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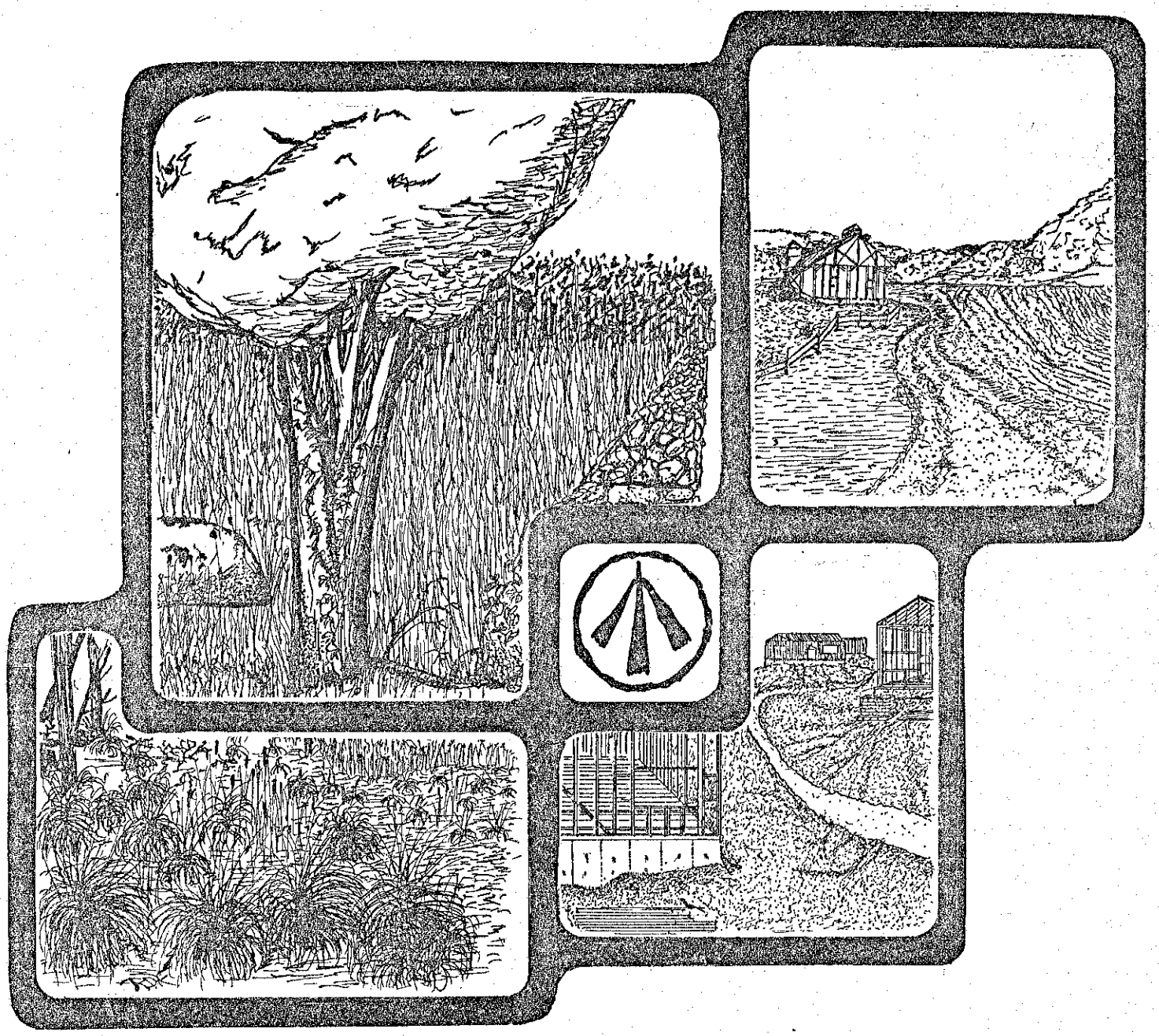
ENVIRONMENTAL REVIEW TEAM REPORT



SCRANTON - HAGGARTY PROPERTY
GUILFORD, CONNECTICUT

KING'S MARK
RESOURCE CONSERVATION & DEVELOPMENT AREA

KING'S MARK
ENVIRONMENTAL REVIEW TEAM REPORT

ON

SCRANTON - HAGGARTY PROPERTY
GUILFORD, CONNECTICUT

MAY 1980

King's Mark Resource Conservation and Development Area

Environmental Review Team

P. O. Box 30

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
DEPARTMENT OF TRANSPORTATION
UNIVERSITY OF CONNECTICUT COOPERATIVE EXTENSION SERVICE

Local Groups and Agencies

LITCHFIELD COUNTY SOIL AND WATER CONSERVATION DISTRICT
NEW HAVEN COUNTY SOIL AND WATER CONSERVATION DISTRICT
HARTFORD COUNTY SOIL AND WATER CONSERVATION DISTRICT
FAIRFIELD COUNTY SOIL AND WATER CONSERVATION DISTRICT
NORTHWESTERN CONNECTICUT REGIONAL PLANNING AGENCY
VALLEY REGIONAL PLANNING AGENCY
LITCHFIELD HILLS REGIONAL PLANNING AGENCY
CENTRAL NAUGATUCK VALLEY REGIONAL PLANNING AGENCY
HOUSATONIC VALLEY COUNCIL OF ELECTED OFFICIALS
AMERICAN INDIAN ARCHAEOLOGICAL INSTITUTE

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Stanley J. Pac, Commissioner

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KING'S MARK RESOURCE CONSERVATION AND DEVELOPMENT AREA

Victor Allan, Chairman, Executive Committee
Stephen Driver, ERT Committee Chairman
Moses Taylor, Coordinator

Staff Administration Provided By

NORTHWESTERN CONNECTICUT REGIONAL PLANNING AGENCY

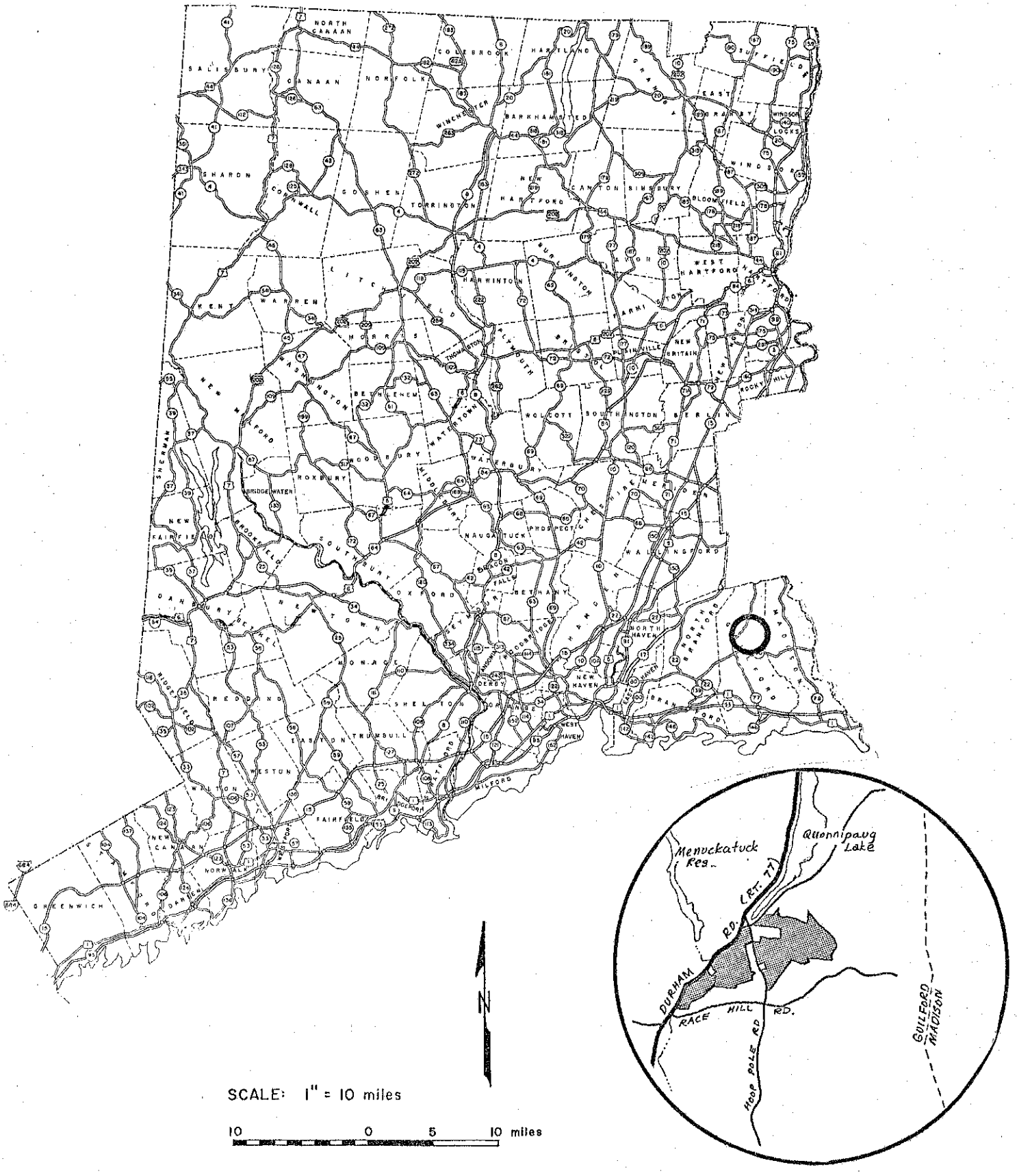
Bruce M. Ridgway, Chairman
Thomas A. J. McGowan, Director
Richard Lynn, ERT Coordinator
Rebecca West, ERT Draftsman
Irene Nadig, Secretary

TABLE OF CONTENTS

FIGURES

LOCATION OF STUDY SITE

SCRANTON - HAGGARTY PROPERTY
GUILFORD, CONNECTICUT



ENVIRONMENTAL REVIEW TEAM REPORT
ON
SCRANTON-HAGGARTY PROPERTY
GUILFORD, CT.

I. INTRODUCTION

The Town of Guilford, Connecticut is applying for federal funds through the USDI Heritage Conservation and Recreation Service to purchase a total of 182 acres of land, currently known as the Scranton-Haggarty Property, for recreation and open space purposes. The land is located in the northern portion of town just south of Quonnipaug Lake and adjacent to Route 77.

The Chairman of the Guilford Conservation Commission requested the assistance of the King's Mark Environmental Review Team to help the Town in applying for the federal funds. Specifically, the ERT was asked to prepare the "Environmental Assessment" portion of the grant application and also to comment on the general recreational potential of the land.

The Town of Guilford's request was considered and approved as an ERT project by the King's Mark RC&D Executive Committee. The ERT met and field reviewed the site on March 5, 1980. Team members for this review consisted of the following:

Terry Holland	Administrative Assistant	Town of Guilford
Frank Indorf	District Conservationist	U.S.D.A. Soil Conservation Service
Andy Petrocco	Recreation Specialist	State Dept. of Environmental Protection
Chuck Phillips	Fishery Biologist	State Dept. of Environmental Protection
Robert Rocks	Forester	State Dept. of Environmental Protection
Michael Zizka	Geohydrologist	State Dept. of Environmental Protection

Prior to the field review, each team member was provided with a summary of the proposed project, a checklist of concerns to address, a detailed soil survey map, a soils limitation chart and a topographic map. 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. The format for the report follows that suggested by H.C.R.S. guidelines. If any additional information is required, please contact Richard Lynn (868-7342), Environmental Review Team Coordinator, King's Mark RC&D Area, P. O. Box 30, Warren, Connecticut 06754.

