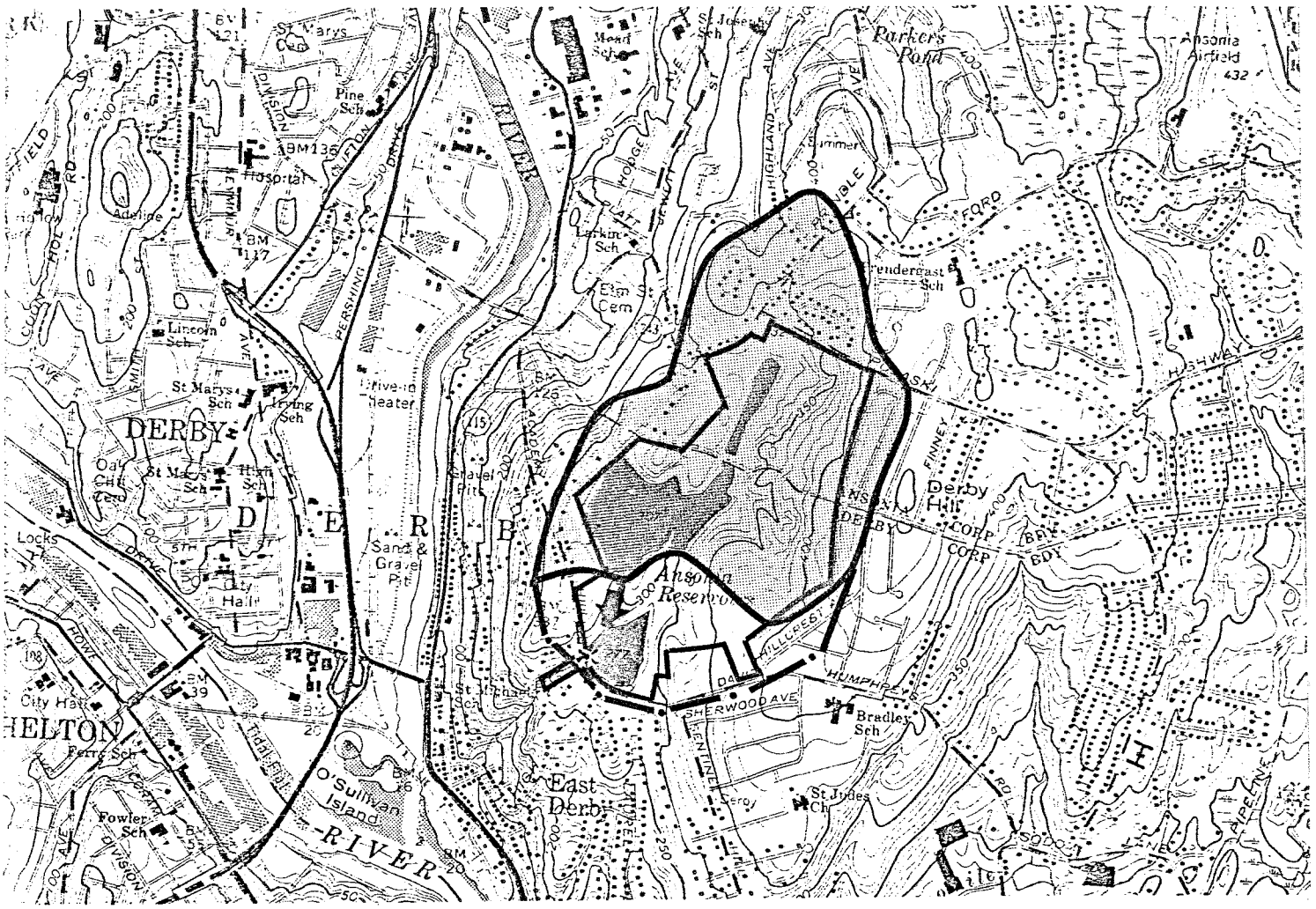
With the exception of the watercourse connecting Upper Derby Hill Reservoir with Lower Derby Hill Reservoir, no perennial watercourses are found on the site. Numerous intermittent drainage swales were visible on the review day, however, mainly in the eastern half of the tract.

The total capacity of Upper Derby Hill Reservoir and Lower Derby Hill Reservoir is approximately 63.7 million gallons and 22.8 million gallons, respectively. As mentioned earlier, these reservoirs are still active. Based on information supplied by the Ansonia-Derby Water Company, approximately 121.26 million gallons of water was drawn out of the Lower Derby Hill Reservoir in 1981 for public water supply use.

As mentioned earlier, the site would be serviced by a public water line. If for some reason an onsite well was desired, the underlying bedrock would probably have to be tapped. A survey of bedrock wells, in the Lower Housatonic River Basin indicates that about 75 percent of those wells that were drilled into a rock type similar to that found on the site yielded three gallons per minute or more and less than 10 percent yielded 20 gallons per minute or more. A yield of three gallons per minute should be adequate for most domestic uses (see Connecticut Water Resources Bulletin #19).

The natural quality of groundwater should be good. There may be a chance that elevated iron and manganese levels may affect water quality locally. As a result, it may be necessary to install an appropriate water treatment filtration system.

FIGURE 4:4
WATERSHED BOUNDARY MAP



Drainage Area for Upper Derby Hill Reservior

Additional drainage area for lower Derby Hill Reservoir

Design point

Watercourse showing direction of flow

Approximate property line

FLOOD HAZARD AREAS

There is a Flood Boundary and Flood Way Map for the Towns of Derby and Ansonia. These maps, which have been prepared by the Federal Emergency Management Agency, identify areas that are subject to flooding during the 100 and 500-year flood. A "100-year flood" is a flood with a one in 100 or one percent chance of occurring in any given year while the "500-year flood" would be a flood with one in 500 or .2% chance of occurring in any given year. Based on these maps, it appears the Ansonia Reservoirs tract lies in a zone where only minimal flooding would occur. It seems likely that the low-lying swampy areas around the reservoir would be inundated during periods of heavy rainfall.

3. SOILS

The soils which have been mapped on the Ansonia Reservoirs Tract include:

CfB - Charlton fine sandy loam, 3-8% slopes.
CfC - Charlton fine sandy loam, 8-15% slopes.
CfD - Charlton fine sandy loam, 15-25% slopes.
CrC - Charlton-Hollis fine sandy loams, 3-15% slopes.
HpE - Hollis-Charlton fine sandy loams, 15-35% slopes.
RN - Ridgebury, Leicester and Whitman extremely stony fine sandy loams.
SvB - Sutton fine sandy loam, 3-8% slopes.
WyB - Woodbridge very stony fine sandy loam, 3-8% slopes.

The location of these soil types is shown in Figure 4.5. The critical soil features on this site are shown in Figure 4.6.

This tract of land is gently sloping to very steep. Charlton soils are deep well drained and loamy. They are dominantly gently sloping or sloping and occupy hilltops and convex side slopes of the till plain.

Hollis soils are somewhat excessively drained, loamy, and underlain by bedrock at a depth of 10 to 20 inches. Hollis soils are gently sloping to steep and occupy hilltops, small ridges, and side slopes in bedrock controlled areas. Slopes are mainly complex.

Ridgebury, Leicester and Whitman extremely stony fine sandy loams occupy depressions and drainageways. They are poorly and very poorly drained soils and are dominantly nearly level or gently sloping. Stones and boulders are common on the surface in most places.

Minor soils make up the remaining portions of the property. Sutton soils are moderately well drained and located in slight depressions on glacial till plains and near the base of slopes on glacial uplands where the relief is influenced by underlying bedrock. Sutton soils have a seasonal high water table at a depth of 20 inches from late fall until mid-spring. Slopes are smooth and mostly concave.

Woodbridge soils make up a small portion of the property. They are deep, moderately well drained, loamy, and have a slowly permeable fragipan.

FIGURE 4:5
SOILS MAP

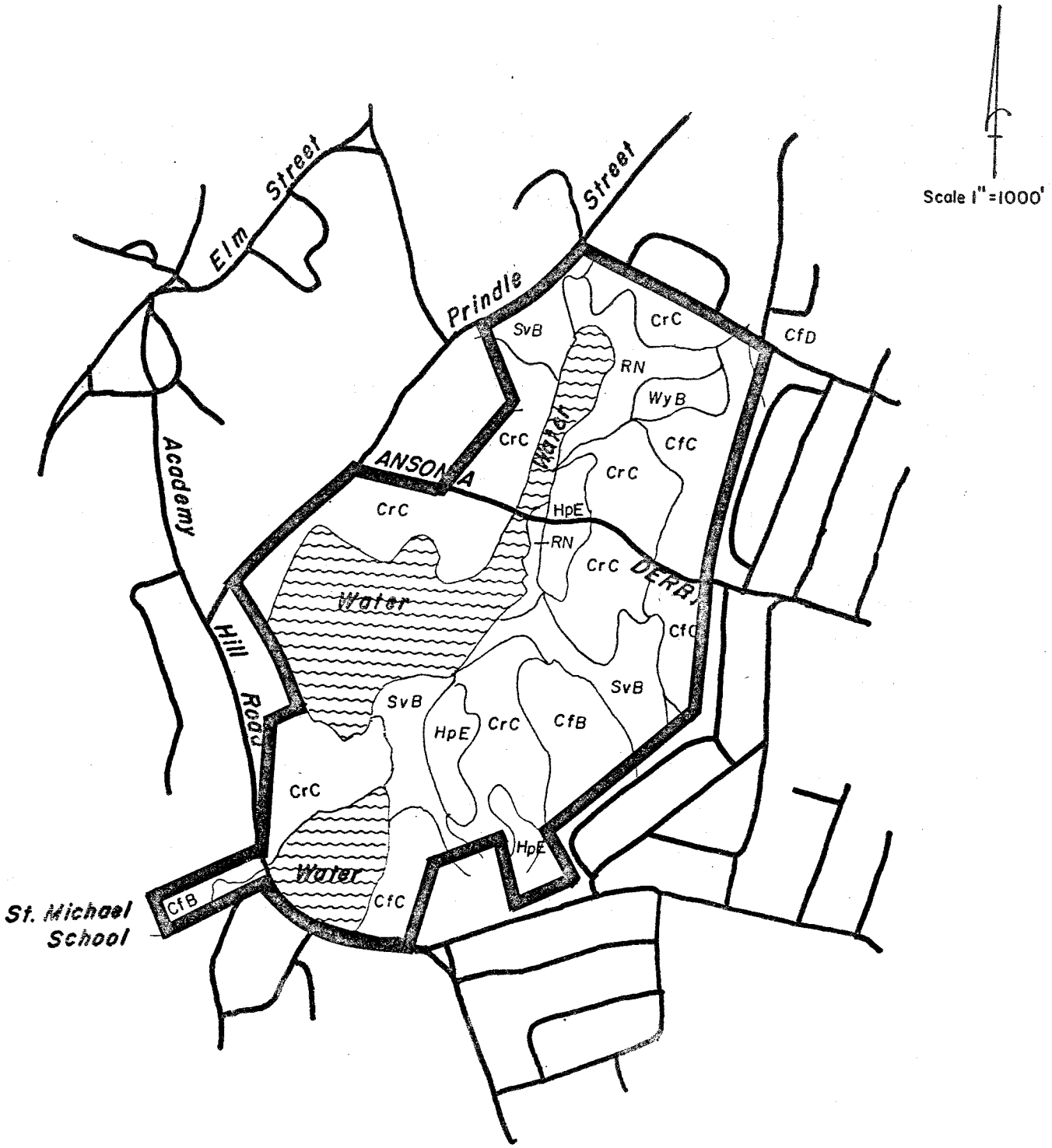
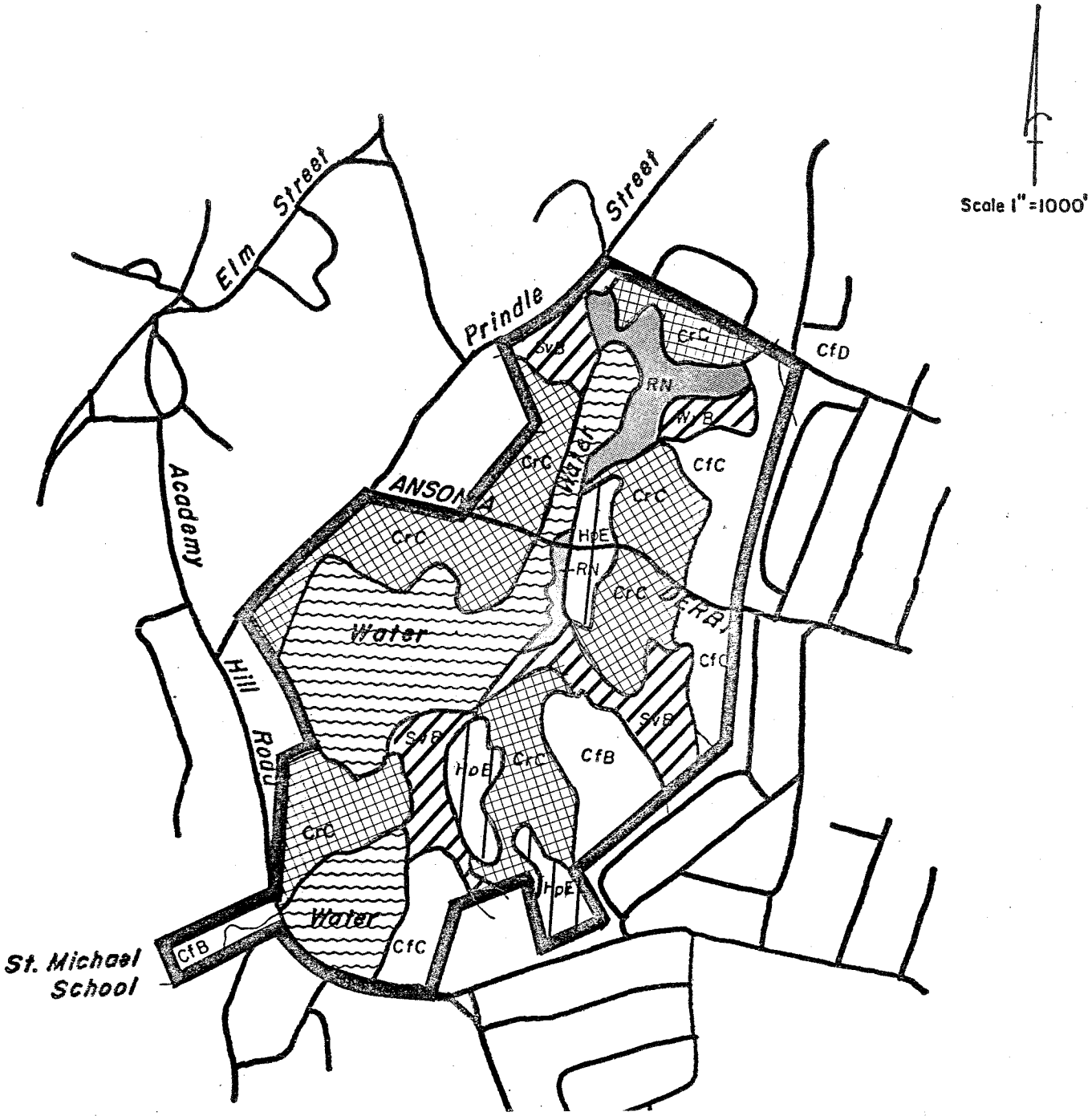


