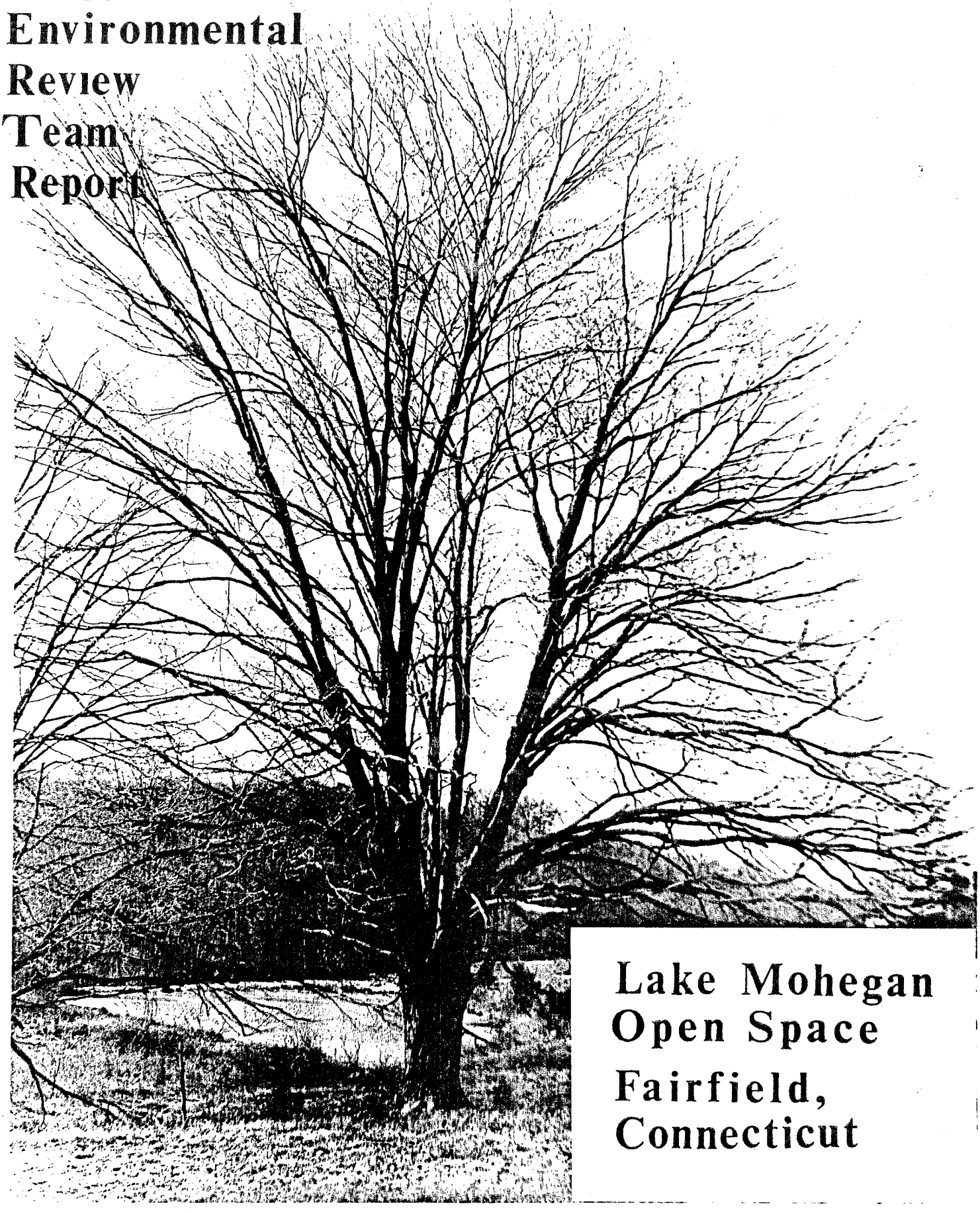
King's Mark Environmental Review Team Report



Lake Mohegan Open Space

Fairfield, Connecticut

LAKE MOHEGAN OPEN SPACE AREA

FAIRFIELD, CONNECTICUT

Environmental Review Team Report

Prepared by the King's Mark Environmental Review Team
of the King's Mark Resource Conservation
and Development Area, Inc.

Wallingford, Connecticut

for the

Fairfield Conservation Commission

This report is not meant to compete with private consultants by supplying site designs or detailed solutions to development problems. This report identifies the existing resource base and evaluates its significance to the proposed development and also suggests considerations that should be of concern to the Conservation Commission and the Town. The results of the Team action are oriented toward the development of a better environmental quality and long-term economics of the land use. The opinions contained herein are those of the individual Team members and do not necessarily represent the views of any regulatory agency with which they may be employed.

NOVEMBER 1987

ACKNOWLEDGEMENTS

The King's Mark Environmental Review Team Coordinator, Keane Callahan, would like to thank and gratefully acknowledge the following Team members whose professionalism and expertise were invaluable to the completion of this study:

* William Warzecha, Geohydrologist
  Department of Environmental Protection - Natural Resources Center

* James Murphy, River Specialist
  Department of Environmental Protection - Water Compliance Unit

* Jerry Milne, Forester
  Department of Environmental Protection - Forestry Department

* Kenneth Metzler, Biologist
  Department of Environmental Protection - Natural Resources Center

* Judy Wilson, Wildlife Biologist
  Department of Environmental Protection - Wildlife Bureau

* Donald Mysling, Fishery Biologist
  Department of Environmental Protection - Fisheries Bureau

* Robert Clapper, State Park Planner
  Department of Environmental Protection - Parks and Recreation

I would also like to thank Laverne Mendela, Secretary, and Janet Jerolman, Cartographer of the King's Mark Environmental Review Team for assisting in the completion of this report.

Finally, special thanks to Kenneth Placko, Open Space Manager of the Fairfield Conservation Commission, for his cooperation and assistance during this environmental review.

EXECUTIVE SUMMARY

Introduction

The Town of Fairfield Conservation Commission requested that an environmental review be conducted on Lake Mohegan, an approximately 170-acre open space area owned and managed by the Town. The area is bisected by the Mill River which widens into Lake Mohegan. The area contains Lake Mohegan, a smaller pond, a small wooded swamp and upland forest. The Lake Mohegan area provides ample opportunity to manage water, wood, and wildlife. Its upland forests are capable of producing fuelwood and timber as well as providing habitat for dozens of plant and animal species. The tracts contain a mature forest, wooded and shrub swamp, open meadow, wetlands, rapids, and open water all of which produce one of the most diverse and productive ecosystems in Fairfield.

At the present time, the Lake Mohegan Area supports passive, single participant and unorganized recreational activity. This includes swimming in designated areas, fishing, picnicking, birdwatching, and hiking on the trail system. Hunting is not permitted. Boating is permitted in the Mill River when the water conditions are satisfactory, but not in Lake Mohegan.

The primary concern of the Conservation Commission is the increased development pressures surrounding the area and competing uses of the tract. Since natural resource information is already available for most of the site, the primary goal of the ERT is to interpret this information; and generate any new information in order to provide natural resource management guidelines. Thus, how best to manage the resources and uses of the site is the primary goal of this environmental review.

Below is a brief description of the major findings of the ERT study.

Geology

The bedrock underlying the study area has been divided into three different rock formations: (1) Trap Falls Formation; (2) Straits Schist and (3) basal member of the Straits Schist. All of the rock types found in the Open Space Area are metamorphic; that is they have been subject to great heat and pressure within the earth's crust.

The surficial geology of an area consists of those unconsolidated materials overlying bedrock. Except for the cobble, pebble, gravel and sand that immediately parallels the Mill River, the Open Space Area is dominated by thin till. In the area along the Mill River, the predominant surficial geologic material is stratified drift.

Most of the geologic limitations on the site such as moderate to steep slopes, shallow to bedrock soils and some wetland areas should not be a major obstacle for passive recreational use. There is potential for erosion where hiking trails and steep slopes coincide so once trails are created, they will need to be maintained.

Hydrology

The Open Space Area lies within the Mill River watershed. The Mill River drains approximately 18.4 square miles at the intersection of the river and Morehouse Highway. Surface and groundwater runoff from the Open Space Area eventually discharges into the Mill River. The wetland pocket northwest of the Lake has a role to play in the regulation of stream flows as well as buffering contaminants and sediment from the nearby residential areas.

Because of the potential use of the picnic area for long periods of time, it seems likely that sanitary facilities will be needed. Public utilities are not presently available to this area, so on-site facilities will be needed. A cursory inspection of the soils in the picnic area indicate favorable conditions for on-site sewage disposal. Soil testing by the Health Department would be required to determine the most desirable site for a leaching system. The crystalline bedrock should adequately meet the needs for recreational use such as water for flush toilets and drinking water.

Water Quality

Lake Mohegan lies in the lower third of the Mill River drainage basin. Surface waters around the Open Space Area are designated class A, which means that the water is presently uncontaminated. Ground water is designated class GA. The water flowing into the Lake are of high quality and every effort should be made to keep it so.

Forestry

The forestry and vegetative characteristics of the Lake Mohegan Area have not changed significantly since the Beals and Westover study in 1971. Some insect and disease damage was noticed. Several of the larger oaks are dead because of the gypsy moth infestation followed by infestation with shoestring root rot fungus and the two-lined chestnut borer. The beeches have a light infestation of beech scale, an insect, which, when combined with a fungus (Nectria), can kill or damage beech trees. There is potential for forest management in the Open Space area. A cordwood cutting program designed to remove unhealthy trees can be implemented using the existing road system. The Connecticut Bureau of Forestry can assist the town in designing such a program.

Wetlands

The wetlands of the Lake Mohegan Area play functional roles such as wildlife habitat, nutrient retention, sedimentation control, and shoreline anchoring and the dissipation of erosive forces. However, certain manipulation may be necessary to enhance their value. Wetland marshes are said to be expanding due to storm water discharge onto the open space from the adjacent development, which may prove to be of increased value due to the filtration of salts and other unfavorable materials prior to discharge into the lake. Other manipulations may include periodic cutting of trees along the edge of the small pond to enhance the pond edge for wildlife value. Other wetland areas will function best if left alone, with further manipulations possibly having a negative impact on both their functional role and aesthetic value.

Wildlife

The Open Space area contains a wide variety of wildlife habitats including forestland, open fields, wooded swamp, open water and brush/shrub areas. The great diversity provides good to excellent habitat for a wide variety of wildlife. For the conservation of habitat it is recommended that the area be used for passive/non-vehicular recreation. Upgrading the present trail system or a portion of it to an interpretive trail would greatly add to the opportunity for environmental/wildlife education.

Fisheries

The Mill River is coldwater with a substrate of sands, cobble and small boulders. It has a variety of fish species present. The Mill River is managed for trout and is stocked annually. The river can be divided into sections by the Cascades. Areas upstream of the Cascades should rely on natural processes for fisheries enhancement. Areas downstream are lacking in cover and would benefit from artificial instream structures. The entrance to Lake Mohegan is a broad shallow riffle. A well defined channel might be constructed to concentrate flows during periods of low water.

The G.E. Pond is warmwater and contains warmwater species. The vegetation at the perimeter of the pond provides habitat for juvenile fish. The deeper water, where the adults live, may lack cover. Artificial structures have been effective in enhancing small pond fisheries.

Lake Mohegan has the potential to be managed as both a warmwater and a coldwater fishery. The pond is deep enough for trout to holdover during the summer. There is also enough shallow water to provide habitat for the warmwater species. Warmwater species would benefit from placement of cover structures. The coldwater species would benefit more from a low flow channel at the Mill River entrance.

Recreation Planning Considerations

Recreational opportunities that exist in the Open Space Area are swimming picnicking, hiking and fishing. Opportunities that might be explored are car-top boating, group use area and development of the lake residence. The picnic area at the north end of the lake might benefit from a gate to control access. The Cascades area is also used for picnicking. Picnic tables and trash receptacles might divert picnickers away from the rocks and prevent slope erosion. One main hiking trail around the northern part of the area should be designated. A looping trail from the picnic area would provide a pleasant walk for people who do not wish to hike.

