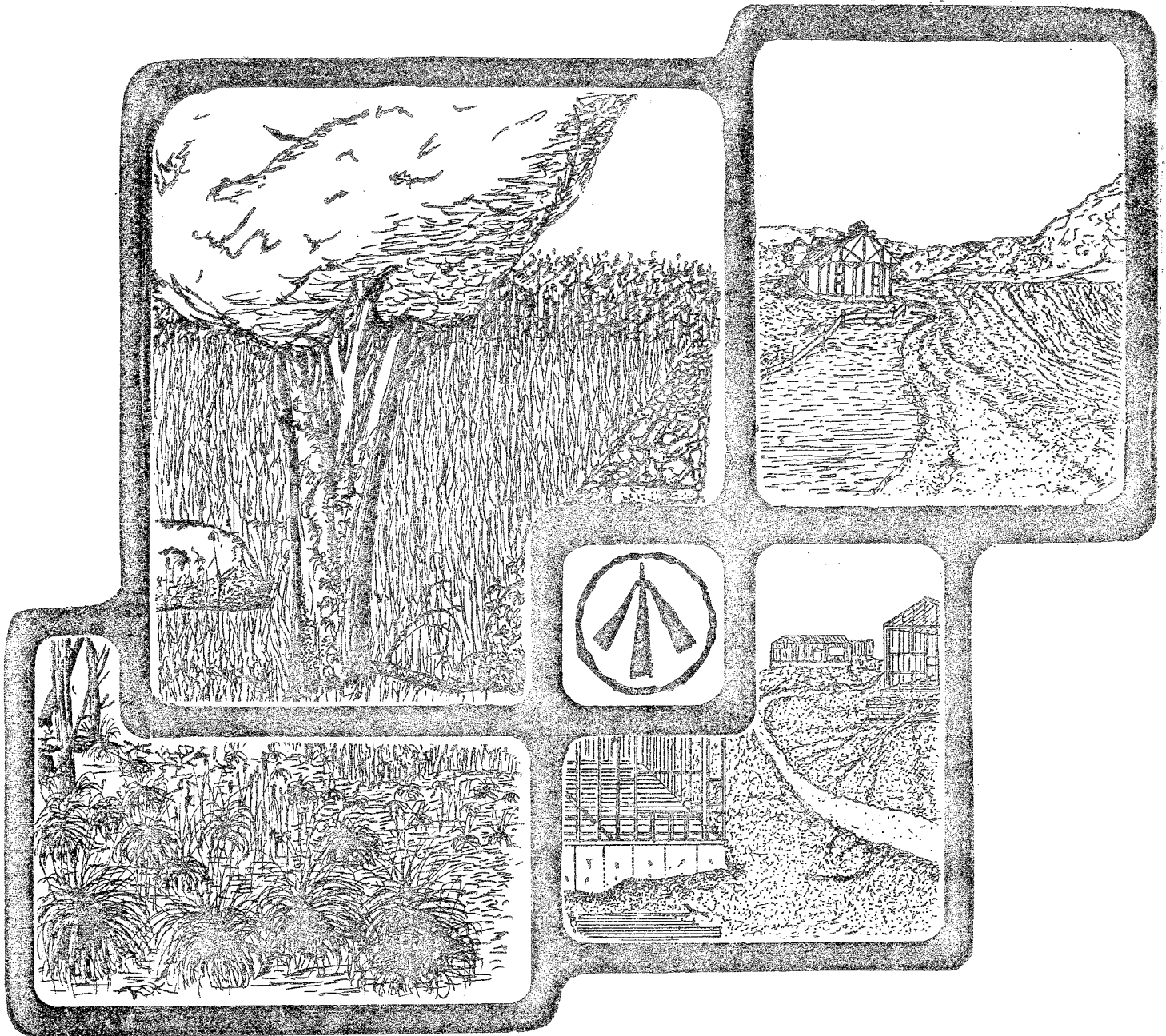


ENVIRONMENTAL REVIEW TEAM REPORT



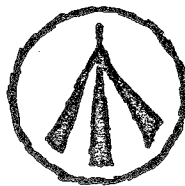
ASPETUCK LAND TRUST PROPERTIES
WESTON, WILTON, & WESTPORT, CONNECTICUT

KING'S MARK
RESOURCE CONSERVATION & DEVELOPMENT AREA

KING'S MARK
ENVIRONMENTAL REVIEW TEAM REPORT

ASPETUCK LAND TRUST PROPERTIES
WESTON, WILTON, & WESTPORT, CONNECTICUT

OCTOBER 1981



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

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

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

Capitol Regional Council of Governments

American Archaeological Institute

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FUNDING PROVIDED BY

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ENVIRONMENTAL REVIEW TEAM REPORT

ON

ASPETUCK LAND TRUST PROPERTIES

WESTON, WILTON, AND WESTPORT, CT

I. INTRODUCTION

The Aspetuck Land Trust in conjunction with the First Selectman of Weston requested the King's Mark Environmental Review Team to perform an environmental review of five of the largest landholdings of the trust. The five parcels include:

- 1) Honey Hill Nature Preserve, + 42 acres, located astride the Weston and Wilton town line off Wampum Hill Road.
- 2) Andrews Farm Nature Preserve, 10.2 acres, located in the northwestern quarter of Weston off Trails End Road.
- 3) Stonebridge Wild Fowl Sanctuary, 20 acres, located along the Wilton/Weston town line off Newtown Turnpike at Stonebridge Road.
- 4) Twin Bridges Nature Preserve, 20 acres, located on the northern border of Westport off Weston Road.
- 5) Silvermine Marsh Nature Preserve, 9.24 acres, located in the southeastern corner of Weston off Old Easton Turnpike.

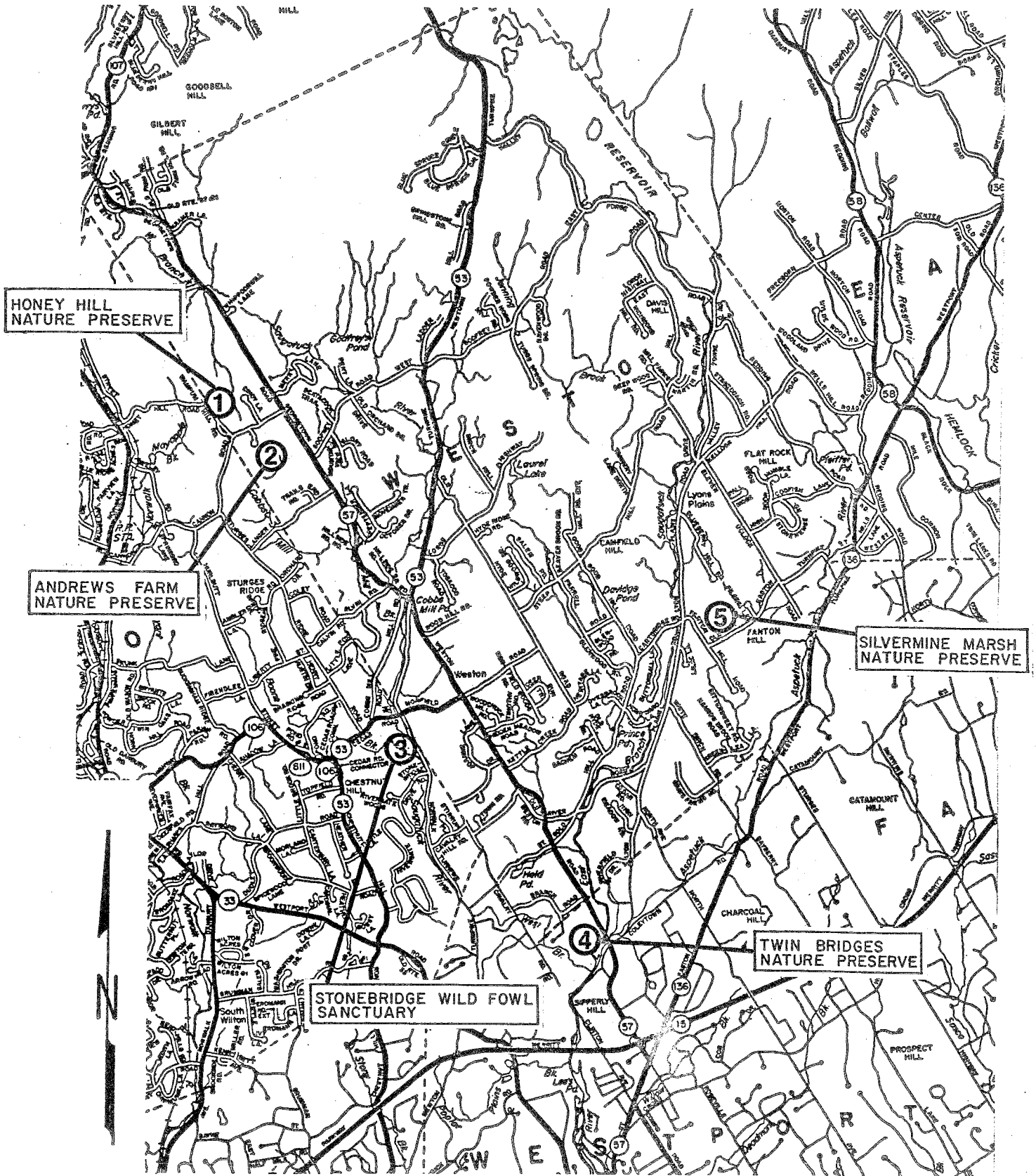
The location of the five parcels is shown in Figure 1.1.

The Aspetuck Land Trust initiated this review to assist them in better understanding the environmental characteristics of the properties. Specifically, the Team was requested to prepare a natural resource inventory of the sites and also to comment on the potential of the properties for forest management, wildlife management, and recreational use. The King's Mark Executive Committee considered the Trust's request, and approved the project for review by the Team.

The ERT met and field reviewed the sites on June 24, 1981 and July 8, 1981. Team members participating on this project included:

Brant Burz	Wildlife Biologist	Ct. Dept of Environmental Protection
Richard Carpenter	Regional Planner	Southwestern Connecticut Regional Planning Agency
Rob Rocks	Forester	Ct. Dept. of Environmental Protection
Dave Thompson	District Conservationist	U.S.D.A. Soil Conservation Service
Mike Zizka	Geohydrologist	Ct. Dept. of Environmental Protection

FIGURE 1.1
GENERAL LOCATION MAP



SCALE: 1" = 1 mile

Prior to the first review day, each team member was provided with a summary of the proposed study, a checklist of concerns to address, a general location map, a topographic map, a soils map, and a soils limitation chart. During the ERT's field reviews, team members met with representatives from the Land Trust and walked the five properties. Following the field reviews, 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. The report identifies the natural resource base of the properties and discusses opportunities and limitations for land management. All conclusions and final decisions with regards to future land use rest with the Aspetuck Land Trust. It is hoped the information contained in this report will assist the Land Trust in making environmentally sound decisions. 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, Connecticut 06754.

* * * * *

HONEY HILL NATURE PRESERVE

II. HONEY HILL NATURE PRESERVE

A. TOPOGRAPHY AND GEOLOGY

The major portion of the Honey Hill parcel is located on the northern half of an elliptical hill (See Figure 2.1). The crest of the hill tends NNE, nearly parallel to the Weston - Wilton town boundary. To the east, the slope is moderate, averaging less than 15 percent. The western slope is slightly steeper on the average, with slopes in excess of 20 percent in some places. The maximum relief of the hill within the parcel is approximately 80 feet. A flat, damp valley borders the hill on the east still within the parcel proper. The section of the site that juts into Wilton is a dry, hummocky hill, with maximum relief of about 30 feet.

The Preserve is located within the Norwalk North topographic quadrangle. The Connecticut Geological and Natural History Survey has published a bedrock geologic map of the quadrangle (Quadrangle Report No. 34). No surficial geologic information has been published to date, but preliminary information is on file with the Department of Environmental Protection's Natural Resources Center.

Bedrock was observed only in the westernmost section of the parcel (Wilton section). The rock in that area consists largely of schist and granulite. Both rock types are metamorphic; that is, the rocks have been altered by high temperature and/or high pressure effects. Granulites are made up primarily of granular mineral grains, and they usually show little or no noticeable lineation. Schists, in contrast, are made up of flaky, platy, or elongate mineral grains that are aligned to form a distinct lineation or foliation. Gneisses, which contain alternating bands of granular and elongate grains, underlie most other areas of the parcel. The accompanying bedrock geologic map (Figure 2.2) shows the approximate distribution of the various rock types on the site. No economically valuable mineral deposits are believed to exist within the parcel.

Till, a glacial sediment deposited directly from an ice mass, covers bedrock on most of the Honey Hill site. The till is probably less than 10 feet thick in most of the Wilton section of the property, and more than 10 feet thick in most of the Weston section. Till is composed of rock particles ranging in size from clay to boulders. The particles are generally neither sorted nor layered. The upper 3 to 10 feet of till is usually sandy, very stony, and friable. Deep tills often become siltier, less stony, and tightly compact at depth. Thin accumulations of silt, sand, and decaying organic material overlie till in the two low areas of the site. A surficial geologic map of the parcel is presented in Figure 2.3 of this report.