FIGURE 4:6
CRITICAL SOIL FEATURES



= Soils with seasonal high water table

= Inland wetland soils

= Shallow to bedrock soils on steep slopes

= Shallow to bedrock soils on moderate slopes

Note: All of the above designated soils have severe limitations for residential development according to USDA Soil Conservation Service criteria.

They have a seasonal high water table at a depth of 20 inches. These soils are mostly nearly level or gently sloping and are on the top of broad hills and in slightly concave positions.

SOIL SUITABILITY FOR URBAN DEVELOPMENT

Refer to soil potentials given for Great Hill Reservoir Tract:

CfB
CfC
CfD
CrC
HpE
RN
WyB

Refer to soil potentials given for Fountain Lake Reservoir Tract:

SvB

If this area is developed, a natural buffer area should be left around the reservoirs. This will serve as a filter for overland flow and will also improve the aesthetics of the reservoirs.

E. SITE V - PEAT SWAMP AREA

1. TOPOGRAPHY AND GEOLOGY

The "Peat Swamp Area" tract of land is an irregularly shaped parcel which is ±33 acres in size. It is located on the west side of Peck Hill Road in the western limits of Woodbridge.

Slopes on the site are mostly gentle to moderate. However, due to numerous bedrock exposures and surface boulders, the site is characterized by a rough and rugged terrain.

No major watercourses are found on the site. However, approximately 23 percent of the site is covered by wetland soils. These wetland areas are fed by small drainage swales.

Nearly 75 percent of the site is covered by a relatively thin blanket of till. Till is a non-sorted, non-stratified glacial sediment that was deposited directly from a mass of ice. It consists of a mixture of rock fragments and particles ranging in size from clay to angular boulders. The upper few feet of till are normally loose and only moderately compact. However, at depth, the till commonly becomes siltier and more compact. Numerous surface boulders were visible on the site on the review date.

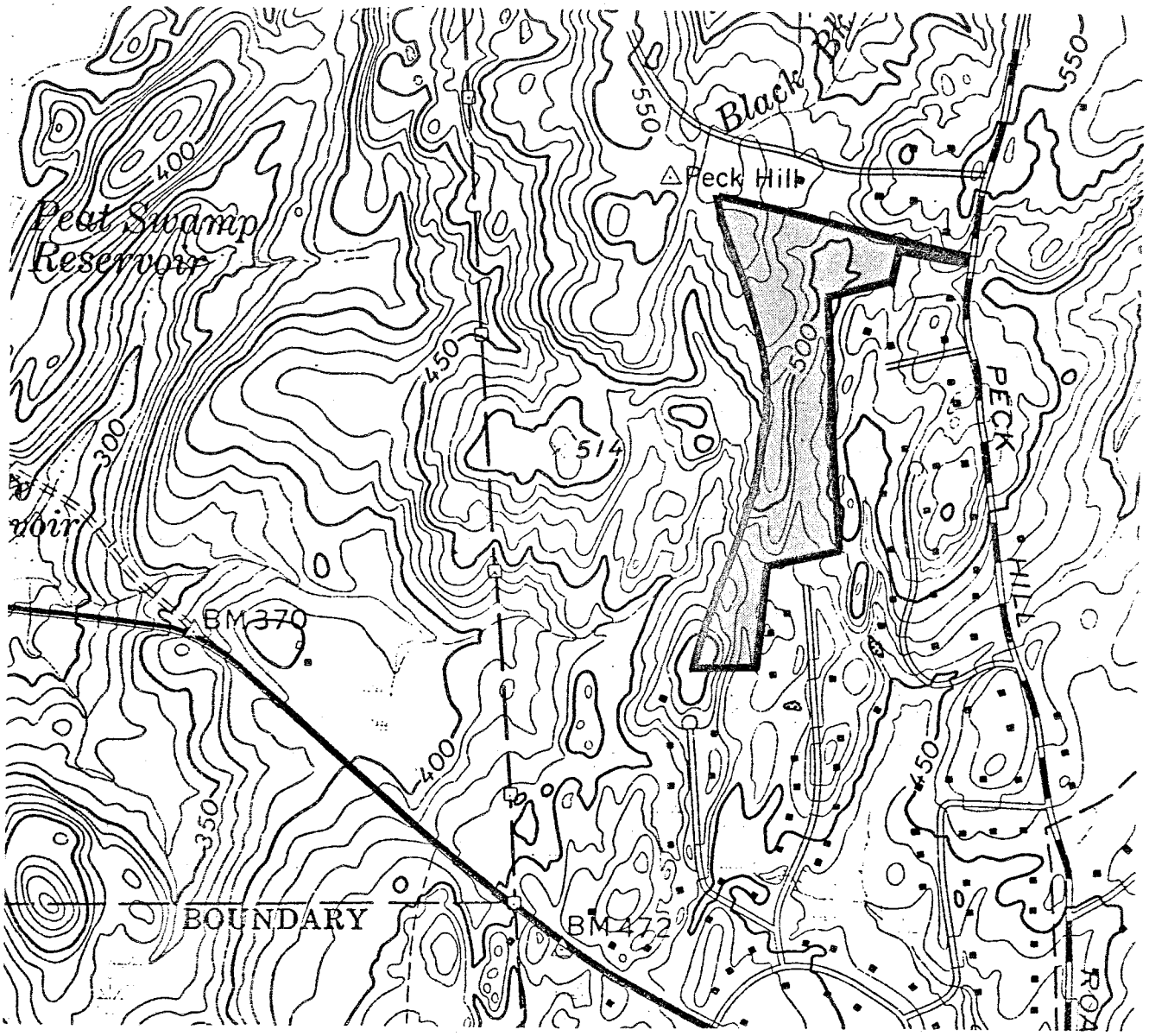
Overlying till in scattered areas throughout the site are swamp sediments. Swamp sediments consist of decayed vegetation mixed with some silt, clay and sand. These areas are designated by the symbols Ce (Carlisle muck) and RN (Ridgebury, Leicester and Whitman soils) on the accompanying soils map.

Numerous bedrock outcrops and scattered boulders were observed on the site. U.S. Geological Survey Report GQ-426 identifies these rocks as members of the Prospect Gneiss formation. They are a coarse to medium grained metamorphic rock (rocks that were subjected to great heat and pressures deep within the earth's crust). Main mineral constituents are quartz, feldspar (chiefly oligoclase), biotite (commonly with considerable muscovite), garnet, and hornblende. Depth to bedrock probably ranges from zero where outcrops occur to not more than five feet at various points between outcrops. No economic value can be ascribed to the bedrock found on the site.

GEOLOGIC DEVELOPMENT CONCERNS

The major limiting geological factors on the site in terms of development include: (1) bedrock outcrop areas, (2) numerous surface boulders, (3) generally thin soil cover, and (4) areas of seasonal wetness. Due to the extensive presence of these limiting factors, this parcel is poorly suited for development, particularly intensive development. The above-mentioned limitations would weigh heaviest on the installation of on-site sewage disposal systems which would be required. Perhaps with properly designed engineered septic systems, the site could support some residential development, but only at a low density. However, the actual density of the site in terms of residential development could only be determined after detailed soil testing (i.e. deep test pits, percolation tests) was conducted.

FIGURE 5:1
TOPOGRAPHIC MAP



Scale 1"=1000'

From a recreational development standpoint, it appears the geological characteristics of the parcel may allow a limited amount of passive recreational use. However, active recreational development would require extensive on-site preparation which would most likely be prohibitively costly.

2. HYDROLOGY AND WATER RESOURCES

No watercourses or surface water bodies were visible on the site. Surface runoff from the site drains eastward mainly by sheet flow or by intermittent drainage swales into wetlands which are the headwater sources of an unnamed tributary of the Wepawaug River (see Figure 5.2).

Development of the site for residential use may increase the amount of runoff during periods of rainfall. These increases would depend largely on the density, amount of impervious surfaces (roofs, driveways, etc.) over the soil, the removal of vegetation, and the compaction of soils in disturbed areas.