II. DESCRIPTION OF THE PROPOSAL

As previously mentioned, the Town of Guilford, Connecticut is applying for federal funds through the Heritage Conservation and Recreation Service to purchase a total of 182 acres of land for recreation and open-space purposes. The land, known as the Scranton-Haggarty Property, is located in the northern portion of the Town adjacent to Connecticut Route 77. This area of Guilford is primarily open rural farmland and woodland with limited residential development. The three parcels comprising the Scranton-Haggarty property are primarily open agricultural land with adjacent woodlots. They are largely bounded by water company land.

The main proposed use for this property once it has been purchased is for the development of an 18 hole municipal golf course. Because the property consists primarily of open, rolling, well drained terrain, and has access to ample water, the land appears to be ideally suited for a golf course. Other uses of the land would include hiking trails, cross-country skiing, ballfields, and ice skating on the ponds to be constructed on the golf course.

The use of this property for this purpose is consistent with Town policies regarding land use. In August, 1978, due largely to concern for the unprecedented rapid growth in population and home construction being experienced in Guilford, the Town prepared a "Comprehensive Plan of Development and Conservation." The plan drew upon the recommendations of the proposed Connecticut State "Conservation and Development Policies Plan." Both the State and local plans recommend very limited future growth for Guilford and the preservation of farmland and natural resources, especially north of Route 80. The plans recognize the importance of conserving natural resources in the Town for wildlife, recreation, food production, future generations, and to contribute to the scenic beauty and country town living of the Town.

The purchase and development of the Scranton-Haggarty property for recreation and open space is consistent with these guidelines. The project would preserve this land, located in the particularly critical area of North Guilford, as open for the benefit of the general public, contributing to the environmental and aesthetic quality of Guilford.

The project will also provide recreation for individuals with a wide variety of interests. In this time of shortened work weeks, earlier retirements, longer life expectancy, and concern for physical fitness the need for recreation facilities will increase. The Town of Guilford has recognized a need for an increase in recreation facilities as was demonstrated with the recent purchase of 117 acres of fields and woodland called the Bittner property. This property is currently being developed into a multi-recreation facility with baseball fields, soccer fields, hiking trails, and picnic areas. The development of a recreation facility at the Scranton-Haggarty property, especially with a golf course, would compliment and round off the Town's current facilities. The wooded areas of the property could be connected with the State-wide blue trail and a number of other local hiking trails. Information obtained in a study by the National Golf Foundation indicates that as many as three additional golf courses between the areas of New Haven and Old Saybrook would be utilized successfully if they were properly designed and maintained. In addition a golf course, with its open space and rolling hills, is an ideal area for cross-country skiing in the winter months. Also available in the winter would be ice skating on the ponds constructed for the golf course. This project would provide a variety of leisure time activities and healthful exercise for individuals of all ages.

The project will take place in two stages 1) acquisition and 2) development. Stages of the acquisition phase include a property assessment, research into funding possibilities, filing an application for funding, and a public meeting regarding purchase of the property. It is anticipated that funding will be made up of 50% Federal aid from the Heritage Conservation and Recreation Service, 25% State aid from the Connecticut Open Space Grant Program and 25% from Town funds. If funding is received and the property is purchased, stage two would require the acquisition of the services of a qualified consulting firm to further research and design the golf course, research would be conducted into funding available for development, an application for funding prepared, and a public hearing held to discuss the project and vote on its ratification. Possible sources of funding for development would be Federal aid from the Heritage Conservation and Recreation Service, and Town General Funds with reimbursement through the revenue produced by golf course operation.

III. DESCRIPTION OF THE ENVIRONMENT

A. Land Use and Socio-Economic Conditions

The Scranton-Haggarty properties have been used as agricultural land for many years. Currently only one of the three owners of the properties is actively involved in farming. The land is being used for corn production and grazing. The surrounding area is primarily farmland and woodland, with scattered residential development.

The current population of Guilford, as of April 1, 1979, is 17,915. The Town has recently been experiencing rapid growth in both population and home construction. Growth has been occurring largely as a result of in-migration from the New Haven area and to a lesser degree from other shoreline towns and the Middletown area.

The Town's Comprehensive Plan of Development and Conservation adopts policies for a population not to exceed 25,000 persons for the year 2000. The Plan encourages that most of this growth be limited to the area of the Town south of Route 80, where supportive services are available or can be more economically provided. The area north of Route 80, where the Scranton-Haggarty property is located, should experience little growth and be maintained primarily for open-space, farmland, recreation, and conservation of natural resources with limited residential development.

There is no economic activity in the area of the Scranton-Haggarty property aside from agricultural activities. A municipal golf course on the property, however, would create a municipal business in the area. The subject site and surrounding area is zoned for large lot residential use and would allow the development of town recreational facilities.

Access to the Scranton-Haggarty property is available from the North and South by Connecticut Route 77. The Town of Guilford is served by public transportation only along the shoreline so currently access to the property would be primarily by automobile, bicycle, or walking for those residents in the area. Traffic is very limited in the area currently so it is anticipated that few traffic problems, if any, would occur if this facility were developed.

With regards to the probable future environment if this project is not initiated, it is unlikely that the properties will continue to operate as private farms. If they are not purchased for municipal recreational purposes, they will most likely be purchased for residential development.

B. Topographic Features

The property consists of a broad, undulating plain that is interrupted in several areas by steep, isolated bedrock knobs and ridges (see Figure 1). Whereas the range of elevations on the plain is only about 40 feet (from about 165 feet above mean sea level at the southwestern end of the site to about 205 feet above m.s.l. at the north-central boundary), individual relief on the bedrock hillocks is as much as 130 feet (on the ridge at the eastern boundary of the site). The rugged topography of the bedrock-based features precludes the use of most of them in the golf course itself, although they could provide interesting visual diversity among the fairways. Approximately 30 acres in the eastern most part of the property may be completely unusable in the course because of wetness or steepness.

C. Geology

Most of the bedrock exposed on the property consists of pegmatite or coarse-grained (occasionally graphic) granite. These rocks are rich in, and often contain large individual crystals of, quartz and potash feldspar. Mica minerals are also fairly common. The granitic rocks represent intrusive bodies in the more poorly exposed Brimfield Formation. The principal rocks in the formation in the area of the site have been described as garnetiferous two-mica schists; however, only one outcrop of well-layered, highly weathered schist was observed on the property. The only other well-exposed rocks formed part of an extensive diabase dike, which passes through many miles of south-central Connecticut. These rocks are almost exclusively composed of plagioclase and pyroxene, with the former often appearing as discrete laths in a generally fine-textured rock. Further information about the bedrock in the area may be found in open filed reports of the bedrock geology of the Guilford and Durham topographic quadrangles. These reports are maintained at the Department of Environmental Protection's Natural Resource Center in Hartford.

The more level areas of the site are underlain by stratified drift, which consists of rock particles deposited by glacial meltwater. Most of these particles are sand-sized or silt-sized, but occasional layers or lenses of pebble gravel or coarser material may be found. Thin layers of sand and silt deposited during flooding of West River and its tributaries overlie the stratified drift in some places. On the bedrock ridges, thin patches of till incompletely cover and surround the rock surface. The till, which was deposited directly from the preexisting ice sheet, contains angular rock particles and fragments of widely ranging sizes. Organic sediments are found in a few wet parts of the site. Further information about the surficial geology of the area may be obtained from Connecticut Geological and Natural History Survey Quadrangle Report No. 28 (The Surficial Geology of the Guilford and Clinton Quadrangles), by R. F. Flint (1971), and from U. S. Geological Survey Map GQ-756 (Surficial Geologic Map of the Durham Quadrangle), by H. E. Simpson (1968).

A geologic map of the property is presented in Figure 2.

FIGURE I.

TOPOGRAPHIC MAP

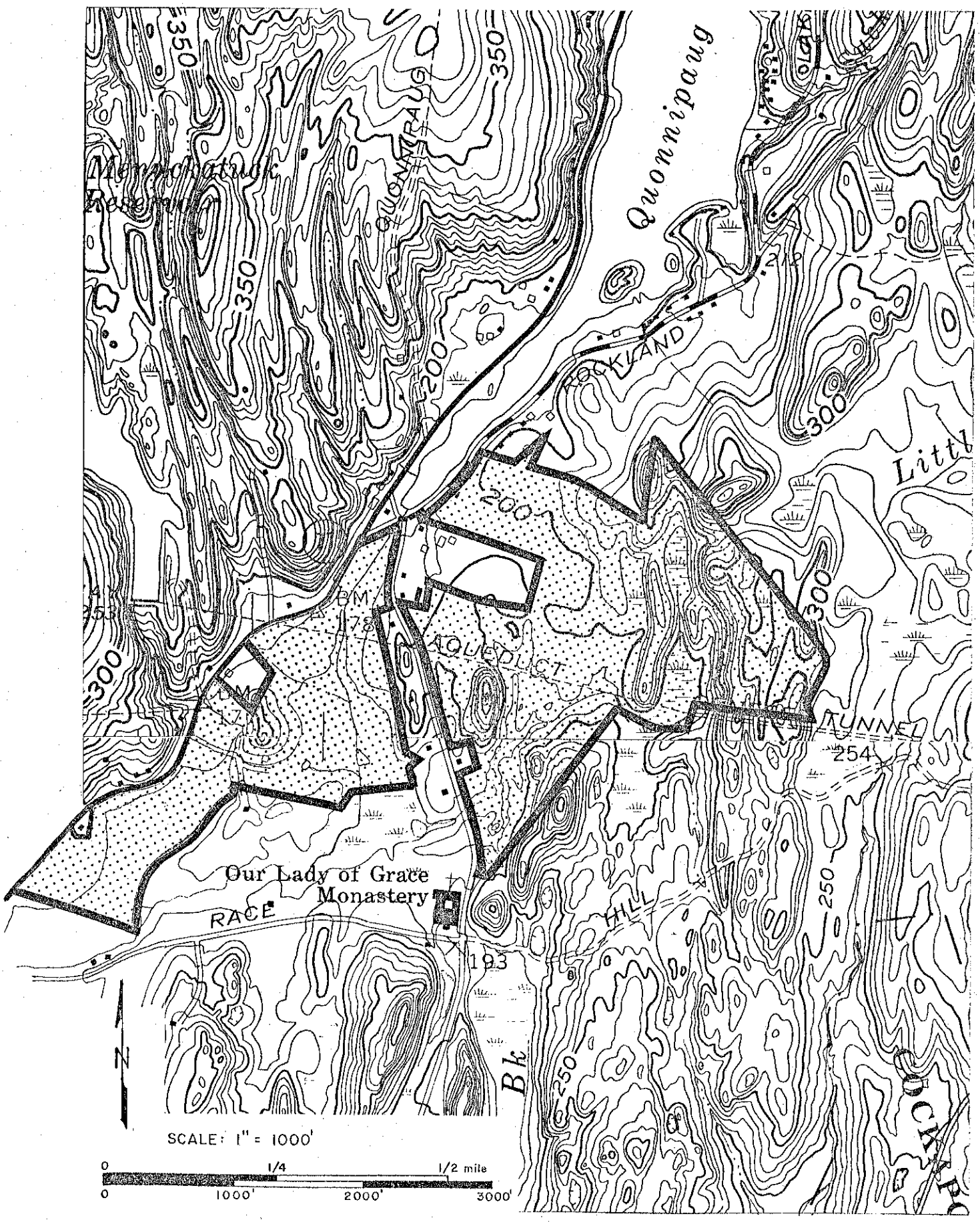
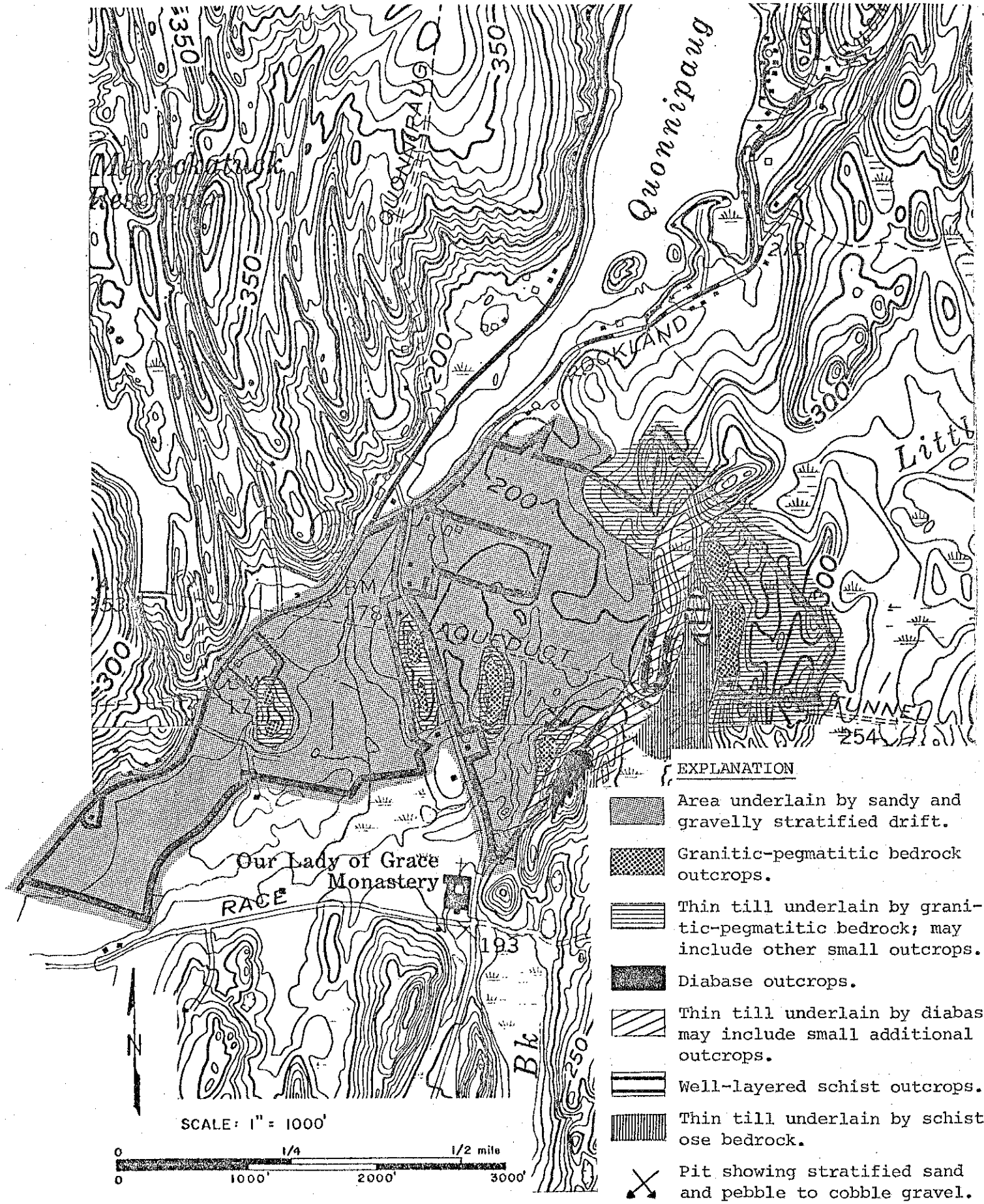