B. HYDROLOGY

Surface water from the western half of the property drains westward or southward into a swamp that forms part of the headwater system of Mayapple Brook. The brook is tributary to Norwalk River. Surface water from the

FIGURE 2.1
TOPOGRAPHIC MAP



FIGURE 2.2

BEDROCK GEOLOGY

(Adapted from Conn. Geol. Nat. Hist.
Survey Quad. Rpt. No. 34)



SCALE: 1" = 1000'

EXPLANATION




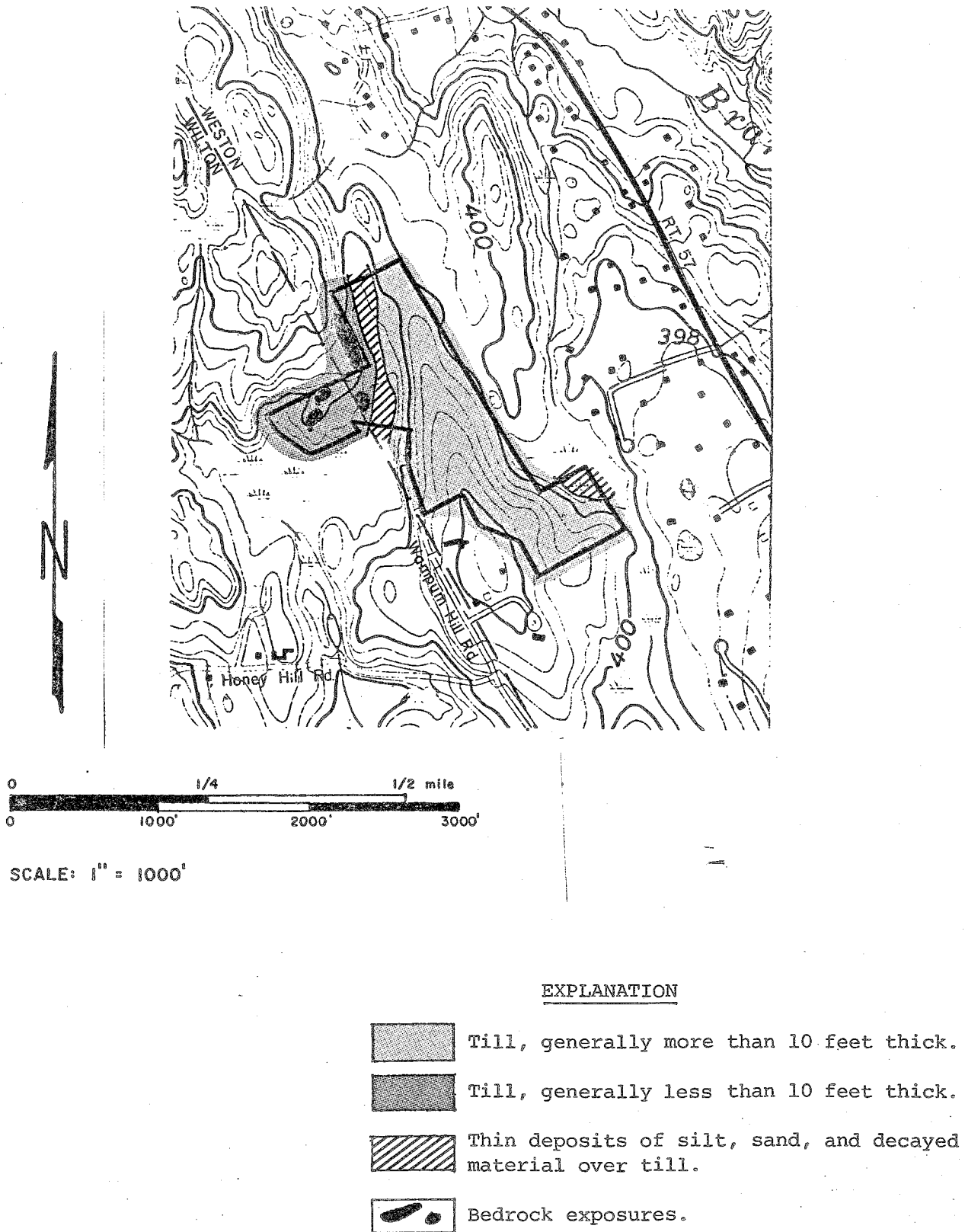
-  Gray to black gneiss, composed of plagioclase, quartz, microcline, biotite, hornblende, and local pyroxene, with accessory sphene, apatite, zircon, allanite, opaques, and chlorite.
-  Gray to buff granular rock, composed mostly of plagioclase, quartz, biotite, and muscovite; interlayered with rusty schist, composed mostly of quartz, muscovite, and biotite, with accessory garnet and local sillimanite.
-  Gray to buff gneiss, composed of plagioclase, quartz, microcline, muscovite, and biotite, with accessory opaques, chlorite, apatite, garnet, and zircon.

FIGURE 2.3
SURFICIAL GEOLOGY



eastern half of the property drains eastward and northward through two small tributaries of the West Branch of Saugatuck River. The crest of the site's principal hill is therefore part of the major drainage divide between the two river basins (See Figure 2.4).

No outstanding groundwater resources are known or believed to exist on the property. The most useful aquifer would be the bedrock underlying the site. Wells tapping bedrock generally are capable of producing small but reliable yields of groundwater, suitable for individual residential or small recreational needs.

C. SOILS

As shown in Figure 2.5, a variety of soil types underlie the Honey Hill parcel. A brief description of each soil type is presented below.

1. Ce -- Carlisle Muck

This nearly level, very poorly drained soil is located on the western border of this site.

Typically, this soil consists of black, dark brown, and dark grayish brown decomposed organic material to a depth of 66 inches or more.

The Carlisle soil is wet most of the year, and the watertable is generally at the surface from early fall to late spring. Runoff is very slow. Some areas have water ponded on the surface. A few areas are subject to flooding. The permeability of the soil is moderate or moderately rapid, and the soil is very strongly acid to neutral.

Most areas of this soil are wooded or are covered by marshgrasses and sedges.

The major limitations of this soil are the high watertable, ponding and the instability of the organic material.

The soil is unsuitable for cultivated crops and recreation, and poorly suited to timber production.

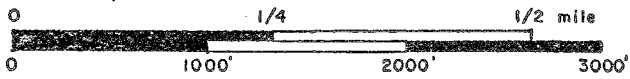
2. CfB -- Charlton Fine Sandy Loam, 3 to 8 Percent Slopes

CfC -- Charlton Fine Sandy Loam, 8 to 15 Percent Slopes

These gently sloping, well-drained soils occupy the central portion of the site.


Typically, the surface layer is very dark brown fine sandy loam 6 inches thick. The subsoil is strong brown and yellowish brown fine sandy loam 23 inches thick. The substratum is light olive brown gravelly sandy loam to a depth of 60 inches or more.

FIGURE 2.4
DRAINAGE AREAS



SCALE: 1" = 1000'

EXPLANATION

 Drainage area boundary. Water to west drains to Norwalk River; water to east drains to Saugatuck River.


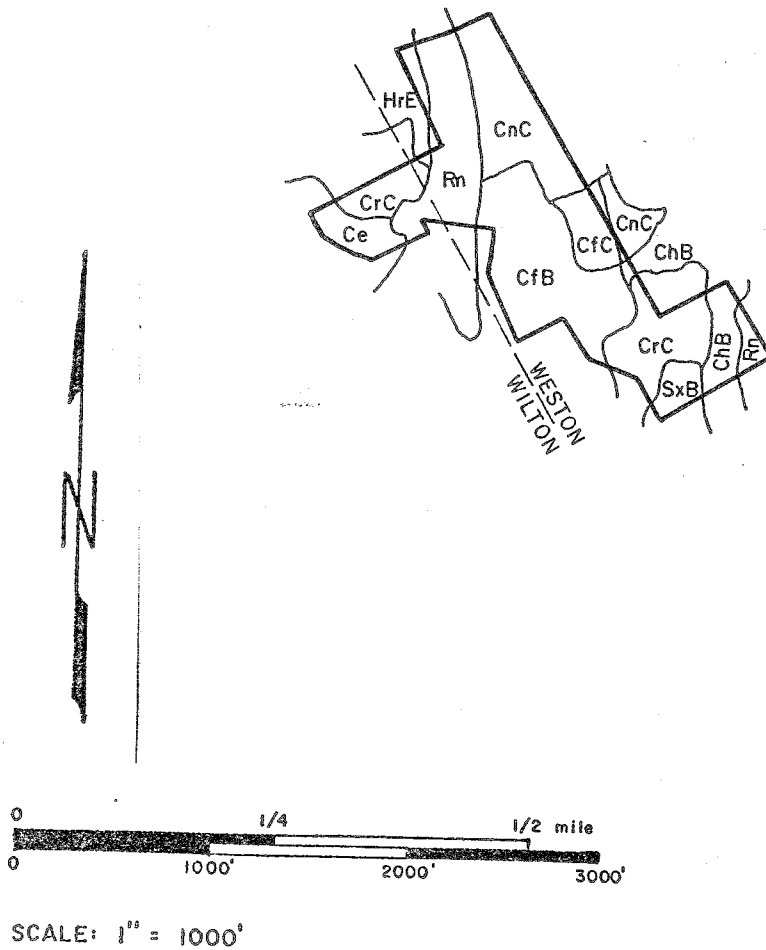
 Flow directions.

FIGURE 25
SOILS MAP



• ADAPTED FROM FAIRFIELD COUNTY
SOIL SURVEY, U.S.D.A. - S.C.S.

Typically, the Hollis soils have a surface layer of very dark grayish brown fine sandy loam 3 inches thick. The subsoil is dark yellowish brown fine sandy loam that extends to bedrock at a depth of 17 inches.

The Charlton and Hollis soils have moderate or moderately rapid permeability. Runoff is medium to rapid. Available water capacity is moderate in the Charlton soils and low in the Hollis soils. They are very strongly acid to medium acid.

The major limitations of this complex are the shallow depth to bedrock in the Hollis soils, the areas of exposed bedrock, and the stones and boulders on the surface.

Recreation. Picnic areas and camp sites are very difficult to develop and access is usually a severe limitation. However, the terrain provides an attractive setting for these uses.

Wildlife. These soils are poorly suited for the production of openland wildlife habitat. The habitat for woodland wildlife species can be established, improved, or maintained but moderate treatment is required. It is impractical to develop wetland wildlife habitat on these soils.

Woodland. The productivity of most of this land is poor for wood crops. Pockets of deeper soil within these areas have fair productivity. Equipment operation is very difficult because of rock outcrops. Seedling survival and windthrow of trees are problems on the shallower areas.

Cropland. These soils are not suited for the production of cultivated crops because of rock outcrops and shallowness. Scattered areas with deeper soils and less numerous rock outcrops can be used for improved hay, pasture, and orchard.

6. Rn -- Ridgebury, Leicester, and Whitman Extremely Stony Fine Sandy Loams

This unit consists of poorly drained and very poorly drained soils in depressions and drainageways on uplands and in valleys. Stones and boulders cover 5 to 35 percent of the surface. Slopes range from 0 to 8 percent but are dominantly less than 3 percent. A band of this soil type is located in the west central portion of the Honey Hill site.

The mapped acreage of this unit is about 35 percent Ridgebury soils, 30 percent Leicester soils, 20 percent Whitman soils, and 15 percent other soils. The soils were mapped together because they have no major differences in use and management. Some areas of this unit contain only one of the major soils, and some contain two or three.

Typically, the Ridgebury soils have a surface layer of very dark grayish brown fine sandy loam 4 inches thick. The subsoil is brown and light brownish gray, mottled fine sandy loam 14 inches thick. The substratum is grayish brown and dark yellowish brown, mottled fine sandy loam to a depth of 60 inches or more.

Typically, the Leicester soils have a surface layer of black fine sandy loam 8 inches thick. The subsoil is 16 inches thick. The upper 10 inches is dark grayish brown gravelly fine sandy loam. The lower 6 inches is grayish brown, mottled fine sandy loam. The substratum is very firm, grayish brown, mottled gravelly fine sandy loam to a depth of 60 inches or more.

The major soils in this unit have a seasonal high watertable at or near the surface from fall through spring. The permeability of the Ridgebury and Whitman soils is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. The permeability of the Leicester soils is moderate or moderately rapid throughout. Available water capacity is moderate in all three soils. Runoff is slow on all three, and water is ponded on the surface of some areas of the Whitman soils. The Ridgebury and Leicester soils are very strongly acid to slightly acid.

The high watertable, ponding, and the stones and boulders on the surface limit the potential for use of these soils.

Recreation. These soils have severe limitations for picnic areas, camp sites, and play areas but have potential for conservation uses and environmental enhancement. Pond sites are found in these areas, but difficulty of construction increases with the degree of stoniness.

Wildlife. These poorly drained soils are not suited for the production of openland or woodland wildlife habitat. Dependable growth of desirable food and cover plants is limited by their wetness. Habitat for wetland wildlife can be developed, improved, or maintained on these soils, but stoniness imposes difficulties in constructing water impoundments.

Woodland. Productivity for wood crops ranges from fair to poor. Stoniness and wetness pose severe problems in the use of equipment. Because of wetness, there are severe problems in the survival of tree seedlings, the windthrow of trees, and competition from other plants.

Cropland. With drainage the soils cleared of stones are suitable for the production of silage corn and adapted hay crops. The stoniness and wetness of the soils make them unsuitable for agricultural crops.

7. SxB -- Sutton Extremely Stony Fine Sandy Loam, 3 to 8 percent slopes

This gently sloping, moderately well drained soil is located along the southern border of the property. Stones and boulders cover 5 to 35 percent of the surface.

Typically, this soil has a surface layer of dark grayish brown fine sandy loam 6 inches thick. The subsoil and substratum are yellowish brown, mottled fine sandy loam to a depth of 60 inches or more.

This Sutton soil has a seasonal high watertable at a depth of about 20 inches from late fall until midspring. The permeability of the soil is moderate or moderately rapid. Runoff is medium, and available water capacity is moderate. The soil is very strongly acid to medium acid in the surface layer and subsoil and very strongly acid to slightly acid in the substratum.

The seasonal high watertable and the stones and boulders on the surface limit the potential for use of this soil.

Recreation. During the main season of use, the nonstony soil areas with less than 3 percent slope are favorable for picnic areas and camp sites. Drainage is needed to overcome the seasonal water table on playing fields or other intensive uses and to extend the period of picnicking and camping. The limitations for play areas increase on the steeper slopes and stonier soils.

Wildlife. These soils are well suited for the dependable growth of a wide variety of desirable openland and woodland wildlife food and cover plants. Habitat requirements of openland wildlife species can be established, improved, or maintained but the stony and very stony soils are more difficult to manage. There are few or no soil limitations that affect the development or maintenance of woodland wildlife habitat. It is extremely difficult and expensive to develop wetland wildlife habitat on these soils.

Woodland. These soils have fair productivity for wood crops. Competition from hardwoods is a problem when managing for pine, spruce, or larch. Hardwoods to favor on these soils are red oak, white ash, and sugar maple. Equipment operation is difficult on the very stony soils.

Cropland. The soil areas clear of stones are suited to the production of adapted legumes and grasses, late vegetables, and small fruits. With drainage, these soils are also suitable for the production of alfalfa, corn, orchards, and early vegetables. Erosion is a hazard and on the steeper slopes more intensive surface water control measures are needed.

D. VEGETATION

1. General Comments

The Aspetuck Land Trust properties discussed in this report vary widely in their potential for forest management. Forest management, as used in this report, refers to the manipulation of forest vegetation, usually through the cutting of trees or the planting of trees to bring about, maintain or improve certain desirable forest conditions.

When properly prescribed and executed, forest management practices will increase the production of forest products, improve wildlife habitat, improve forest aesthetics and enhance the overall condition of the woodland. Without sound management there is no control over the quality of these conditions. Specific management opportunities are outlined for each vegetation type within each parcel. For more detailed information a public service forester with D.E.P. or a private forester should be contacted.

Thinning harvests are prescribed in stands where trees are declining in health and vigor due to over crowding. These thinnings are designed to reduce competition between residual trees for space, sunlight, water and nutrients. Only trees that are of poor quality, damaged, or in direct competition with high quality trees should be removed during these thinnings. Stands once thinned should become more stable, healthy and less susceptible to damage caused by insects, disease and adverse weather conditions.

Where no management practices are discussed, the vegetation is healthy as is. These areas should be reevaluated for future management needs at approximately 10 year intervals.

Areas such as the hardwood swamps which have little potential for forest management are also noted in the vegetation type description. These areas have little or no value for timber production, however their value for wildlife habitat and nature study is high.

Federal cost sharing may be available to help defray the costs of implementing the proposed management practices. For more specific details on cost sharing assistance please contact the D.E.P. Forestry Unit at Region II headquarters in Middlebury, CT. or the Fairfield County A.S.C.S. office in Bethel, CT.

From a resource management and maintenance stand point, it would be advisable to have all of the boundaries of each of the parcels clearly marked.