WATER SUPPLY

Public water supply lines are not presently available to the site. It appears bedrock would be the principal source of water to any on-site well. Groundwater is found primarily in the cracks and fractures of the bedrock. Generally speaking, the fractures and cracks occur in the first 200 feet of the surface and are rather small, with few interconnections. Groundwater is withdrawn from the bedrock aquifer when the well intercepts the rock fractures and cracks. It is extremely difficult to predict yields of bedrock-based wells without expensive geophysical equipment. Nevertheless, Connecticut Water Resources Bulletin No. 19 (Lower Housatonic River Basin) allows one to estimate the yield of a well tapping the type of bedrock underlying the site. Based on a survey of 294 wells tapping crystalline bedrock in the lower Naugatuck River Basin, in which the subject site lies, nearly 80 percent yielded 3 gallons per minute. A yield of 3 gpm (gallons per minute) is considered adequate for most domestic uses.

FLOOD-HAZARD AREAS

A Flood Boundary and Floodway Map for the Town of Woodbridge has been prepared by the Federal Emergency Management Agency. The map identifies areas which lie within the 100 and 500-year flood boundary and the floodway fringe. Based on this map, the property does not lie within any of the above-mentioned boundaries. Nevertheless, there may be swampy, low topographic depressions on the site which may become inundated during periods of heavy rainfall. These areas include those depicted by the soil symbols Ce (Carlisle muck) and RN (Ridgebury-Leicester and Whitman).

3. SOILS

As shown in Figure 5.3, the soil types which have been mapped for the Peat Swamp Area include:

BIOLOGICAL RESOURCES

III. BIOLOGICAL RESOURCES

A. Vegetation

The geographic area of Connecticut in which these 5 parcels are located is a vegetative zone broadly described as "Upland Central Hardwoods". The principal tree species found here are beech, yellow-poplar, white oak, red oak, black oak, sugar maple, red maple, hickory, and white ash. Softwoods also occur here, especially on drier, poorer quality sites or where introduced by man. These generally consist of hemlock and white pine, although Norway spruce is frequently found on water company lands.

There are 8 differing vegetative types found across the 5-parcel study area. For the most part the boundaries of these vegetation types gradually grade into one another, causing wide transition zones where tree species dominant in one type are present in another. These conditions cause difficulty in mapping. In other areas, transition zones are almost non-existent and mapping is greatly simplified.

For the purposes of this report, each vegetative type is discussed separately and its potential for the production of commercial forest products examined.

Tables summarizing vegetative types and potential productivity for the entire study area may be found following the individual vegetative type reports, as can a brief analysis of management considerations for the study area and factors limiting forest management potential.

1. Vegetation Types

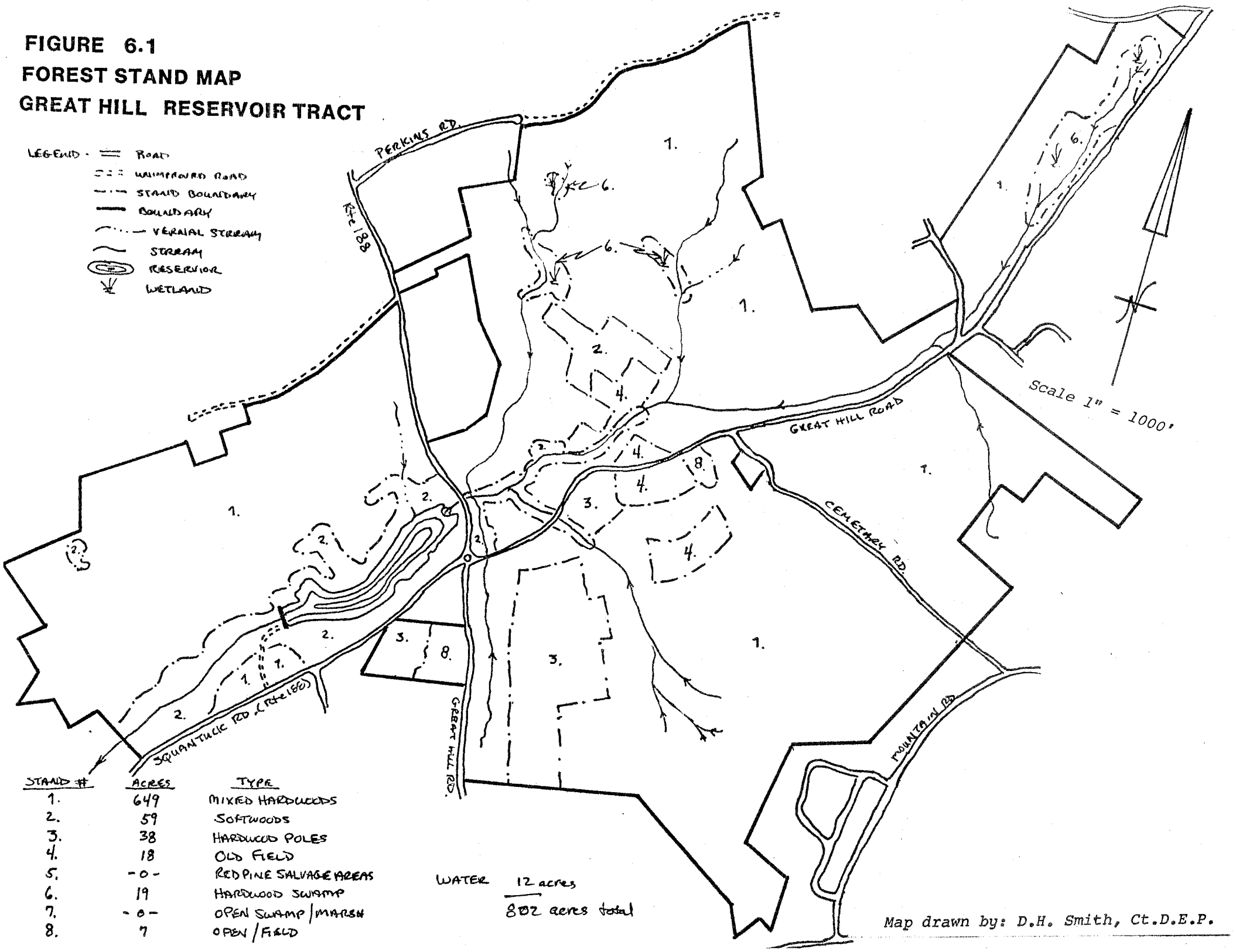
As mentioned above, eight vegetative types are found across the 5-parcel study area. Each of these is discussed below. The geographic location of each type within the individual parcels is presented in Figures 6.1 - 6.5.

TYPE 1. Mixed Hardwood.

The overstory in this area is dominated by white oak, red oak, black oak, sugar maple, red maple, shagbark hickory, pignut hickory, bitternut hickory, black birch and basswood. In portions of this vegetation type, slight variations in climate or soil or other site factors give rise to species more characteristic of the northern hardwoods such as yellow birch, beech, and white ash. The understory and ground cover vegetation varies widely within this mapping unit. Hardwood tree seedlings and saplings, including American chestnut, are widespread, along with many shrub species which include but are not limited to blue beech, tartarian honeysuckle, witchhazel, hazelnut, mountain laurel, flowering dogwood and ironwood. Ground cover is dominated by club moss, grasses, sedges and many species of ferns.

Many of the tree species present in the mixed hardwood vegetation type have high commercial value for sawtimber and fuelwood. The condition of the trees is quite variable, as dictated by site conditions, past land use, and past vegetation management. Over the past 10 years, most of the accessible area of this type has been harvested for both commercial sawtimber and fuelwood as part of an intensive watershed management program. These areas have a good potential for the production of forest products. This potential can be utilized more fully through the continuation of proper forest management. Trees in these areas will respond well to periodic thinnings aimed at removing the poorer

FIGURE 6.1
FOREST STAND MAP
GREAT HILL RESERVOIR TRACT



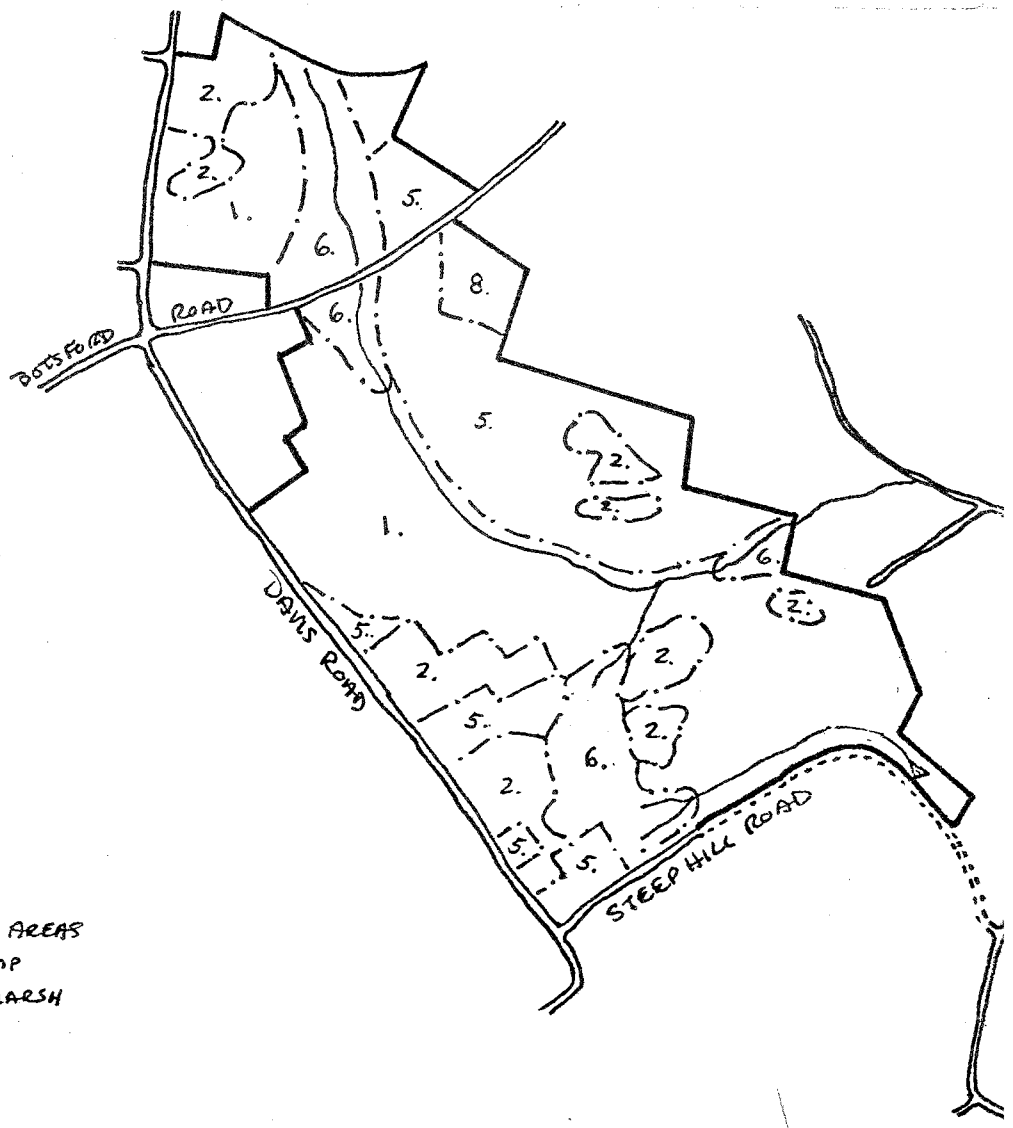
STAND #	ACRES	TYPE
1.	649	MIXED HARDWOODS
2.	59	SOFTWOODS
3.	38	HARDWOOD POLES
4.	18	OLD FIELD
5.	-0-	RED PINE SALVAGE AREAS
6.	19	HARDWOOD SWAMP
7.	-0-	OPEN SWAMP/MARSH
8.	7	OPEN/FIELD