FIGURE 2.

GEOLOGY OF THE SCRANTON-HAGGARTY SITE

(Adapted in part from Conn. Geol. and Nat. Hist. Survey Quad. Rpt. No. 28 and U.S.G.S. Map GQ-756)



D. Soils

A soils map of the project area is presented in the Appendix of this report. Also included is a soils limitation chart which identifies limiting factors for various land uses on individual soil types. Following the soils limitation chart is a brief description of each of the soil types found on the property.

In all, sixteen soil types have been identified on the Scranton-Haggarty property. Between Route 77 and Hoop Pole Road the land consists predominantly of inland-wetland soils with scattered patches of other soil types. East of Hoop Pole Road, the land is characterized by nearly level Branford silt loam soils on the western half and moderately to steeply sloping Charlton-Hollis soils on the eastern half. A relatively narrow inland-wetland corridor does traverse this eastern portion of the property.

The nearly level Branford soils, which generally correspond to the open fields on the property, have excellent potential for golf course development. Other soils on the property are limited by one or more factors as indicated in the soils limitation chart. Steep slopes will prohibit golf course development in the extreme eastern portion of the property. Wetness may prove a problem in golf course design and use in the western portion of the site (west of Hoop Pole Road). It should be noted however that major sections of this western portion of the site have been drained and maintained to facilitate agricultural use. As a result, the soils have been made less wet and the use potential of the land has been improved. Portions of this western section of the site which remains wet may be suitable for water hazard development in the design of the golf course.

E. Climate

According to the publication "Rare and Endangered Species of Connecticut and their Habitats" by Dowhan and Craig (the Natural Resources Center, Ct. DEP, 1976), the Scranton-Haggarty property is located in the Southeast Hills Ecoregion. The climatic characteristics of this ecoregion, as described in the Dowhan and Craig report, are as follows:

"The mean annual temperature is about 49°F. The average winter temperature is 29°F.; the monthly mean minimum temperature of the coldest month is about 18.5°F., and the mean annual minimum temperature is -5°F. The average seasonal snowfall accumulation is almost 40 inches. The average length of the frost-free season is variable over the region, ranging from 140 days in the east to 170 days in the southern and western parts. The average summer temperature is 69°F, and the monthly mean maximum temperature of the warmest month is 82°F. The average annual precipitation is about 45 inches."

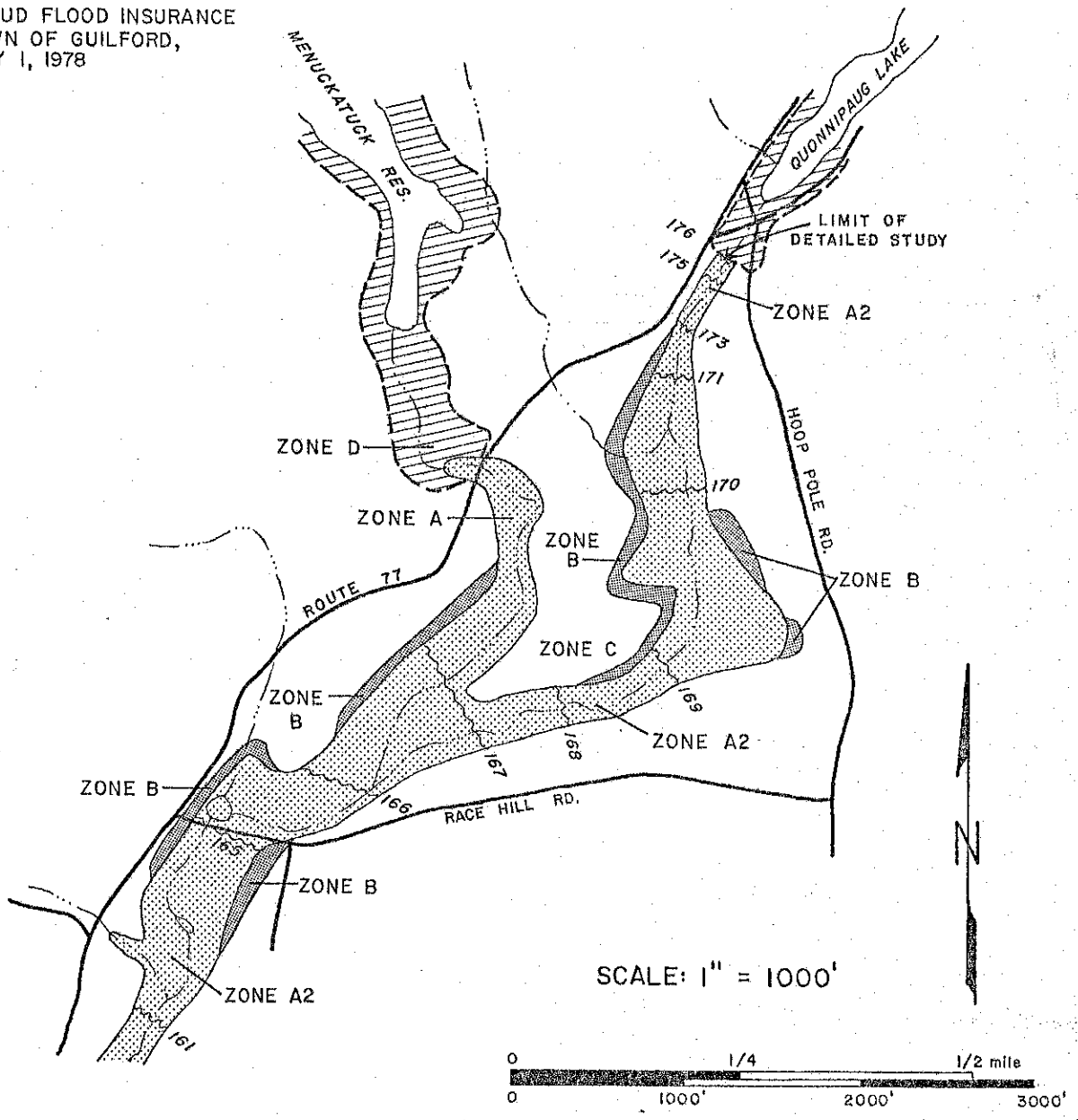
F. Hydrology (Water Resources)

The property is located downstream of two major surface water bodies in the town of Guilford: Menuckatuck Reservoir and Quonnipaug Lake. The outlet streams of both water bodies pass through the site. Together with several small tributary watercourses, these streams converge to form West River. The drainage area of the Menuckatuck Reservoir outlet stream at its point of confluence with the Quonnipaug Lake outlet stream includes approximately 4.0 square miles; the drainage area of the Quonnipaug Lake outlet stream at the same point contains approximately 3.6 square miles. Part of the flow from the reservoir is diverted through an aqueduct to Lake Hammonasset, approximately 5 miles to the east in the towns of

FIGURE 3.

FLOODPRONE AREAS WITHIN THE SCRANTON-HAGGARTY SITE*

* TAKEN FROM HUD FLOOD INSURANCE RATE MAP, TOWN OF GUILFORD, EFFECTIVE MAY 1, 1978



ZONE A–A2: AREA THAT WOULD BE AFFECTED BY A 100-YEAR FLOOD

ZONE B: ADDITIONAL AREA THAT WOULD BE AFFECTED BY A 500-YEAR FLOOD

ZONE C: AREA THAT WOULD BE LARGELY UNAFFECTED BY FLOODING

ZONE D: AREA OF POSSIBLE BUT UNDETERMINED FLOOD RISK

Madison and Killingworth. The aqueduct passes underneath the Scranton-Haggarty property; an apparent access to it is available near the eastern end of the site.

The Flood Insurance Rate Maps for the town of Guilford, as released by the U. S. Department of Housing and Urban Development, Federal Insurance Administration, include the floodprone areas along West River. That portion of the maps which shows the 100-year and 500-year floodprone areas within the property is reproduced in this report (see Figure 3).

The stratified drift on and near the site may have potential for moderate to high yields of groundwater. Important considerations would be the overall thickness of the deposit and the texture of the material at depth. One test hole drilled near the site in 1930 indicates at least 30 feet of sand and gravel. Previous surficial mapping suggests that fine materials are predominant in the stratified drift, but layers of coarse materials may be interspersed throughout. The eastern section of the site (east of Hoop Pole Road) is likely to contain more gravel; it therefore has a greater water-supply potential. Nevertheless, individual testing would be necessary to confirm the viability of any particular location within the property for well development.