Fishing is a popular activity in the area. It could be enhanced through improved access at the north end of the lake. It might also be improved with the inclusion of car-top, non-motorized boating. A group use area might be considered for the recently acquired Nemeth Farm. The lake residence might be used as a residence for a caretaker. A recreational facility might be considered for the house but there are constraints in the lack of parking and difficult access.

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NATURAL RESOURCE CHARACTERISTICS

INTRODUCTION

The Town of Fairfield Conservation Commission requested that an environmental review be conducted on Lake Mohegan, an approximately 170-acre open space area owned and managed by the Town. The area is bisected by the Mill River which widens into Lake Mohegan. The area contains Lake Mohegan, a smaller pond, a small wooded swamp and upland forest. There are two bridges for the Merritt Parkway crossing the Mill River at the north end of the property and a small dam controls the lake level from the south.

The history of the area's famous springs goes back to the 1800's. Farming was extensive in the area. During the early and mid 1900's the area to the east of the Mill River was excavated for gravel. Before the Town acquired the land, the gravel dike between the river and the excavation pit was removed, allowing the river to flood the pit, forming the body of water that is now Lake Mohegan. Much of the surrounding area has since been developed into single family homes. To the north are the Merritt Parkway and the General Electric Company Headquarters.

The Lake Mohegan area provides ample opportunity to manage water, wood, and wildlife. Its upland forests are capable of producing fuelwood and timber as well as providing habitat for dozens of plant and animal species. The tracts contain a mature forest, wooded and shrub swamp, open meadow, wetlands, rapids, and open water all of which produce one of the most diverse and productive ecosystems in Fairfield.

Every conceivable niche is filled with amphibians, fish, reptiles, birds, and mammals. Wading birds, waterfowl, song birds, birds of prey, grouse, pheasant, white-tailed deer, fox, chain pickerel, largemouth bass, perch and bluegill are but a few of the wildlife species found on the site.

At the present time, the Lake Mohegan Area supports passive, single participant and unorganized recreational activity. This includes swimming in designated areas, fishing, picnicking, birdwatching, and hiking on the trail system. Hunting is not permitted. Boating is permitted in the Mill River when the water conditions are satisfactory, but not in Lake Mohegan.

The primary concern of the Conservation Commission is the increased development pressures surrounding the area and competing uses of the tract. Since natural resource information is already available for most of the site, the primary goal of the ERT is to interpret this information, and if necessary, generate any new information in order to provide natural resource management guidelines. Thus, how best to manage the resources and uses of the site is the primary goal of this environmental review. Specific objectives include:

(1) Provide fish and wildlife management guidelines to enhance fish and wildlife habitat and populations.

(2) Assess existing wetland conditions and provide alternatives on how best to manage wetland resources.

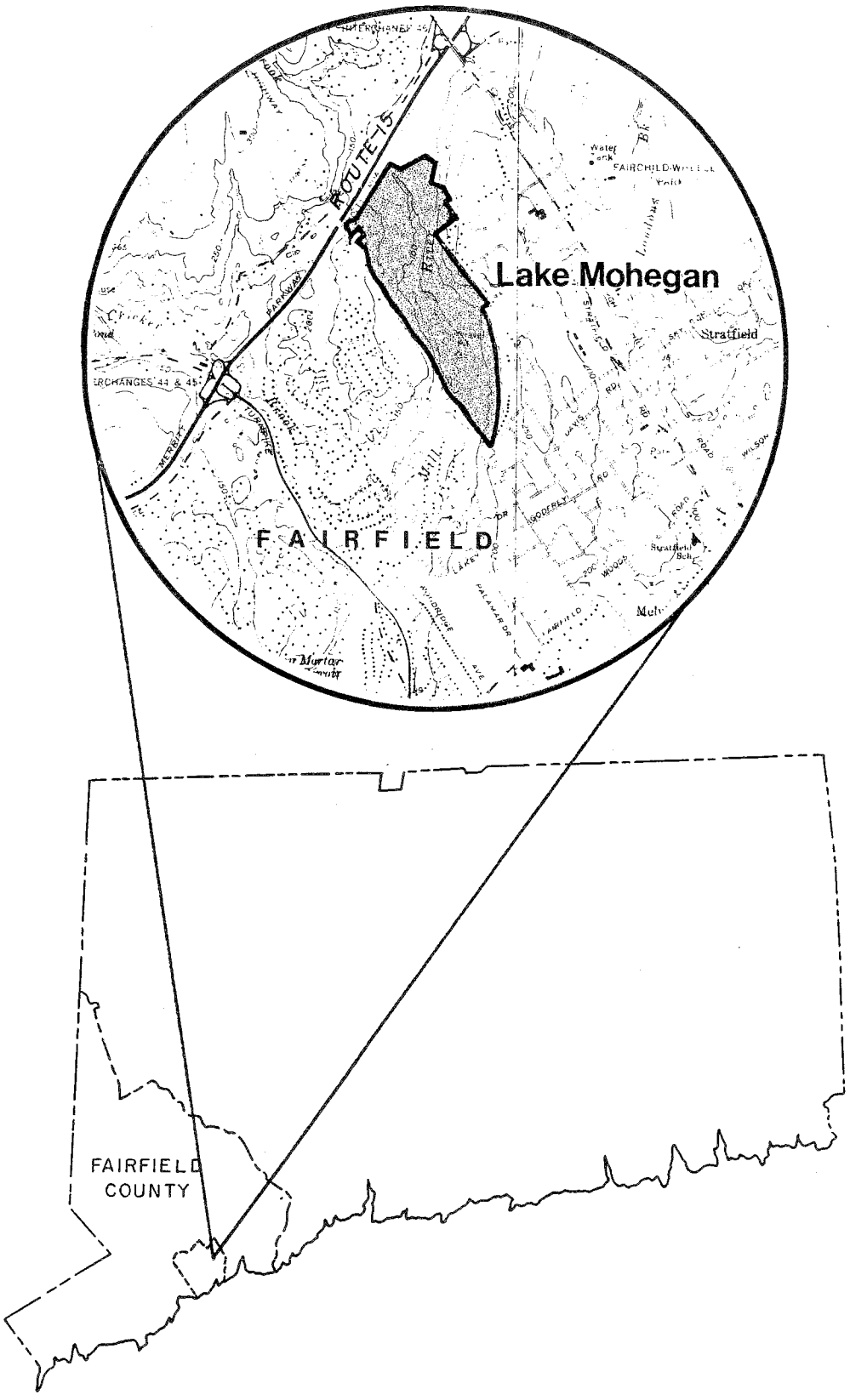
(3) Provide forest management guidelines to enhance the diversity of the forest resource.

(4) Determine the recreational opportunity of the Lake Mohegan Area, including trail circulation and potential recreational impacts.

(5) Assess the environmental condition of the Mill River, Lake Mohegan and the river bank community, and provide river management guidelines.

Figure 1

LOCATION OF STUDY SITE



GEOLOGY

Topography, Setting and Geology

The Lake Mohegan Open Space Area consists of a 170-acre parcel of wooded land located in the northeast corner of Fairfield. Open fields are located along the east side of the Lake.

Inspection of a 1934 air photo revealed that open farm fields occupied the area of Lake Mohegan prior to its creation. Mill River, the major feeder stream to Lake Mohegan flows in a southerly direction through the parcel. The terrain on the east and west side of the Mill River and Lake is dominated by bedrock controlled slopes, which range from moderate to steep (Figure 2). Numerous bedrock exposures are visible mainly on the east side and are associated with the CrC soils delineated on the accompanying soils map (Figure 3). Several rock outcrops which help to form the "Cascades" were seen in the channel and along the banks of Mill River just north of Lake Mohegan. Land use surrounding the Lake Mohegan Open Space Area is high density residential.

Maximum and minimum elevations on the site are 250 feet above mean sea level and 80 feet above mean sea level, respectively.

Bedrock underlying the open space area has been divided into three different rock formations (1) Trap Falls Formation; (2) Straits Schist and (3) basal member of the Straits Schist (Figure 4).

The northern and southern parts of the open space area are underlain by the Trap Falls formation, a gray to silver, rusty weathering, medium-grained schist. The interior sections of the site include two east-west trending belts of rocks named the Straits Schist and its basal member. The Straits Schist, which is located in the central parts consists of a silvery to gray coarse-grained schist. Its basal member, which consists of a gray schist with

layers of amphibolite, marble and quartzite is located in the north central parts (Bedrock Geological Map of Connecticut by John Rodger's 1985). All of the rock types (i.e., schist, amphibolite, marble and quartzite) found in the open space area are metamorphic: that is they have been subjected to great heat and pressures within the earth's crust. The stresses of metamorphism caused the alignment of platy, flaky and elongate minerals into thin sheets or bands. Where the alignment has resulted in a slabby rock (one that parts relatively easily along surfaces of mineral alignment), the rock is termed a "schist".

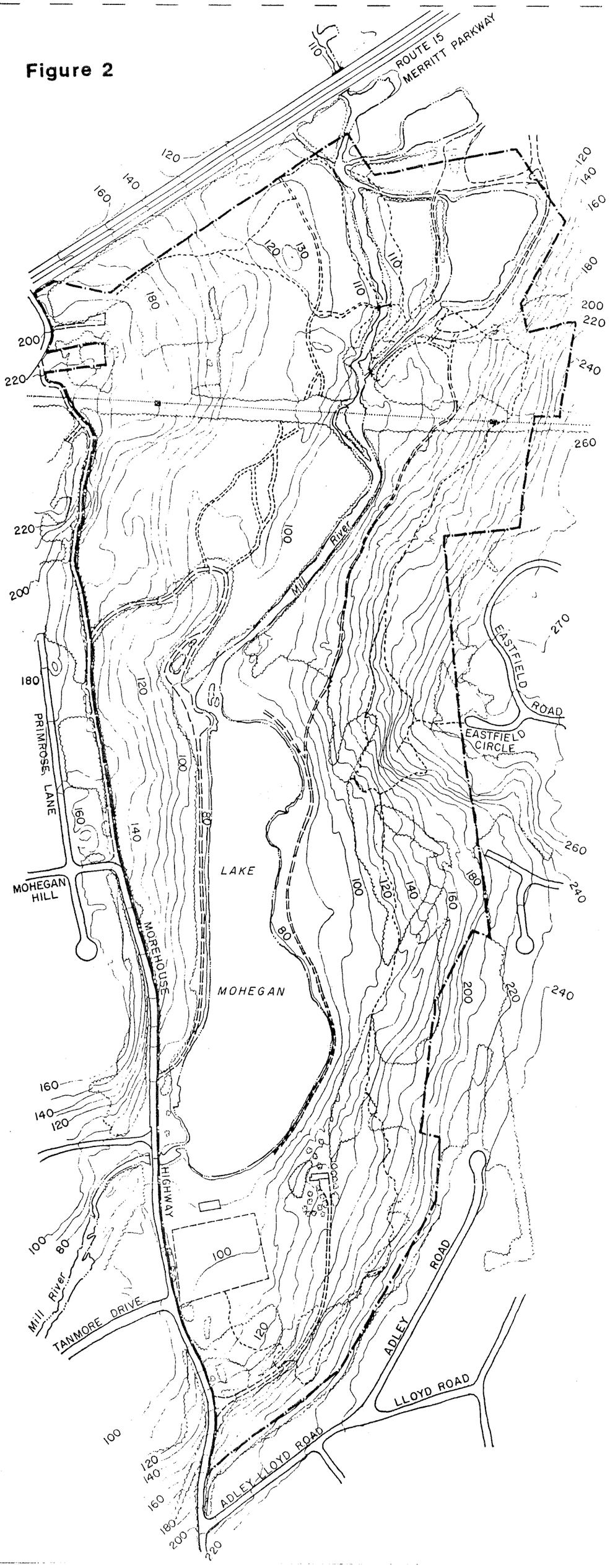
The open space area lies within the Westport topographic quadrangle. A surficial geologic map (Map MF-1295 by J.R. Stone and E.H. London, 1981), which includes all those unconsolidated materials overlying bedrock, has been published for the Westport topographic quadrangle.