WATER 12 acres

802 acres total

FIGURE 6.2
FOREST STAND MAP
STEEP HILL RD. TRACT

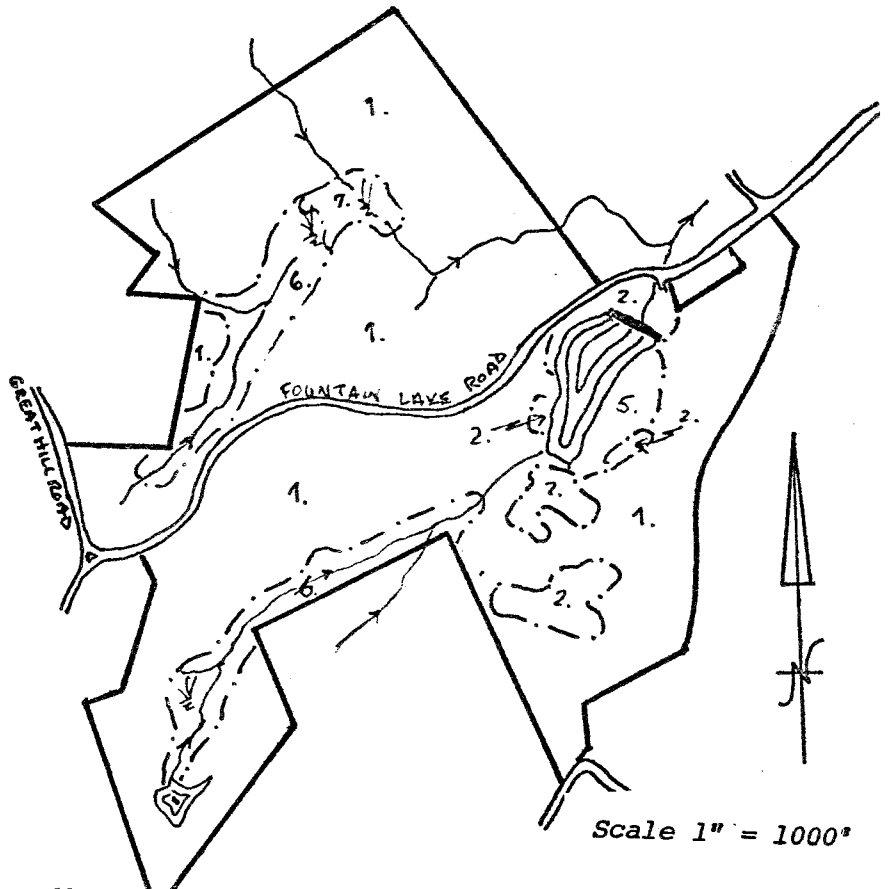
LEGEND:
- ROAD
- UNIMPROVED ROAD
- STAND BOUNDARY
- BOUNDARY
- STREAM
- WETLAND
- WATER BODY



STAND #	ACRES	TYPE
1.	85	MIXED HARDWOOD
2.	31	SOFTWOOD
3.	-0-	HARDWOOD POLES
4.	-0-	OLD FIELD
5.	47	RED PINE SALVAGE AREAS
6.	28	HARDWOOD SWAMP
7.	-0-	OPEN SWAMP / MARSH
8.	4	OPEN / FIELD
	195 acres	

Map drawn by: D.H. Smith, Ct.D.E.P.

FIGURE 6.3
FOREST STAND MAP
FOUNTAIN LAKE TRACT



STAND #	ACRES	TYPE
1.	148	Mixed Hardwood
2.	8	Softwood
3.	-0-	Hardwood Poles
4.	-0-	Old Field
5.	3	Red Pine Salvage Areas
6.	17	Hardwood Swamp
7.	3	Open Swamp / Marsh
8.	-0-	Open / Field
WATER	6	
	195 Acres	

Scale 1" = 1000'

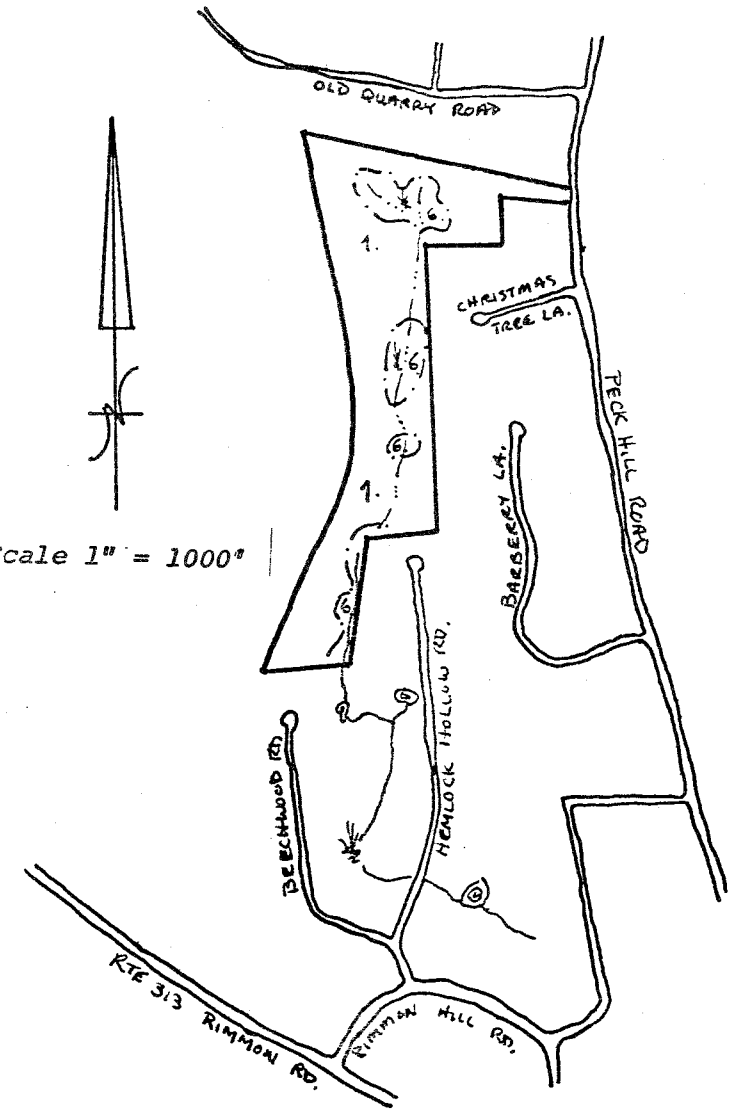


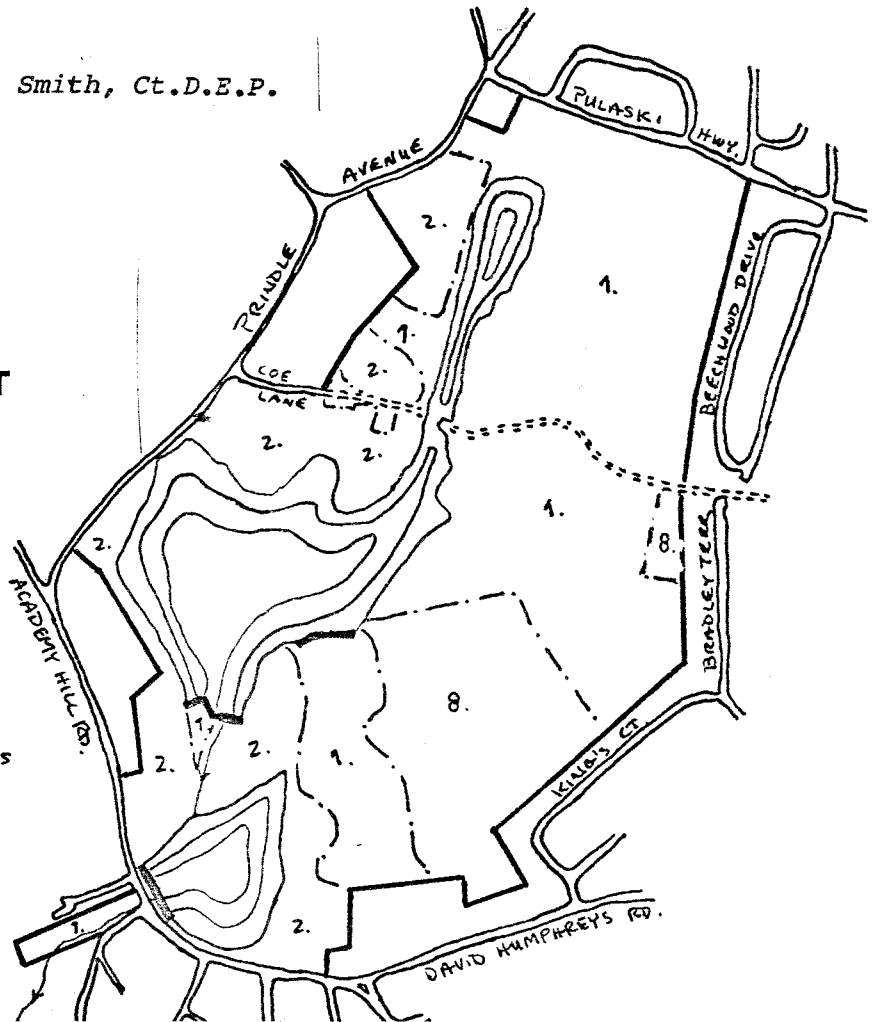
FIGURE 6.4
FOREST STAND MAP
PEAT SWAMP TRACT

LEGEND:
- ROAD
- UNIMPROVED ROAD
- STAND BOUNDARY
- BOUNDARY
- STREAM
- VERNAL STREAM
- WATER BODY
- WETLAND

STAND #	ACRES	TYPE
1.	28	MIXED HARDWOOD
2.	-0-	SOFTWOOD
3.	-0-	HARDWOOD POLES
4.	-0-	OLD FIELD
5.	-0-	RED PINE SALVAGE AREAS
6.	5	HARDWOOD SWAMP
7.	-0-	OPEN SWAMP / MARSH
8.	-0-	OPEN / FIELD
	33 ACRES	

Map drawn by: D.H. Smith, Ct.D.E.P.

FIGURE 6.5
FOREST STAND MAP
ANSONIA RESERVOIR TRACT



STAND #	ACRES	TYPE
1.	94	MIXED HARDWOOD
2.	42	SOFTWOOD
3.	-0-	HARDWOOD POLES
4.	-0-	OLD FIELD
5.	-0-	RED PINE SALVAGE AREAS
6.	-0-	HARDWOOD SWAMP
7.	-0-	OPEN SWAMP / MARSH
8.	27	OPEN / FIELD
WATER	48	
	211 ACRES	

quality trees. These thinnings will reduce competition between species and result in a healthier, higher quality stand.

TYPE 2. Softwood. The areas where this type is present are primarily plantations planted to act as barriers to deciduous leaves which would drop into the water supply, decay, and degrade water quality. Most of these areas are fairly fertile, owing to high organic content and readily available soil moisture. The vegetation here will be evenly aged and of uniform size. Species which may be represented here include white pine, Norway spruce, white spruce, Douglas fir, European larch, and hemlock. Scattered throughout may be found an occasional sugar maple, black oak, white oak, red maple, black cherry, basswood, American beech, black birch, or yellow birch. Eastern white pine seedlings, hemlock seedlings, moosewood, elderberry, blueberry, spicebush, ironwood, and sweet pepperbush are the most abundant vegetation forms in the understory. Ground cover is scarce throughout much of this area. Where it is present, club moss, grasses, sedges and Christmas fern dominate. The tree species present in this area do have commercial value. However, because of the value of these trees in maintaining stream temperatures and water quality, care must be exercised in their removal.