G. Vegetation

Approximately 136 acres of this property are presently used for agricultural purposes, including grazing and production of silage corn. Mixed hardwoods are present on 41 acres where the rocky soils and steeply sloped topography excluded agricultural use. This hardwood stand has been marked for a fuelwood thinning to reduce crowding. At the time of the field investigation, only a portion had been harvested. The remaining 5 acres of the property are very poorly drained and support hardwood swamp and open swamp vegetation. Figure 4 shows the distribution of vegetation types on the property. Adjacent to this map is a chart which provides more information on the various vegetation types.

H. Wildlife

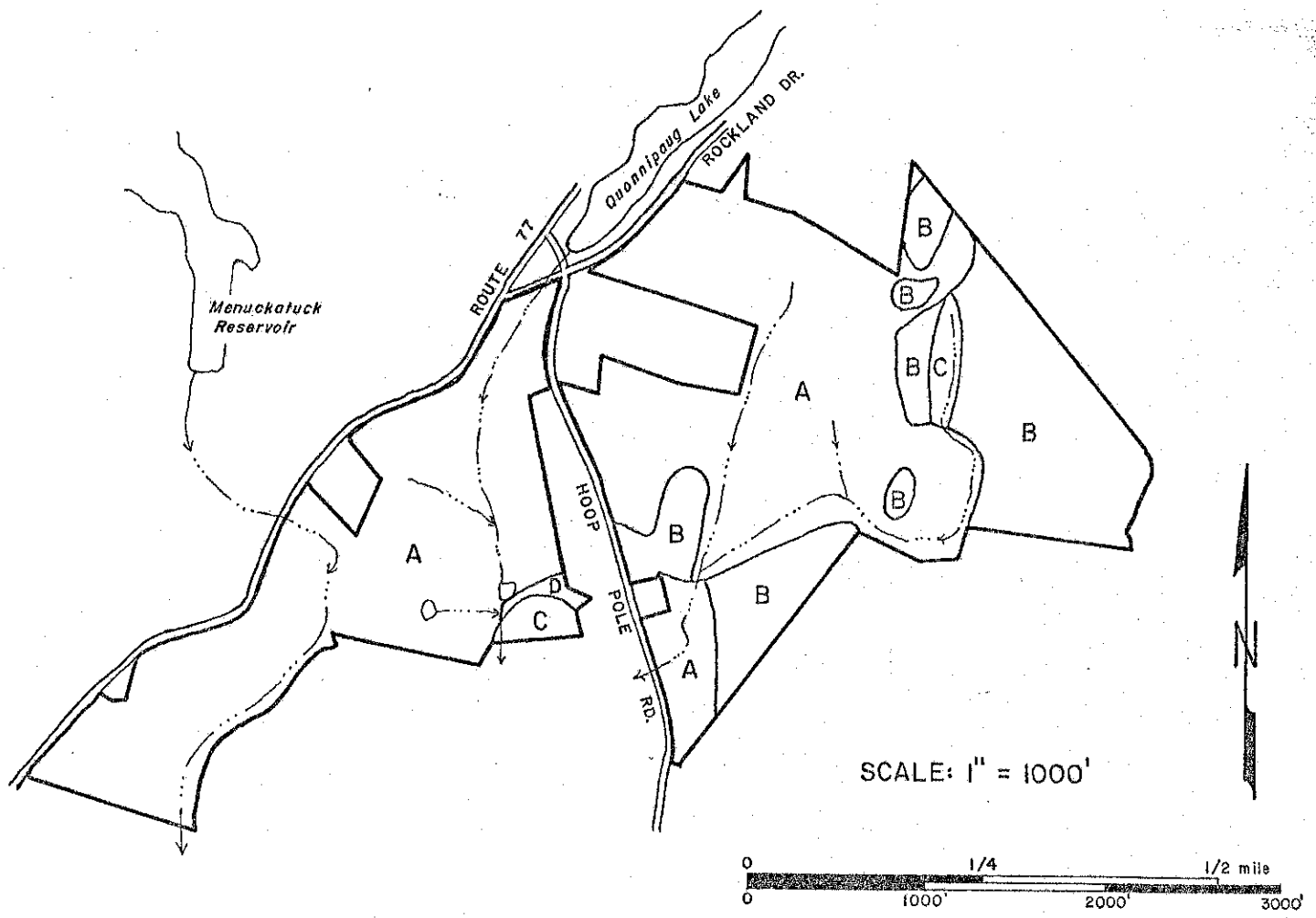
The Scranton-Haggarty property offers three major types of wildlife habitat; these include openland habitat, woodland habitat and wetland habitat. For a description of the vegetation present and location of habitat types, please see Figure 4 and the vegetation type description chart.

The openland habitat (agricultural land) which dominates this property, is presently utilized by large numbers of Canada geese, which feed on the winter rye which was planted in the corn field as a cover crop. Signs of white tailed deer, raccoons and cottontail rabbits were also observed during the field investigation. Typically this habitat is also utilized by skunks, woodchucks, opossums, meadow voles, field mice and many species of song birds. It is frequently hunted by wide ranging hawks, owls and foxes which feed on the abundant rodents.

Grey squirrel, ruffed grouse, white tailed deer and many non-game species, including song birds, small rodents, reptiles and amphibians, utilize the food and cover provided by the woodland habitat (mixed hardwood forest) present on this property. Many of the animals found in the openland habitat will use this area and the shrubby edges for cover and breeding sites.

FIGURE 4.

VEGETATION TYPE MAP



VEGETATION TYPE DESCRIPTIONS

TYPE A Agricultural land. 136 ± acres.

TYPE B Mixed hardwoods. Fully stocked to over stocked, pole to sawtimber size. 41 ± acres.

TYPE C Hardwood swamp. Under stocked, sapling to pole size. 4 ± acres.

TYPE D Open swamp. 1 acre.

LEGEND

Roads

Property Boundary

Vegetation Type Boundary

Stream/Drainage Ditch

VEGETATION TYPE DESCRIPTIONS

STAND TYPE	ACRES	*MAIN STAND SIZE CLASS	STOCKING LEVEL	MAIN STAND QUALITY	MAJOR COMPONENTS OF: OVERSTORY	UNDERSTORY	GROUND COVER
A. Agricultural land/grazing crops	136	---	---	---	---	---	Grasses, sedges in wet areas, corn.
B. Mixed Hardwoods	41	Pole to saw timber	Fully-stocked to somewhat crowded. Growth has slowed in unthinned areas.	Medium due to shallow to bedrock areas.	Black birch, black oak, white oak, red oak, chestnut oak, shagbark (hickory), mockernut (hickory) and red maple with occasional tulip tree, white ash, American beech and hemlock.	Hardwood tree seedlings, mapleleaved viburnum, flowering dogwood, blue-beech, spicebush, hophorn beam, sassafras and patches of Mt. Laurel.	Grasses, huckleberry, clubmoss, Christmas fern, royal fern, cinnamon fern.
C. Hardwood Swamp	4	Sapling to pole size	Understocked.	Poor due to excessive moisture and seasonal flooding.	Red maple, yellow birch with scattered white ash and American elm.	Spice-bush, maple leaved viburnum, arrowwood viburnum, sweetpepperbush, highbush blueberry and Oriental Bittersweet.	Sphagnum moss, tussock sedge, skunk cabbage, poison ivy, cinnamon fern and sensitive fern.
D. Open Swamp	1	---	---	---	Viburnum	---	Tussock sedge, sphagnum moss, cattail, phragmities, sensitive fern.

* Seedling size - Trees less than 1 inch in diameter at 4½ feet above the ground (d.b.h.)
Sapling size - Trees 1 to 5 inches in d.b.h.
Pole size - Trees 5 to 11 inches in d.b.h.
Sawtimber - Trees 11 inches and greater in d.b.h.

The wetland habitat on this tract includes the stream belt itself, the hardwood swamp, and the open swamp. Many species of mammals, birds, reptiles and amphibians use the food, cover, resting sites and breeding sites these areas offer. Puddle ducks including black ducks and mallards were observed during the field investigation, along with many species of song birds. Signs of muskrats were observed along the streams and open swamp. The small open swamp provides excellent habitat for red winged blackbirds.

No rare or endangered species, or unique habitat types were observed on this property.

I. Fisheries

The streams flowing through the western portion of the property comprise the headwaters of the West River. This small river is notable, below the review area, for its ability to support hatchery trout from stocking in the spring as 5 to 7 inch fish until the next spring when the fish have grown to 11 to 13 inches. While the percentage of survival is not high, it is sufficient to provide an important recreational fishery in the town.

At the time of the ERT field review (March 5th) no aquatic species were in evidence. The brooks' substrates in the meadows were comprised of a mix of sands and gravels up to pea stone size material. The presence of coarser materials in the bed indicates that brook velocities in the area are sufficient to minimize siltation. These bed materials are sufficient to support invertebrate life forms including aquatic insects which provide the basis for the food chain in watercourses. Fish species expected in such "feeder" streams would be minnows and darters with larger fish such as suckers and trout moving into these areas for feeding and spawning during periods when flow regimes are suitable.

IV. ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION

A. Planning Considerations

CULTURAL RESOURCES

The proposed acquisition and development will not affect any sites or buildings considered to be of historic significance by the National Register of Historic Places.

LAND USE IMPACT

As the land in question is currently used for agricultural purposes, it would undergo some change as a result of its development for recreational purposes. There is ample cleared land on the properties to support an 18 hole golf course so there would be no need to disturb any of the woodland except to clear hiking trails. To serve as a golf course, however, the cleared areas, currently used for grazing and corn production, would have to be planted with suitable turf. These changes would have some impact on the appearance of the land, however the change would not be drastic. The land would remain open and undeveloped.

SOCIO-ECONOMIC CONSIDERATIONS

While it is currently experiencing rapid growth and development, the Town of Guilford remains essentially a country town with a traditional New England Green, old historic buildings, and a fair amount of open woodland and farmland. It is this character of a country town that makes Guilford so attractive. The purchase of the Scranton-Haggarty property for open space and recreation will have a positive impact on Guilford and its residents as the land will be there for all to enjoy either actively or passively.

The use of the land for this purpose is consistent with Town policy regarding patterns of development. Because the services required for areas of development can be most economically met near the town center, residential development, the most likely option for the Scranton Haggarty property if it is not purchased for recreational purposes, would not be desirable. In addition, should these parcels be sold and developed residentially, the cost benefit to the town might be negative with the cost of services exceeding the new tax revenues. On the other hand, a recreational area, especially one including golf course, would undoubtedly have a favorable impact on property values in the entire town.

SOLID WASTES

Pick-up and disposal of solid wastes in the town recreation areas is the responsibility of the Recreation and Park Department. They currently do trash pick ups at the town beach at Lake Quonnipaug, which is located nearby the Scranton-Haggarty property, so it should be no problem to stop at the new recreation area. The town dump is located on Route 1 in the southern part of town.

TRANSPORTATION

While traffic volumes on Route 77 will increase with implementation of the project, the road appears to have the capacity to handle it as there is currently little traffic in the area.

ENERGY CONSUMPTION, AIR QUALITY, NOISE LEVEL

Recreation activities such as hiking, golf and cross-country skiing create very little noise. As there are very few residences close to the property, the significance of any small amount of noise that may be generated should be negligible.

Air quality would be affected only by the increase in automobile traffic in the area. Energy consumption, as well, will be affected as most residents would be using a private automobile to gain access to the property. However, providing recreation facilities within the town can also help reduce energy consumption and negative effects on air quality by reducing the number of trips people must make to areas outside of the town to find suitable recreation facilities.

MANAGEMENT PRACTICES

Management of the property as a recreation area will be primarily carried out by the town's Recreation and Park Department. The local conservation commission will also play a role in policy making and in designing a forest management program for the wooded areas of the property. Should a municipal golf course

become a reality at a later date, a town golf course commission will be created to manage and make decisions with regard to this portion of the recreation area. The commission would also be responsible for maintaining the services of a golf manager professional to promote and manage the course.