Except for the cobble, pebble, gravel and sand that immediately parallels the Mill River, the open space area is dominated by relatively thin till (less than 10 feet thick) (Figure 5). Till is a mixture of clay, silt, sand, gravel and boulders that was deposited directly from a pre-existing mass of glacier ice. Since the textural constituents were not greatly affected by meltwater, there is generally little sorting or stratification in till. Textures may range from coarse, gravelly material to silty, tightly compact material.

According to the Soil Survey for Fairfield County, most of the site contains the coarse gravelly variety of till. There is, however, the finer-grained, more compact type of till primarily in the eastern sections of the open space area.

In the area along Mill River, the predominant surficial geologic material is stratified drift. Stratified drift consists of rock particles that were washed out of wasting ice masses by meltwater and redeposited in a generally

Figure 2



LAKE MOHEGAN

FAIRFIELD, CONNECTICUT

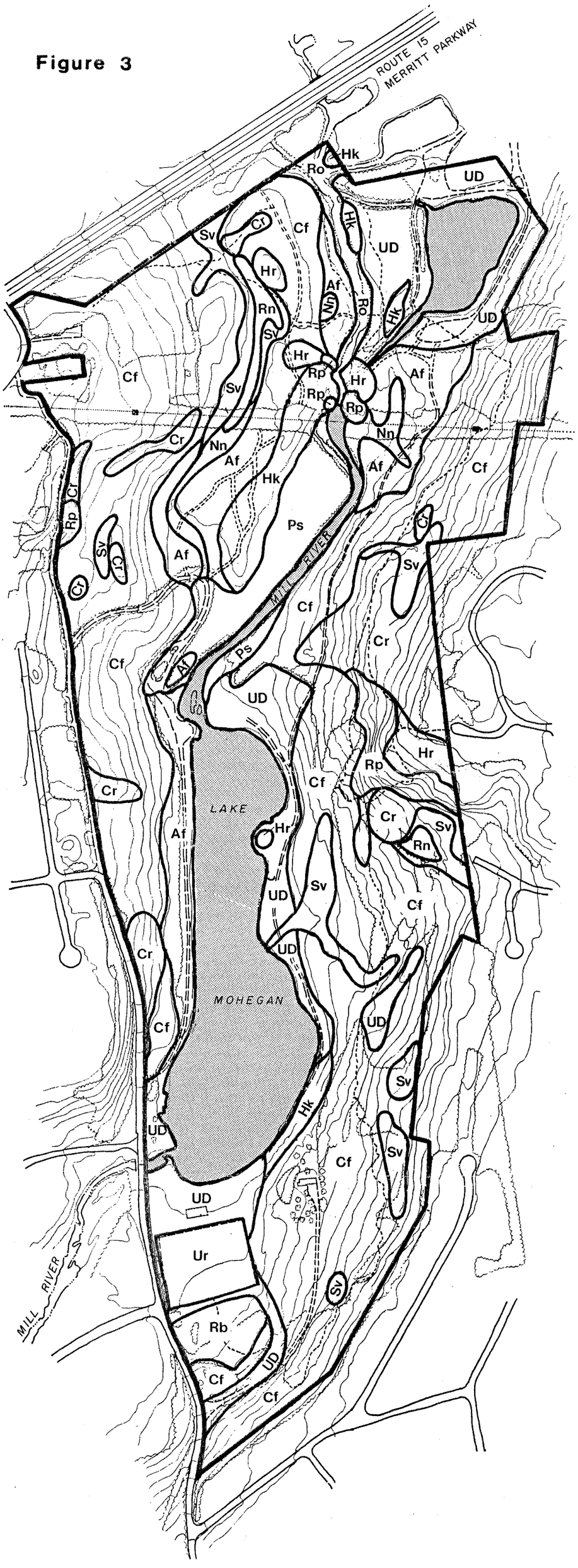
TOPOGRAPHY

King's Mark Environmental Review Team

0 400'

- FOREST EDGE
- DIRT ROAD
- PAVED ROAD
- TRAIL
- WATER EDGE
- TRANSMISSION LINE AND TOWER
- PROPERTY LINE
- CONTOUR INTERVAL 10'
- BUILDING

Figure 3



LAKE MOHEGAN

FAIRFIELD, CONNECTICUT

SOILS

King's Mark Environmental Review Team

0 400'

- WATER
- FOREST EDGE
- DIRT ROAD
- PAVED ROAD
- TRAIL
- WATER EDGE
- TRANSMISSION LINE AND TOWER
- PROPERTY LINE
- CONTOUR INTERVAL 10'
- BUILDING

Non-wetland Soils

- **Af** AGAWAM FINE SANDY LOAM
- **Cf** CHARLTON FINE SANDY LOAM
- **Hk** HINCKLEY GRAVELLY SANDY LOAM.
- **Nn** NINIGRET FINE SANDY LOAM
- **Sv** SUTTON FINE SANDY LOAM
- **UD** UDORTHENTS, SMOOTHED
- **Ur** URBAN LAND

Wetland Soils

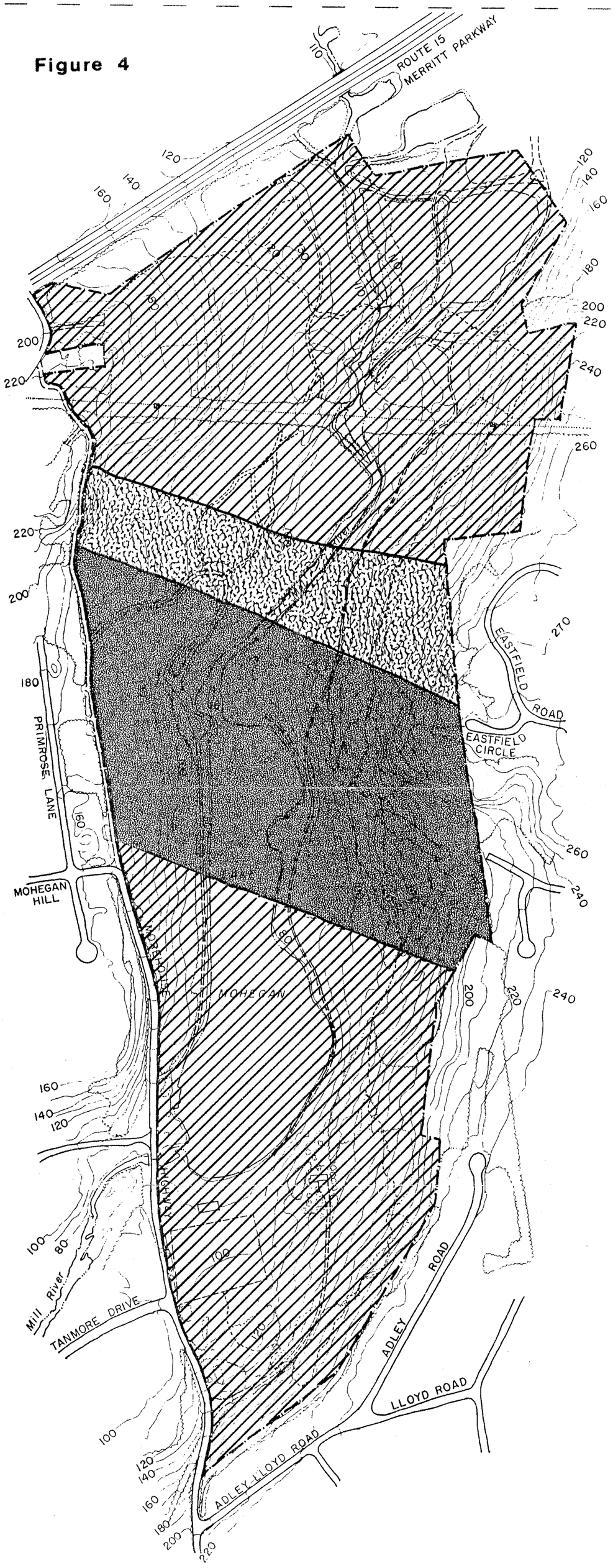
- **Ps** POOTATUCK FINE SANDY LOAM
- **Rb** RAYPOL SILT LOAM
- **Rn** RIDGEBURY, LEICESTER AND WHITMAN EXTREMELY STONY FINE SANDY LOAMS
- **Ro** RIPPOWAM FINE SANDY LOAM

Shallow to Bedrock Soils

- **Cr** CHARLTON-HOLLIS FINE SANDY LOAMS
- **Hr** HOLLIS-ROCK OUTCROP-CHARLTON COMPLEX
- **Rp** ROCK OUTCROP-HOLLIS COMPLEX

DATA FROM SOIL SCIENCE SERVICES

Figure 4



LAKE MOHEGAN

FAIRFIELD, CONNECTICUT

BEDROCK GEOLOGY

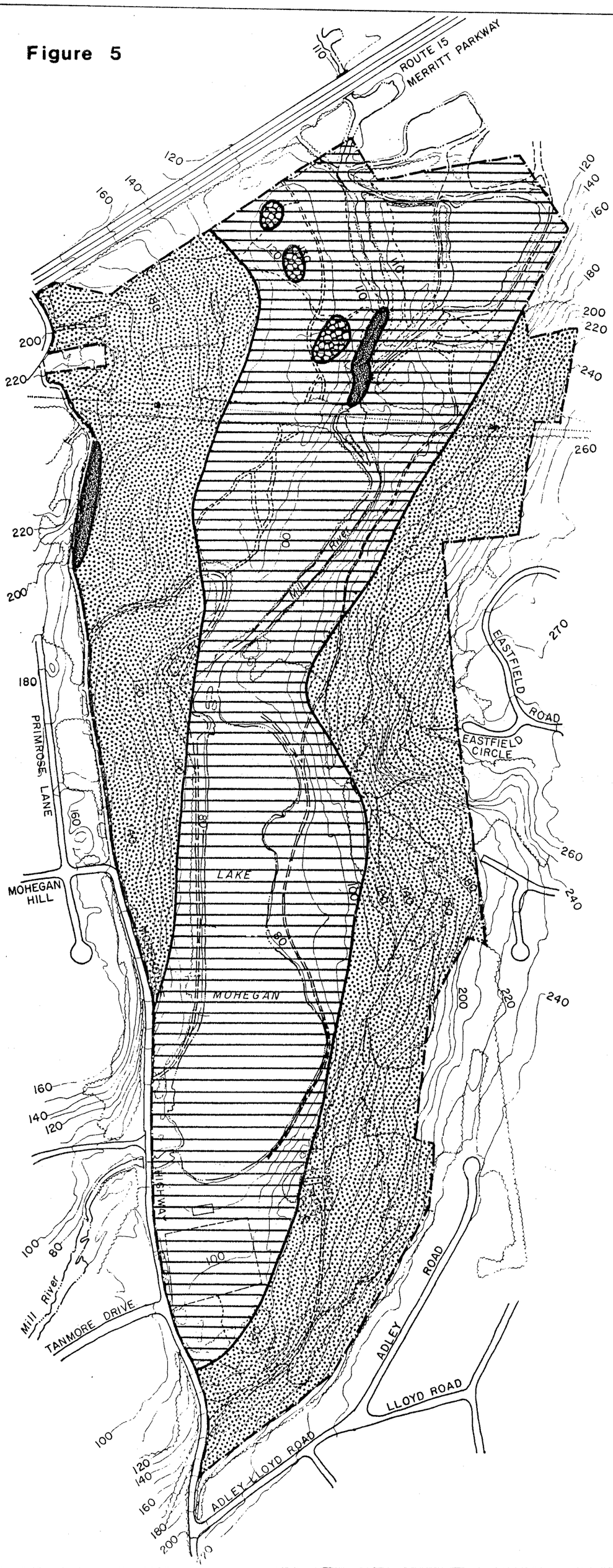
King's Mark Environmental Review Team

0 400'

- FOREST EDGE
- DIRT ROAD
- PAVED ROAD
- TRAIL
- WATER EDGE
- TRANSMISSION LINE AND TOWER
- PROPERTY LINE
- CONTOUR INTERVAL 10'
- BUILDING
- TRAP FALLS FORMATION*
- BASAL MEMBER OF STRAIT'S SCHIST*
- THE STRAIT'S SCHIST*

*See GEOLOGY Section of report for complete description of rock units

Figure 5



LAKE MOHEGAN

FAIRFIELD, CONNECTICUT

SURFICIAL GEOLOGY

King's Mark Environmental Review Team

0 400'

- FOREST EDGE
- DIRT ROAD
- PAVED ROAD
- TRAIL
- WATER EDGE
- TRANSMISSION LINE AND TOWER
- PROPERTY LINE
- CONTOUR INTERVAL 10'
- BUILDING

- STRATIFIED DRIFT
- TILL
- SHALLOW TO BEDROCK AREAS
- CONTINUOUS BEDROCK EXPOSURE

sorted and layered sequence. Sand is usually the major component of stratified drift, but clean gravelly layers or lenses are also common, particularly in the upper levels of the deposit.