Included in this type are fields which are heavily populated with red cedar or have been planted to softwoods which now comprise the major species present.

Management should be aimed at retention of these species via releasing them from competition from encroaching hardwoods.

TYPE 3. Hardwood Poles. This type is composed of primarily red oak, white oak, black birch, red maple, sugar maple, and hickory poles which have developed on what was once (± 40 years ago) open field or pasture. Scattered throughout can be found occasional larger hardwoods and a fair population of red cedar and other softwoods.

The understory contains ironwood, witchhazel, honey suckle, barberry, multiflora rose, and hardwood seedlings and saplings.

Ground cover here still contains remnants of the area's field origins. Species such as mosses, grasses, poison ivy, and some scattered ground pine can be found here.

Included in this type are scattered areas which are fairly open and more characteristic of type 4 (old field) but, due to their small size, are difficult to map accurately.

The potential for production of forest products here is good and can be utilized by continuation of a sound forest management program.

TYPE 4. Old Field. The old field areas present are either open fields which were abandoned and allowed to revert to woody vegetation, or areas which do not have enough soil or soil mositure to support trees. Generally these old field areas are understocked with poor quality tree species. Those tree species which are present include eastern red cedar, eastern white pine, gray birch, quaking aspen, big tooth aspen, red maple, sugar maple, white ash, apple trees and black oak. Shrub species are abundant throughout, with gray

stemmed dogwood, silky dogwood, arrowwood, high bush blueberry, multiflora rose, hawthorn, male berry and staghorn sumac being most common. Ground cover is dominated by grasses, goldenrod, Queen Anne's lace, and milkweed. The commercial utility of the tree species found within this vegetation type is poor at the present.

TYPE 5. Red Pine Salvage Areas. With the advent of the Red Pine Scale as the major pest of the red pine in the southern New England area, massive areas of red pine plantations have been killed or infected. Water companies are the major landowners affected by this pest and have had to clearcut almost all of their red pine plantations in order to salvage at least the monetary value of the sawlogs, poles, pulp, and cabin logs.

This type represents the red pine plantations which have been cleared and subsequently invaded by red maple, black birch, aspen, yellow-poplar, ash, and some red and white oaks. Most of the trees here are seedling or sapling size, as the areas were cleared after 1970.

Ground cover is sparse due to the dense sapling growth. Where encountered, the ground cover consisted of black raspberry, poison ivy, common cinquefoil, dewberry, and green briar. The most open areas do still have grasses.

TYPE 6. Hardwood Swamp. Forested wetlands are relatively common throughout the tract. Red maple is the dominant tree species along with scattered white ash, American elm, black willow and yellow birch. The understories throughout these areas vary widely in both species composition and diversity. Highbush blueberry, spice bush, sweet pepper bush, elderberry, and several species of viburnum are common throughout. Skunk cabbage, tussock sedge, cinnamon fern, sensitive fern and sphagnum moss are widespread as ground cover. The commercial utility of the trees in these areas must be evaluated on an individual wetland basis. Generally, tree growth potential is limited by the high water table and saturated soils which are present. Under these conditions, trees are shallow rooted and unable to become securely anchored, causing high potential for windthrow. These soil conditions also limit access and operability. Depending on the severity of these limitations, the feasibility of implementing timber management practices may be severely reduced or eliminated completely.

TYPE 7. Open Swamp/Marsh. There is one non-forested wetland area present within the study area. The diversity of vegetation within individual wetlands is very great. Some of this area is dominated by red maple seedlings, but the majority of this area is dominated by shrub species including high bush blueberry, sweet pepper bush, swamp azalea, red alder, speckled alder, spirea, leather leaf, silky willow, pussy willow, buttonbush, large cranberry and arrowwood. The herbaceous vegetation which is common includes sedges, grasses and sphagnum moss, along with purple loose strife, swamp loose strife, cattail and phragmities.

TYPE 8. Open/Field. Some of the more productive areas in the study area are occupied by open fields. These areas are at present being utilized as either cropland, mowed fields (vegetated with grasses and assorted wildflower and weed species) and somewhat less productive pasture land vegetated primarily with grasses.

Included in this type are fields which, although primarily open in na-

ture, are reverting and maybe contain a sizeable population of tree and brush species. Red cedar, common juniper, sumac, multiflora rose, barberry, gray stemmed dogwood, gray birch, and poison ivy are not uncommon. Many of these areas have the potential to produce quality timber if planted to softwoods or allowed to revert to woody vegetation.

2. Vegetative Type Summary

A table summarizing the vegetative type composition of the study area is presented below.

TRACT	STAND NO.									
	1.	2.	3.	4.	5.	6.	7.	8.	Water	
Peat Swamp	28					5				
Ansonia Res	94	42						27	48	
Steep Hill	85	31			47	28		4		
Fountain Lake	148	8			3	17	3		6	
Great Hill	649	59	38	18		19		7	12	
TOTALS	1004	140	38	18	38	69	3	50	66	1426
% Of Total	70%	10%	3%	1%	3%	5%	0%	3%	5%	100%

3. Potential for Commercial Forest Products Production

Figures 7.1 - 7.5 show a generalized view of the capability of the soils on each of the five parcels to produce commercial wood products.

These maps were derived via a study of soils data and topography. One shading on these maps indicates those areas which have the highest potential for production. Another shading shows areas of average to slightly above average quality, are readily accessible, and pose only minor problems to operations by harvesting equipment. A third type of shading represents a range of areas from slightly below average to abysmal productivity potential. This could be due to excessive slope, rockiness, or soil moisture. On the other hand, this could also be due to excessive droughtiness of the soil or shallow soil depth. Any area deemed inaccessible or inoperable by the machinery necessary to harvest forest products was deemed to have minimal potential for production of forest products.

FIGURE 7:1
FOREST MANAGEMENT POTENTIAL

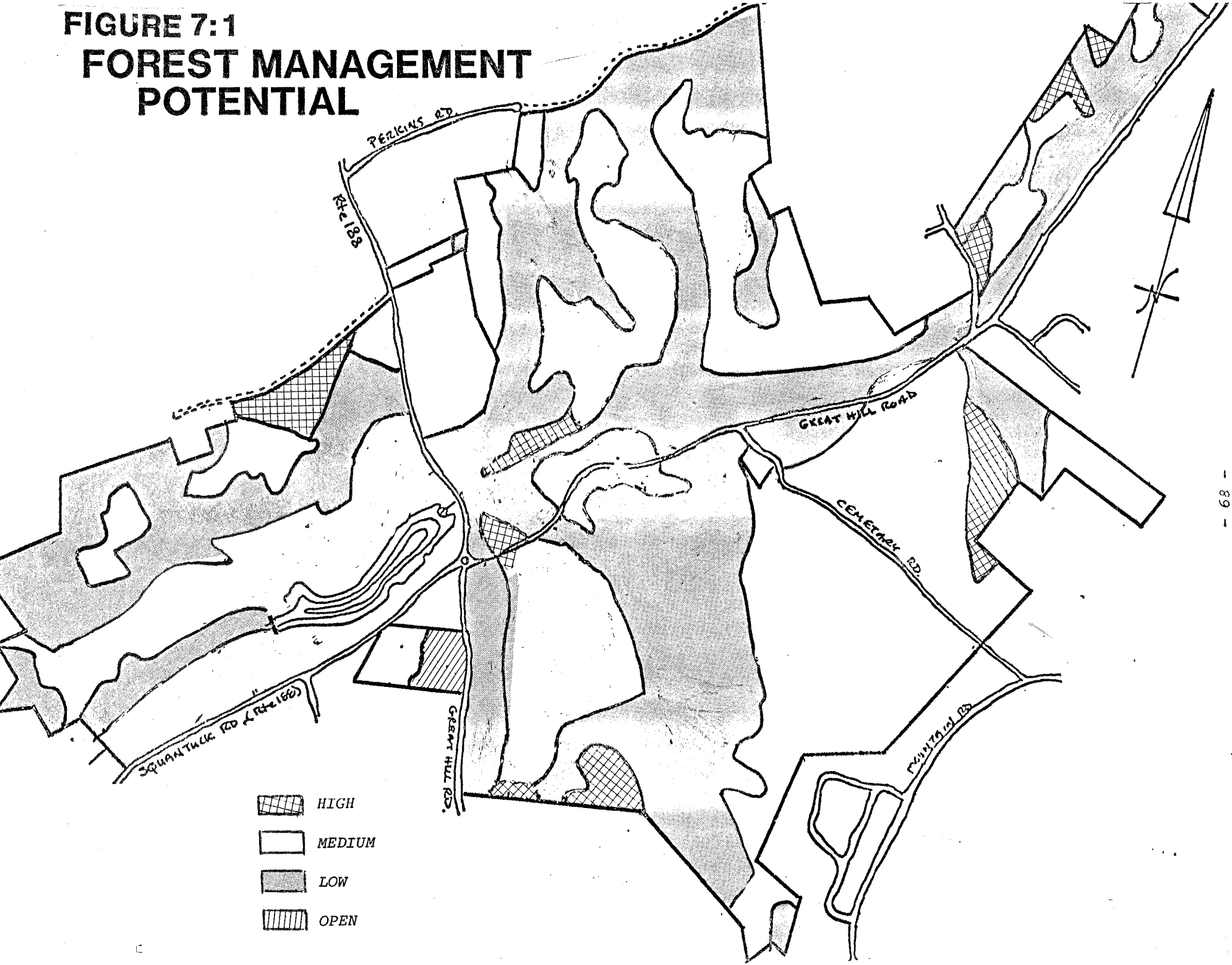
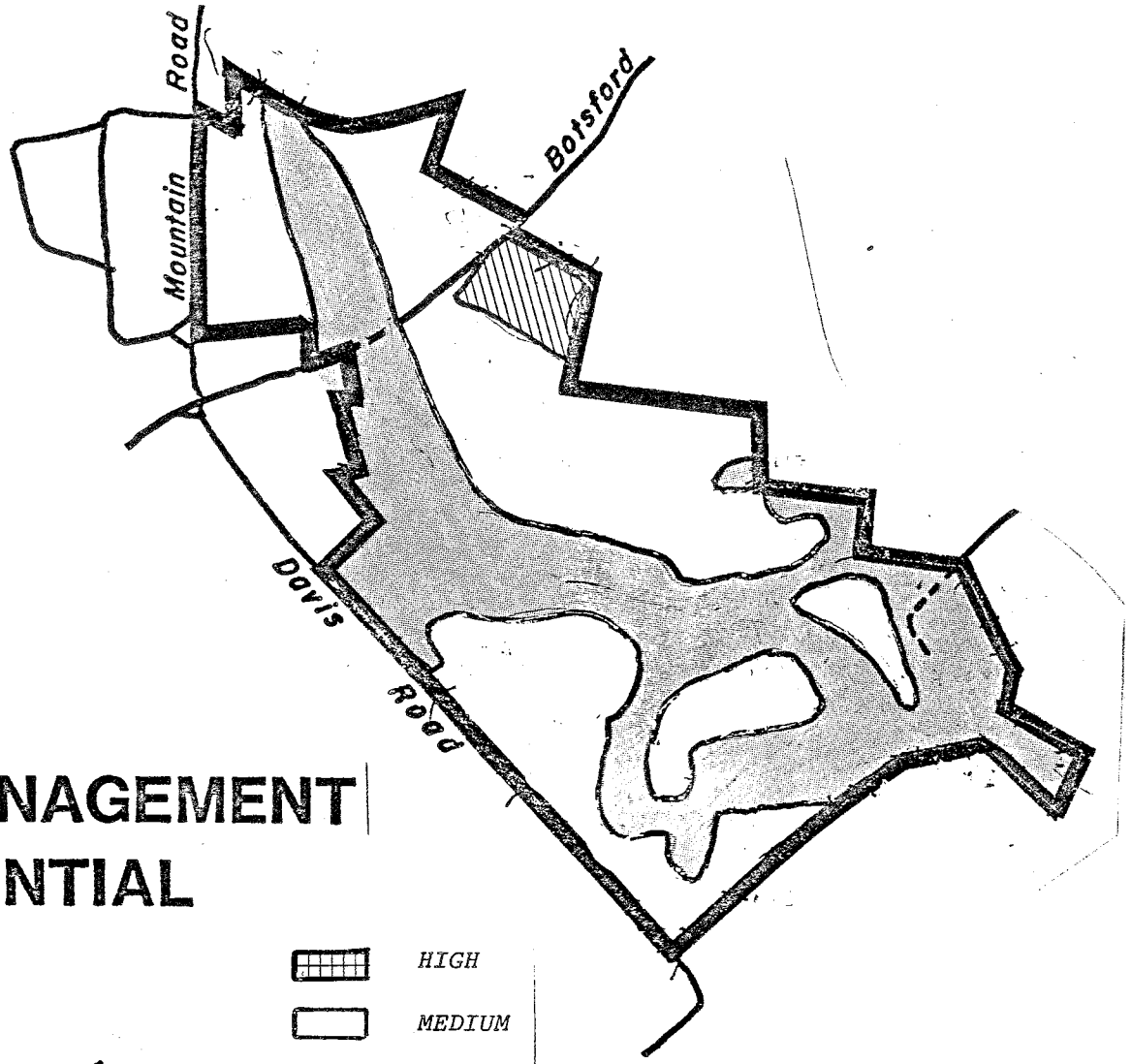