B. Soils

The soils of this site are generally well suited to golf course development. Implementation of the proposed project is not expected to significantly impact soil resources. A limited amount of erosion and sedimentation can be expected with construction of golf course facilities etc., but this can be kept to a minimun by simple conservation measures. The New Haven County Conservation District is available to assist in the preparation and review of erosion and sediment control plans.

C. Water Resources

In terms of overall water quality, the proposed golf course/recreational development should have a negligible effect on the site's water resources. No large individual or cumulative waste disposal activities would be needed, and fertilizer application should be no greater than that which the present agricultural uses demand. Two caveats are important, however: fertilizer should not be used heavily in the immediate vicinity (within about 5 feet) of the surface watercourses (see Fisheries Section), and further rechanneling of the present drainage system should be avoided. The former practice could affect both surface and groundwater, while the latter would tend to affect primarily surface water. Apart from these possibilities, however, the water quality impact should be minimal and almost undoubtedly would be less than the impact from a commercial or residential use of the site.

No noticeable runoff increases from the site are foreseen, particularly if a gravel parking lot is used for the gold course. The water table would be unaffected unless new drainage channels were constructed to mitigate wet conditions in some parts of the site. Wetness may be problematic for future land use in the vicinity of the watercourses on the property, particularly in the western section.

D. Vegetation

Development of the proposed golf course on the "Scranton-Haggarty Property" will, for the most part, preclude agricultural uses of the area. Grasses used for grazing and corn crops will be replaced with sod. Establishment and maintenance of the high quality sod needed for a golf course will require intense, periodic liming, fertilization, and pesticide use, in addition to adequate irrigation. Such practices, however, will have little or no negative impact on the surrounding vegetation.

Th hiking and nature study trails proposed for the forested sections of this property will have some, but limited, impact on vegetation. The increased use of this area will likely cause limited vegetation loss as a result of direct trampling of herbaceous vegetation, soil compaction and vandalism.

The rocky and steeply sloped nature of the forested sections of this property, necessitate careful planning and wise layout of the proposed trails.

Vegetation losses as a result of development and use of the trails in the forested portions of this property may be kept to a minimum by adherence to the following guidelines:

- Trails should follow contours to the greatest extent possible; this will help keep erosion problems to a minimum. The proposed trails should also avoid very steeply sloped and wet or poorly drained area. If these areas cannot be completely avoided, steps or boardwalks could be constructed over these areas for short distrances.

- Trails once established should be well defined and clearly marked. This practice should help to limit destruction of vegetation outside the trail system.

- Soil compaction may be reduced by spreading several inches of wood chips, crushed stone, or cinders over trails. This practice is expensive and may be limited to critical areas, where soils are shallow, poorly drained, or roots are close to the surface.

- Educational signs and handouts, simply explaining and identifying the value and uses of the vegetation present, should help to limit vandalism.

- Dead trees near trails, if not previously removed by the fuelwood thining, should be removed to eliminate potential hazards to trail users.

- Provisions for trail maintenance should be established prior to trail development.

E. Wildlife - Impact

There will be little displacement of the wildlife species which are presently utilizing this area with implementation of the proposed project. This is primarily due to the fact that the change from agricultural land uses to sod for the golf course is not radical. ~~The implementation of this proposal may even improve the habitat for some species of wildlife. The elimination of the corn fields, which are relatively unproductive from a wildlife point of view, and their replacement with sod, will improve the grazing potential of the area.~~

~~The primary loss of habitat will result from the development of the parking lots and buildings. The extent of habitat destruction that will occur will be dependent upon the amount of development that takes place. Another loss of habitat will result from the destruction of fence rows and stone walls. This loss will not be significant, because this habitat is not widespread on the tract.~~

~~The eventual use of pesticides and intensive grooming of the sod will probably result in a lowering of the rodent population in this area. This may in turn lower the number of hawks, owls and foxes which hunt this area. It is difficult to determine if this impact will be offset by the increase in grazing area created by the elimination of the corn fields.~~

~~The potential loss of habitat by construction of parking lots and buildings, and the reduction of fence rows and stone walls may be offset by planting vegetation that will provide wildlife with additional food and cover. Planting fruiting species, including crabapple, silky dogwood and autumn olive, along the border between the proposed golf course and mixed hardwood stands will provide~~

many species of wildlife with food and cover. An excellent shruby edge could be established by planting several staggered rows of these species approximately six feet apart. Additional plantings of hemlock and eastern white pine in small patches or along the mixed hardwood stands, 8 to 10 feet apart, will provide excellent winter cover for wildlife. These evergreens should be planted where they will not shade out other wildlife shrub plantings. Winter cover may also be improved by underplanting the mixed hardwoods with hemlock spaced 20 feet apart or approximately 100 per acre.

F. Fisheries

Since agricultural use of the land engenders the application of fertilizer, locating a golf course in the area should not provide a tremendous increase in nutrient to the brooks if fertilization is restricted from their immediate edges. The brooks in this area have been channelized and impounded already for agricultural purposes. Further ponding is not advisable because the watercourses' only shade comes from grasses adjacent to them, no trees are present. Ponds created on small watercourses and open to full sunlight will develop algal blooms and luxuriant growths of rooted aquatic vegetation necessitating the application of aquatic herbicides. If no further ponding or channel work is undertaken, the effects on the existing aquatic flora and fauna will be minimized.

Mitigating measures would include planting trees and shrubs along the brooks to provide shade where such planting does not interfere with playing the course. Plantings of this type in conjunction with a stream edge "rough" area would also help control direct surface runoff of fertilizers and herbicides into the streams. From a fisheries standpoint, avoiding construction in the immediate areas of the brooks will be most beneficial in preserving existing aquatic flora and fauna.

V. IRRETRIEVABLE COMMITMENTS OF RESOURCES AND UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

The proposed project will not result in the irretrievable commitment of any significant natural or cultural resource. Practically speaking, however, the project will remove about 146 acres of farm land from production. This is significant in light of Connecticut's declining farm land resource and a state goal "to maintain and increase a long-term, in-state food producing capacity through conservation and preservation of prime agricultural lands..." (State of Connecticut Conservation and Development Policies Plan, 1979-1982). The project will also most likely preclude sand and gravel mining from a practical standpoint; however it appears that the value of the site for gravel extraction is low.

There will be a few unavoidable adverse environmental effects from the project, but these are not judged to be of major concern. These adverse effects include:

. limited vegetation loss. The development of a trail network in the forested portion of the property will result in the loss of some vegetation. The loss is judged to be relatively insignificant when compared to the total enjoyment gained by the experience offered.

. limited wildlife impact. The intensive maintenance required for golf courses usually involves utilization of pesticides to control weed and rodent problems. As rodent populations diminish, those species which rely on rodents as a main source of food will be forced to seek alternative hunting and feeding areas. If the proposed golf course is developed, this dispersement is very likely.

Several species of wildlife which are, at present, heavily utilizing this area may become problems as the golf course is developed. These include Canada geese, muskrats, and to a lesser extent, white tailed deer. These species have the potential to do a large amount of damage to sod, thus increasing maintenance costs. Various repellents are available to discourage the use of golf courses by these species.

. limited erosion and sedimentation. Construction and use of the proposed trails will likely result in a certain amount of soil erosion. This impact can be kept to a minimum if trails are carefully designed, constructed, and maintained.

. limited air quality and noise impact. Implementation of the project will increase automobile traffic in the area; this will tend to degrade air quality in the area to a limited extent. The impact is not considered to be significant however. Increased use of the area will also lead to increased noise levels. Again, the impact is expected to be negligible.

VI. SHORT TERM VS. LONG TERM VALUES

The Town of Guilford is very concerned about maintaining certain areas of the Town as open-space,especially in the northern portion of the Town. The Town also realizes the importance of providing recreation facilities locally so residents will not have to drive long distances to participate in recreation activities. Providing both open space and recreation areas for present and future generations is important to maintain Guilford's country town environment and to save energy.

Should this property not be purchased by the Town for use as open-space and recreation it would most likely be developed for residential use in the future. While it may remain open as a working farm for a while, economic pressures will most likely force the owners to sell in the future. Should this happen this area will be lost for use by the general public and development will occur in an area not seen by the Town as a favorable area for development.

VII. ALTERNATIVES TO THE PROPOSED ACTION

To simply keep the area open as open-space without allowing general public access, an option would be to see the property remain open farmland. This would guarantee that the property would not be developed but would remain open and aestetically pleasing even if it could not be utilized for recreation by the general public. This perhaps would be the most desirable use of the land since farmland is very rapidly being lost to development all over the State. However, due to economic realities for farmers, it is highly unlikely that these properties would be able to remain open farms for a long time.

If this area is to be preserved as an open space/recreation area for public use it appears that direct acquisition by the town is the only alternative. The development of the property as a recreation facility including a golf course could be altered by simply dropping the golf course idea and utilizing the property for passive recreation only. It may be difficult to get approval at a town meeting for the town's portion of the purchase price, however, unless a golf course is included. It is anticipated that in the future the revenues from the golf course could offset some of the town's cost of the land purchase and development.

The option of doing nothing will most likely result in the property eventually being sold for residential use in which case the open space and recreational value for the general public will be lost.

VIII. CONSULTATION AND COORDINATION

Local volunteer citizen committees have played a major role in pursuing the purchase of this property. Three Town Commissions (the Recreation and Park Department, Conservation Commission, and Economic Development Commission) were actively involved in the early work on the project. In April of 1979 the Board of Selectmen appointed a five member citizens committee to study the feasibility of purchasing the properties for use as an outdoor recreation area. Their report was submitted to the Board of Selectmen in January, 1980.

The public has been kept aware of the progress of the project through articles in local newspapers. The project has also been discussed at several Board of Selectmen meetings and at a Public Meeting. When the application for funding is complete, a Public Hearing will be held to allow for a full discussion of the project and a vote on its ratification. It is anticipated that there will be little controversy over the idea of saving the property for open space and recreation. There may, however, be quite a bit of discussion regarding the Town's share of the purchase price.

Help in determining the feasibility of a municipal golf course was obtained from the National Golf Foundation. The foundation has provided information on planning, building, promoting, management, financing, and golf course architects, contractors, and builders. In addition, a professional golf course engineer was consulted and drew up a suggested plan for a golf course to assure the town that it was possible to fit an 18 hole golf course on this particular piece of property.

Both the local Conservation Commission and the Inland Wetland Commission have examined the proposed project and feel that a recreation facility would be an appropriate use of this property.

IX. ADDITIONAL RECREATION CONSIDERATIONS

This portion of the ERT report, although not required under HCRS environmental assessment guidelines, is offered to provide some guidance on future recreational use and development of the site.

As discussed previously, the Scranton-Haggarty tract is currently operated as a farm with the more level terrain comprising the tilled fields and the hilly terrain consisting primarily of wooded land. This wooded land could logically be considered for such activities as hiking, bird watching, nature studies and jogging. A jogging/fitness trail might be developed in conjunction with, or as a portion of, a longer hiking trail using this property as one leg of its total length.

The hilly portion of the tract on it's easterly end is ruggedly beautiful with ledge outcrops covered primarily by deciduous trees with some hemlocks interspersed. Mountain Laurel on the hilltop should also provide an attractive floral display when in bloom. Routing a foot trail over the hilltop would afford a scenic vista to the west and would be overlooking what is to become the golf course below. The slopes are steep and the hillside soils thin and likely to be sensitive to foot traffic. Foot path routes should therefore be carefully chosen on these slopes and precautions taken to minimize potential impact (e.g. installation of water bars for surface water diversion) from this traffic.

The hilly area being mowed and which is surrounded by tilled land could conceivably be used in the winter by tobagganers and learning skiers when there is adequate snow cover. Snowmobiling is not recommended for the golf course since insufficient snow cover could result in lawn damage.