The thicknesses of stratified drift probably ranges from 30 feet near the Merritt Parkway to perhaps as much as 40 feet at the southern limits of the site. As mentioned earlier in the report, the Mill River has exposed the bedrock surface along the streambed north of Lake Mohegan.

Most of the geologic limitations on the site such as moderate to steep slopes, shallow to bedrock soils and some wetland areas should not be a major obstacle for passive recreational uses of the open space area such as hiking. A problem with steep slopes and hiking trails is the potential for erosion, particularly where soils are erosive. The erosive power of water during stormy periods combined with heavy hiker traffic can cause major problems for trails created on moderate to steep slopes. Once trails are created, they will need to to be maintained annually. Every effort should be made to keep running water off the trail system by using waterbars.

Hydrology

The entire site lies within the Mill River watershed. Mill River flows in a southerly direction through the central parts of the site enroute to Long Island Sound. The Mill River drains about 18.4 square miles 11,776 acres at its intersection at Morehouse Highway south of Lake Mohegan.

Precipitation which takes the form of surface runoff on the site flows across the surface of the land until it reaches Mill River, a Mill River tributary or Lake Mohegan. Precipitation may also be absorbed into the ground. Once it is absorbed, the water may either be returned to the atmosphere through evaporation and plant transpiration or percolate downward to the water table and become groundwater. Once the water reaches the groundwater

table it moves slowly downslope by the force of gravity, ultimately discharging to the surface in the form of a spring, wetland, stream or directly into a lake or pond. Generally speaking, groundwater flow in the watershed parallels the surface flow pattern and is largely controlled by the underlying bedrock.

According to the Department of Environmental Protection's Water Compliance Unit's Water Quality Map for the Southwest Coastal River Basin, the surface water quality for Mill River is Class A, which means that its designated uses include potential drinking water supply, fish and wildlife habitat, recreational use, and agricultural, industrial supply and other legitimate uses, including navigation. Groundwater in the Lake Mohegan Open Space area is classified as GA, which means that it is presumed to be suitable for direct human consumption without need for treatment.

The small wetland pocket northwest of Lake Mohegan has at least a small role to play in the regulation of streamflows, particularly during times of heavy flow. The wetlands also helps to buffer contaminants from the residential development located in the area. The wetlands also help to prevent the transmission of sediment from nearby roads.

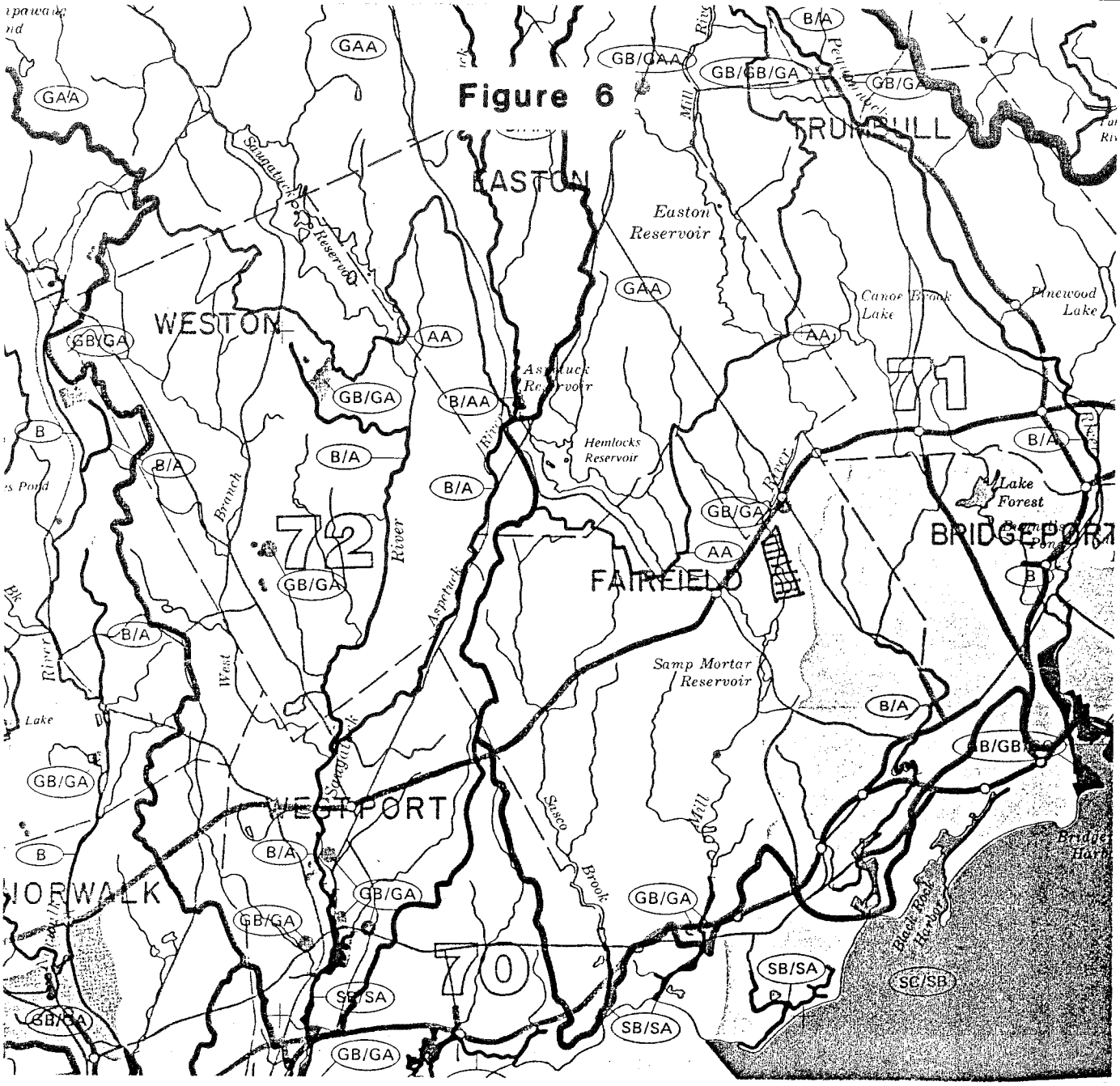
No sanitary facilities were visible in the picnic area north of Lake Mohegan. Because of the potential use of this area for long periods of time by the public, it seems likely sanitary facilities should be made available. Since public sewers are not presently available to this area, on-site sanitary facilities (flush toilets) would be needed in order to dispose of sewage effluent. A cursory review of soils in the picnic area indicate favorable conditions. Soil testing by the Fairfield Health Department would be required to determine the most desirable area for a leaching system. Temporary portable toilets or pit privies may also be suitable, but approval from the Fairfield Health Department would be required for these types of waste disposal.

Although the texture and thickness of the sand and gravel deposits along Mill River may be favorable for large scale groundwater supply, the crystalline metamorphic rock beneath the site should adequately meet the needs for recreational use such as water for flushing toilets and drinking water for the picnic area. Bedrock wells are generally capable of yielding 2-3 gallons per minute. Water is transmitted through bedrock by fractures. Consequently, the yield of a bedrock-based well depends upon the size and number of water-bearing fractures that are intersected by the well shaft. Since fractures are distributed regularly in bedrock, it is very difficult to predict the yield of a well drilled in any particular location. It is also understood that a public water supply main is available to the area.

WATER

Lake Mohegan, an impoundment on the Mill River, lies at the lower third of the Mill River drainage basin (Basin 7108) (Figure 6). The upper half of Basin 7108 is tributary to Easton Reservoir, a public water supply impoundment owned and used by the Bridgeport Hydraulic Company. Water flow of the lower half of the Mill River is therefore largely determined by the flows allowed to pass by the Easton Reservoir.

All surface water in the Mill River, from the Easton Reservoir Dam upstream to its head waters, is designated as Class AA. This means these waters are presently uncontaminated, are used as a public water supply and treated waste water discharges are not allowed. The Mill River, from the Easton Reservoir Dam downstream to its lower most tidal section, including Lake Mohegan, is designated as Class A. This means these waters are presently uncontaminated,



LAKE MOHEGAN

FAIRFIELD, CONNECTICUT

WATER QUALITY CLASSIFICATION

King's Mark Environmental Review Team

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suitable for human consumption and treated waste water discharges are not allowed. All other surface waters flowing to Lake Mohegan are designated as Class A.

Groundwaters in the Mill River basin, upstream of Easton Reservoir are designated as Class GAA. This class means all these groundwaters are presently uncontaminated, are tributary to a public water supply source (Easton Reservoir), and are "off limits" to all discharges except from individual house septic tanks. All other groundwaters flowing to the Mill River, including Lake Mohegan, are Class GA; uncontaminated, usable for direct human consumption and the only discharge allowed would be from individual septic tanks.

Lake Mohegan and its tributary surface and groundwaters are free of any man-made pollutants as far as is known. In a practical sense, given the extensive development of the Lake's watershed, it is possible nutrients, road deicing salts and eroded earth materials may periodically enter the Lake. The classification system does mean there are no treated waste water discharges emanating from such point sources as industries, sewage treatment plants or landfills in the basin now, nor would any be allowed.

Non-point sources of pollution, such as failing septic systems, eroding soils, urban runoff, leaking fuel storage tanks and improperly stored, used and disposed fertilizers and pesticides are a concern. It is strongly recommended that the appropriate best management practices be utilized to prevent the introduction of these pollutants into Lake Mohegan so its existing high quality waters remain in that condition.

FORESTRY

Forest Resources

The forestry and vegetative characteristics of the Lake Mohegan area have not changed significantly since the Beals and Westover study in 1971 (Appendix A). That report described in detail the various plant communities and there is no need to repeat that information here. The vegetation type map of the area appears to be accurate; the only change being that some areas that were described as having Pioneer, early successional vegetation, are starting to convert to forestland.

Limiting Conditions

During the on site inspection, some insects and diseases that damage the forest were noticed. In a few areas, several of the larger oaks are dead or dying. These trees were probably defoliated by gypsy moths a few years ago, and then, because they were weakened, were attacked by the shoestring root rot fungus and the two-lined chestnut borer. This is a common occurrence in Connecticut's woodlands. There is no control other than making the forest as healthy as possible by periodic thinnings of undesirable trees.

A light infestation of the beech scale, an insect, was also observed. This scale combines with a fungus (called Nectria) to kill or injure beech trees. The Nectria fungus usually invades 3 to 5 years after the scale insects appear. Some trees are killed within a year after the fungus becomes apparent, others linger for several years, and others are resistant. Again, the only control is to periodically remove undesirable or susceptible trees to make the forest as a whole more vigorous.