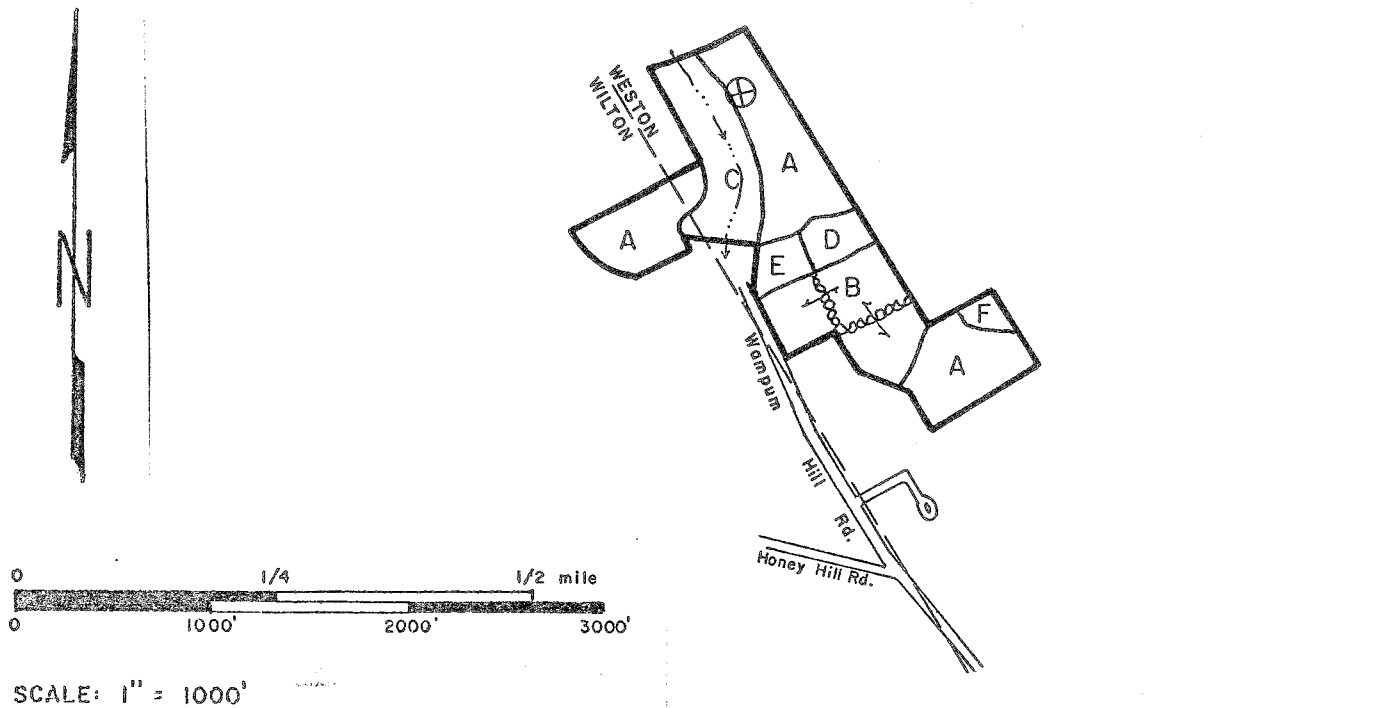
To maintain the quality of the trails which are present, periodic maintenance is essential. At least once a year all the trails throughout these properties should be inventoried for erosion problems and dead or dying trees which represent a potential hazard. Erosion problem spots should be eliminated through the proper placement of water diversions, or relocation of the trails to avoid existing problem areas. Trees that are potentially hazardous should be promptly felled. For assistance in trail design and maintenance, the USDA SCS office in Bethel (743-5453) should be contacted.

2. VEGETATION TYPE DESCRIPTIONS

As shown in Figure 2.6, six vegetation types are present on the Honey Hill site. Each of these is discussed below.

TYPE A. MIXED HARDWOODS. This 21 + acre, fully-stocked two aged stand is made up of sapling and sawtimber size white oak, red oak, black oak, red maple, sugar maple, black birch, and tulip tree with occasional basswood, yellow birch, shagbark hickory, pignut hickory and several bitternut hickory. Noteworthy is a reasonably healthy bitternut hickory specimen which measure 35 inches in diameter at breast height. The understory in this stand is dominated by sapling-size hardwoods, spice-bush, blue beech, maple leaved viburnum, flowering dogwood and witchhazel. Ground cover consists of Pennsylvania sedge, Canada mayflower, club moss, common cinquefoil, virginia creeper, wild strawberry, deer tongue, wild sarsaparilla, indian cucumber-root, bracken fern, christmas fern and hayscented fern.

FIGURE 2.6
VEGETATION TYPE MAP



EXPLANATION

- TYPE A Mixed hardwoods, 21+ acres, fully stocked, sapling & saw timber size, 2 aged
- TYPE B Mixed hardwoods, 9+ acres, understocked seedling to pole size
- TYPE C Northern hardwoods, 7+ acres, fully stocked, poles to large saw timber size
- TYPE D Mixed hardwoods, 2+ acres, fully stocked, pole size
- TYPE E Plantation, 2+ acres, over stocked, pole size
- TYPE F Hardwood swamp, 1+ acres, over stocked, sapling size

LEGEND

- road
- property boundary
- vegetation type boundary
- town line
- stream
- bitternut hickory with 35" DBH
- stone walls

*Seedling size = trees less than 1" in diameter at 4½' above the ground (D.B.H.)
 Sapling size = trees 1" to 5" in D.B.H.
 Pole size = trees 5" to 11" in D.B.H.
 Saw timber = trees 11" and greater in D.B.H.

Scattered throughout this area are sawtimber-size trees which are very poor in quality. Many of the trees have broken tops, large dead branches, split open seams or extremely poor form. Removal of these trees would improve the appearance and over all health of this stand, while reducing the potential hazard which these trees represent. Trees which have quality cavities, suitable for nesting wildlife should be retained. The trees removed during the prescribed thinning should be utilized for fuelwood. It would be desirable from an aesthetic standpoint to clear the woody vegetation from under the large bitternut hickory. This practice will highlight the size and stature of this specimen.

TYPE B. MIXED HARDWOODS. Sapling and occasional pole-size red maple, eastern red cedar, quaking aspen, black cherry, red oak, black oak, gray birch and sassafras are present in this 9 ± acre under-stocked stand. Highbush blueberry, gray stemmed dogwood, lowbush blueberry, huckleberry and scattered poor quality apple trees are the shrub species which are present. Grasses, golden-rod, canada mayflower and club moss form this areas ground cover. In the future the red cedar, aspen and gray birch will probably loose their position in the overstory, while the oaks and red maple become dominant. This change is part of the natural transition from an old field area to a true mixed hardwood stand. Open areas within this stand could be planted with a combination of eastern white pine, european larch and eastern hemlock. Trees should be planted 8 to 10 feet apart in open areas and 15 to 20 feet apart in understocked areas. These plantings will improve cover conditions for wildlife and also increase vegetation variety.

TYPE C. NORTHERN HARDWOODS. This 7 ± acre intermittent streambelt area is vegetated with high quality pole to sawtimber size tulip tree, yellow birch, sugar maple, white ash, red maple and widely scattered black ash. This area is fully-stocked, and the trees seem to be healthy. A dense understory is present in this stand which is made up of spice bush, sweet pepper bush, clammy azalea, winged euonymus,ighbush blueberry, winterberry and barberry. Ground cover consists of poison ivy, virginia creeper, Canada mayflower, christmas fern, cinnamon fern, evergreen wood fern, maiden hair fern, sensitive fern, wild geranium, early blue violet, solomon's seal, false solomon's seal, Jack-in-the-pulpit, marsh cinquefoil, red trillium, skunk cabbage, wild sarsaparilla, white baneberry and rough bedstraw. The trees in this stand are healthy and no management is needed at present, however this area should be re-evaluated in 5 to 10 years for future management needs.

TYPE D. MIXED HARDWOODS. Poor to medium quality pole-size red maple, black birch, red oak, black oak and occasional white ash are present in this fully-stocked 2+ acre stand. The understory is made up of gray birch, eastern red cedar, sassafras, gray stemmed dogwood, flowering dogwood and witch-hazel. Ground cover vegetation includes dewberry, Pennsylvania sedge, common cinquefoil, poison ivy, virginia creeper, raspberry and canada mayflower. Removal of the poorest quality third of the trees, including damaged trees and unhealthy red maple, would improve this stand. Trees that are removed should be utilized as fuelwood.

TYPE E. PLANTATION. This two acre plantation is made up of crowded pole-size eastern white pine. These trees have very small crowns, and many have been damaged by the white pine weevil. A thinning which removes approximately one third of the total number of trees would give the residual trees additional room and sunlight for improved growth. To improve the aesthetics of this area, the trees that are removed could either be chipped or piled. Piling of the brush would improve the habitat for small wildlife species by increasing cover. Properly pruning the white pine 9 to 10 feet from ground level (and piling the brush) would improve the aesthetic value of this plantation and improve the quality of future products. Pruning of this plantation could be accomplished by local service oriented youth group organizations.

TYPE F. HARDWOOD SWAMP. Approximately 1 acre of hardwood swamp is present within this tract. This area is over-stocked with sapling-size red maple and scattered white ash. The understory is dominated by spice bush, highbush blueberry and winter berry. Ground cover consist of skunk cabbage, cinnamon fern, sphagnum moss and marsh fern with club moss present in the drier areas. This area has little potential for management and would be best left as is.

E. WILDLIFE

The Honey Hill tract consists of four major wildlife habitat types. These include upland shrub habitat, woodland, woodland with intermittent riparian habitat, and wooded swamp habitat.

Upland shrub habitat makes up 10+ acres (See Vegetation Type 3 in Figure 2.6). Most of this area consists of sapling size timber, with only occasional pole-size timber of red maple, red cedar, quaking aspen, black cherry, oak, birch and some sassafras.

A moderate amount of deer use is present in this habitat type. During the ERT's field review, deer tracks were observed, a ruffed grouse was heard, and various song birds were seen along the edges of small openings.

Creating additional "edge" in this area will benefit wildlife by providing additional feeding, resting and nesting sites. Such species as deer, grouse, fox, songbirds, doves, and rabbits will benefit from such management practices.

A few apple trees were observed in this area. These trees would benefit by removing those nearby trees competing with the apple trees for space and sunlight. Following such a "release" cutting, at least one year should be allowed for vigor, then proper pruning and fertilizing can be conducted.

In addition to the apple trees, some of the highbush blueberry bushes scattered throughout this area should be maintained. Additional open field and edge could then be provided by removing the rest of the brush trees.

A few dead trees (snags) and live trees with holes should be left throughout the 42+ acre parcel. Ideally 5 - 7 cavity trees should be left for each acre. Wildlife (cavity nesting birds) utilize these crucial areas for dens, resting and feeding.

Woodland habitat makes up 23 + acres on the property.

Incorporated within this habitat type are mixed hardwoods and a coniferous (white pine) plantation of 2+ acres.

Using proper thinning practices as discussed in the vegetation section of this report, along with creating brush piles, will benefit wildlife. Rabbits, mice and voles will benefit from such practices which in turn will benefit foxes, hawks, and owls.

Mixed hardwoods make up the greatest percentage of habitat on this property (21+ acres). Oak, maple, birch, tulip tree, basswood (occasionally), and hickory dominate this sapling and sawtimber woodland habitat type.

An occasional deer track and a wood thrush were observed in this area during the ERT's field review.

Enhancement of this area for general wildlife production can be accomplished by proper cordwood cutting with wildlife/forestry benefit, clearing canopy trees away from berry-producing brush, creating two one-half acre openings, and removing trees that are overcrowding mast (nut producing) trees.

Woodland with intermittant stream habitat makes up 7 + acres (see type C in Figure 2.6).

This habitat type is comprised of pole and saw timber size tulip trees, yellow birch, maple, and ash. High and low bush blueberry, winterberry, and barberry were found sparsely scattered throughout.

Habitat improvement potentials are limited in rocky and wet areas such as this habitat type.

Scattered cuts to open the canopy up around the berry bushes listed above would benefit wildlife. Areas like this can be expected to have deer, fox, raccoon, opossum, woodpeckers, thrushes, and various songbirds passing through during specific seasons.

Wooded swamp habitat makes up 1.5 + acres on this property. Dominant vegetation found here is red maple and white ash. The understory is made up of spice bush, highbush blueberry, winterberry, various mosses, cinnamon fern, and skunk cabbage.

Wildlife observed during the ERT's field review in this habitat type included raccoon tracks, vireo nests, warblers, and other unidentified songbirds. Species that also associate with this habitat type are woodpeckers, flycatchers, wood ducks, rose-breasted grosbeaks, some small mammals, reptiles and amphibians. Whitetail deer will occasionally utilize these wet areas, and foxes will utilize the edges of these areas for hunting.

Excavating the swamp for greater water availability and clearing a small $\frac{1}{4}$ acre opening within close proximity of the marsh would enhance the value of this habitat for wildlife.

F. PLANNING CONSIDERATIONS

The majority of this property offers excellent potential for the development of paths and trails. A number of trails presently exist on this site and there are opportunities for expanding this network. It would be desirable for the Land Trust to prepare maps of the existing (proposed) trail network to assist trail users.

As discussed in the preceding sections of this report, the Honey Hill property also has good potential for forest management, wildlife management, and additional passive recreation development. These opportunities should be further explored by the Land Trust.

Access to the Honey Hill site is available from the east via Rte. 57, Corsa Road, and Wampum Hill Road; and from the west via Rte. 7, Honey Hill Road and Wampum Hill Road. Access within $\frac{1}{2}$ mile of the site is difficult. Wampum Hill Road is a narrow, generally unimproved dead end road. It is difficult to park along this narrow road, and very difficult to park close to the enhance of the preserve. Private drives are required to turn around. Creation of a more acceptable parking area to service this preserve is recommended.

The land surrounding this preserve is either vacant land or low density (2 + acre lots) residential. Opportunities exist for expansion of this open space area if Wilton were to expand its land fill site eastward and convert it to a park.

* * * * *

ANDREWS FARM NATURE PRESERVE

III. ANDREWS FARM NATURE PRESERVE

A. TOPOGRAPHY AND GEOLOGY

The Andrews Farm parcel is essentially flat (See Figure 3.1). Only the easternmost 100 to 200 feet of the property has a significant slope, which is nevertheless smaller than 10 percent. The tract is actually the bottom of a shallow topographic basin.

Bedrock was not seen anywhere within the parcel. The surficial geology of the site consists primarily of deep peats and mucks. A screw auger inserted about 5 feet into the swamp near the southwestern corner of the tract retrieved alternating layers of brown peat and gray sand. Resistance to augering below that level suggests that till (commonly called "hardpan") underlies the swamp sediments. Till, a nonsorted, nonstratified glacial sediment consisting of clay, silt, sand, gravel, and boulders, also surrounds the swampy area. The peat within the swamp, if deep toward the center, may have a limited commercial value as garden humus.

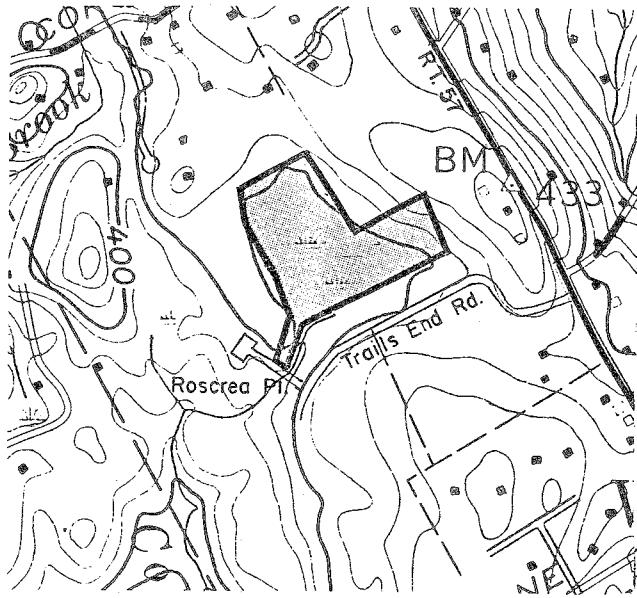
B. HYDROLOGY

Since the Andrews Farm parcel is a basin, surface drainage is received from almost every direction. The outlet stream for the basin begins near the southwestern corner of the property. The outlet channel is quite shallow and may have been artificially created many years ago. The channel flows westward into Cobb's Mill Brook, a tributary of the West Branch of Saugatuck River.