If sizable water hazards are employed in the golf course layout, these could possibly be used for ice skating when ice conditions permit and when the course is not being used by hearty winter golfers (thereby eliminating the chance of skaters being hit by golf balls). This would necessitate the establishment of criteria for determining when particular activities may occur where multiple, non-simultaneous use is allowed. The strategic location of a water hazard to minimize walking distance from a parking area would enhance skating possibilities such as at those times when snow cover might otherwise discourage lengthy walks over the snow covered fairways. Additionally, concentrated winter foot traffic on lawn areas (as when crossing fairways) could have a deleterious effect on those portions used and should be avoided when possible.

An alternative to water hazard use for meeting ice skating demands might be the use of Quonnipaug Lake by persons provided a parking area on the Scranton-Haggarty tract. A pedestrian crossing zone should be designated if this option is implemented since access would entail a road crossing from the parking lot to the pond.

In the construction of a golf course, it is recommended that the contract for development clearly spell out those precautionary steps to be taken in minimizing soil loss by erosion which could heavilly impact water quality in the watershed through runoff and siltation. Construction under droughty conditions could additionally have an impact on local air quality and account for considerable loss of topsoil under windy conditions. Soil Conservation Service guidelines would detail those measures necessary to reduce these potentially harmful impacts.

Regarding the town's development plans for the property, any construction restrictions imposed by the buried aquaduct should be taken into account before work begins. Coordination of plans with the water company involved should be planned upon to ensure that the town does not soon find itself in a situation wherein a fairway may have to be torn up to repair or renew a section of aquaduct. Awareness of inspection and maintenance schedules on the aquaduct may enable simultaneous coordination of this work with the development of the golf course. This may prove to have been a prudent course of action.

An alternate proposal to complete development of the tract as a golf course might be the use of one side of Hoop Pole Road for golf and use of the land on the otherside for other recreational pursuits such as ballfields, court related activities (e.g. tennis), picnic areas, horseshoe toss, etc. A floodable paved level area such as a basketball court could be used for ice skating when pond and lake ice may be unsafe. The physical separation of conflicting uses by design layout will minimize the potential for injury and the dissatisfaction of users while simplifying maintenance and management considerations. Such a setup, using only one side of Hoop Pole Road for golf, would preclude however the establishment of an 18 hole golf course because of the area limitation that it would impose.

Streams on the property are small. Although these streams do offer some potential for fishing, this aspect would undoubtedly be a secondary consideration to golf. In any event these uses should not be planned as combined activities in the same area.

Warm weather activities (when the golf course would be heavilly used) which might be considered for establishment on the tract, should be segregated from fairways and greens to minimize the hazard posed by driven golf balls. As mentioned, establishment of such facilities as picnic sites, horseshoe pits, tennis, basketball, squash or handball courts, while not being considered at this time should, if ever installed, be located with this separation in mind. Picnic sites could be located in gently sloped to level portions of woodland with minimal conflict, as long as a safe access corridor is provided.

Location of a clubhouse, parking area(s), maintenance facilities, and restrooms should ideally be located at a point central to the activities provided. If sufficient area is available in proximity to the clubhouse, it may be possible to accomodate some of the additional activities stated above. It is advised that a little extra land be set aside around the clubhouse area thereby enhancing the option for meeting future needs or a definite determination be made that no additional facilities will be provided in the future. Constraints imposed by site limitations may dictate that the actual location not be geographically central but rather where factors such as good percolation rates for septic fields and distance from sensitive water supplies make that alternate location more suitable.

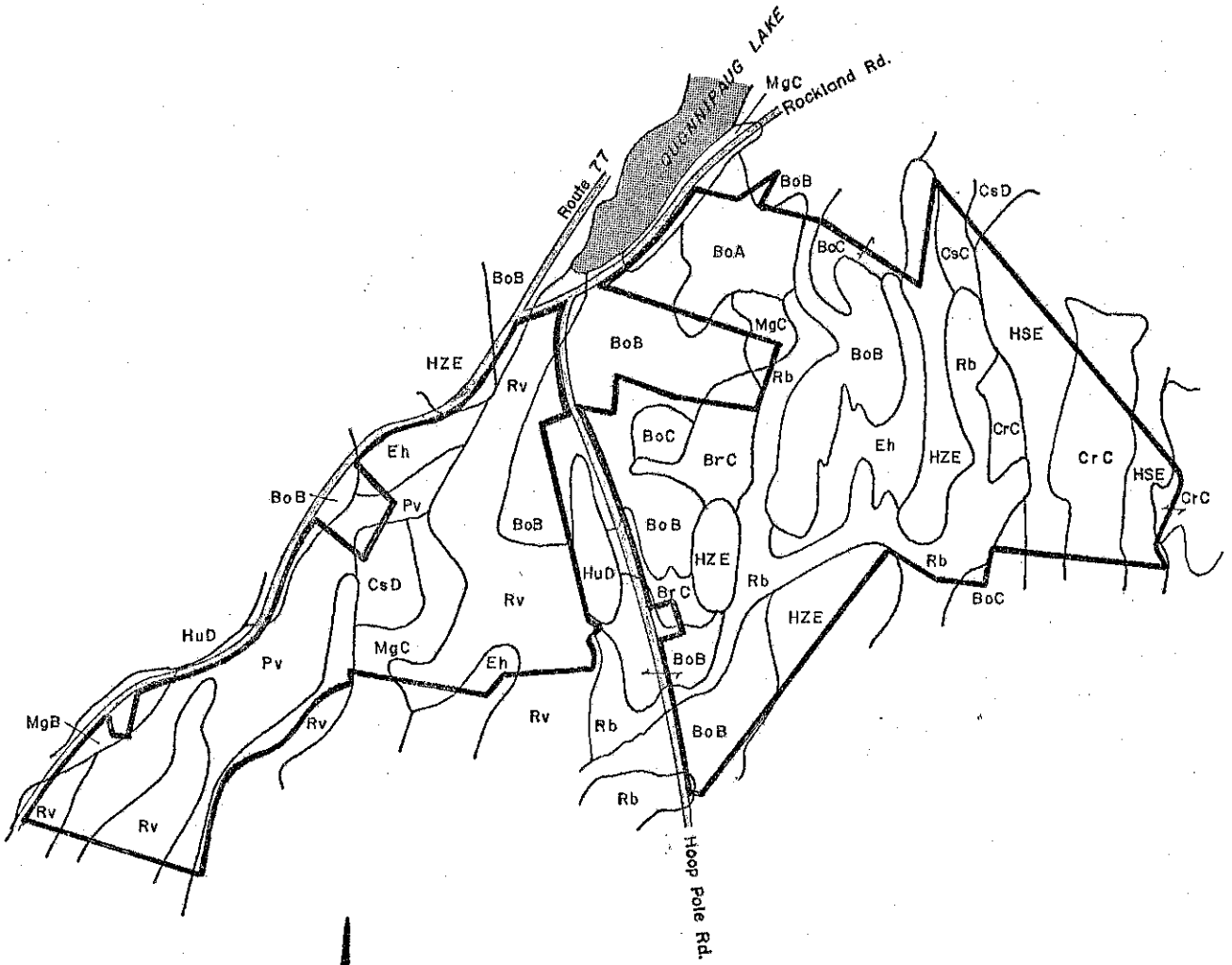
Strategic placement of screen and buffer plantings of trees can be used to develop visual and golf ball barriers, delineate property or fairway boundaries, and to a lesser extent provide some sound suppression. Conifers are recommended for these plantings.

Portions of the Scranton-Haggarty property appear to be well-suited to the proposed golf course development since some of this farm land contains soils which generally lend themselves to the development of fairways and greens. Golf course development costs are high but would be higher still if extensive site modification, because of unsuitable soils, water tables, etc., were necessary. These factors will undoubtedly figure into determining how much of the site will be developed for which purposes and at what cost. Priorities can then be set as to which activities may be most appropriate to specific parts of the tract based on the attributes and shortcomings of the resource base.

* * * * *

APPENDIX

SOILS MAP



ADAPTED FROM NEW HAVEN COUNTY SOIL SURVEY, U.S.D.A. – S.C.S.

N

SCALE: 1" = 1000'

0 1/4 1/2 mile

0 1000' 2000' 3000'

SOILS LIMITATION CHART

MAP SYMBOL	SOIL NAME	LANDSCAPING & GOLF FAIRWAY	PLAYGROUNDS	PATHS & TRAILS	SEPTIC TANK ABSORPTION FIELDS	BUILDINGS W/OUT BASEMENTS
BoA	Branford silt loam, 0-3% slopes	Slight	Slight	Slight	Slight	Slight
BoB	Branford silt loam, 3-8% slopes	Slight	Moderate; Slope	Slight	Slight	Slight
BoC	Branford silt loam, 8-15% slopes	Moderate; Slope	Severe; Slope	Slight	Moderate; Slope	Moderate; Slope
BrC	Branford-Holyoke silt loams, 3-15% slopes Branford part	Moderate; Slope	Severe; Slope	Slight	Moderate; Slope	Moderate; Slope, Frost action
	Branford-Holyoke silt loams, 3-15% slopes Holyoke part	Severe; Depth to rock	Severe; Slopes, Depth to rock	Slight	Severe; Depth to rock	Severe; Depth to rock
CrC	Charlton-Hollis fine sandy loams, 3-15% slopes Charlton part	Severe; Large stones	Severe; Slope, Large stones	Severe; Large stones	Severe; Large stones	Severe; Large stones
	Charlton-Hollis fine sandy loams, 3-15% slopes Hollis part	Severe; Depth to rock, Large stones	Severe; Slope, Depth to rock, Large stones	Severe; Large stones	Severe; Depth to rock, Large stones	Severe; Depth to rock, Large stones
CsC	Cheshire fine sandy loam, 8-15% slopes	Moderate; Slope	Severe; Slope	Slight	Moderate; Slope	Moderate; Slope
CsD	Cheshire fine sandy loam, 15-25% slopes	Severe; Slope	Moderate; Slope	Severe; Slope	Severe; Slope	Severe; Slope
Eh	Ellington silt loam	Slight	Moderate; Wetness	Slight	Severe; Wetness	Severe; Wetness
HSE	Hollis-Rock outcrop complex, 15-35% slopes	Severe; Slope, Depth to rock, Large stones	Severe; Slope, Depth to rock, Large stones	Severe; Slope, Large stones	Severe; Slope, Depth to rock	Severe; Slope, Depth to rock, Large stones

MAP SYMBOL	SOIL NAME	LANDSCAPING & GOLF FAIRWAY	PLAYGROUNDS	PATHS & TRAILS	SEPTIC TANK ABSORPTION FIELDS	BUILDINGS W/OUT BASEMENTS
HuD	Holyoke-Cheshire complex, 15-35% slopes Holyoke part	Severe; Slope, Depth to rock, Large stones	Severe; Slope, Depth to rock, Large stones	Severe; Slope, Large stones	Severe; Slope, Depth to rock	Severe; Slope, Depth to rock, Large stones
	Holyoke-Cheshire complex, 15-35% slopes Cheshire part	Severe; Slope	Severe; Slope	Severe; Slope	Severe; Slope	Severe; Slope
HZE	Holyoke-Rock outcrop complex, 15-35% slopes	Severe; Slope, Depth to rock	Severe; Slope, Depth to rock	Severe; Slope	Severe; Slope, Depth to rock	Severe; Slope, Depth to rock
MgB	Manchester gravelly sandy loam, 3-8% slopes	Severe; Small stones, Droughty	Severe; Small stones	Moderate Small stones	Slight	Slight
MgC	Manchester gravelly sandy loam, 8-15% slopes	Severe; Small stones, Droughty	Severe; Slope, Small stones	Moderate; Small stones	Moderate; Slope	Moderate; Slope
Pv	Podunk Variant silt loam	Severe; Floods	Severe; Floods	Moderate; Floods	Severe; Floods, Wetness	Severe; Floods, Frost action
Rb	Raypol silt loam	Severe; Wetness	Severe; Wetness	Severe; Wetness	Severe; Wetness	Severe; Wetness, Frost action
Rv	Rumney variant silt loam	Severe; Wetness	Severe; Floods	Severe; Floods	Severe; Wetness	Severe; Floods, Wetness, Frost action

EXPLANATION OF RATING SYSTEM: SLIGHT LIMITATION: indicates that any property of the soil affecting use of the soil is relatively unimportant and can be overcome at little expense.
MODERATE LIMITATION: indicates that any property of the soil affecting use can be overcome at a somewhat higher expense.
SEVERE LIMITATION: indicates that the use of the soil is seriously limited by hazards or restrictions that require extensive and costly measures to overcome.