Forest Management Alternatives

There is potential for active forest management on the tract. A cordwood

cutting program designed to remove unhealthy and poorly formed trees, as discussed earlier, could be implemented using the existing road system. There is also the possibility of harvesting sawtimber or planting trees in the open meadows.

A forest management plan would make specific recommendations for each forest type along with estimates of the volume and value of wood found in each stand, based on an inventory of the forest.

An inventory and a forest management plan would be beyond the scope of the ERT program capabilities for a tract of this size. However, the town may contact the Connecticut Bureau of Forestry, 627 Amity Road, Bethany, CT. 06525, 393-0723, for assistance regarding this matter. The town could also hire a consulting forester to gather data and prepare a forest management plan for this parcel as well as the other open space areas that the town owns. Again, the Bureau of Forestry can assist in locating a forestry consultant.

WETLANDS

Wetland Characteristics

The wetlands within the Lake Mohegan Open Space Area are restricted to those adjacent to the lake and small pond, the riverbanks and associated channel, and a small drainageway in the northwest part of the tract. Each are described in general terms below:

a. The wetlands adjacent to Lake Mohegan and the small pond to the northeast are mostly fringing emergent marshes with scattered shrubs and trees on the upland edge. Zonation to open water is variable, depending upon the slope and the width of the shoreline area. These marshy areas may expand as the lake margins accrete through siltation from the adjacent upland.

b. The wetlands of the riverbank and river channel are also narrow, fringing the river much of its length. The vegetation here is variable, depending upon annual flood events.

c. The wetland in the small drainageway in the northwest part of the property is forested with red maple with a dense shrub layer. Parts of this wetland appear to have substantial standing water during the spring and after heavy rains.

Ecological Significance and Management Recommendations

The wetlands of the Lake Mohegan Area are significant for functional roles such as wildlife habitat, nutrient retention, sedimentation control, and shoreline anchoring and the dissipation of erosive forces. Each of these wetland areas, if left in their natural state, will function in one or more of these roles. However, certain manipulation may be necessary to enhance their value. This is especially true along the eastern shore of Lake Mohegan where

the wetland marshes are said to be expanding due to storm water discharge onto the open space from the adjacent development. This expansion may, however, prove to be of increased value due to the filtration of salts and other unfavorable materials prior to discharge into the lake. Other manipulations may include periodic cutting of trees along the edge of the small pond to enhance the pond edge for wildlife value. Other wetland areas will function best if left alone, with further manipulations possibly having a negative impact on both their functional role and aesthetic value.

WILDLIFE

The 170 acre site contains a variety of wildlife habitats including forestland, open fields, wooded swamp, and brush/shrub areas. Wildlife habitat also includes and is enhanced by Lake Mohegan (18 acres), a small pond (approximately 1 acre) and the Mill River which flows through the property and into Lake Mohegan. The great diversity of habitats on the tract provides good to excellent wildlife habitat for a wide variety of wildlife.

Wildlife utilizing such an area would include mammals such as deer, rabbits, a variety of birds such as hawks, owls, songbirds and various amphibians and reptiles.

Although prepared in 1971, the description of habitats in the report Beals and Westover provides a good general description of available habitats in the area (Appendix A). Naturally, trees have aged etc., and early successional stage areas have moved onto the next step in succession but the descriptions are still generally relevant to much of the existing conditions.

BRUSH/SHRUB AREA

A large portion of the area that had been previously described as "pioneer stage" along the lake has now succeeded into a shrub/brush stage dominated by dogwoods. This area currently offers good habitat to a variety of wildlife, especially birds. This area is a good place for bird watchers because the food and cover are natural attractants and the open vista provides a good viewing space.

Recommendations

1. Maintain this area in a brush/shrub stage by periodic mowing to set-back succession. Mow only a portion of the area at a given time so that there is always a supply of this type of habitat available.

FORESTLAND

A majority of the area is covered by mature forestland, containing oak, hickory, hemlock, black birch and beech.

The mature oak and hickory trees provide mast for a variety of wildlife. In some areas a thick undergrowth of spicebush, viburnum, black birch, etc. exists which provides a vegetational "layering effect". This variation of vegetation at different heights is attractive to a variety of wildlife but is especially important to birds.

Differing age classes of forestland provides a greater diversity of habitats which in turn provides for the needs of a greater diversity of wildlife. Providing forestland in the seedling-sapling age class, the pole stage and the mature stage would add to the variety of habitats on the tract.

Recommendations

1. In coordination with a forester, plan cutting to provide for a variety of age classes (seedling-sapling, pole and mature).

2. Provide for some permanent openings (1-2 acres in size, no wider than 300 feet) within the forest to be maintained by mowing or other means, where feasible and suitable, based on recommendations of forester and biologist.
3. Preserve where and when possible den and snag trees.

Cutting would also increase the amount of "edge", areas where two distinct types of vegetation come together.

POND

The small pond provides habitat for a variety of reptiles, amphibians, aquatic mammals, waterfowl and shorebirds. Its value is limited though, due to its lack of emergent aquatic vegetation. The thick growth of shrubs and trees along the edge provides both food and cover for wildlife.

Recommendations

1. Maintain and encourage a thick and brushy edge.
2. Preserve any snag or den trees which are around the edge of the pond for use by wildlife.

Although not prime wood duck habitat, a box could be installed on the pond for demonstrative/interpretive purposes.

MILL RIVER

The river provides habitat for a variety of species. It enhances the surrounding habitat and can provide a natural "travel corridor" for wildlife.

Recommendations

1. Maintain a buffer of vegetation at least 100' wide along both sides of the stream.
2. Discourage long sections of trail along the river as it may disturb wildlife in the riparian zone and also cause soil to be eroded into the stream.

LAKE MOHEGAN

The lake provides some wildlife habitat but its value is limited due to its high recreational use by people.

Recommendations

1. Where possible around the lake encourage a brush/shrubby edge.
2. Limit the use of the lake to non-motorized boats.

DISCUSSION

In general the recommendation made by Beals and Westover are sound and still timely (Appendix A). For the conservation of wildlife habitat, use should be limited to passive/non-vehicular recreation.

Upgrading of the present trail system or a portion of it to an interpretive trail with stations would greatly add to the opportunity for environmental/ wildlife education in the area.

A consulting biologist and/or forester could re-write a detailed integrated plan with updated maps and very specific recommendations which would provide a good integrated working plan under which to manage the area.

In a small, but heavily populated state like Connecticut, where available habitat continues to decline on a daily basis, proper management of habitat is critical. A tract of land such as the Lake Mohegan area provides an opportunity to demonstrate management for a variety of purposes including forestry, recreation, wildlife and environmental education.

FISHERIES

The Lake Mohegan Open Space Area contains a wide variety of aquatic habitats supporting a diversity of fish species. The waters of the Open Space are representative of lotic (moving water) habitats in the Mill River and lentic (standing water) habitats in the G.E. Pond and Lake Mohegan.

Mill River

The river is coldwater containing a good ratio of riffle, shallow pool, and deep pool. The substrate is of sand fines, cobble, and small boulder.

Selected areas of the river from Lake Mohegan to the Merritt Parkway were sampled by backpack electroshocker to sample fish species present. Species captured included brook trout, brown trout, blacknose dace, longnose dace, common shiner, tesselated darter, white sucker, and American eel. In addition to these stream species areas downstream of the G.E. Pond also contained largemouth bass, bluegill sunfish, common (pumpkinseed) sunfish, and redbreast sunfish. All of these were the young of the year and had apparently originated from the G.E. Pond. As they are not stream dwelling species they will migrate downstream and will eventually inhabit Lake Mohegan.

The Mill River is managed for trout. In its entirety the Mill River is annually State stocked with 1190 adult trout, a mixture of brook, brown, and rainbow. A portion of these fish is allocated to the river through the Open Space. Trout surviving from spring stocking to fall have the potential to spawn. The success of the spawning warrants further investigation.

The Mill River can be separated into distinct sections by the area known as the Cascades. Areas upstream of the Cascades should rely on natural processes for the enhancement of fisheries habitat. Growth of a low, overhanging canopy of streambank vegetation should be promoted. This canopy will shade and cool

the stream during summer months as well as providing in stream cover from overhanging branches and root systems extending into the stream. The same root systems will serve to stabilize the stream banks preventing erosion and subsequent downstream siltation.

Fallen trees within the stream will also provide cover and should not be removed. However, trees should not be deliberately felled as they are stabilizing the streamside.

The river downstream of the Cascades is lacking in cover and would benefit from artificial instream structures. These structures could be in the form of random boulder placement to more elaborate wing deflectors or V-dams. The DEP Western District-Fisheries Staff could provide technical assistance for the most appropriate structure, its plan, and placement.

The Mill River enters Lake Mohegan as a broad, shallow riffle. It would be of benefit to construct a well defined channel through this section to concentrate flows during periods of low water. A series of random boulders should be placed within this channel for cover.

It is apparent that this section receives a great deal of use. The western bank of the River is in need of protection to prevent erosion. Stone rip-rap in conjunction with vegetative plantings could be utilized to provide for adequate protection. It is suggested that the USDA-Soil Conservation Service be contacted for this assessment.

Through a system of trails, the access to the Mill River is excellent. All reaches of the river are available to the angler although most use appears between the Cascades and Lake Mohegan.

G. E. Pond

This waterbody is artificial in origin being the result of a gravel excavation. The pond volume is from groundwater flow with additional water

entering from high flows of the Mill River.

The steepness of the shoreline limits aquatic plant growth to the pond perimeter. The remainder of the pond substrate is void of vegetation and might consist of various sized cobbles.

Observable fish species were largemouth bass and sunfish. The pond may also contain yellow perch, chain pickerel, brown bullhead, white sucker, and American eel. Trout may enter from the Mill River with high flows of water.

At present the pond is inhabited by and should be managed for warmwater species. Juvenile largemouth bass and sunfish were observed and serve as an indication of the successful spawning of these species. The largemouth bass will utilize the sunfish as forage and will result in a balance of these two species. Without further investigation the condition of the overall population can not be evaluated.

The aquatic vegetation around the pond perimeter will provide habitat primarily for juvenile fish. Deeper water areas may lack cover for other age classes of fish. It would be of benefit to install some sort of fish attracting structure. Structures have proven very effective for enhancing small pond fisheries by increasing the amount of suitable cover and habitat for a variety of species. The structures can be constructed from many different materials, the most widely used being brush, discarded Christmas trees, tires, or concrete blocks. The selected materials are bundled together and sunk at various locations, both in shallow and deep water. Once sunk the structures can be marked with floats for the benefit of anglers or left unmarked. The DEP Western District Fisheries Staff could provide the technical assistance in material selection, design, and site selection.

Anglers are restricted to fishing from the shoreline only. Access to the entire shoreline is available and given the steepness of the shoreline both deep and shallow water habitats can be fished.

Lake Mohegan

The lake is artificial in origin created by allowing flows of the Mill River to pass through a gravel excavation. The lake is approximately 18 acres in surface area with a maximum depth of 35 feet.

Due to the gravel excavation the shoreline slopes steeply, restricting aquatic plant growth to the lake perimeter. The remainder of the lake substrate is of till, gravel, and various sized boulders.

Fish species reported present include largemouth bass, smallmouth bass, bluegill sunfish, common (pumpkinseed) sunfish, yellow perch, chain pickerel, brown bullhead, white sucker, and American eel. In addition the State of Connecticut annually stocks a total of 2750 adult brook, brown, and rainbow trout.

The lake has the potential to be managed as a "two story" fishery, that is managing a warmwater fishery as well as a coldwater fishery. Juvenile largemouth bass, sunfish, and chain pickerel were observed in the shallows indicating reproduction of these species. Further investigation is necessary to evaluate the condition of the overall warmwater population. The lake waters are of sufficient quality to allow for the over summer survival of trout species and it is likely that a population of holdover trout do exist. Again further investigation is required to substantiate this.