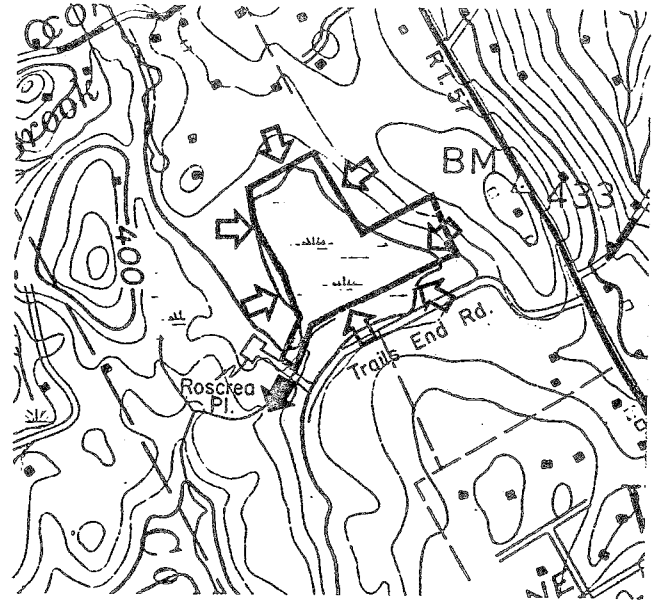
There was some question during the field review as to whether the Andrews Farm basin could properly be classified as a bog. The term "bog" may have different connotations when used in a colloquial sense or in a scientific sense. Different scientific disciplines, such as botany and hydrology, may also employ separate definitions. One proposed hydrologic criterion for a bog is that it be a self-contained basin; that is, a basin with no outlet stream. Since the Andrews Farm basin does have an outlet, it could not be considered a bog under this definition. In a botanical sense, "bog" generally refers to a wet basin with a community of vegetation that indicates relatively high acidity. Sphagnum moss, which are present at the site, is one plant common to bogs as so defined. However, numerous other indicator species, such as sundews, pitcher plants, black spruce, and cranberry, were conspicuous by their apparent absence. In addition, tussock sedge, which is more characteristic of swamps and marshes than of bogs, was observed at both the edge of the open water areas and within those areas. Hence, although the Andrews Farm basin has some of the topographic and botanical features of a bog and may, in fact, have been a bog in the past, it seems more reasonable to consider it a marsh at the present time.

The Andrews Farm parcel certainly has value from aesthetic, botanical, and wildlife viewpoints. The parcel also has hydrological value in terms of flood mitigation, since the basin temporarily stores surface runoff during storms and thereby reduces peak flows in its outlet stream. The basin also may reduce the sediment loads in the outlet stream and remove certain types of pollutants from the inflowing surface water and groundwater. Since the marsh seems to be a groundwater discharge area, it serves no aquifer-replenishment function, but it may help to maintain flows in the outlet stream during dry periods.

EXISTING CONDITIONS

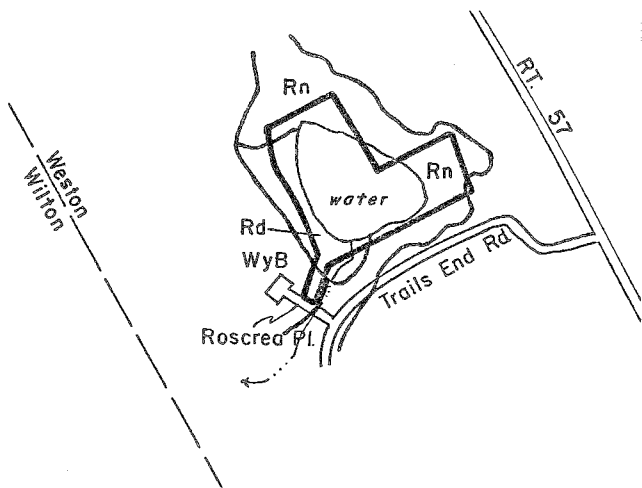


3.1 TOPOGRAPHIC MAP



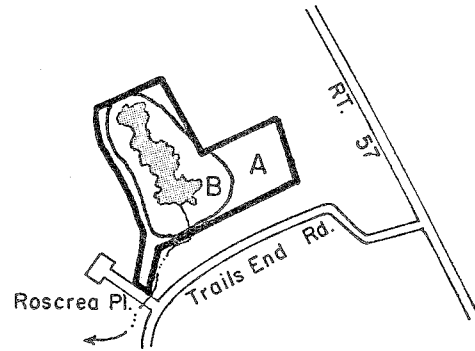
3.2 SURFACE WATER FLOW DIRECTIONS

↓ FLOW DIRECTION ↓ OUTLET



3.3 SOILS MAP

Adapted from Fairfield County Soil Survey, USDA - SCS




3.4 VEGETATION TYPE MAP

EXPLANATION*

TYPE A - HARDWOOD SWAMP, OVER-STOCKED, SAPLING TO POLE-SIZE, 4 ± ACRES.

TYPE B - OPEN SWAMP, UNDER-STOCKED, SEEDLING-SIZE, 3 ± ACRES.

 - OPEN WATER, 3 ± ACRES.

 - STREAM



SCALE: 1" = 1000'

* SEEDLING-SIZE = TREES LESS THAN 1" IN DIAMETER AT 4 1/2' ABOVE THE GROUND (D.B.H.)
 SAPLING-SIZE = TREES 1" - 5" IN D.B.H.
 POLE-SIZE = TREES 5" - 11" IN D.B.H.

The groundwater resources in the parcel are not especially significant. Bedrock would be the principal aquifer under the site. Since wells tapping bedrock generally afford only small yields, it is doubtful that the groundwater resources of the parcel would ever be used.

C. SOILS

In addition to the water ponded in the central portion of the site, three soil types have been identified on this property (See Figure 3.3). These include:

1. Rn -- Ridgebury, Leicester, and Whitman Extremely Stony Fine Sandy Loams

This inland wetland soil type is described in the soils section of the Honey Hill report.

2. Rd -- Ridgebury Fine Sandy Loam

This nearly level to gently sloping soil is also poorly drained. Slopes range from 0 to 5 percent.

Typically, this soil has a surface layer of very dark grayish brown fine sandy loam 8 inches thick. The subsoil is brown and brownish gray, mottled fine sandy loam 10 inches thick. The substratum is grayish brown and dark yellowish brown, mottled fine sandy loam to a depth of 60 inches or more.

This Ridgebury soil has a high watertable at a depth of about 6 inches from fall until late spring. The permeability of the soil is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. Available water capacity is moderate and runoff is slow.

The seasonal high watertable and the slow or very slow permeability in the substratum limit the use of this soil.

Recreation. These soils have severe or very severe limitations for picnic areas, camp sites, and play areas but have potential for conservation uses and environmental enhancement. Ponds are feasible in these areas, but difficulty of construction increases with the degree of stoniness.

Wildlife. These very poorly drained soils are not suited for the production of openland and woodland wildlife habitat. Dependable growth of desirable food and cover plants is hindered by their wetness. Habitat for wetland wildlife can be developed, improved, or maintained on these soils, but stoniness imposes difficulties in constructing water impoundments.

Woodland. Productivity for wood crops is fair to poor. Wetness poses severe problems in the use of equipment, the survival of tree seedlings, and the windthrow of trees. Competition from other plants is a problem.

Cropland. With drainage, the soils cleared of stones are suitable for the production of silage corn and adapted hay and pasture crops. The stoniness and wetness of these soils make them unsuitable for agricultural crops.

3. WyB -- Woodbridge Very Stony Fine Sandy Loam, 3 to 8 Percent Slopes

A narrow strip of this gently sloping, moderately well drained soil is located along the entrance to this property off Roscrea Place. Stones and boulders cover 1 to 5 percent of the surface.

Typically, this soil has a surface layer of very dark grayish brown fine sandy loam 6 inches thick. The subsoil is yellowish brown fine sandy loam 24 inches thick that is mottled on the lower part. The substratum is firm, grayish brown, mottled fine sandy loam to a depth of 60 inches or more.

This Woodbridge soil has a seasonable high watertable at a depth of about 20 inches from fall until late spring. The permeability of the soil is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. Runoff is medium, and available water capacity is moderate. The soil is very strongly acid to medium acid in the surface layer and subsoil, and very strongly acid to slightly acid in the substratum.

The slow or very slow permeability of the substratum and the seasonal high watertable limit the use of this soil.

Recreation. During the main season of use, the nonstony soils with less than 3 percent slope are favorable for picnic areas and camp sites. Drainage is needed to overcome the seasonal watertable on playing fields for intensive use and to extend the period of picnicking and camping. The limitations for recreational use increase on the steeper and more stony soils.

Wildlife. Habitat requirements of openland wildlife species can be established, improved, or maintained but stoniness adds difficulty in management. There are few or no soil limitations that affect the development or maintenance of woodland wildlife habitat. It is extremely difficult and expensive to develop wetland wildlife habitat on these soils.

Woodland. These soils have good productivity for wood crops. Both hardwoods and conifers are well suited. Competition from hardwoods is a serious problem when managing for pine, spruce, or larch. Hardwoods to favor on these soils are red oak, white ash, and sugar maple. Equipment operation is difficult on the stony soils.

Cropland. Cleared of stones, these soils are suited to the production of adapted legumes and grasses, late vegetables, and small fruits. With drainage, these soils are also suitable for the production of alfalfa, corn, orchards, and early vegetables. Erosion is a hazard on these soils and on the steeper slopes intensive surface water control measures are needed.

D. VEGETATION

As shown in Figure 3.4, two vegetation types are present on the property. These are discussed below.

TYPE A. HARDWOOD SWAMP. This 4 + acre stand is over-stocked with sapling to pole size red maple, black gum and occasional white ash. Many of these trees are damaged and slow growing. The understory species which are present include highbush blueberry, spice bush and sweet pepper bush. Ground cover consists of skunk cabbage, false hellebore, cinnamon fern, sensitive fern, marsh fern, wild geranium and touch-me-not. Management is severely limited by fragile poorly drained soils, poor access and the irregular shape of this tract.

TYPE B. OPEN SWAMP. A three acre open swamp is located around the open water which is present within this tract. Many shrub species are present; these include sweet pepper bush, highbush blueberry, leather leaf, button bush, red alder, red stemmed dogwood, swamp dogwood, silky willow and poison sumac. Other vegetation found on this property includes purple loose strife, spirea, tussock sedge, sphagnum moss, larger blue flag, common cattail and narrow-leaved cattail.

The Andrews Farm Nature Preserve offers a rare opportunity for the study of a variety of wetland environments. Three major wetland types (hardwood (wooded) swamp, open (shrub) swamp and open water) are found within this 10 + acre tract. The capacity for educational and recreational use of this tract could be vastly increased by the construction of a boardwalk. If funding is or becomes available for the construction of a boardwalk and perhaps a small observation tower, provision for continued maintenance to protect the initial investment should be made.

If a boardwalk is not constructed, it should be noted that fragile areas such as these can be severely degraded by foot traffic.

E. WILDLIFE

From a wildlife standpoint, the property may be classified into three habitat types. These include:

1. Deep Marsh (See Type B, Vegetation Map)

This type contains permanent water areas 0.2-1.0 meter deep in areas that allow establishment of rooted aquatic plants. Vegetation typically includes pondweeds, duckweed, white waterlily, watershield, and smartweed. A few emergents such as cattails will also occur in these shallow areas.

2. Shallow Marsh (See Type B, Vegetation Map)

This type is made up of permanent water less than 0.2 meters deep, and vegetated with cattails, wild rice, bulrushes, sedges, water willow, and common reed.

3. Shrub Swamp (See Type A, Vegetation Map)

This type contains occasionally flooded areas with shrub stands consisting of buttonbush, red maple, willows, dogwoods, highbush blueberry, viburnums, and sweet gale.

Observations

Deep and shallow marsh habitat makes up 30-40% of the preserve. Vegetation observed in this habitat type included waterlily, a few cattails, willow, some buttonbush, some sedges, common reed and some duckweed.

Wildlife species observed included various amphibians, red-winged blackbirds, mallards, and a few unidentified songbirds.

Shrub swamp makes up the rest of the preserve with hardwoods (oak-maple) dominating the borders. One water snake and a hairy woodpecker were observed in this area.

The combination of marsh and shrub swamp on this property makes for excellent wildlife habitat potential.

Listed below are several methods for improving the preserve for wildlife:

1. Use of a control structure to expose more water.
2. Cutting and/or planting vegetation to enhance wildlife habitat.
3. Developing resting, roosting, and nesting areas.

Use of a water control device could be beneficial for the marsh. With such a device, the preserve's water levels could be increased and maintained. Constant water levels are seasonally essential for proper wildlife management. With a control device, optimum management of food and cover conditions could be met.

Ideally, water levels of this marsh should be maintained at 0.5 to 0.75 meters. It should be noted that a control measure for complete drawdown of water should be included.

By developing a higher water level than what is there now, a larger open area can be created with surrounding shallow marsh areas. This would provide a more habitable environment for nesting waterfowl, muskrats, furbearing mammals, herons, rails, plovers, and sandpipers.

Vegetation management could be very beneficial to wildlife on this preserve. Clear-cutting trees to create at least two ½ acre herbaceous openings will attract greater diversities of wildlife. Den trees (snags) should not be cut. Putting up wood duck boxes, and providing floating logs or rafts as loafing sites will also help. Plantings of desirable vegetation such as buttonbush and willow along the edges of the pond could also be implemented.

Developing a boardwalk nature type trail with interpretive markings would be desirable, but should be confined to a relatively small area within the preserve. Too much human presence in a small wetland such as this could eliminate shy and potential nesting species.

F. PLANNING CONSIDERATIONS

As discussed in previous sections, Andrews Farm offers a rare opportunity for the study of a variety of wetland environments. Construction of a boardwalk for enhanced access to the site would increase potential for educational and recreational use of the property.

This site offers no potential for the management of forest products due to wetness but, as discussed, opportunities exist for wildlife habitat improvement.

Access to the site is available from the east via Trails End Road and Roscrea Place. The square "turnaround" at Roscrea Place provides very satisfactory parking space for the site.

Surrounding land use is primarily large lot residential (2+ acre lots) and is generally compatible with the proposed use of the Andrews Farm parcel. There appear to be no significant opportunities for linking this parcel with nearby open space areas.

* * * * *

STONEBRIDGE WILD FOWL SANCTUARY

IV. STONEBRIDGE WILD FOWL SANCTUARY

A. TOPOGRAPHY AND GEOLOGY

Most of the Stonebridge parcel lies within the relatively flat valley of the West Branch of Saugatuck River (See Figure 4.1). The eastern half of the northern section is characterized by a rounded ridge that rises only about 10 to 15 feet above the wet valley floor. At the eastern border of this section, the ridge slopes gently into a swale whose elevation is consistent with or slightly higher than the elevation of the main floodplain of the river. The ridge terminates at the southern end of this section as the river swings southeastward toward Newtown Turnpike. In the southern section of the parcel, the land rises steeply from the river to Newtown Turnpike, which is 150 feet or less from the river in this area. The northeastern flank of a small, rocky hill juts into the western portion of the southern parcel.