SOIL DESCRIPTIONS

BoA - Branford silt loam, 0 to 3 percent slopes.

This nearly level, well drained soil is on broad outwash terraces and narrow stream valleys.

Typically, the surface layer is dark reddish brown silt loam about 8 inches thick. The subsoil is reddish brown loam 16 inches thick. The substratum, described to a depth of 60 inches, is reddish brown gravelly sand.

Permeability is moderate or moderately rapid in the surface layer and subsoil and rapid or very rapid in the substratum. This soil has a moderate available water capacity. Runoff is slow. This soil tends to dry out and warm up fairly early in spring. It has a low shrink-swell potential. Unless limed, it is very strongly acid through medium acid.

This soil has good potential for community development. It is easy to excavate; however, steep slopes of excavations are unstable. Waste disposal systems such as onsite septic systems will function satisfactorily with normal design and installation; however, the very rapidly permeable substratum requires that care be taken in some areas to prevent pollution of the ground water.

This soil is well suited to cultivated crops. It is easy to maintain in good tilth. The hazard of erosion is slight; simple conservation measures are adequate to control runoff and erosion.

BoB - Branford silt loam, 3 to 8 percent slopes.

This soil is similar to BoA but is characterized by steeper slopes.

BoC - Branford silt loam, 8 to 15 percent slopes.

This soil is similar to BoA and BoB, but has steeper slopes.

BrC - Branford-Holyoke silt loams, 3 to 15 percent slopes.

This soil complex consists of gently sloping and sloping, well drained soils on outwash terraces. The relief is affected by the underlying bedrock. Slopes are concave or convex and are mostly 50 to 300 feet long. The surface is uneven and is marked by outcrops of bedrock and a few small, wet depressions. Approximately 50 percent of this complex is made up of Branford silt loam, 30 percent is Holyoke rocky silt loam, and 20 percent is other soils.

The Branford and Holyoke soils are intermingled in such a complex and intricate pattern that they could not be separated in mapping. The typical Branford soil has a dark reddish brown silt loam surface layer 8 inches thick. The subsoil is reddish brown silt loam 16 inches thick. The substratum, to a depth of 60 inches, is reddish brown gravelly sand. The typical Holyoke soil has a very dark brown silt loam surface layer 2 inches thick. The subsoil is dark reddish brown and reddish brown, friable silt loam 11 inches thick. The substratum is hard unweathered basalt bedrock.

The Branford soil has moderate or moderately rapid permeability in the surface layer and subsoil and rapid or very rapid permeability in the substratum. It has moderate available water capacity. Runoff is medium to rapid. This soil tends to dry out and warm up fairly early in spring. It has a low shrink-swell potential. Unless limed, this soil is very strongly acid through medium acid.

The Holyoke soil is moderately permeable above the bedrock. It has low available water capacity. Runoff is medium to rapid. It has a low shrink-swell potential. Bedrock outcrops are common.

This soil complex has fair to poor potential for community development. The Branford soil has good potential. The Holyoke soil has poor potential because of the shallowness to bedrock and the rock outcrops. Very careful planning, design, and installation are necessary to insure a well functioning septic system. The very rapidly permeable substratum of the Branford soil requires that care be taken to insure that the waste disposal system does not pollute the ground water. Rather intensive conservation measures may be required to prevent excessive runoff, erosion, and siltation during construction of community developments.

This soil complex is poorly suited to crops because of the numerous outcrops and the shallowness to bedrock of the Holyoke soil.

CrC - Charlton-Hollis fine sandy loams, 3 to 15 percent slopes.

This complex consists of gently sloping and sloping well drained soils on uplands where the relief is affected by the underlying bedrock. Slopes are concave or convex and mostly 50 to 300 feet long. The areas have a rough surface with bedrock outcrops and a few narrow intermittent drainageways and small wet depressions. In most areas, 3 to 25 percent of the surface is covered with stones and boulders. Approximately 45 percent of these areas is Charlton fine sandy loam, 30 percent is Hollis fine sandy loam, and about 25 percent is other soils.

The Charlton and Hollis soils are in such a complex and intermingled pattern that they could not be separated in mapping. The typical Charlton soil has a dark brown fine sandy loam surface layer 2 inches thick. The subsoil is dark brown, yellowish brown, and light olive brown fine sandy loam 24 inches thick. The substratum, to a depth of 60 inches, is grayish brown, gravelly fine sandy loam that has a few firm lenses up to 4 inches thick. The typical Hollis soil has a very dark brown fine sandy loam surface layer 3 inches thick. The subsoil is dark brown fine sandy loam 11 iches thick, and it overlies hard, unweathered schist bedrock.

The Charlton soil has moderate or moderately rapid permeability. It has a high available water capacity. Runoff is medium to rapid. This soil has a low shrink-swell potential. The Hollis soil has moderate or moderately rapid permeability above the bedrock. It has a low available water capacity. Runoff is medium to rapid. Both soils are very strongly acid through medium acid, if they are not limed.

This complex has fair to poor potential for community development. The Charlton soil has fair potential for community development. It is limited mainly by the steepness of slopes and stoniness. The Hollis soil has poor potential for community development. It is limited mainly by the bedrock at a depth of 10 to 20 inches. Excavations are often difficult on this soil complex because of the shallowness to bedrock in many places. Very careful planning, site location, design, and installation are necessary to insure that onsite waste disposal systems function satisfactorily.

Many areas of this complex provide a scenic and picturesque setting for homesites. Outcrops, stones, and boulders are often left undistrubed for their esthetic value. In many places they provide a creative opportunity for the unusual design of homes or other structures.

During construction of community developments, conservation measures such as temporary vegetation and siltation basins are frequently needed to prevent excessive runoff, erosion, and siltation.

This soil complex is poorly suited to crops because of the shallowness to bedrock, rock outcrops, and stoniness that hinder the use of farming equipment. Areas cleared of stones and boulders can be used to grow hay; however, the Hollis part of the complex is droughty, and the rock outcrops generally hinder the use of harvesting equipment. Controlling runoff and erosion is a major concern of management, particularly on the Hollis soil, which is only 10 to 20 inches deep to bedrock.

CsC - Cheshire fine sandy loam, 8 to 15 percent slopes.

This sloping, well drained soil is on the side slopes of hills and ridges and on foot slopes of steep slopes where the relief is affected by the underlying bedrock.

Typically, the surface layer of this soil is dark brown fine sandy loam 8 inches thick. The subsoil is reddish brown, friable fine sandy loam 18 inches thick. The substratum, described to a depth of 60 inches, is reddish brown, friable, gravelly sandy loam with discontinuous firm lenses up to 2 inches thick.

This soil has moderate permeability. It has a high available water capacity. Runoff is rapid. This soil tends to dry out and warm up fairly early in spring. It has a low shrink-swell potential. Unless limed, this soil is very strongly acid through medium acid.

This soil has fair potential for community development. It is limited mainly by the steepness of slope. 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 contains stones and boulders. Onsite septic systems require careful design and installation to insure that effluent from the disposal system will not seep to the surface downslope. Conservation measures, such as temporary vegetation and silt basins, should be used to prevent excessive runoff, erosion, and siltation during construction of community developments.

This soil is suited to cultivated crops, but erosion is a severe hazard. Controlling runoff and erosion is the major concern of management, along with maintaining fertility, good organic matter content, and good tilth. Good tilth is easy to maintain. If this soil is used as cropland, minimum tillage, use of cover crops, and including grasses and legumes in the cropping system are practices that help to reduce runoff and control erosion. A few cobbles and stones occur in the plow layer and are an annoyance with some tillage equipment.

CsD - Cheshire fine sandy loam, 15 to 25 percent slopes.

This soil is similar to CsC, only has steeper slopes.

Eh - Ellington silt loam.

This is a nearly level, moderately well drained soil in slight depressions on broad outwash terraces of narrow stream valleys.

Typically, the surface layer is dark reddish brown silt loam 8 inches thick. The upper part of the subsoil is reddish brown silt loam 10 inches thick, and the lower part is mottled, reddish brown very fine sandy loam 8 inches thick. The substratum,

to a depth of 60 inches, is dark reddish brown very gravelly sand.

Permeability is moderate in the surface layer and subsoil and rapid or very rapid in the substratum. This soil has a moderate available water capacity. Runoff is slow. This soil dries out and warms up slowly in spring. It has a low shrink-swell potential. Unless limed, it is medium acid or strongly acid.

This soil has fair to poor potential for community development. It has a seasonal high water table at a depth of about 20 inches. This soil is easy to excavate; however, the steep slopes of excavations are unstable. This soil has poor potential for waste disposal systems, such as septic tank absorption fields, because the water table is high from late in fall until mid or late spring. In addition, the septic system can pollute the ground water. Foundations and basements must be properly designed and constructed to insure a stable foundation and to prevent wet basements. During periods of construction, conservation measures are needed to prevent excessive runoff, erosion, and siltation.

This soil is well suited to crops. Wetness is the major limiting factor for best crop production. This soil has a seasonal high water table at a depth of about 20 inches from late in fall until middle or late spring and after prolonged rainy periods in summer. Drainage generally is needed to obtain the best production of commonly grown crops. Even if this soil is drained, it remains wet for several days after heavy rains, and the use of many kinds of farming equipment is restricted. Runoff and erosion are easy to control with simple conservation measures, such as planting cover crops during the winter months.

HSE - Hollis-Rock outcrop complex, 15 to 35 percent slopes.

This map unit consists of moderately steep and steep, somewhat excessively drained soils on uplands and areas of Rock outcrop. The relief is affected by the underlying bedrock. The areas have bedrock outcrops, a few narrow intermittent drainageways, and small wet depressions. In most cases, the surface is 3 to 25 percent stones and boulders. Approximately 50 percent of this unit is Hollis fine sandy loam, about 30 percent is Rock outcrop, and 20 percent is other soils.

The Hollis soil and Rock outcrop are so intermingled on the landscape that they could not be separated in mapping at the scale used. The composition of this unit is more variable than that of other map units in the survey area, but the mapping and interpretations will not affect the expected use of this unit. The typical Hollis soil has a very dark brown fine sandy loam surface layer 3 inches thick. The subsoil is dark brown fine sandy loam 11 inches thick and overlies hard unweathered schist bedrock. Rock outcrop is exposed hard bedrock.

The Hollis soil has moderate or moderately rapid permeability above the bedrock. It has a low available water capacity. Runoff is rapid. This soil has a low shrink-swell potential. Reaction is medium acid through very strongly acid. Rock outcrop has very rapid runoff.

This map unit has poor potential for community development. It is limited mainly by the shallowness to bedrock, steep slopes, and rock outcrops. Excavation is difficult and requires blasting in many places. This map unit has poor potential for waste disposal systems. Septic systems 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 ground water, which is a source of drinking water in many places. Areas of this map unit provide sites for the creative

design of homes. 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.

This map unit is not suited to crops because of the steep slopes, rock outcrops, stoniness, and shallowness to bedrock.

HuD - Holyoke-Cheshire complex, 15 to 35 percent slopes.

This complex consists of moderately steep and steep, well drained and somewhat excessively drained soils on uplands where the relief is affected by the underlying bedrock. The areas have a rough surface with bedrock outcrops, a few narrow intermittent drainageways, and small wet depressions. In many areas, up to 15 percent of the surface is stones and boulders. Approximately 40 percent of this complex is Holyoke silt loam, 35 percent is Cheshire extremely stony fine sandy loam, and about 25 percent is other soils and rock outcrops.