FIGURE 7:2



FOREST MANAGEMENT POTENTIAL

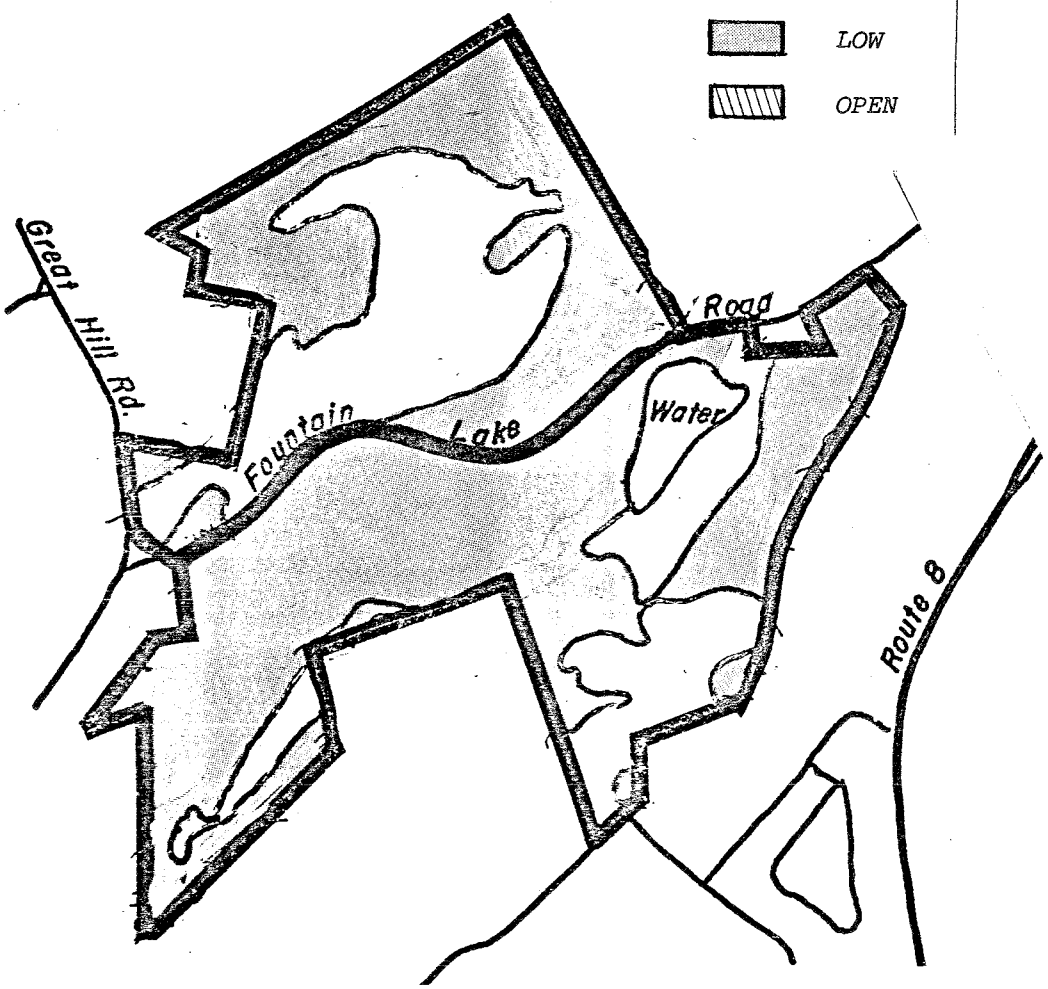
HIGH

MEDIUM

LOW

OPEN

FIGURE 7:3



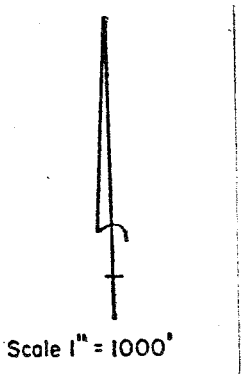


FIGURE 7:4
FOREST MANAGEMENT POTENTIAL

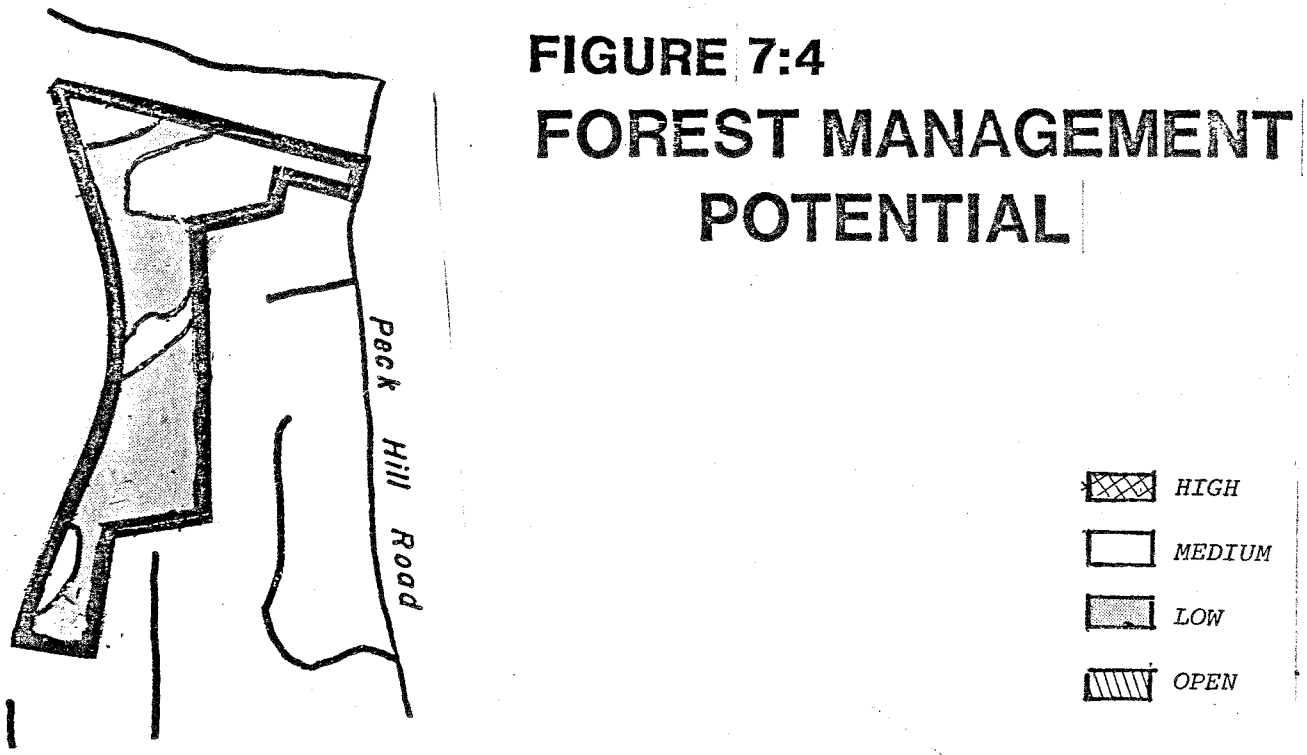
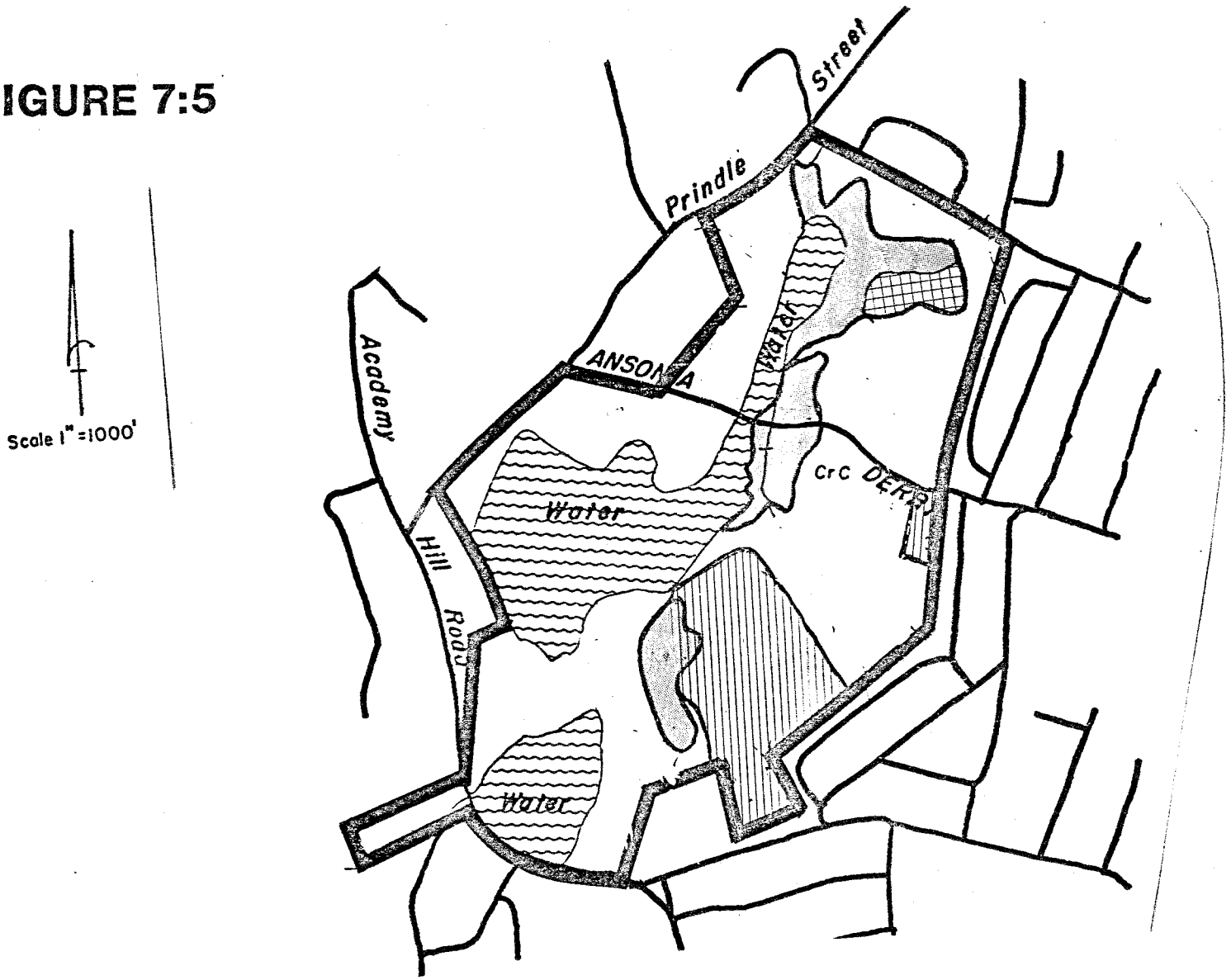


FIGURE 7:5



A table summarizing the above information can be found below.