The lake lacks structure in shallow water areas. Aquatic plant growth affords cover to extremely shallow water and primarily for juveniles of the species. It would be of benefit to other age classes of warmwater species to provide cover in depth to 15 feet. Construction and placement of structures, as mentioned in the G.E. Pond narrative, could be utilized.

Coldwater species would not benefit from placement of these structures in deepwater areas. The development of a low flow channel at the Mill River confluence may prove more worthwhile. The channel would allow trout to move freely between the lake and river. Holdover trout, specifically the brown trout, would have the means to enter the river for possible fall spawning.

Anglers are restricted to shoreline fishing only. Access is excellent and the steepness of the shoreline allows for a good ratio of shallow and deep water areas to be within the anglers reach.

RECREATIONAL AND PARK PLANNING CONSIDERATIONS

RECREATION PLANNING CONSIDERATIONS

Recreational Planning

Recreational opportunities are divided into those that have been developed on the site and those that have the potential for development. Swimming, picnicking, hiking and fishing already exist. Car-top boating, a group use area and development of the lake residence are recreational opportunities that can be developed (Figure 7). Following is analysis and recommendations for each of the above.

Swimming

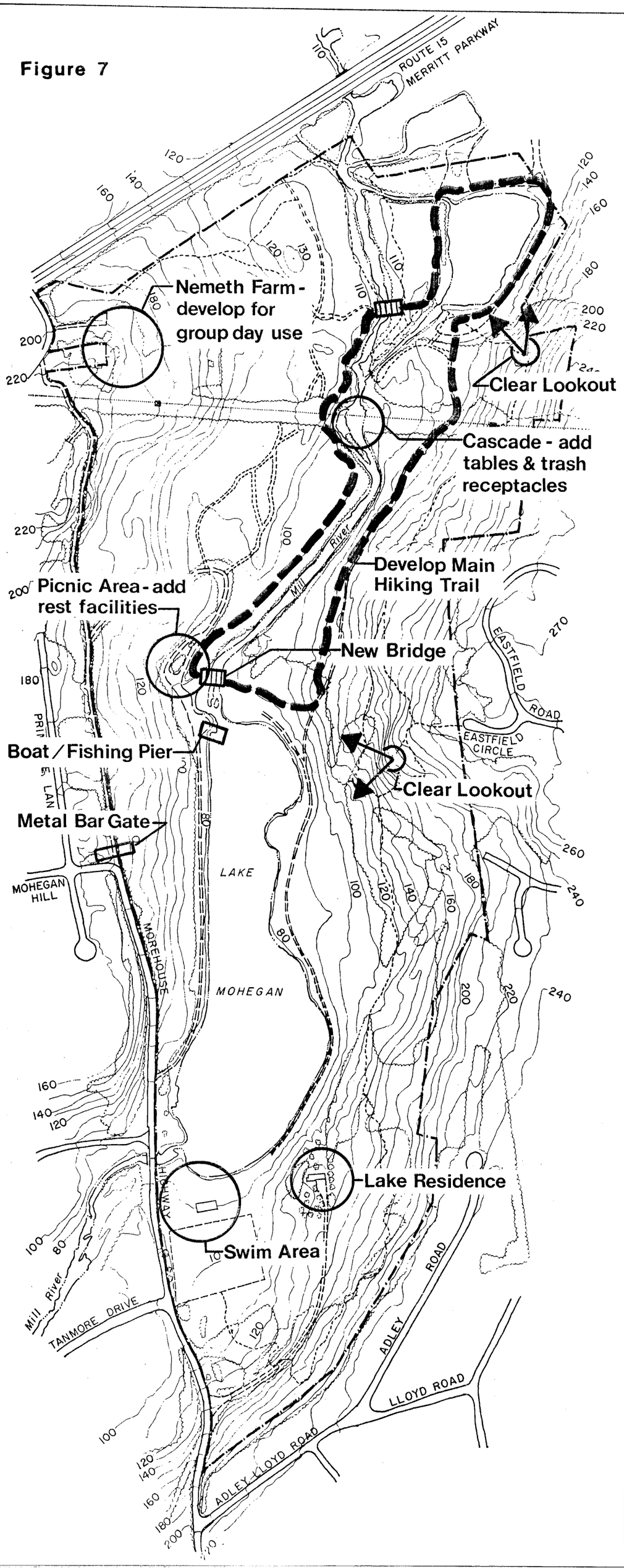
The southern end of Lake Mohegan has been developed for swimming. This area is separated from the Open Space Area by a fence and consists of a sand beach, concession building, roped swim area and large paved parking lot. No expansion of these facilities is proposed.

Picnicking

The picnic area, located at the northwest end of the lake, suffers from a lack of after-hours security. If a metal bar gate ware placed at the intersection of Morehouse Highway and Mohegan Hill access could be controlled. Restrooms should be developed especially if a dock is built and the lake opened to boating.

Another area popular for informal picnicking is the Cascades. Increased use of this area will lead to slope erosion. It is recommended that picnic tables and trash receptacles be placed on the cleared area above the Cascades diverting picnickers away from the rocks. Park service vehicles can access the area using the old logging road. If slope erosion continues planting Rosa multiflora is recommended as a last final defensive measure, short of fencing.

Figure 7



LAKE MOHEGAN

FAIRFIELD, CONNECTICUT

RECREATIONAL PLANNING ANALYSIS

King's Mark Environmental Review Team

0 400'

- FOREST EDGE
- DIRT ROAD
- PAVED ROAD
- TRAIL
- WATER EDGE
- TRANSMISSION LINE AND TOWER
- PROPERTY LINE
- CONTOUR INTERVAL 10'
- BUILDING

Hiking

This appears to be the main year-round appeal to the Lake Mohegan Open Space. Trails consist of left over logging roads, blazed hillside trails connecting to surrounding housing tracts and on-site service roads. One recommendation is that a main trail be designated, starting from the picnic area, paralleling Mill River upstream past the Cascade to the existing bridge, crossing over to and looping around the upper pond, then paralleling the river along the existing service road. A new bridge would be needed at the mouth of Lake Mohegan to allow the trail to loop back to the picnic area. This would provide one main, level trail looping the river and upper pond, short enough in length to appeal to families with small children and those out for an afternoon walk, without hiking. Placement of wood chips on the trail is also recommended, minimizing the impact of foot traffic and as another means (indirectly) of signing the trail. The main trail should be marked and have trail map signs placed at the picnic area and upper pond. The other trails should be considered as access to or loops off of the main trail. The upper loop from the upper pond could be improved by clearing a rest/view stop at the top of the climb from the upper pond and at the main lookout (Figure 7). Trees cleared could be cut in sections and used to improve the existing trail steps.

Fishing

This activity is popular in the spring because the lake is stocked with trout. Our recommendation is to clear three areas at the northerly end of the lake to provide better fishing access. Fishing could also be enhanced by inclusion of car-top boating discussed below.

Car-top Boating

Currently boating is not allowed on the lake. Consideration might be given to car-top, non motorized boating via construction of a dock within walking distance of the picnic parking area below the outlet of Mill River. This would

also allow for fishing off of the dock and extend lake fishing into the summer. In addition the lake would be open to sunfish sailing. Design considerations are post and rail fencing to keep vehicles in the parking lot requiring true portability of the boat. The use of the lake for boating does present the problem of drowning body retrieval because of lake depth (35 feet). The town does not support a diving team and currently relies on state police.

Group Use

Focus for group use activities might be the recently acquired Nemeth Farm. Opportunities are good access off of Morehouse Highway, parking for ten cars which can be enlarged and the close proximity to Lake Mohegan Open Space Areas while still being separated. Constraints are development on 10%+ slopes, development costs for rest rooms, close proximity of the neighboring residence and deed a natural restriction that requires that the site be left in a natural state. It is recommended that the town investigate the development of the site for day group use: enlarged parking, group picnic shelters and rest facilities.

Lake Residence

This is the original gravel operation office which currently is being used as a residence by a town employee. Alternatives are residence by a site care taker or development into a recreational facility. Opportunities are the excellent view to the lake, structural integrity of the building which is mostly garage and close proximity to the large parking lot below. Constraints are a long single laned access road, limited parking on top, no trail connection to the parking lot below and present lack of a recreational activity or purpose for the structure. It is recommended that the residence continue as is and consideration be given to ultimately being used as residence for a full-time care taker.

APPENDICES

Appendix A: Chapter 5. Beals and Westover Report

CHAPTER 5

LAKE MOHEGAN AND THE CASCADES

The Lake Mohegan Open Space tract is located between Morehouse Highway and the western edge of the North Stratfield section of Fairfield. The Town purchased the tract, 118.6 acres in size, in 1967, shortly before the construction of a housing subdivision on part of the site was to begin. In addition to Lake Mohegan, the tract contains forested areas, several acres of grass-covered land, and part of the Mill River. Because of its location, size, and natural diversity, the Lake Mohegan Open Space tract offers the Town a great variety of recreational and educational uses if the Town can preserve, and in some cases improve, the present state of the tract.

Before Fairfield was settled, the Lake Mohegan tract was covered with a forest of hemlock and northern hardwoods. There was no lake then. The Mill River flowed unchecked along the base of the hill that is now the western shore of Lake Mohegan. Since pre-Colonial days, dams at Easton and Hemlock reservoirs have lowered the volume of the river, and land use practices have altered the forests and created two distinct types of upland vegetation: non-forested areas of shrubs and herbaceous plants, and areas with a continuous forest cover.

The lake, the river, and the upland areas are parts of ecosystems whose ecological characteristics and capabilities for providing open space benefits are discussed below. Even though the ecosystems are distinct, the biological elements of each system must interact with elements of other systems to survive. Management of the tract should be carried out with an understanding of this interdependence.

PLATE 33

The Town owns the east bank (right) but not the west bank of the Cascades north of Lake Mohegan.

THE LAKE

Description

The bed of Lake Mohegan was created by many years of gravel excavation carried out in the stratified drift deposits along the streambed of the Mill River (plate 34). Before the Town acquired the land, the gravel dike between the river and the excavation pit was removed, allowing the river to flood the pit, forming the body of water now called Lake Mohegan.