Bedrock was not seen in outcrop on the Stonebridge parcel. Analysis of local topography and areas of bedrock outcrop suggests that bedrock is close to the surface (within 10 feet) only in the western portion of the southern section. The rock underlying the site is believed to be primarily medium- to coarse-grained, poorly to well-foliated, gray to buff gneiss, composed of the minerals plagioclase, quartz, microcline, muscovite, and biotite, with accessory opaques, chlorite, apatite, garnet, zircon, and sphene. A "gneiss" is a metamorphic (geologically altered) rock in which layers of granular minerals alternate with thin layers of elongate minerals. The rock underlying the parcel is not thought to be economically valuable.

The surficial geology of the Stonebridge parcel (See Figure 4.2) consists predominantly of stratified drift. The term "stratified drift" refers to sediments that were deposited by meltwaters that issued from wasting glacier ice. The valley of Saugatuck River contains abundant stratified drift deposits. Most of the sediment is gravel and sand; finer particles were generally washed further downstream by the rapidly flowing meltwaters. The deposit may have commercial value as a source of construction aggregate and it may have a moderate to high groundwater-supply potential. The thickest stratified drift is found in the ridge in the northern section. The total thickness of the deposit is not known but it probably exceeds 30 feet.

Saugatuck River has carved its floodplain into the stratified drift, and has transported and redeposited the eroded sand and gravel. Sandy river-deposited sediments (alluvium) cap the stratified drift on the floodplain. The alluvial sediments are probably no more than 5 feet thick. Organic material, in the form of partially decayed plant matter, is mixed with silty alluvium in some of the wetter, more stagnant areas of the floodplain.

Till, a sediment deposited directly from glacier ice, covers the hill in the westernmost portion of the southern section of the parcel. The till consists of a nonsorted, nonstratified collection of clay, silt, sand, gravel, and boulders. The texture of the till may be sandy and stony in the upper few feet, and siltier and tightly compact at depth.

FIGURE 4.1

TOPOGRAPHIC MAP






FIGURE 4.2

SURFICIAL GEOLOGY

SCALE: 1" = 1000'



EXPLANATION

-  STRATIFIED DRIFT
-  ALLUVIUM
-  TILL

B. HYDROLOGY

The stratified drift deposits on the site have potential for the development of high-yielding or moderately yielding groundwater-supply wells. On-site testing would be needed to explore this potential further. If a high-yielding well were established on the site, part of the water withdrawn would almost certainly be derived from the nearby West Branch of Saugatuck River. Protection of the river's quality would therefore be important to protection of the site's water-supply potential. The present quality of the river is good.

The U.S. Geological Survey has published certain streamflow records for Saugatuck River's West Branch in Connecticut Water Resources Bulletin No. 18. The records were made at a gaging station on Cedar Road, just north of the site. The river's drainage area at the point is 9.20 square miles. The records are generally indicative of low-flow conditions. The lowest flow included in the printed records is 0.08 cubic feet per second (0.05 million gallons per day), recorded on August 17, 1964. The table below gives daily flow durations at the gaging station.

Table 1. Duration of daily flow at Cedar Road gaging station, West Branch Saugatuck River, Wilton.
(taken from Conn. Water Resources Bull. No. 17) All flows are given in units of million gallons per day.

Flow equalled or exceeded for indicated percentages of time

Average Flow	1	5	10	20	30	40	50	60	70	80	90	95	99
10.9	75	37	26	17	12	8.5	6.0	3.9	2.2	1.0	.42	.20	.06

The 1974 federal Flood Hazard Boundary Map for the town of Wilton shows the approximate extent of the property that would be subject to inundation by storms of 100-year-average frequency. Smaller areas would be flooded by storms of greater frequency. The relevant portion of the federal map is reproduced in this report (See Figure 4.3).

C. SOILS

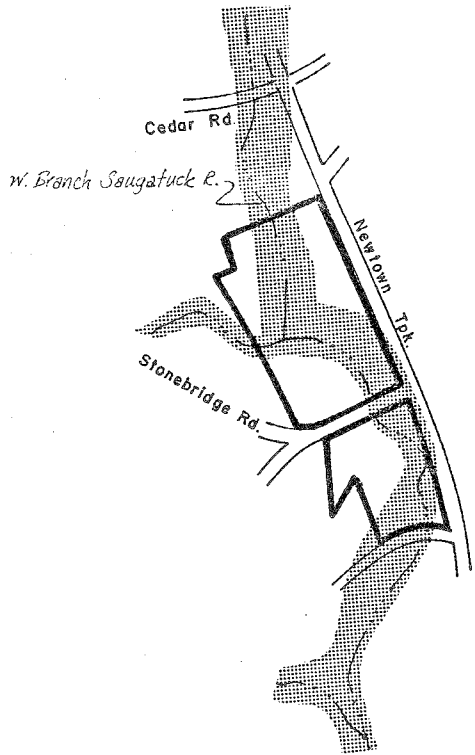
As shown in Figure 4.4, three major soil types are present on the Stonebridge Wild Fowl Sanctuary. These are described below.

1. Wd -- Walpole Fine Sandy Loam

This nearly level poorly drained soil occupies most of the property.

Typically, this soil has a surface layer of black fine sandy loam 6 inches thick. The subsoil is grayish brown and is 14 inches thick. The upper 7 inches is mottled fine sandy loam, and the lower 7 inches is mottled

FIGURE 4.3
FLOODPRONE AREA MAP



• ADAPTED FROM FLOOD HAZARD BOUNDARY MAP H, TOWN OF WILTON, CONN., BY U.S. DEPT. HOUSING & URBAN DEV., MARCH 15, 1974

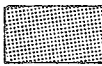
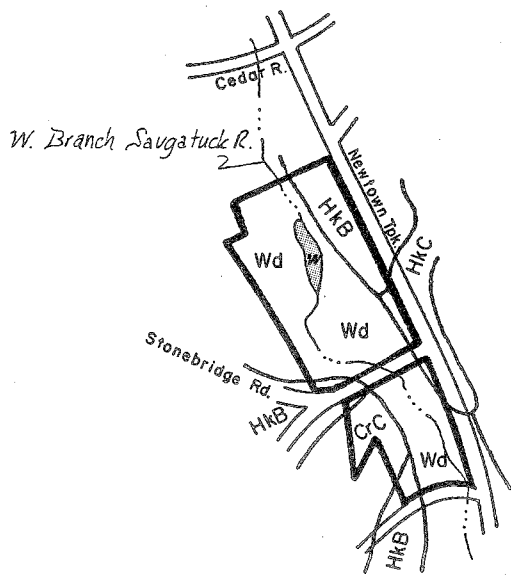
 APPROXIMATE 100-YEAR FLOODPRONE AREA.



FIGURE 4.4
SOILS MAP



• ADAPTED FROM FAIRFIELD COUNTY SOIL SURVEY, U.S.D.A. - S.C.S.

SCALE:
1" = 1000'

gravelly sandy loam. The substratum is brown gravelly loamy sand to a depth of 60 inches or more.

The Walpole soil has a seasonal high watertable at a depth of about 6 inches from fall until spring. The permeability of the soil is moderately rapid in the surface layer and subsoil and rapid or very rapid in the substratum. Available water capacity is moderate, and runoff is slow. The soil is very strongly acid to medium acid.

The high watertable limits the use of this soil.

Recreation. These soils have severe and very severe limitations for picnicking, camp sites, and play areas. However, these soils have potential for development of ponds and conservation use for environmental enhancement.

Wildlife. These poorly drained soils are not suited for the production of openland wildlife habitat. Habitat required by woodland and wetland wildlife species can be developed, improved, or maintained but moderate treatment is required.

Woodland. Productivity for wood crops ranges from fair to poor. The wetness of these soils poses severe problems in the use of equipment, survival of tree seedlings, and windthrow of trees. Plant competition is moderate on the poorly drained soils and severe on the very poorly drained soils.

Cropland. These soils are generally unsuited for agricultural crops. With drainage, these soils can be used to produce silage, potatoes, hay and vegetables.

2. HkB, HkC -- Hinckley Gravelly Sandy Loam (3 to 8, 8 to 15% Slopes)

This gently sloping, excessively drained soil is found along the eastern border and southwestern corner of the property.

Typically, the surface layer is dark brown gravelly sandy loam 5 inches thick. The substratum is 10 inches thick. The upper 4 inches is strong brown gravelly sandy loam, and the lower 6 inches is dark brown gravelly loamy sand. The substratum is light olive brown gravelly sand to a depth of 60 inches or more.

The permeability of this Hinckley soil is rapid in the surface layer and subsoil and very rapid in the substratum. Runoff is slow, and available water capacity is very low. The soil dries out and warms up early in spring. It is very strongly acid to medium acid.

Recreation. These soils have moderate limitations for camp areas, picnic areas, and paths and trails. Small stones and sandiness are limiting factors which need to be overcome.

Wildlife. These soils are poorly suited for wildlife habitat management due to their droughtiness which makes establishment of vegetation difficult.

Woodland. These soils are generally suitable for woodland management, however seedling mortality is a hazard due to droughtiness. Trees to plant in open areas include eastern white pine and European larch.

Cropland. This soil is suitable for cultivated crops, but droughtiness is a limitation.

3. CrC -- Charlton-Hollis Fine Sandy Loams, Very Rocky, 3 to 15 Percent Slopes

This complex consists of gently sloping and sloping, well drained and somewhat excessively drained soils on hills and ridges. Stones and boulders cover 1 to 5 percent of the surface and exposed bedrock up to 10 percent of the surface.

The complex is about 50 percent Charlton soils, 25 percent Hollis soils, and 25 percent other soils and exposed bedrock. The Charlton and Hollis soils are so intermingled on the landscape that it was not practical to map them separately.

Typically, the Charlton soils have a surface layer of very dark brown fine sandy loam 3 inches thick. The subsoil is strong brown and yellowish brown fine sandy loam 26 inches thick. The substratum is light olive brown gravelly sandy loam to a depth of 60 inches or more.

Typically, the Hollis soils have a surface layer of very dark grayish brown fine sandy loam 3 inches thick. The subsoil is dark yellowish brown fine sandy loam that extends to bedrock at a depth of 17 inches.

These Charlton and Hollis soils have moderate or moderately rapid permeability. Runoff is medium to rapid. Available water capacity is moderate in the Charlton soils and low in the Hollis soils. They are very strongly acid to medium acid.

The major limitations of this complex are the shallow depth to bedrock in the Hollis soils, the areas of exposed bedrock, and the stones and boulders on the surface.

Recreation. Picnic areas and camp sites are very difficult to develop and access is usually a severe limitation. However, the terrain provides an attractive setting for these uses.

Wildlife. These soils are poorly suited for the production of openland wildlife habitat. The habitat for woodland wildlife species can be established, improved, or maintained but moderate treatment is required. It is impractical to develop wetland wildlife habitat on these soils.

Woodland. The productivity of most of this land is poor for wood crops. Pockets of deeper soil within these areas have fair productivity. Equipment operation is very difficult because of rock outcrops. Seedling survival and windthrow of trees are problems on the shallower areas.

Cropland. These soils are not suited for the production of cultivated crops because of rock outcrops and shallowness. Scattered areas with deeper soils and less numerous rock outcrops may be used for improved hay, pasture, and orchard.

D. VEGETATION

As shown in Figure 4.5, four vegetation types are present at the Stonebridge Wild Fowl Sanctuary. These are described below.

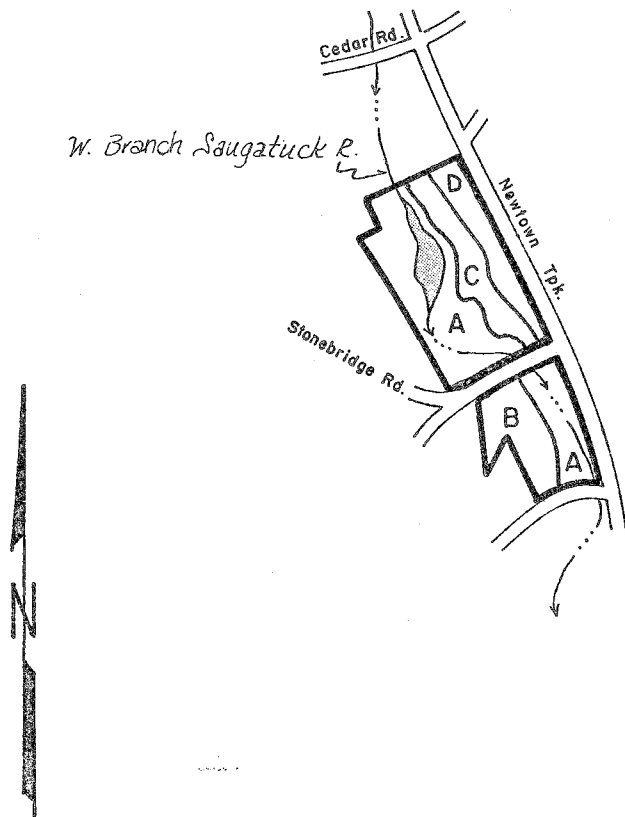
TYPE A. MIXED HARDWOODS/STREAMBELT. This 10+ acre area which borders the West Branch of the Saugatuck River is made up of medium to medium low quality (pole to sawtimber-size) red maple, white ash, shagbark hickory, scarlet oak, and yellow birch with occasional sugar maple, American elm and black birch. Stocking levels are extremely variable in this stand. A dense understory is present throughout this area which includes spice bush, sweet pepperbush, hemlock seedling, highbush blueberry, witch-hazel, multiflora rose, elderberry, blue beech, arrowwood, winterberry and red osier dogwood. Vine species which have become established in the overstory vegetation are fox grape, summer grape, green brier, virginia creeper and poison ivy. Forming the ground cover in this area are skunk cabbage, false hellebore, sensitive fern, cinnamon fern, marsh fern, royal fern, wild geranium, solomons seal, false solomons seal, tall meadow rue, jewel weed, rough bedstraw and barberry. Poor access through the poorly drained soils and poor operability limit management of this stand for timber products.

TYPE B. MIXED HARDWOODS. Pole to sawtimber-size black oak, red oak, white oak, shagbark hickory, black birch and scattered american beech are present in this 3 + acre fully-stocked stand. Understory vegetation includes maple leaved viburnum, hardwood tree seedlings, blue beech and witch hazel. Ground cover consists of club moss, huckleberry, canada mayflower, dewberry, poison ivy, virginia creeper, wild sarsaparilla, hay scented fern, christmas fern, and rock polypody near boulders and outcrops. The trees in this stand are becoming crowded and as a result are beginning to decline in health and vigor. A thinning following the "crop tree selection method" would reduce competition between residual trees and eventually result in a healthier more vigorous stand.

Under the "crop tree selection method", 100 of the highest quality trees in each acre should be identified (trees spaced about 20' x 20' will equal 100 trees per acre), and one, two, or three trees that are in direct competition with each of those identified should be removed. The 100 trees per acre that are selected as crop trees should be healthy, large crowned, and show little or no signs of damage. Trees which are not competing with the 100 selected trees should not be removed, unless they are severely damaged. This thinning, if implemented, will provide between 5 and 6 cords of fuelwood per acre.