TRACT	PRODUCTIVITY LEVEL					
	High	Medium	Low	Open	Water	
Peat Swamp		13	20			
Ansonia Res	4	108	24	27	48	
Steep Hill		97	94	4		
Fountain Lake		55	124		6	
Great Hill	29	399	355	7	12	
TOTALS	33	672	617	38	66	1426
% of TOTAL	2%	47%	43%	3%	5%	100%

It should be recognized, however, that the factors limiting productive potential which are described above do not necessarily preclude forest management. The feasibility of forest management within these areas should be evaluated by a qualified forester on an individual stand or woodlot basis. Proper planning and implementation is particularly important in these areas to insure effective, efficient and environmentally sound forest management operations.

4. Management Considerations

The Bureau of Forestry of the Department of Environmental Protection encourages all woodland owners to manage their forest lands. When properly prescribed and executed, forest management practices will increase the production of forest products, improve wildlife habitat and enhance the overall condition of the woodland with minimum negative environmental impact. The Ansonia-Derby Water Company has a long history of sound and reasonable forest management on their watersheds. For as long as the company retains these lands, management activities should continue unabated. As most of the operable mixed hardwood stands have been harvested for sawlogs over the past 10-12 years, there is a likelihood that future management activities will aim at accelerating growth and improving quality with an aim towards another sawlog harvest in 10-15 years. The interim will see the removal of fuelwood material in a thinning and cull tree removal program.

Should a change in ownership occur, with a shift towards residential or light industrial development, the past management practices have produced a healthy, vigorous forest which should resist windthrow upon clearing of any construction sites. With development of portions of any of the five areas, efforts should be taken to continue management of the remaining forested lands.

5. Rare or Endangered Species

The Connecticut Natural Diversity Data Base has no records of rare or endangered species of flora or fauna on parcels 1, 2, 3, and 5. However, the Ansonia Reservoirs Tract (Site #4) has historic records of two Connecticut listed rare and endangered species of birds. One species was reported in 1952, the other in the 1970's. The current breeding status of these species on this site is unknown.

A field investigation by a competent biologist would be desirable on these tracts as all of the sites have potential habitat for rare or endangered species. The staff of the DEP's Natural Diversity Data Base would be interested in the findings of any such biological field investigations as this would add to their baseline data.

B. Wildlife

The Ansonia-Derby Water Company property comprising ± 1400 acres consists of four major wildlife habitat types. These are mixed hardwoods, softwoods, open land, and wetlands.

Mixed Hardwoods

This habitat type (± 1100 acres) is dominated by white oak, red oak, black oak, sugar maple, red maple, shagbark hickory, pignut hickory, bitternut hickory, black birch, and basswood. The understory consists of American chestnut, bluebeech, honeysuckle, witchhazel, mountain laurel, dogwood, and ironwood. Ground cover is dominated by club moss, grasses, sedges, and ferns.

Wildlife typically utilizing such sites include deer, turkey, fox, squirrels, raccoon, skunk, and numerous non-game species.

Softwoods

This habitat type (± 190 acres) consists of several plantations planted to act as barriers to deciduous leaves which would drop into the water supply. Species include white pine, Norway spruce, white spruce, Douglas fir, european larch, and hemlock. Scattered about are an occasional hardwood. The understory consists of whitepine and hemlock seedlings, elderberry, blueberry, spicebush, ironwood, and sweet pepperbush. Ground cover is scarce. Where present club moss, grasses, sedges, and Christmas fern dominate.

Wildlife frequenting such areas include deer, grouse, and various non-game species.

Open Land

The open land habitat (± 56 acres) is either naturally reverting fields or mowed areas maintained for pastures and/or wildlife habitat. The naturally reverting fields are either open fields which were abandoned and are reverting to woody vegetation, or are areas where soils and/or moisture will not support trees. These fields are understocked with poor quality trees such as cedar, white pine, gray birch, aspen, red maple, and scattered apples. Shrubs are dominant and consist of gray stemmed dogwood, silky dogwood, arrowwood, highbush blueberry, multiflora rose, hawthorn, and staghorn sumac. Ground cover is dominated by grasses, goldenrod, Queen Ann's lace, and milkweed.

Wildlife utilizing such habitat include deer, fox, raccoon, turkey, rabbits, ring-necked pheasant, and grouse.

Wetlands

Wetlands (± 72 acres) consist primarily of hardwood swamps. There is one (± 3 acres) non-forested swamp/marsh located within the property.

The hardwood swamp type is dominated by red maple along with scattered white ash, American elm, black willow, and yellow birch. The understory is diverse with highbush blueberry, spicebush, sweet pepperbush, elderberry, and viburnum being abundant. Ground cover consists of skunk cabbage, tussock sedge, ferns, and sphagnum moss.

The non-forested swamp/marsh is dominated by shrubs such as highbush blueberry, sweet pepperbush, swamp azalea, red and speckled alder, spirea, willow, buttonbush, cranberry and arrowwood. Herbaceous species include grasses, sedges, sphagnum moss, cattail, and phragmites.

Wildlife frequenting such habitat include woodpeckers, woodcock, beaver, muskrat, raccoon, deer, waterfowl, songbirds, and numerous amphibians and reptiles.

Management Considerations

The "Ansonia-Derby Water Company Property" provides a rich diversity of habitat for a great variety of wildlife species. Hunting is an allowable use of the property, presently being limited to members of the Derby Sportsmens Club and the Great Hill Fish and Game Club. The following practices will help to enhance wildlife existing on the various habitat types.

Forestland Guidelines

1. Create a diversity of habitat by making small irregularly shaped openings (¼ to 1 acre) located in an east to west direction (to obtain maximum sunlight). This will encourage fruit producing shrubs valuable to many types of wildlife. Edges of openings should be feathered (gradually blended into the forest type). Openings should be mowed every three to five years.

2. Pile brush along edges of openings for small mammals and birds.

3. Maintain snag trees as they provide nesting and escape cover for numerous species.

4. Leave buffer strips (50 to 100 feet) of natural vegetation along riparian areas.

5. Small groups of apple trees should be released with follow-up pruning.

6. If a timber harvest if planned these practices should be followed:

   a. Encourage mast producing species (oak, hickory, beech).

   b. Leave five to seven snag trees per acre.

   c. Exceptionally tall trees are utilized by nesting raptors and should be encouraged.

   d. Trees with vines (produce berries) should be encouraged.

   e. Create small openings with feathered edges.

f. With brush, construct small piles along edges of openings for nesting and escape cover.

g. Small groups of apples should be released.

Open Land Guidelines

1. Placement of bluebird boxes along edges of open fields.

2. Naturally reverting fields should be mowed every three to five years to maintain early succession vegetation.

3. Grass fields should be mowed yearly after August 1, to avoid damage to bird nests. A fifteen foot uncut border should be left surrounding the fields. This border should be mowed every three to five years after August 1. Mowing of field borders should be on a staggered schedule.

Wetland Guidelines

1. Leave buffer strips (50 to 100 feet) of natural vegetation along wetland areas to help filter and trap silt and sediments which might otherwise reach the wetland areas.

2. The practice of girdling hardwoods around the reservoirs should be stopped. It may negatively impact woodducks, herons, egrets, and kingfishers and it will not have a significant impact in reducing the organic load in the reservoirs. This practice is also aesthetically unpleasing.

3. The non-forested swamp/marsh located on the Fountain Lake tract should have two wood duck boxes installed.

Discussion

If the study site is developed into residential housing or other urban use, there will be an immediate negative impact on wildlife and the associated outdoor recreation. The primary impact will be a direct loss of habitat due to roads, buildings, driveways, and walkways. Another impact would be a change in habitat where forest and fields are cleared for lawns. A third impact would be increased human presence, vehicular traffic, and number of roaming cats and dogs. This will drive the less tolerant wildlife from the site, even where it has not been physically changed.

It should be recognized that for optimum wildlife habitat potential a variety of successional stage vegetation should be encouraged. Proper maintenance of openings and field borders needsto be conducted.

For any further wildlife related assistance, the Valley towns or Water Study Committee should feel free to contact the Wildlife Biologist at the Western District DEP Headquarters (485-0226).

C. Fisheries

Three of the five tracts of land being retained for sale by the Ansonia-Derby Water Company contain significant fishery resources. The Ansonia Reservoirs tract encompasses two man-made impoundments, each with a maximum depth

of 10 feet and an average depth of 7 feet. The larger of the two impoundments (27 acres) drains via a small channelized stream into the smaller reservoir (9 acres). The two impoundments are capable of providing recreational fishing for warm water species including largemouth bass, chain pickerel, sunfish and bullhead, as well as habitat for golden shinner and white suckers. The pond, if opened to public fishing, could provide for considerable recreation given the relatively high surrounding population density. However, the potential for excessive aquatic weed proliferation and noxious algal blooms are present in both impoundments, and if not managed carefully and properly they are likely to occur. Initially, housing construction would result in an increase in the flow of sediments and nutrients into the ponds. The effects of lawn chemicals and fertilizers on the impoundments could also be likely to add to the problem. Excessive weed/algae proliferation would reduce the recreational value of the ponds by hindering boating and fishing, and by allowing panfish (bluegill, pumkinseed, yellow perch) to become overabundant and stunted. The numbers and growth rates of predator species (bass and pickerel) may also be adversely effected. Additionally, the aesthetic value of the property may be reduced by odors produced by decaying plants and fish (decaying plant matter robs the water of life supporting oxygen increasing the likelihood of a summer fish kill). Due to the shallowness of these two ponds some expansion of weed growth can be expected with time regardless of the preventative measures taken. Periodic chemical treatment may be necessary to maintain the recreational and aesthetic quality at its present level.

Fountain Lake is a small (approximately 5.5 acres) impounded body of water with a maximum depth of 22 feet and an average depth of nearly 12 feet. The pond is situated in a scenic location surrounded by relatively steep sloping banks. Consequently, water depth drops off quickly and the pond is sure to stratify during the warm summer months. While a large volume of water will be kept cool beneath the thermocline, it is unknown whether or not it contains adequate oxygen to support trout throughout the summer. Still, Fountain Lake appears to be trout habitat suitable for stocking and for providing spring to early summer trout fishing (possibly year-round). Other fish species which are likely to inhabit the pond include largemouth bass, golden shinner, white sucker and bullhead. Pumkinseed sunfish were observed near the dam during the field inspection. Neither stream feeding into Fountain Lake appears capable of supporting trout. Flow volume from the larger of the two brooks, originating from a swamp on top of a ridge to the northwest of the lake, is controlled by a dam located approximately 800 feet upstream of Fountain Lake Road. Both the swamp and the brook may be inhabited by various minnow species, however, it is unlikely that any gamefish are present.