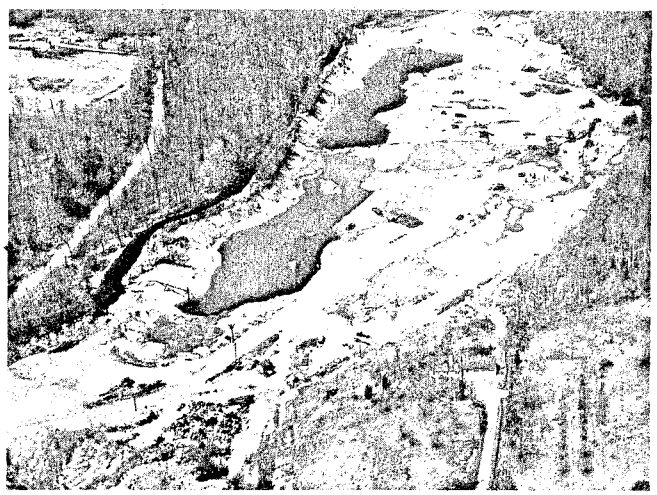


PLATE 34

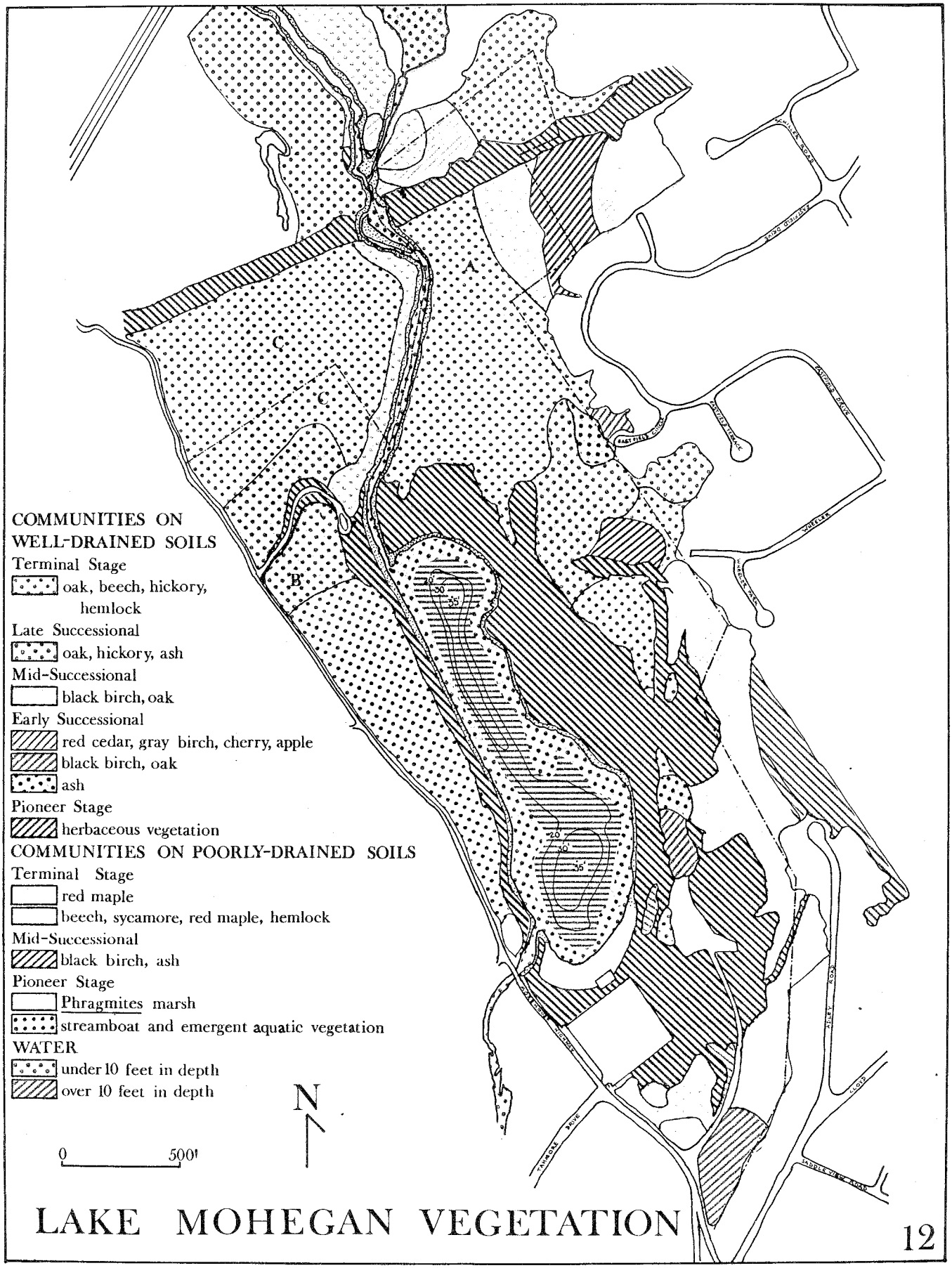
More than thirty years of gravel operations formed the bed of Lake Mohegan.

The lake is approximately 16 acres in size, and reaches a maximum depth of 35 feet (Fig. 12). The bottom of till, gravel, large rocks, and boulders is covered with a thin layer of fine sediment that has settled out of the lake water. The bottom slopes steeply downward from the shore, at places reaching a depth of twenty feet at a distance of only thirty feet from shore. Depth and bottom steepness severely limit the zone where aquatic plants — submerged, floating, and emergent — can grow; natural succession will be quite slow. The aquatic vegetation now present consists of small areas of water-milfoil and patches of spike-rush. Although the lake is capable of supporting many native fish species, the present fish population is sparse.

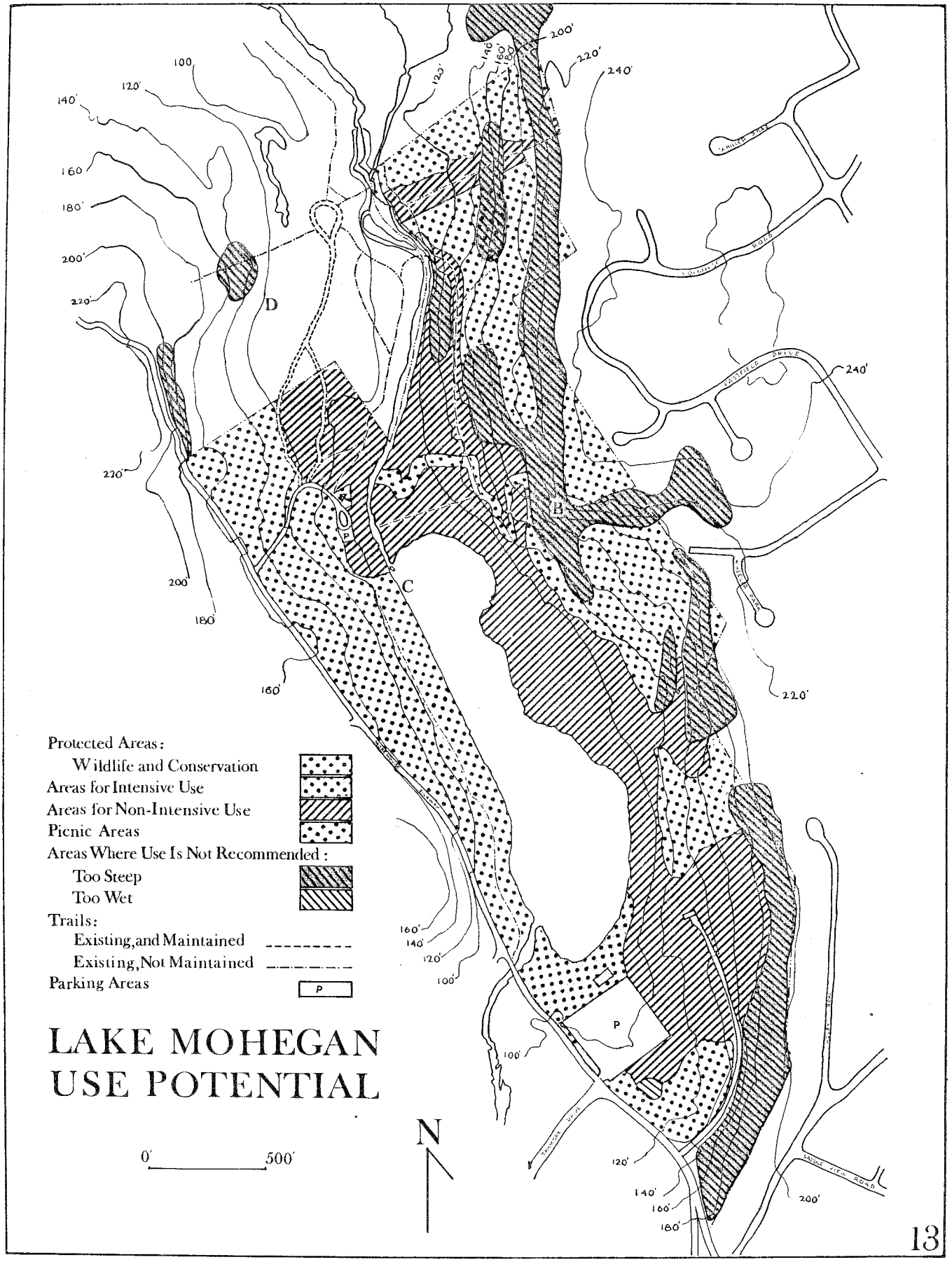
Present and Potential Use

Bathing. One of the most important reasons for acquiring the Lake Mohegan tract was to provide Fairfield with a public freshwater bathing facility. In August 1969, the Town completed construction of a sand beach, a combination snack bar and bathhouse, and a 300-car parking lot at the south end of the lake. (Fig. 13-P). Parking at the beach is regulated.[20] The Town employs beach lifeguards and two uniformed parking lot guards during the Memorial Day-to-Labor Day bathing season. The bathing facilities have been popular, with an average weekly attendance of almost 5,000 persons in 1970.

The operation of the bathing facilities at the lake has encountered some difficulties. One of the most significant problems has been the frequency of water quality levels unsuitable for bathing purposes.[21] In August 1969, water samples taken as part of the Town Health Department's pollution monitoring program showed coliform counts close to the limits established for safe swimming. A substantial rainfall occurred the next day, eventually producing an inflow of enough relatively uncontaminated water to reduce the coliform count by dilution. Had the rainfall not occurred, the Town Health Department would have closed the lake to protect bathers.



LAKE MOHEGAN VEGETATION


Protected Areas:
Wildlife and Conservation
Areas for Intensive Use
Areas for Non-Intensive Use
Picnic Areas
Areas Where Use Is Not Recommended:
Too Steep
Too Wet
Trails:
Existing, and Maintained
Existing, Not Maintained
Parking Areas
P
LAKE MOHEGAN
USE POTENTIAL
0'
500'
N
A
B
C
D
100'
120'
140'
160'
180'
200'
220'
240'

In July 1970, Town health officials noted that the coliform count of the lake water was mounting, and on July 24 the lake was closed to bathing. To relieve the pollution problem, the Bridgeport Hydraulic Company agreed to supply fresh water to the lake. On July 26, the Company released more than 1.5 million gallons of water into the Mill River from Easton Reservoir. The initial effect at Lake Mohegan was a further increase of coliform contamination, for the sudden surge of water flushed polluted river water into the lake. (The Town Health Department has found that similar increases in coliform counts immediately follow normal rainfalls.) Following the initial increase in coliform concentration, continued flow of fresh water from Easton Reservoir diluted the contaminated water of the lake and made it safe for bathing again on July 29.

Town Health Department water testing records (see Appendix 6) indicate that the inflowing water of the Mill River may be a major source of coliform contamination in the lake. Counts as high as 2,000 have been taken at the inlet to the lake.

The Town Health Department has decided to test water samples, beginning in 1971, for fecal bacteria (rather than just total coliform bacteria) to obtain an accurate count of fecal contamination. Under that program, fecal bacterial counts from the Mill River inlet and the bathing area can be compared to help determine the degree to which bathers impair water quality.

Some bathers prefer to use the north end of the lake, just east of the inlet, to swim and sunbathe. Because there is no parking lot guard or lifeguard at the north end, all bathing there is unsupervised.

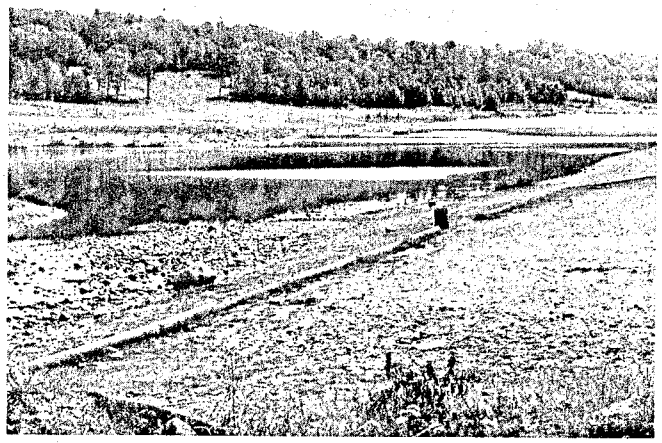


PLATE 35

Cars should be prohibited from this area (foreground) next to the Mill River inlet into Lake Mohegan.

Boating. During the summer, the lake is sometimes visited by people using rowboats, canoes, and small sailboats that can be launched at the north end of the lake. Virtually all boating activity occurs on weekends, when bathing use of the lake is heaviest, but the lake is large enough to accommodate both activities if boats stay away from the swimming area. A small dock at the north end would facilitate boat launching.