TYPE C. OPEN FIELD. Approximately three acres of open fields which are periodically mowed are present on this tract. This field is vegetated with grasses, common cinquefoil, and small patches of goldenrod. If the land trust has difficulty in the future finding a custodian to mow this field, it could


FIGURE 4.5
VEGETATION TYPE MAP



SCALE: 1" = 1000'

VEGETATION TYPE DESCRIPTIONS*

- TYPE A Mixed hardwood/streambelt, 10+ acres variably-stocked, pole to sawtimber size.
- TYPE B Mixed hardwoods, 3+ acres fully-stocked, pole to sawtimber size.
- TYPE C Open field, 3+ acres.
- TYPE D Old field, 2+ acres, under-stocked, seedling to sapling size.

 Pond, 3± acres.

*Seedling size = trees less than 1" in diameter at 4½' above the ground (D.B.H.)
 Sapling size = trees 1" to 5" in D.B.H.
 Pole size = trees 5" to 11" in D.B.H.
 Saw timber = trees 11" and greater in D.B.H.

be planted to a combination of eastern white pine, european larch and hemlock in a random mixture eight to ten feet apart. This planting would increase the vegetative variety of this tract, improve cover for wildlife, improve the aesthetic value of the area, and eventually provide forest products. If mowing ceases and planting is not undertaken, woody brush species such as those in the old field area described below will become established.

TYPE D. OLD FIELD. This 2 + acre old field is understocked with seedling to sapling-size red maple, black cherry, eastern red cedar and apple trees. The shrub species which are present include multiflora rose, graystemmed dogwood, silky willow, smooth sumac, staghorn sumac, highbush blueberry, arrowwood and bayberry. Several species of grasses are present along with sedge, goldenrod, raspberry, common cinquefoil, wild strawberry, yarrow, queen ann's lace, black-eyed-susan, ox-eye-daisy, milkweed, morning glory, hop clover and white clover. If desired, this field could be planted with the above mentioned conifers. This planting would provide the same benefits discussed above.

E. WILDLIFE

An excellent composition of woodlands, wetlands, upland fields and old fields make this area an important wildlife sanctuary. With simple wildlife management practices and follow-up procedures, a productive general wildlife and waterfowl sanctuary can exist.

The wetland habitat type encompasses 9 + acres on this property. This includes a 2+ acre fresh water pond and 7+ acres within the streambelt of the West Branch of the Saugatuck River. (See Vegetation Type A in Figure 4.5).

Numerous mallards, 2 domestic muscovys, 1 pair of swans, 2 geese, and a bittern were observed. This area can be inhabited by seasonal migrating waterfowl, and has a nesting potential for waterfowl. It should be noted that mute swans (introduced from Europe) and muscovy ducks (native of Mexico) will have a negative impact toward native waterfowl breeding potentials.

Putting up wood duck boxes (six/acre of water), providing floating logs or rafts as loafing sites for waterfowl, along with periodic brush cutting for diversity of vegetative types on the numerous islands will increase breeding potentials. Wood duck boxes should be mounted on poles in the water.

The vegetation along the streambelt is made up of maples, hickories, oaks, birches, and an occasional elm. A dense understory of vegetation is present, which is very beneficial to wildlife for cover and feeding. Evergreens could be planted in less desirable vegetation areas to further enhance wildlife habitat.

The woodland habitat type consists of a mixed hardwood successional stage with 6 + acres of this habitat type found on the property (Type B along with the outer limits of Type A in Figure 4.5).

White, black, and red oak, shagbark hickory, American birch, and black birch make up the dominant vegetation throughout this area. Implementation of the aforementioned vegetation management practices along with creating a few small $\frac{1}{4}$ acre clearings will develop an "edge" effect. Wildlife species thrive in areas where 2 habitats meet. A sufficient number of den trees (4-7 per acre) should be left for wildlife. Den trees include both dead trees and live trees with cavities.

Upland habitat makes up 5+ acres on the sanctuary and includes both open field (3+ acres) and old field (2+ acres).

Along the edge of the mowed field, wildlife trees and shrubs of high value to wildlife could be planted. Heavy seed-, berry-, and fruit-producing species like Autumn Olive, Russian Olive, dogwood and thornapple are recommended.

Most ground nesting wildlife are found along the edges of fields. To avoid disturbing the important nesting cover, the fields on this property should be mowed only after nesting is over (i.e. mid July).

Creating and maintaining additional openings of $\frac{1}{4}$ - $\frac{1}{2}$ acre in size at the sanctuary will bring about a greater diversity of wildlife.

The old field with seedling to sapling size red maple, black cherry, and eastern red cedar could be cut back to maintain the early successional stage growth like highbush blueberry, raspberry, blackberry, strawberry, etc. Species which are present, and should be left, are apple (prune for better fruit production), highbush blueberry, graystemmed dogwood, and multiflora rose. The more varied the cover, the more abundant the wildlife.

The Stonebridge Wild Fowl Sanctuary offers excellent habitat for wildlife. Species which are likely inhabiting the area include rabbits, pheasants, woodchucks, and a variety of birds and mammals in the field; grouse, woodchuck, raccoon, woodcock, deer, and a variety of birds and mammals in woodlands with openings; and waterfowl, beaver, muskrat, various rails, great blue heron, and a variety of birds and mammals in the wetlands. Management of this property as discussed herein will help maintain and improve this area for a variety of wildlife.

F. PLANNING CONSIDERATIONS

A pleasant trail network has been established on this site and the entire area offers excellent wildlife habitat. Opportunities exist for both forest management of the woodland and wildlife habitat improvement, as discussed in preceding sections. Every effort should be taken to maintain the open field on this site by periodic mowing. The open field is scenic, offers good wildlife habitat, and provides an agricultural product. Due to the seasonal wetness of much of this site, recreational use should probably be limited to the trail network and associated activities.

Access to the Stonebridge site is available from the east via the Newtown Turnpike and Stonebridge Road. A very limited amount of parking is available along Stonebridge Road, however creation of a small parking area on-site should be considered.

Surrounding land use is primarily large lot residential (2+ acre lots) and is compatible with the anticipated use of the Stonebridge parcel. There appear to be no opportunities for linking this parcel with nearby open spaces.

* * * * *

TWIN BRIDGES NATURE PRESERVE

V. TWIN BRIDGES NATURE PRESERVE

A. TOPOGRAPHY AND GEOLOGY

The Twin Bridges parcel consists of part of a broad glacial terrace and its adjoining river floodplains. The section of the parcel that is southeast of the Glendenning access road is primarily a flat floodplain area, bounded to the northwest by a steep terrace face (See Figure 5.1). The terrace, which is approximately 20-30 feet higher in elevation than the floodplain, occupies most of the remainder of the tract. An enclosed depression in the northeastern section adjacent to the Glendenning access road forms a distinct break in the relatively even terrace surface. Just north of the depression is a larger basin, but only the southern periphery of the latter lies within the site. At the southwestern tip of the parcel, the land drops gradually toward another floodplain surface, which may have been slightly raised by filling to create a parking area.

Bedrock was not seen in outcrop on the site. Bedrock underlying the property is presumed to be a medium-to coarse-grained, poorly to well-foliated, gray to buff gneiss composed of the minerals plagioclase, quartz, microcline, muscovite, and biotite, with numerous accessory minerals. A gneiss is a metamorphic (geologically altered) rock in which thin layers or bands of elongate, platy, or flaky minerals alternate with layers of granular mineral grains. The rock underlying the Twin Bridges parcel does not have any significant economic value.

The surficial geology (See Figure 5.2) of the higher portions of the site consists of the stratified sands and gravels (stratified drift) of a glacial terrace. These sediments were deposited by meltwaters, which washed the rock debris from wasting masses of ice. A well drilled into the terrace just north of the property penetrated 17 feet of fine to very fine sand and silt, 13 feet of poorly sorted sand and gravel, and 38 feet of well-sorted sand and gravel before encountering bedrock. A large open hole on the site itself showed approximately 4 feet of fine materials over at least 2 feet of pebble gravel and cobble gravel. The gravels and sands also underlie the lower, floodplain portions of the property, but the surface sediments in those areas include several feet of silt, sand, and gravel that were deposited by the modern branches of Saugatuck River and by Aspetuck River. A large natural basin in the northeastern section of the site was formed when a block of glacier ice, buried by stratified drift, melted, allowing the sediments to collapse. The stratified drift on the parcel may have commercial value as a source of construction aggregate.

B. HYDROLOGY

The Twin Bridges parcel is bounded roughly by the West Branch of Saugatuck River and by Aspetuck River (See Figure 5.3). The main, East Branch of Saugatuck River flows through the eastern section of the site. Aspetuck River and the East Branch of Saugatuck River converge at the southeastern tip of the parcel. The two Saugatuck River branches converge just south of the site. Part of the western third and most of the eastern third of the tract is

FIGURE 5.1
TOPOGRAPHIC MAP

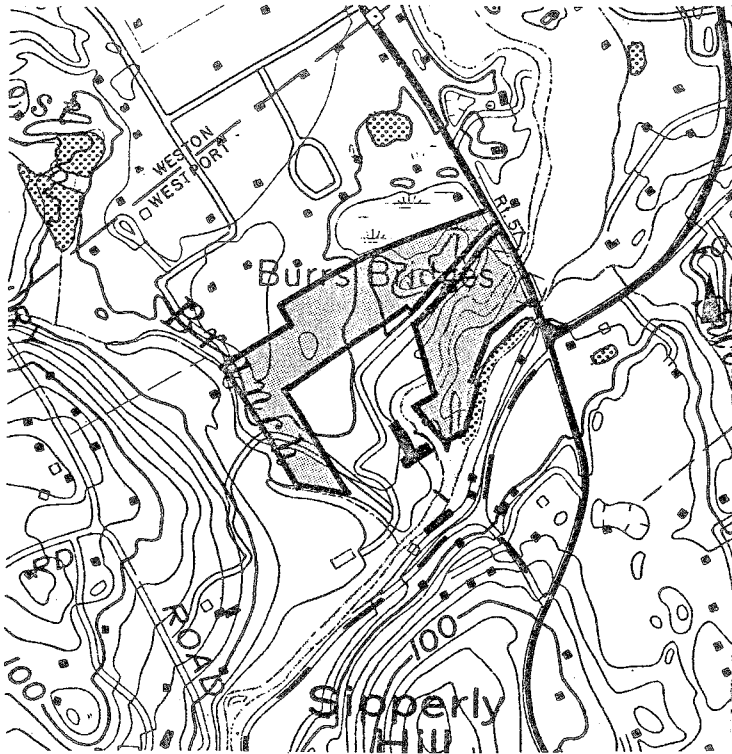


FIGURE 5.2
SURFICIAL GEOLOGY

SCALE: 1" = 1000'



Explanation

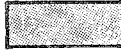
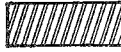
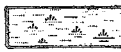



-  Stratified drift
-  Alluvium (floodplain sediments)
-  Swamp sediments
-  Glacial kettle location


FIGURE 5.3
DRAINAGE AREAS



Explanation

 Drainage area boundary: surface water to west drains to West Branch Saugatuck River; surface water to east drains to East Branch Saugatuck River.

 Drainage area boundary: surface water to west drains to East Branch Saugatuck River; surface water to east drains to Aspetuck River.

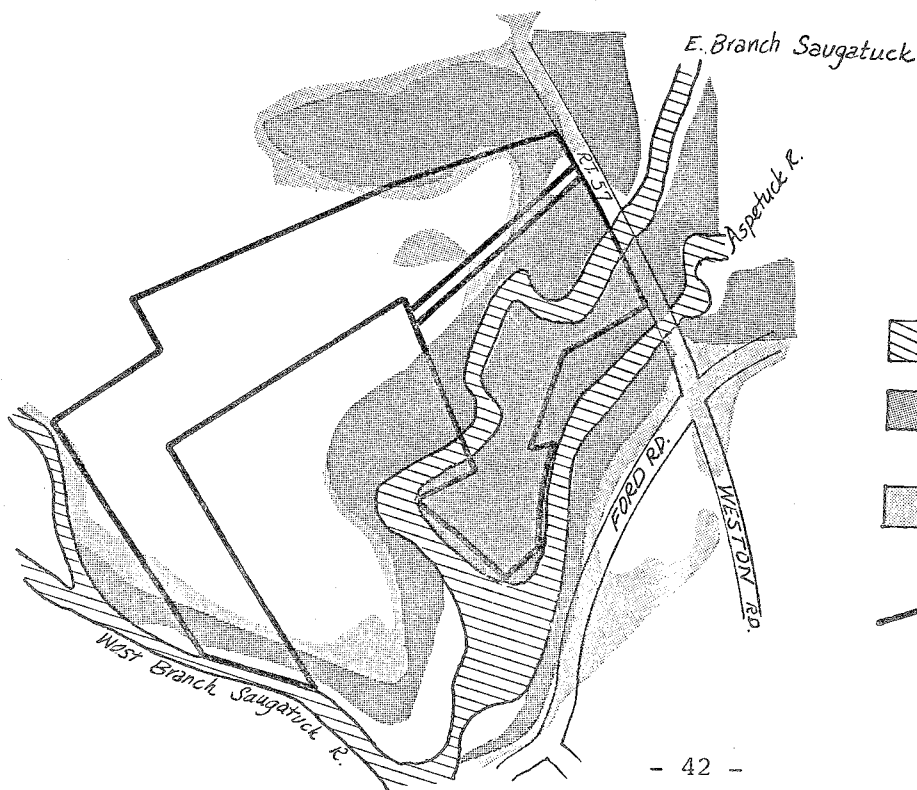
 Flow direction.



1" = 1000'

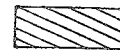
FIGURE 5.4
FLOOD BOUNDARY & FLOODWAY MAP

(reproduced from Flood Insurance Study for Town of Westport, CT, by U.S. Dept. Housing & Urban Dev., July 2, 1980)



1" = 500'

Explanation



Floodway



Additional area subject to 100-year frequency flood.



Additional area subject to 500-year frequency flood.



Approximate property boundary.

floodplain. The relevant portion of the 1980 Federal Flood Boundary and Floodway Map for the town of Westport is reproduced in Figure 5.4 of this report.

The sand and gravel deposits in and around the parcel have been identified in Connecticut Water Resources Bulletin No. 17 (hereafter "Bulletin 17") as one of five favorable areas for large-scale groundwater-supply development in the Connecticut panhandle region. The Bridgeport Hydraulic Company has already established a well or wells in these deposits not far from the site. In 1965, approximately 2.6 percent of the company's total supply (approximately 21,950 million gallons for the year) was derived from this well field. The present supply status was not determined by the Team. The U.S. Geological Survey estimates that groundwater could be withdrawn from the favorable area (the "aquifer") at a mean rate of 7.3 million gallons per day on an annual basis, and that this mean rate could be exceeded 7 years out of 10. However, Bulletin 17 notes that the aquifer has already been almost fully developed. While a high-yielding groundwater well might therefore be able to be established on the site, such a development might actually interfere with the operation of existing wells or might deplete the groundwater reserves seriously.

C. SOILS

As shown in Figure 5.5, the Twin Bridges property consists of three principal soil types.