Great Hill Reservoir is a narrow and relatively deep body of water (11 acres, maximum depth 35 feet) situated .9 miles upstream from the Housatonic River. Most of the reservoir is warmwater fish habitat and it is likely to be inhabited by largemouth bass, sunfish, white sucker, golden shinner, bullhead and yellow perch. In recent years the water level in the reservoir has been kept at a minimum (particularly in the summer months) and it is likely that only remnant populations of lake fish species remain. In addition to its potential as a warm water fishery, Great Hill is believed to be suitable for trout stocking. While the pond may be able to support limited numbers of trout over the summer in the deep water found at its downstream end, it would probably be best managed on a put-take basis. Development of this tract of land could result in excessive weed and algal growth, particularly in the shallow northeastern end of the pond.

Also located on the Great Hill Reservoir tract are approximately 1.5 miles of the Fourmile Brook upstream of the impoundment, and approximately .35 miles of the Fourmile Brook downstream from the impoundment. The upper segment of the brook is a clear flowing stream with a substrate consisting mainly of small boulders and gravel. Habitat for large fish is sparse as there are few deep pools or areas of dense cover. However, water temperatures are favorable and the brook is inhabited by a population of native brook trout. As is typical in streams of this type, most of the trout mature early (most age I) and are short lived (population consists of fish age 0, I and II, only a few age III) - fish larger than 7 inches in length are rare. This section of stream is also likely to support a spring (March and April) spawning run of white suckers from the reservoir. Downstream of the impoundment the brook has a steeper gradient and the substrate consists of bedrock, large boulders, small boulders and gravel. Much of this stretch of stream appears to be quality trout water as plunge pools, and relatively deep water provide habitat for larger fish. In the past this section of stream was stocked yearly with a couple hundred trout by the fish and game club leasing the Great Hill property. Native brook trout also inhabit this section of the stream, growing to a somewhat larger size than they do upstream of the reservoir. White suckers inhabiting the Housatonic River reportedly make large spring spawning runs up the Fourmile Brook. Other fish species likely to be found in the brook include blacknose dace, longnose dace and tessellated darters both above and below the reservoir, and cutlips minnow, common shiner and fallfish below the impoundment. This entire stretch of stream could be managed very successfully for wild brook trout, and could be supplemented below the impoundment by a stocking of yearling trout. Additionally, the dam at Great Hill is a bottom release structure which would enable the maintenance of conditions favorable to trout year round downstream of the reservoir.

PLANNING CONSIDERATIONS

IV. PLANNING CONSIDERATIONS

The purpose of this section of the report is to address access to the five sites and comment on major land use and planning considerations. It should be noted that it is beyond the scope of this report to recommend what ultimate use should be made of the five parcels; this is properly a decision of the appropriate towns, the Valley Regional Water Study Committee, and the existing/potential landowners. This section of the report does, however, summarize the major environmental characteristics of the sites and presents parameters within which reasonable land use decisions can be made. Each site is discussed separately.

A. Site I - Great Hill Reservoir Tract

As shown in Figure 1.1, access to this large tract is available primarily from Great Hill Road, Cemetery Road, and Route 188 (Squantuck Road). In general, access from these roads is good with adequate sight lines available on moderate slopes. Wetland crossings may prove problematic in providing access to certain areas, however, particularly the land west of Great Hill Road in the northern half of the site and east of Great Hill Road in the southern portion of the site.

The Great Hill Tract is zoned for residential use (R-40 and R-65) and surrounding land use is primarily undeveloped wooded land with occasional pockets of residential development (see Figure 1.1). Public sewer and water facilities are not available to the site, so any development in this area must rely upon on-site sewage disposal facilities and water supply wells.

As shown in Figure 1.6, the majority of this site presents severe limitations for urban development (i.e., residential, commercial, or active recreational development). Major limiting factors include wet soils, steep slopes, and shallow to bedrock conditions. Nevertheless, based upon USDA Soil Conservation Service mapping and soil ratings, approximately one-third, or 261 acres, of this tract has moderate to good potential for development. The most readily developable land on the tract can be ascertained from Figure 1.6, and includes: ± 60 acres north of Cemetery Road, ± 155 acres south of Cemetery Road, and ± 46 acres west of Great Hill Road.

It should be noted that a signifcant portion of the western half of this tract is underlain by CrC soils. While these soils typically include shallow to bedrock soils on moderate slopes, they also include pockets of deep and well drained soils which are well suited to development. The presence and extent of these more suitable soils can only be determined by detailed on-site soil testing. It is likely, however, that major portions of these CrC soil areas can support at least limited development.

To conclude, while the majority of this tract presents severe limitations for urban development, a considerable amount of land (260 + acres) is present which is well suited to urban development at low to moderate densities. The R-40 and R-65 residential zoning (which allows one acre and one and one-half acre minimum lot sizes, respectively) appears appropriate for this area due to the lack of public sewer and water facilities.

Should this land be developed for residential use, care should be taken

to implement a comprehensive erosion and sediment control plan with any construction. In addition, a minimum 100 foot vegetative buffer around Great Hill Reservoir should be considered.

As portions of this tract also present good opportunities for active or passive recreational use, consideration should be given to reserving at least a portion of this site (e.g., the streambelt of Fourmile Brook and the area surrounding Great Hill Reservoir) for such use.

B. Site II - Steep Hill Road Area

As shown in Figure 2.6, approximately half (± 100 acres) of the Steep Hill Road Area is well suited to urban development at low to moderate density. The remaining portions of the site are limited by steep slopes, wetland soils, or shallow to bedrock soils.

Access to this site is available from the west off Davis Road and Mountain Road. Access is also available from the south off Steep Hill Road and from the central portion of the site off Botsford Road, which bisects the property (see Figure 2.1). Sight line distances and road geometry are generally good for providing safe access to the site from the roads.

The Steep Hill Road area is zoned for residential use (R-40) and surrounding land use consists of low-to-moderate density residential use or undeveloped wooded land.

While this site generally lends itself well to residential use, the diverse topography and soil types would also make an attractive passive recreation area. Public sewers are not available to service this site, but a public water supply line is present in the vicinity of Steep Hill Road.

C. Site III - Fountain Lake Reservoir Tract

As shown in Figure 3.1, the major access to this tract is provided by Fountain Lake Road which bisects the property. Fountain Lake Road along this section is a narrow, windy road with steep grades. These characteristics will present difficulties in providing safe access to this property as limited sight line distances will be available at most points. In addition, the existing road conditions may present difficulties during inclement weather. While safe access to the site is limited by the geometry of this road, there nevertheless appears to be a few points along the road where safe access to the site does appear feasible. Additional access to the site is possible from the south off Silver Hill Road (± 300' of frontage) and from the west off Great Hill Road (± 800 feet of frontage).

The Fountain Lake Reservoir Tract is zoned for residential use and most of the surrounding land use is either in residential use or vacant. The Derby portion of this site is zoned R-20, the Ansonia portion R-12.5, and the Seymour portion R-40. Public sewer and water services are available in the vicinity of the site.

As shown in Figure 3.6, the entire Fountain Lake tract is underlain by soils which have severe limitations for urban development. Limiting factors of the various soil types include steep slopes, wetness, and shallow to bedrock conditions. Of the soils present on the site, the CrC soils have the

most potential for urban development (i.e., residential, commercial, or active recreational development). According to the New Haven County Soil Survey, these soils occupy about 60 acres of the 185 acre site. While shallow to bedrock conditions and moderate slopes are prevalent in these soil areas, pockets of more gently sloping and deeper soils can likely be found. Any development of these soil areas should include detailed soil testing to locate these more suitable pockets of soils, and site plans should focus any construction in these areas. The remaining soils on the site are unsuitable for urban development in the opinion of the Team.

If this site is developed for urban use, care should be taken to reserve a buffer strip of vegetation (minimum ± 100 feet) around Fountain Lake Reservoir.

D. Site IV - Ansonia Reservoirs Tract

Access to this site is available from the north off Pulaski Road, from the west off Prindle Avenue, and from the south off Academy Hill Road. It is unclear whether access is available from the east off a residential cul de sac (the Team was informed the status of this access is now being explored by other parties).

As shown in Figure 4.1, land use surrounding the Ansonia Reservoirs Tract is residential, and the subject site is zoned for residential use (R-12.5 in Ansonia, R-20 in Derby). Public sewer and water lines are present in the vicinity of the site.

As shown in Figure 4.6, the eastern portion of this site offers the most potential for urban development based upon soil types. Approximately 40 acres along the eastern edge has good to moderate potential for urban development. Limiting factors characteristic of the remaining soils include wetness, steep slopes, and shallow to bedrock conditions. It should be noted that approximately 80 acres of this site consists of CrC soils. These soils can be expected to contain inclusions of deep, well drained soils on moderate slopes that are well-suited to development. The extent of the inclusions can only be determined by detailed on-site soil investigation, but significant portions of these CrC areas can be expected to be suitable for development, particularly with the presence of public sewer and water facilities in the area.

While access to the site is good from the north, west, and south, it may not be available from the east, as mentioned above. This may be a significant concern in preparing any site plans for the area as this eastern portion of the site is the most readily developable. While access roads to this eastern area can certainly be constructed from the north and the south, this is expected to be less desirable than providing access more directly from the east.

With any development of this area, a buffer strip of vegetation (minimum 100 feet) should be retained around the Reservoirs. Also, a comprehensive erosion and sediment control plan should be prepared.

The Ansonia Reservoirs Tract is a beautiful piece of property. In fact, it is hard to imagine a more beautiful park-like area within this part of the State. Due to the moderate to high density residential use in the surrounding area, and the unique environmental characteristics of this site, serious consideration should be given to protecting all, or major portions of, this land

for public open space use. Creation of a public park in this area could enhance surrounding property values, add a sense of community to the surrounding neighborhood, provide valuable open space opportunities close to home, and protect a beautiful natural area in an urbanizing environment.

E. Site V - Peat Swamp Area

This site is accessible from the east via a right-of-way off Peck Hill Road and possibly from the south off Hemlock Hollow Road.

As shown in Figure 5.1, land use surrounding this site is either large lot residential or undeveloped wooded land. The area is zoned for residential use (R-65).

As shown in Figure 5.4, the entire site is underlain by critical soils. Major site limitations include steep slopes, wetness, and shallow to bedrock conditions. Within this site are ± 14 acres of CrC soils. These soils may have some potential for urban development if deep and well drained areas can be found. Detailed on-site investigation would be required to identify such areas if they in fact exist.

Of the five sites reviewed by the Team, this parcel has the least potential for extensive urban development. It would appear the most appropriate use for this tract is either 1) preservation as open space, or 2) limited residential development on large lots.

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ABOUT THE TEAM

The King's Mark Environmental Review Team (ERT) is a group of environmental professionals drawn together from a variety of federal, state, and regional agencies. Specialists on the team include geologists, biologists, foresters, climatologists, soil scientists, landscape architects, recreation specialists, engineers, and planners. The ERT operates with state funding under the aegis of the King's Mark Resource Conservation and Development (RC&D) Area - a 47 town area in western Connecticut.

As a public service activity, the team is available to serve towns and developers within the King's Mark Area --- free of charge.

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 activities. To date, the ERT has been involved in the review of a wide range of significant activities including subdivisions, sanitary landfills, commercial and industrical developments, and recreation/open space projects.

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 official of a municipality or the chairman of an administration agency such as planning and zoning, conservation, or inland wetlands. Requests for reviews should be directed to the Chairman of your local Soil and Water Conservation District. This request letter must include a summary of the proposed project, a location map of the project site, written permission from the landowner/developer 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 King's Mark RC&D Executive Committee, the team will undertake the review. At present, the ERT can undertake two reviews per month.

For additional information regarding the Environmental Review Team, please contact your local Soil Conservation District Office or Richard Lynn (868-7342), Environmental Review Team Coordinator, King's Mark RC&D Area, P.O. Box 30, Warren, Connecticut 06754.