The Holyoke and Cheshire soils are so intermingled on the landscape that it was not practical to separate them in mapping. The typical Holyoke soil has a very dark grayish brown silt loam surface layer 2 inches thick. The subsoil is dark reddish brown and reddish brown silt loam 11 inches thick. The underlying bedrock is hard unweathered basalt. The typical Cheshire soil has a surface layer of very dark grayish brown fine sandy loam 3 inches thick. The subsoil is reddish brown fine sandy loam 23 inches thick. The substratum, to a depth of 60 inches, is reddish brown, very friable gravelly sandy loam that has discontinous firm lenses up to 2 inches thick.

The Holyoke soil has moderate permeability above the bedrock. It has a low available water capacity. Runoff is rapid. The Cheshire soil has moderate permeability. It has a high available water capacity. Runoff is rapid. The Holyoke and Cheshire soils have a low shrink-swell potential. Unless limed, they are medium acid through very strongly acid.

This complex has poor potential for community development. It is limited mainly by steep slopes, shallowness to bedrock, and rock outcrops. Excavation is difficult in many places because of the shallowness to bedrock. Waste disposal systems, such as septic tank absorpiton fields, require very careful and often unusual design and installation to insure that effluent does not seep to the surface in areas downslope from the leaching system. Sites often need to be more than 2 acres in size in order to locate a soil that is deep enough for the installation of an on-site septic system. There is a hazard of effluent seeping into cracks in the bedrock and polluting the ground water, which is a source of drinking water in many places. Many of these areas provide a very scenic and picturesque setting for homes. Rock outcrops, stones, and boulders are often desired for their esthetic value and are left undisturbed. This complex provides an opportunity for the creative design of homes and other structures. During periods of construction, intensive conservation measures, such as diversions, vegetative cover, mulching, and sedimentation basins, are frequently needed to prevent excessive runoff, erosion, and siltation.

The soils of this complex are poorly suited to crops because of the bedrock outcrops, shallowness to bedrock, steep slopes, and stoniness. These features severely hinder the use of modern farming equipment.

HZE - Holyoke-Rock outcrop complex, 15 to 35 percent slopes.

This complex consists of moderately steep and steep, well drained to somewhat excessively drained soils on upland. The relief is affected by the underlying bedrock. The areas have a rough surface with rock outcrops, a few narrow intermittent drainageways, and small wet depressions. In most areas the surface is as much as 15 percent stones and boulders. Approximately 50 percent of this unit is Holyoke silt loam, about 25 percent is Rock outcrop, and about 25 percent is other soils.

The Holyoke soil and Rock outcrop are so intermingled on the landscape that it was not practical to separate them in mapping. The composition of this unit is more variable than that of other map units in the survey area, but the mapping and interpretations will not affect the expected use of this complex. The typical Holyoke soil has a very dark grayish brown silt loam surface layer 2 inches thick. The subsoil is dark reddish brown silt loam and reddish brown silt loam 11 inches thick. The underlying bedrock is hard unweathered basalt.

The Holyoke soil has moderate permeability above the bedrock, It has a low available water capacity. Runoff is rapid. Unless limed, this soil is medium acid through very strongly acid. Rock outcrop has very rapid runoff.

This complex has poor potential for community development. It is limited mainly by the shallowness to bedrock, steep slopes, and rock outcrops. Excavation is difficult in most places and requires blasting. This complex has poor potential for waste disposal systems such as septic tank absorption fields, and very careful and often unusual design and installation procedures generally are necessary. Even then, the system may fail or effluent may seep into the cracks in the bedrock and reach ground water, which is a source of drinking water in many places. If these areas are disturbed for construction, intensive conservation measures, such as mulching, temporary vegetative cover, and siltation basins, are needed to control excessive runoff, erosion, and siltation.

This complex is not suited to crops because of the rock outcrops, shallowness to bedrock, stoniness, and steep slopes.

MgB - Manchester gravelly sandy loam, 3 to 8 percent slopes.

This is a gently sloping, excessively drained soil on outwash terraces of stream valleys.

Typically, the surface layer is reddish brown gravelly sandy loam 6 inches thick. The subsoil is yellowish red gravelly sandy loam and gravelly loamy sand 10 inches thick. The substratum, to a depth of 60 inches, is yellowish brown stratified sand and gravel.

Permeability is rapid in the surface layer and subsoil and very rapid in the substratum. This soil has a low available water capacity. Runoff is medium. This soil dries out and warms up rapidly in spring. It has a low shrink-swell potential. Unless limed, this soil is very strongly acid through medium acid.

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. Irrigation or sprinkling is needed to maintain lawns, shrubs, and trees. Waste disposal systems such as septic tank

absorption fields function satisfactorily with normal design and installation; however, because of the very rapid permeability of this soil, caution must be taken to prevent the pollution of ground water. This soil has fair potential for use as sites for commercial buildings and is limited mainly by slopes. During periods of construction, simple conservation measures generally are adequate to prevent excessive runoff, erosion, and siltation.

Unless it is irrigated, this soil has poor potential for most crops because it is droughty. Irrigation is needed to insure a productive crop. Good tilth is easy to maintain; however, the gravel content of this soil hinders the use of some farming equipment. Good organic matter content needs to be maintained. Many areas can be used to grow hay and for pasture. Controlling runoff and erosion requires simple conservation measures.

MgC - Manchester gravelly sandy loam, 8 to 15 percent slopes.

This is a sloping, excessively drained soil on outwash terraces of stream valleys. This soil is mainly on the edges of terrace breaks and of outwash terraces where the terraces adjoin the glacial till uplands.

Typically, the surface layer of this soil is reddish brown gravelly sandy loam 6 inches thick. The subsoil is yellowish red gravelly sandy loam and gravelly loamy sand 10 inches thick. The substratum, to a depth of 60 inches, is yellowish brown stratified sand and gravel.

Permeability is rapid in the surface layer and subsoil and very rapid in the substratum. This soil dries out and warms up rapidly in spring. It has a low shrink-swell potential. Unless limed, this soil is very strongly acid through medium acid.

This soil 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. The droughtiness of this soil is a major concern in landscaping. Irrigation or sprinkling is needed in summer. Waste disposal systems such as septic tank absorption fields need careful design and installation to ensure that effluent does not seep to the surface in areas downslope from the leaching system. Because the substratum is very rapidly permeable, caution is needed to prevent pollution of ground water. Intensive conservation measures may be needed to prevent excessive runoff, erosion, and siltation during periods of construction.

This soil has poor potential for farming because it is sloping and droughty. The steepness of slopes makes the installation of a satisfactory irrigation system difficult. Intensive conservation measures are needed to prevent excessive runoff and erosion if this soil is cultivated.

Pv - Podunk Variant silt loam.

This nearly level, moderately well drained soil is on flood plains of the major streams and their tributaries. Slopes are 0 to 3 percent. They are smooth and mostly 50 to 200 feet long.

Typically, the surface layer is dark brown silt loam 9 inches thick. The subsoil, 17 inches thick, is reddish brown silt loam that is mottled in the lower part. The substratum, to a depth of 60 inches, is 10 inches of reddish brown, mottled silt loam over dark gray medium sand.

This soil has a seasonal high water table at a depth of about 20 inches from late fall until mid-spring. It is subject to frequent flooding from fall through spring. Permeability is moderately slow to moderate in the surface layer, subsoil, and the loamy upper part of the substratum. It is rapid in the lower part of the substratum, which is coarse textured. This soil has a high available water capacity. Runoff is slow. This soil dries out and warms rather slowly in spring. It has a low shrink-swell potential. Unless limed, it is very strongly acid through medium acid.

This soil has poor potential for community development. It is limited mainly by its susceptibility to flooding. It is easy to excavate; however, the water table inundates the excavations. The steep slopes of excavations are unstable. This soil has poor potential for waste disposal systems, such as septic tank absorption fields, because of the seasonal high water table and the susceptibility to flooding. In addition, the septic system may pollute the ground water. This soil is poorly suited to use as sites for houses because of flooding. It is poorly suited to landscaping because of flooding, and sediment is often deposited by the floodwaters.

This soil is suited to crops. Wetness is the major limiting factor for growing crops, and drainage is generally needed for best crop production. Even with drainage, this soil remains wet for several days after a heavy rain, restricting the use of many kinds of farming equipment. Crops may be damaged or lost if this soil is flooded during the growing season. Runoff and erosion are easy to control with simple conservation measures.

Rb - Raypol silt loam.

This nearly level, poorly drained soil is in depressions on broad glacial lake and outwash terraces.

Typically, the surface layer is very dark brown silt loam 8 inches thick. The subsoil is 21 inches thick; it is grayish brown, dark yellowish brown, and olive brown, mottled silt loam and very fine sandy loam. The substratum, to a depth of 60 inches, is light olive brown, mottled gravelly sand.

This soil has a seasonal high water table at a depth of about 8 inches from fall until mid-spring. Permeability is moderate in the surface layer and subsoil and rapid or very rapid in the substratum. This soil has a high available water capacity. Runoff is slow. This soil dries out and warms slowly in the spring. It has a low shrink-swell potential. Unless limed, this soil is very strongly acid or strongly acid in the surface layer and subsoil and strongly acid through slightly acid in the substratum.

This soil has poor potential for community development. It is easy to excavate; however, water inundates the excavations, and steep slopes of excavations are unstable when saturated. This soil has poor potential for waste disposal systems, such as septic tank absorpiton fields, because of the seasonal high water table. In addition, the septic system may pollute the ground water. Attention needs to be given to properly designing and constructing foundations and basements to insure a stable foundation and prevent wet basements. This usually requires extensive filling. This soil is poorly suited to landscaping because it is wet and soggy much of the year. Many plants do not adapt to the wetness. During periods of construction, conservation measures are needed to prevent excessive runoff, erosion, and siltation.

This soil is not well suited to use as cropland. Wetness is the major limiting factor for growing crops, and drainage is generally needed for good crop production. Even

with drainage, this soil remains wet for several days after a heavy rain, restricting the use of most kinds of farming equipment. Runoff and erosion are easy to control with simple conservation measures, such as the use of cover crops during the winter.

Rv- Rumney Variant silt loam.

This nearly level, poorly drained soil is on the lower flood plains of the major streams and their tributaries.

Typically, this soil has a 2 inch layer of decomposed and partially decomposed litter on the surface. The surface layer is dark brown silt loam 9 inches thick. The subsoil, which is 22 inches thick, is reddish brown and dark reddish brown, mottled silt loam. The substratum, to a depth of 60 inches, is gray loamy sand and fine sand.

This soil has a seasonal high water table at a depth of about 8 inches from late fall until mid-spring. It is subject to frequent flooding, mainly from fall through spring. Permeability is moderate in the surface layer and subsoil and rapid or very rapid in the substratum. This soil has a high available water capacity. Runoff is slow. This soil dries out and warms up slowly in spring. It has a low shrink-swell potential. Unless limed, it is strongly acid through slightly acid.

This soil has poor potential for community development. It is limited mainly by its hazard of flooding and the seasonal high water table. This soil is difficult to excavate because the water table inundates excavations. The steep slopes of excavations are unstable. This soil has poor potential for waste disposal systems, such as septic tank absorption fields, because of the seasonal high water table and the hazard of flooding. In addition, the septic system may pollute the ground water. In many places, this soil is subject to ponding for several weeks in winter. This soil is poorly suited as homesites because of flooding and the seasonal high water table. It is poorly suited to landscaping because of wetness and because sediment is often deposited by the floodwaters.

This soil is not well suited to crops. Wetness and flooding are the major limiting factors for crops. Drainage is needed for good crop production. Even with drainage, this soil remains wet for several days after a heavy rain, restricting the use of many kinds of farming equipment. Runoff and erosion are easy to control with simple conservation measures.

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.