1. AfA -- Agawam Fine Sandy Loam, 0 to 3 Percent Slopes

AfB -- Agawam Fine Sandy Loam, 3 to 8 Percent Slopes

These nearly level, well-drained soils occupy the western 50% of this parcel.

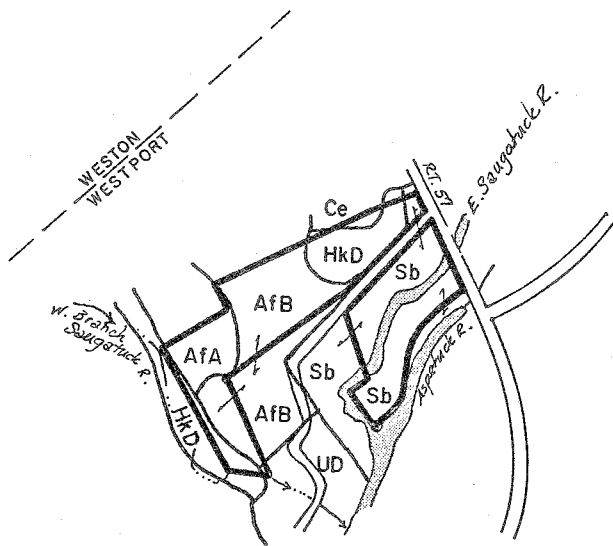
Typically, the surface layer is dark brown fine sandy loam 9 inches thick. The subsoil is brown fine sandy loam 20 inches thick. The substratum is light yellowish brown and pale olive sand to a depth of 60 inches or more.

The permeability of these Agawam soils is moderately rapid in the surface layer and subsoil, and rapid in the substratum. Runoff is slow, and available water capacity is moderate.

Recreation. These soils have slight or moderate limitations for picnic areas and camp sites. The level soils are favorable for play areas, but limitations for this use increase on soils having slopes above 2 percent. The potential for recreational use of these soils is enhanced by their proximity to streams and sites with potential for water development.

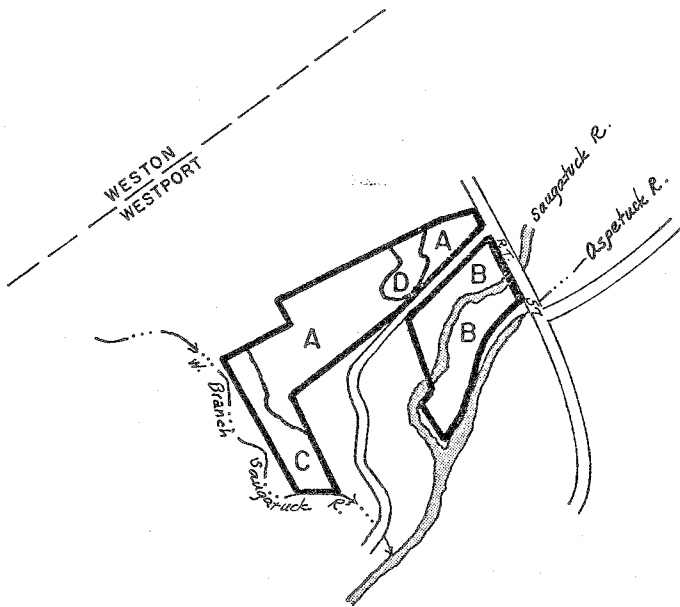
Wildlife. Habitat for openland and woodland wildlife species is easily established, improved or maintained on these soils. They are well suited for the dependable growth of a wide variety of desirable food and cover plants. It is impractical to develop habitat for wetland wildlife on these soils.

FIGURE 5.5
SOILS MAP



• ADAPTED FROM FAIRFIELD COUNTY SOIL SURVEY, U.S.D.A - S.C.S.

FIGURE 5.6
VEGETATION TYPE MAP



SCALE: 1" = 1000'

EXPLANATION

- TYPE A Old Field. Under-stocked, pole-size, 9+ acres.
- TYPE B Hardwood swamp. Under-stocked, pole to sawtimber-size, 7+ acres.
- TYPE C Softwoods/hardwoods. Fully to over-stocked, sapling to sawtimber-size, 3+ acres.
- TYPE D Mixed hardwoods. Fully-stocked, pole-size, 1+ acres.

*Seedling size = trees less than 1" in diameter at 4½' above the ground (D.B.H.)
 Sapling size = trees 1" to 5" in D.B.H.
 Pole size = trees 5" to 11" in D.B.H.
 Saw timber = trees 11" and greater in D.B.H.

Woodland. Productivity for wood crops ranges from fair on the sandy loam soils to good on the silt loam soils. Both hardwoods and conifers are well suited. Competition from hardwoods is a problem when managing for pine, spruce, or larch.

Cropland. These soils are suitable for the production of all agricultural crops adapted to the area. Supplemental irrigation is needed to assure necessary production levels for crops with a high cash return. Erosion is a hazard on these soils. Intensive surface water control measures are needed on slopes above 8 percent.

2. HkD -- Hinckley Gravelly Sandy Loam, 15 to 35% Slopes

This moderately steep to steep, excessively drained soil is located in the northeastern corner of the site.

Typically, the surface is dark brown gravelly sandy loam 3 inches thick. The subsoil is 11 inches thick. The upper 5 inches is strong brown gravelly sandy loam. The lower 6 inches is dark brown gravelly loamy sand. The substratum is light olive brown gravelly sand to a depth of 60 inches or more.

The permeability of this Hinckley soil is rapid in the surface layer and subsoil and very rapid in the substratum. Runoff is rapid, and available water capacity is very low. The soil is very strongly acid to medium acid. The hazard of erosion is severe.

Recreation. The soil presents severe limitations for most recreational uses due to steep slopes. Paths and trails are feasible although sandiness and small stones may be somewhat problematic.

Wildlife. Due to steep slopes and droughtiness, wildlife habitat management of these soil areas is difficult.

Woodland. These areas have fair potential for woodland management. Steep slopes limit equipment operation and seedling mortality is typically severe in these areas due to droughtiness.

Cropland. Due to steep slopes, agricultural use of these soils is not feasible.

3. Sb -- Saco Silt Loam

This nearly level, very poorly drained soil is located astride the Saugatuck River.

Typically, this soil has a surface layer of black silt loam 14 inches thick. The substratum is dark gray and is 27 inches thick. The upper 20 inches is silt loam, and the lower 7 inches is very fine sandy loam. The substratum is dark gray gravelly sand to a depth of 60 inches or more.

This Saco soil is subject to frequent flooding. The watertable is at or near the surface most of the year. The permeability of the soil is moderate in the surface layer and subsoil and rapid or very rapid in the substratum. Runoff is very slow, and water is ponded on the surface of some areas. Available water capacity is high. The soil is strongly acid to slightly acid above a depth of 30 inches and medium acid to neutral below a depth of 30 inches.

The frequent flooding and high watertable limit this soil for most uses.

Recreation. These areas have very severe limitations for picnic areas, camp sites, and play areas.

Wildlife. These very poorly drained soils are not suited for the production and management of woodland wildlife habitat. The habitat requirements of wetland wildlife habitat can be developed, improved, or maintained but moderate treatment is required.

Woodland. Productivity of wood crops ranges from fair to very poor depending on the degree of wetness. Wetness causes severe problems in the use of equipment, the survival of tree seedlings, tree windthrow, and competition from other plants.

Cropland. When partly drained, these soils can be used for hay and silage corn. Frequent flooding and the lack of suitable outlets usually make drainage for other cultivated crops impractical. These soils are unsuited to the production of agricultural crops because of wetness and frequent flooding.

D. VEGETATION

Figure 5.6 shows the distribution of vegetation types on this property. The four types present are discussed below.

TYPE A. OLD FIELD. This 9+ acre old field is under-stocked with pole size eastern red cedar, eastern white pine, black cherry, black locust, big tooth aspen, gray birch, scarlet oak, and white oak with widely scattered pitch pine and patches of seedling size scotch pine planted near the access road. Shrub species which are present include highbush blueberry, smooth sumac, staghorn sumac, male berry, bayberry, hawthorn and occasional apple. Ground cover is made up of grasses, sedges, steeple bush, golden rod, wild strawberry, common cinquefoil, pink lady slipper, canada mayflower, hay scented fern, poison ivy, huckleberry and sweet fern.

TYPE B. HARDWOOD SWAMP. Pole and sawtimber size red maple, white ash, american elm, and yellow birch are present in this understocked 7 + acre stand along with scattered eastern white pine and sycamore. Many of the trees are supporting vine species. These vine species include poison ivy, fox grape, summer grape, virginia creeper and oriental bittersweet. The trees in this area are generally unhealthy and of poor quality. The understory is made up of spice bush, highbush blueberry, red osier dogwood, privet,

hemlock seedlings, elderberry and staghorn sumac. Ground cover vegetation consists of skunk cabbage, sphagnum moss, poison ivy, tall meadow rue, jewel weed, enchanter's night shade, canada mayflower, club moss, tussock sedge, sensitive fern, cinnamon fern, jack-in-the-pulpit, solomon's seal, false solomon's seal, and wild geranium. Management opportunities are severely limited by the poorly drained soils which are present.

TYPE C. SOFWOODS/HARDWOODS. Approximately 3 acres of this parcel is vegetated with sapling to sawtimber size eastern white pine, eastern hemlock, red oak, sugar maple, red maple, black cherry and occasional american beech. This stand ranges from fully-stocked near the old field areas to over-stocked near the stream to the west. White pine seedlings, hemlock seedlings, winged euonymus, spice bush, highbush blueberry, multiflora rose, flowering dogwood and witch hazel form a dense understory in this stand. Ground cover is made up of virginia creeper, poison ivy, barberry, blue violet, oriental bittersweet, fox grape, green brier and enchanter's nightshade. A fuelwood thinning in this stand to reduce the crowded condition would be beneficial. No more than 1/3 of the total number of trees should be removed. This thinning should be focused on the removal of damaged and poor quality trees. All high quality trees should be retained in the stand.

TYPE D. MIXED HARDWOODS. Pole size red maple, gray birch and eastern red cedar are present in this 1+ acre fully-stocked stand. Understory vegetation includes bluebeech, flowering dogwood, black cherry seedlings and spice bush. Poisonivy, virginia creeper, cinnamon fern and marsh fern are present along with patches of trout lily and solomon's seal. The vegetation in this stand is healthy and no management is needed at this time.

E. WILDLIFE

Twin Bridges Nature Preserve can be divided into 3 distinct, major wildlife habitat types. These include: old field, woodland habitat comprised of mixed hardwoods and softwoods, and wetland habitat comprised of a hardwood swamp and a streambelt (Saugatuck River).

The old field habitat encompasses about 9 acres and is located in the northern area of the preserve (See Type A - vegetation map). Scattered pole size trees such as red cedar, white pine, cherry, oaks, aspen, birch and an occasional locust are currently reverting this old field back to woodland. Some wildlife related flora are found scattered throughout small openings within the old field. These include highbush blueberry, mullberry, bayberry, hawthorn, an occasional apple tree, wild strawberry, huckleberry and black berry bushes.

Creating and maintaining small openings in the old field will create greater diversity of habitat conditions, which will in turn result in greater chances of diversity in wildlife types. In creating these clearings, berry producing shrubs should be left in place. Proper pruning of apple trees is also encouraged.

Planting food patches, or strips containing a mixture of wildlife foods, can further enhance the creation of suitable wildlife habitat.

Species observed within this old field area were mourning doves, raccoon, white throated sparrows and numerous unidentified song birds. Other species typically found in this habitat type include pheasant, quail, grouse, rabbits, fox, and various small birds and mammals.

Woodland habitat type makes up 4+ acres on the nature preserve (See Types C and D on Vegetation Map).

More wildlife food sources can be obtained in this habitat type by removing those trees which are crowding "mast" trees. Mast trees are nut producing trees. Within this habitat type, mast trees include beech, red oak, and white oak.

The few clumps of eastern red cedar in this habitat type provide cover for wildlife and should be encouraged to expand when conducting cordwood or timber harvesting.

Wildlife inhabiting and utilizing this habitat type include squirrels, owls, deer, weasels, foxes, chipmunks, and various small birds and mammals.

Wetland habitat on the preserve is made up of 7+ acres (See Type B of Vegetation Map). The area that borders along the streambelt (Saugatuck River) can be classified as a "seasonally flooded flat".

Vegetation throughout this area is dominated by hardwoods (ash, maple, birch, elm and sycamore) with softwoods (white pine, red cedar) scattered about.

Wildlife foods such as vines (fox grape, summer grape, virginia creeper) are also scattered throughout most of this 7+ acres.

Although only a wood thrush and a pair of mallards were observed in this area, wildlife such as migrating and nesting waterfowl, herons, rails, beaver, muskrat, mink, deer, foxes, amphibians, reptiles, and small birds and mammals all utilize these areas.

Greater diversity of habitat can be created by putting up woodduck boxes and managing the surrounding woodland (making sure to leave uncut buffer strips along the stream and effectively piling brush).

It should be noted that streambelt areas are utilized by many transient wildlife species during various times of the year.

F. PLANNING CONSIDERATIONS

As previously discussed, the Twin Bridges Nature Preserve has potential for both forest management and wildlife management. An attractive trail network exists on the northern half of this site and soils in this area are

suitable for additional passive recreation activities such as picnicking and camping. The soils adjacent to Saugatuck River and Aspetuck River are wet and generally unsuitable for recreational use.

Access to the site is available from the east off Rte. 57. Parking space is available if allowable at the southwestern corner of the parcel in a parking lot constructed for the Glendenning Corp. office complex. In addition to the Glendenning complex, surrounding land use consists of two + acre residential lots and the Bridgeport Hydraulic pumping station. All of these uses are judged compatible with the anticipated uses of the Twin Bridge Preserve.

During the ERT's field review, it was reported that this site is subject to vandalism and other abusive use (occasional fire, dumping, etc.). The ERT believes the most effective way to combat this problem is to inform adjacent neighbors of the problem and ask them to keep a "watchful eye" on the use of the property. Encouraging neighbors to view the Preserve as part of their own backyard will help in this regard. Any disturbances or suspected foul play at the Preserve should be reported to the local police. Consideration should also be given, by the Land Trust, to establishing regular clean up days to remove litter from the Preserve.

* * * * *

SILVERMINE MARSH NATURE PRESERVE

VI. SILVERMINE MARSH NATURE PRESERVE

A. TOPOGRAPHY AND GEOLOGY

The Silvermine Marsh site is located at the head of a valley containing a small tributary of the East Branch of Saugatuck River. The site is shaped like a shallow bowl, open for outflowing drainage at the north. Just beyond the parcel boundaries in every direction but north, the land rises in gentle to moderate slopes. Within the parcel boundaries, the land is essentially flat (See Figure 6.1).

The sole bedrock exposure on the property is in an old, very small mine in the southeastern section (See Figure 6.2). The rock within the mine appears to be predominately mica schist. A "schist" is a metamorphic (geologically altered) rock in which flaky, platy, or elongate minerals are parallel and abundant, giving the rock a slabby or flaky appearance. In addition to mica, quartz and feldspar are the major mineral components of the schist on the site. A few boulders of pegmatite (a coarse-grained, light colored, quartz- and feldspar-rich rock) were found among the rocky rubble at the entrance to the mine but no pegmatite veins were seen in the mine. It is highly unlikely that any commercially valuable mineral deposits exist within the local bedrock, despite the connotations of the name of the parcel. Apparently, lead, silver, and other metals or metal ores were recovered from a now-abandoned and lost mine in the town of Wilton. However, other attempts to locate valuable minerals in the area have proved futile (see Connecticut Geological and Natural History Survey Quadrangle Report No.34). The village of "Silvermine" in the town of Norwalk was named after a mining operation that proved to be a hoax. The old mine in the Silvermine Marsh parcel may have historic and cultural value, however, despite its lack of commercial significance.

Bedrock on most of the site is overlain by till, a glacial sediment that was deposited directly from an ice sheet. The till contains rock particles and fragments of all shapes and sizes, ranging from clay to large boulders. The particles are not sorted by size and they are not stratified (layered). On most of the property, the till itself is overlain by swamp sediments, which consists of clay, silt, sand, and a high percentage of decayed plant matter. The thickness of these sediments may exceed 10 feet near the center of the parcel, but the average thickness is probably less.

B. HYDROLOGY

Surface drainage on the property flows from all directions except north into the site's central swamp (See Figure 6.3) The swamp drains northward via a small tributary of the East Branch of Saugatuck River. In addition to its possible aesthetic, botanical, and wildlife values, the swamp serves several important hydrologic functions. During periods of rainfall, the swamp temporarily stores surface waters flowing in from the surrounding lands. This reduces flood flows and possible flood damage downstream. In addition, the swamp may cleanse the inflowing waters by trapping and removing sediment and by removing certain pollutants (e.g. through uptake by swamp vegetation). The swamp may also help to maintain streamflows during dry periods by slowly discharging groundwater into the outlet stream.

FIGURE 6.1
TOPOGRAPHIC MAP

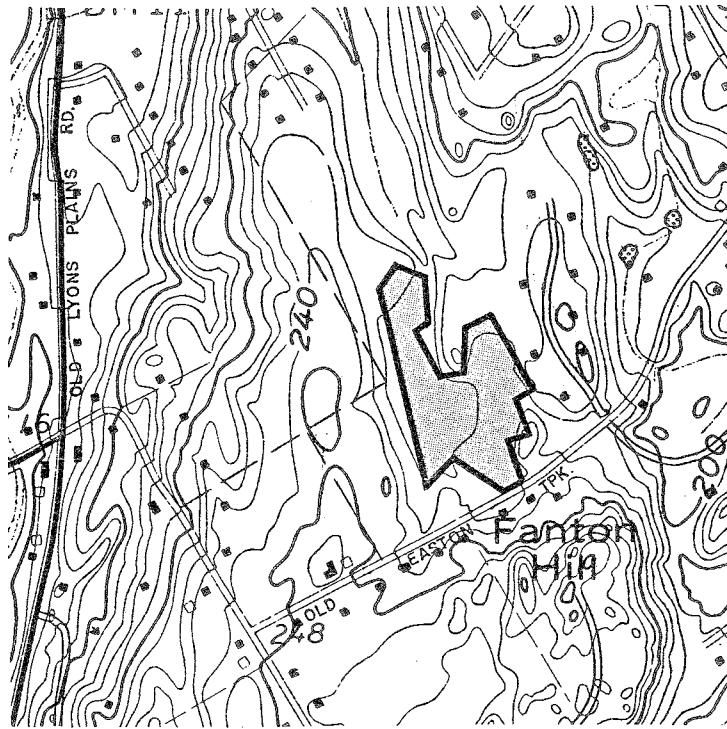
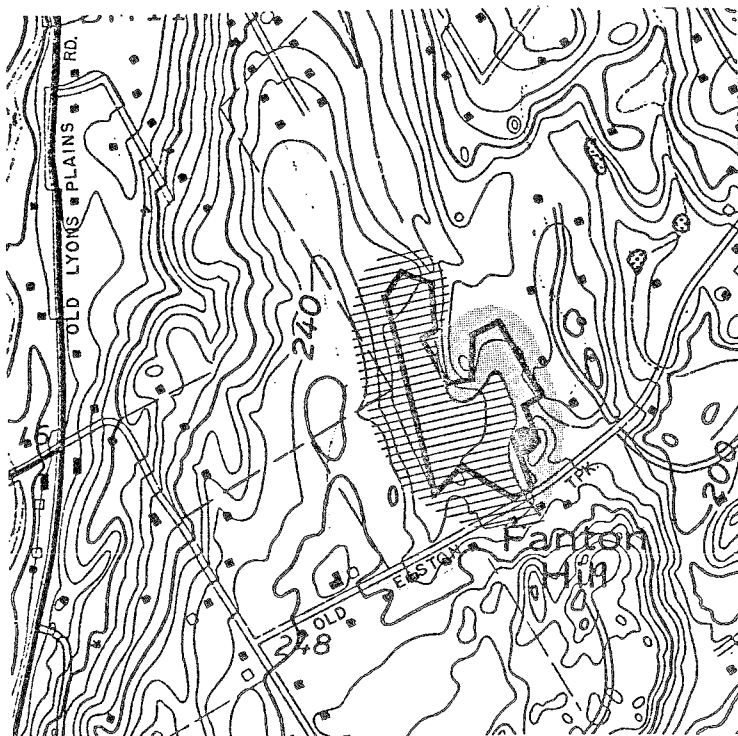

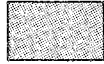



FIGURE 6.2
SURFICIAL GEOLOGY



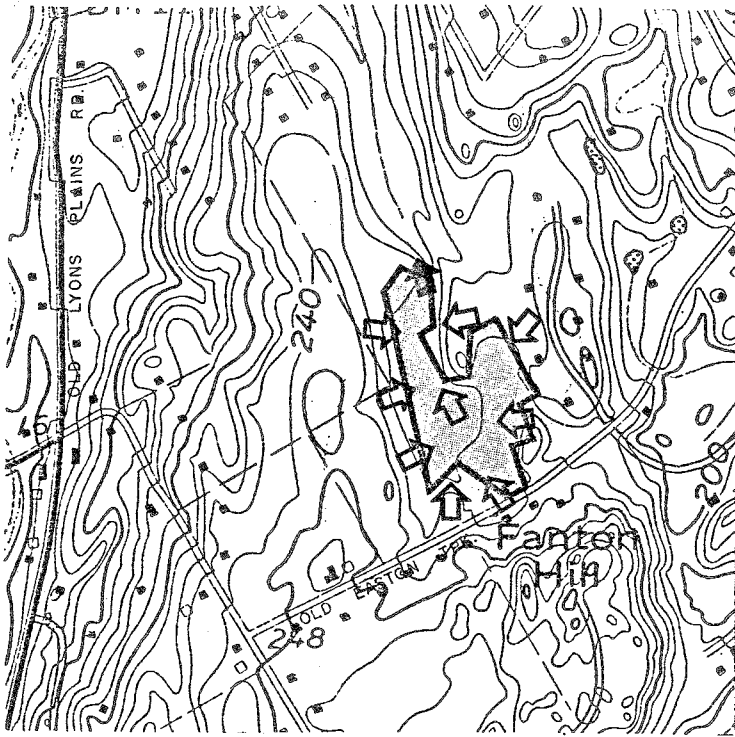
EXPLANATION

-  SWAMP SEDIMENTS OVER TILL
-  TILL
-  LOCATION OF OLD MINE

SCALE: 1" = 1000'



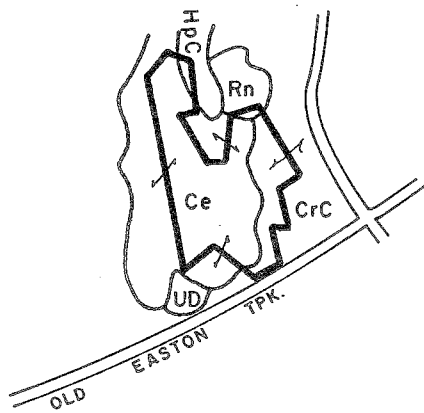
FIGURE 6.3
SURFACE WATER FLOW DIRECTIONS



⇨ FLOW DIRECTION
 → OUTLET



FIGURE 6.4
SOILS MAP



• ADAPTED FROM FAIRFIELD COUNTY
 SOIL SURVEY, U.S.D.A. — S.C.S.

SCALE: 1" = 1000'

The groundwater resources of the parcel are not especially valuable. The sites chief aquifer is the underlying bedrock, which generally is capable of sustaining only small yields of water to individual wells.

C. SOILS

As shown in Figure 6.4, the site is occupied by two principal soil types. These are discussed below.

1. Ce -- Carlisle Muck

This nearly level, very poorly drained soil occupies the majority of the site.

Typically, this soil consists of black, dark brown, and dark grayish brown decomposed organic material to a depth of 66 inches or more.

Included with this soil in mapping are small areas of very poorly drained Adrian, Saco, and Scarborough soils that make up about 15 percent of the map unit.

This Carlisle soil is wet most of the year, and the watertable is generally at the surface from early fall to late spring. Runoff is very slow. Some areas have water ponded on the surface. A few areas are subject to flooding. The permeability of the soil is moderate or moderately rapid, and the soil is very strongly acid to neutral.

Most areas of this soil are wooded or are covered by marshgrasses and sedges.

The major limitations of this soil are the high watertable, ponding and the instability of the organic material.

The soil is unsuitable for cultivated crops and recreation, and poorly suited to timber production.

2. CrC - Charlton-Hollis Fine Sandy Loams, Very Rocky, 3 to 15 Percent Slopes

This complex is located along the eastern border of the site and consists of gently sloping and sloping, well drained and somewhat excessively drained soils. Stones and boulders cover 1 to 5 percent of the surface.

The complex is about 50 percent Charlton soils, 25 percent Hollis soils, and 25 percent other soils and exposed bedrock. The Charlton and Hollis soils are so intermingled on the landscape that it was not practical to map them separately.

Typically, the Charlton soils have a surface layer of very dark brown fine sandy loam 3 inches thick. The subsoil is strong brown and yellowish brown fine sandy loam 26 inches thick. The substratum is light olive brown gravelly sandy loam to a depth of 60 inches.

Typically, the Hollis soils have a surface layer of very dark grayish brown fine sandy loam 3 inches thick. The subsoil is dark yellowish brown fine sandy loam that extends to bedrock at a depth of 17 inches.

These Charlton and Hollis soils have moderate or moderately rapid permeability. Runoff is medium to rapid. Available water capacity is moderate in the Charlton soils and low in the Hollis soils. They are very strongly acid to medium acid.

The major limitations of this complex are the shallow depth to bedrock in the Hollis soils and the stones and boulders on the surface.

Recreation. Picnic areas and camp sites are generally difficult to develop in these rugged areas. However, the terrain provides an attractive setting for these uses.

Wildlife. These soils are poorly suited for the production of openland wildlife habitat. The habitat for woodland wildlife species can be established, improved, or maintained but moderate treatment is required. It is impractical to develop wetland wildlife habitat on these soils.

Woodland. The productivity of most of this land is poor for wood crops. Pockets of deeper soil within these areas have fair productivity. Equipment operation is very difficult because of stoniness and rock outcrops. Seedling survival and windthrow of trees are problems on the shallower areas.

Cropland. These soils are not suited for the production of cultivated crops because of rock outcrops and shallowness. Scattered areas with deeper soils and less numerous rock outcrops can be used for improved hay, pasture, and orchard.

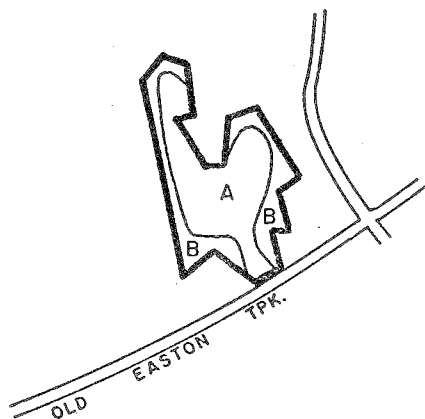
D. VEGETATION

As shown in Figure 6.5, two major vegetation types are found on this property.

TYPE A. HARDWOOD SWAMP. This 6+ acre stand is fully to over stocked with medium quality sapling to pole-size red maple in clumps on hummocks with scattered black gum and white ash. Spice bush, sweet pepperbush and highbush blueberry form a dense understory in this area. Ground cover vegetation consists of tussock sedge, cinnamon fern, marsh fern, skunk cabbage, sensitive fern, slender nettle, swamp dewberry, wild geranium, poison ivy, jewelweed, jack-in-the-pulpit, kidney leaved violet, blue violet, larger blue flag and sphagnum moss. Management potential is severely limited by the poorly drained soils in this area.

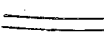


TYPE B. MIXED HARDWOODS. High quality pole to sawtimber-size red oak, black oak, white oak, shagbark hickory, tuliptree, and black birch are present in this 3+ acre fully-stocked stand. The understory vegetation is dominated by maple leaved viburnum, witch hazel, high bush blueberry and sassafras saplings.

FIGURE 6.5
VEGETATION TYPE MAP



SCALE: 1" = 1000'

LEGEND

-  Road
-  Property Boundary
-  Vegetation Type Boundary

VEGETATION TYPE DESCRIPTION *

- TYPE A Hardwood swamp, 6+ acres.
 Fully to over-stocked.
 Sapling to pole size.
- TYPE B Mixed hardwoods, 3+ acres.
 Fully stocked.
 Pole to sawtimber size.

*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 size = Trees 11 inches and greater in D.B.H.

Green brier, huckleberry, club moss, christmas fern, canada mayflower and pennsylvania sedge form the ground cover vegetation along with solomon's seal, white baneberry and cinnamon fern where this vegetation type grades into the hardwood swamp area. Management in this stand should be limited to: 1) the removal of trees which represent a hazard to trail users and 2) wildlife habitat improvement measures. Any trees located along the trail which are dead or have large dead branches should be removed or properly pruned before any damage occurs.

E. WILDLIFE

Two wildlife habitat types are present on this property. These include wetland habitat (the hardwood swamp area) and the higher and drier woodland habitat. The interface between these two habitat types offers the most value to wildlife.

By providing a few $\frac{1}{4}$ to $\frac{1}{2}$ acre cleared openings in the wetland area, and establishing a few brush piles around each opening, wildlife will benefit. It should be noted that periodic cutting of these clearings will be necessary for extended use of the areas by wildlife. Bluebird houses could be put up at the edges of these openings.

Small openings in the woodland habitat type will also benefit wildlife by encouraging understory growth. Planting a portion of this area with heavy fruit-bearing bushes would benefit wildlife as would creation of a small evergreen area.

The day of the ERT's field review, a downy woodpecker and numerous songbirds were observed in the wetland habitat together with scattered deer trails. Other wildlife which could be expected to utilize the habitat type include raccoon, squirrels, fox, and turkey.

F. PLANNING CONSIDERATIONS

The Silvermine Marsh parcel consists largely of wetland which is not suitable for recreational use. The eastern and northern borders of the property are dry enough however to support a trail system and one has been developed here. Aside from possibly improving this land for wildlife, the present use is probably the optimum use.

Access to this site is available from the south off Old Easton Turnpike. Roadside parking is available along Old Easton Turnpike; however, short sight-line distances are a hazard for cars approaching from the east. Creation of a small parking lot on the property should be considered.

Surrounding land use is primarily two acre residential which is compatible with the anticipated uses of this property. There appears to be no significant potential for linking this area with nearby open spaces.

* * * *

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 industrial 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.