Motorboating at Lake Mohegan is not feasible. Motorboats would be hazardous to bathers, would contribute to water pollution, and would be objectionably noisy in an otherwise relatively quiet location.

Fishing. The strong demand for a good freshwater fishing resource in Fairfield is indicated by the fact that fishermen visit Lake Mohegan even though the lake is not now regularly stocked. A few bass have been introduced into the lake, but the population of sport fish is below that which the lake can support and less than that which would assure even a moderate degree of angling success.

Lake Mohegan is capable of providing better fishing. The depth of the lake ensures that there will always be cool water at the bottom, even during the heat of summer. (The oxygen content of water decreases with increasing water temperature, making it harder for fish to survive.) Food fish and insect life are already abundant. The Town could improve fishing conditions by stocking on a regular basis (see Management Proposals).

Winter Sports. Because Lake Mohegan is deep, a long period of sub-freezing weather is necessary to produce ice thick enough for skating. Such weather conditions do not occur in Fairfield every winter, but when they do, the lake is a good skating area.

If stocked with fish, the lake could also be used for ice fishing.

THE RIVER
(MOHEGAN-CASCADES SECTION)

Description

The center of the Mill River forms the west boundary of the Lake Mohegan Open Space tract from approximately 250 feet north of the power line downstream to a point about 600 feet above the inlet to the lake (Fig. 12). The river flows inside the boundaries of the tract for the remaining distance to the lake.

Between the Cascades[22] and Lake Mohegan, the river runs across the power line right-of-way, then flows into the woods and descends to the lake in a series of short races and quiet pools. The river forms a natural boundary between a steep, forested hillside to the east of the river and a narrow, wooded flood plain to the west (Figs. 12 and 13). Forested terraces west of the river are former flood plains that became high ground as the river changed its course by eroding through less resistant earth and gravel — a process that has gone on since the last ice sheet of the Wisconsin glaciation receded about 15,000 years ago.

The river's volume of flow depends upon the amount of water released from Easton Reservoir (the amount has decreased in recent years) and on water yielded by the watershed below the Easton Reservoir dam. Volume is

[20]The only autos permitted to park at the Lake Mohegan beach area are those that display a "beach sticker." To obtain a sticker, the automobile owner must be a Fairfield resident or a non-resident owner of Fairfield property. An annual fee of $1.50 is charged. The same sticker permits parking at the Town's salt-water beaches.

[21]See Appendix 6.

[22]"The Cascades" is a picturesque area where the river flows through a narrow gorge formed by bedrock ledges. Town ownership on the east side of the river includes part of this area.

highest from October to April, when plants are dormant and precipitation is slightly higher than it is during the rest of the year. During the summer and early fall, the low flow and the shallowness of the pools prevent the survival of large fish.[23] However, the river sustains many other forms of aquatic animal life (such as small fish, frogs, and insects), and supports a variety of aquatic, emergent aquatic, and streamside vegetation. Plant species include sweet pepper-bush, water willow, arrowhead, iris, and rushes.

PLATE 36

A path runs along the floodplain of the Mill River (right) north of Lake Mohegan.

Present and Potential Use

The section of the Mill River contained in the Lake Mohegan tract is only a short walk from the north-end access road. The most frequent use of the river is a non-intensive one: the wooded stream is simply enjoyed in its natural settting by people walking the streamside path, and by picnickers who relax near the banks. The Cascades are visited for the same reasons. The river's relative isolation and quiet are assets that many people appreciate and enjoy.

Young fishermen, many of whom go home without a catch, also visit the river. Pollution will have to be reduced, and water flow increased, before this section of the river is able to support sport fish.

NON-FORESTED UPLAND

The Lake Mohegan tract has two areas of cleared land whose vegetative cover consists of grasses, sedges, herbaceous plants, and shrubs. Because their wildlife cover and their capabilities for educational and recreational use differ from those of the forested areas, the open areas add to the tract's diversity, a valuable asset for public open space land.

The Power Line Right-of-Way

Description. The Connecticut Light and Power Company maintains a cleared right-of-way, with a grass and shrub cover, that cuts across the northern end of the Lake Mohegan tract just below the Cascades (Fig. 12). The cover is dominated by perennial grasses and sedges interspersed with goldenrod, touch-me-not, joe-pye weed, and other herbaceous plants. Shrubs include blackberry, staghorn sumac, and elderberry. The cover represents an early stage of succession on an area whose forest cover has been removed. Through the use of selective herbicides, the Connecticut Light and Power Company maintains the right-of-way in its present stage of succession, for if left unmanaged, the area would follow successional trends and trees would soon interfere with the power transmission lines.

The right-of-way has a high value as wildlife habitat because many species of mammals and birds rely on grass and shrub communities for food, shelter, or both. At the junction of the grass-shrub community and the forest communities, an *edge effect* is formed, where increased environmental diversity offers more opportunities for animal life.

Present and Potential Use. Currently, the major use of the right-of-way is abusive: trail motorcycles, scrambling on the right-of-way, have worn deep, eroding gullies in the steep slopes above the river (Plate 37). In some places, the motorcycle trails are several feet wide and the soil so compacted that vegetation will not grow. Because the slope is steep and the soil is unprotected where vegetation has been destroyed, erosion on the trails will become more severe if motorcycle riding continues. The trails are also unsightly, marring the attractive appearance of the right-of-way. Revegetation of the trails and the prohibition of motorcycle riding in the open space tract would correct the erosion problem and would prevent its recurrence.

The wildlife value of the grass-shrub community could be enhanced through proper management. Manipulation of existing vegetation — encouraging beneficial plants and eliminating undesirable ones — and planting wildlife food

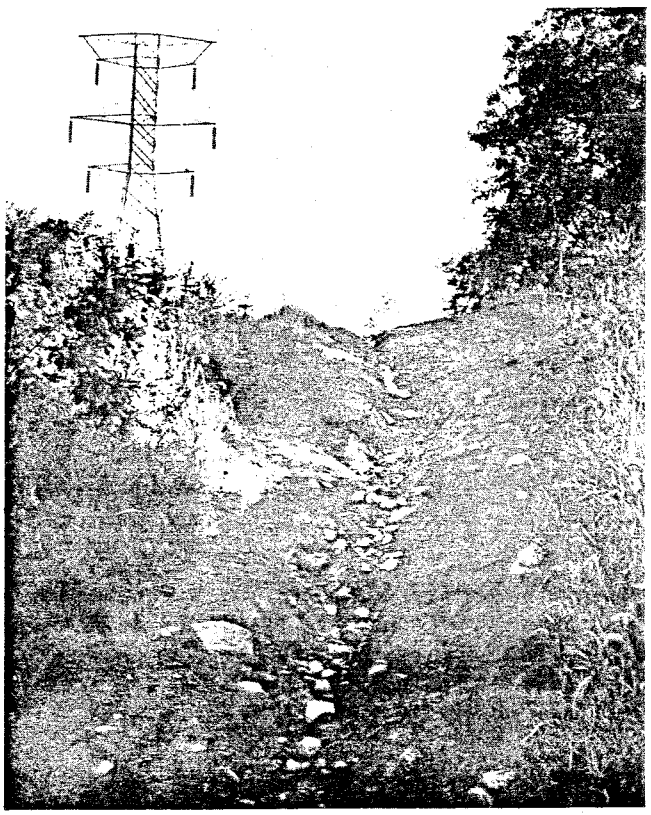


PLATE 37

Trail bikes have worn this gulley under the power line on the Lake Mohegan tract.

[23]Except for the large pool below the Cascades, no pool in this section of river is more than two feet deep.

species not now present could increase the diversity and wildlife habitat of the area.

As has been shown by the results of unrestricted motorcycle use, the soil of the right-of-way is susceptible to erosion and compaction. Because of these soil limitations, and because of the area's high value to wildlife, the right-of-way has been proposed for management as a "wildlife and conservation" area (Fig. 13-A). In order to minimize damage to soil, vegetation, and wildlife habitat, use of the right-of-way should be restricted to walking on a trail through the center of the area.

Cleared Areas Next to the Lake

Description. Between the east shore of Lake Mohegan and the edge of the woods above the lake, there are more than 17 acres of cleared land. The land was covered with forest until a few years ago, when the gravel pit operators removed all trees, stripped away the topsoil, and mined the gravel they exposed (plate 34). The vegetation of the area is composed mainly of pioneer grasses and herbaceous plants, the first to seed into a dry site following removal of the nutrient-rich upper layers of soil. Species present include panic-grass, goldenrod, clover, thistle, and mullein. Because of the absence of soil, the present vegetative cover is unstable — if a portion of the cover is disturbed, it could take several years to revegetate naturally. The absence of soil also means that plant succession will be very slow. It will take many more years of soil building and nutrient accumulation by the pioneer species before a grass-shrub stage similar to that of the power line right-of-way becomes established.

The cleared area has some value as wildlife habitat. Few animals or birds are likely to inhabit the center of the area, far from the protection of the woods, but where cleared areas and woods meet, an edge effect similar to that of the right-of-way does exist.

Present and Potential Use. The open, sloping nature of the cleared areas has limited their use to walking, trail motorcycle riding (which has caused the same problem of erosion, though less severe, as on the power line right-of-way), and wintertime sledding, tobogganing, and skiing. Use of the areas for winter sports seems to have no adverse effect on their vegetative cover.

The absence of soil, instability of vegetative cover, and slope of the cleared areas limit their potential uses. Except for vehicle travel, which should be banned because of the damage vehicles cause to soil and vegetation, the cleared areas are best suited for the activities now enjoyed there.

Beyond importing soil for small areas to be planted, there is little that one can do to encourage the growth of vegetation on a site that has been denuded of its soil. Applications of fertilizer might help, but are inadvisable because surface runoff could wash excess fertilizer into the lake and cause a pollution problem. A denuded area should be protected from erosion, but otherwise left untouched until time and natural processes begin to re-establish a shrub and tree cover. As shrubs and trees begin to dominate the site, the Town may find it valuable to keep a portion of the longest slope clear of shrubs and trees so that present winter uses — skiing, tobogganing, and sledding — can continue.

FORESTED UPLAND

Description

Physiographic variations and differences in land use practices have permitted several different forest communities to become established on the Lake Mohegan open space tract. Topography varies from the flat alluvial terraces west of the Mill River to the cliff-like ledges of crystalline bedrock (plate 39, and Fig. 13-B) that rise 150 feet above the surface of the lake. Remnants of stone walls still stand in many places, but are now under the forest canopy. Their presence indicates that the area has a history of agricultural use, with cultivation on the rich organic soil of the level river terraces and pasture on the less productive soils of the hillsides.

Several stages of succession are present on the tract. The stages range from early-successional stands of young black birch to terminal communities dominated by beech, hickory, oak, and hemlock. The different stages of succession also provide clues to the area's history. Terminal communities are growing on land that either has never been cleared, or was retired from agricultural uses at least 120 years ago. Early-successional communities are growing on land that remained cleared until much more recently.

East of the Mill River and Lake Mohegan, between the power line right-of-way and the ledge area, a terminal community makes up most of the forest cover. Predominant species include oak, beech, and hickory; sycamore, tulip poplar, black birch, ash, and red maple are less numerous. Shrubs include flowering dogwood and maple-leaved viburnum on the well-drained sites and spicebush on wet sites.

PLATE 38

Paths already provide pleasant walking through the woods northeast of the lake.

Due to the heavy shade of the high canopy, ground cover of herbaceous plants is generally light. Except for localized wet sites where spicebush growth may be thick, the forest is free of dense undergrowth, so that walking is not restricted. A wide, well-worn trail starts at the edge of the woods above the lake inlet and extends north to the power line right-of-way.

Vegetation on the ledges above the lake consists of grasses, sedges, and sweetfern growing under a sparse tree cover of oak and hickory. Some of this area has recently been disturbed, evidently by fire, and a nearly impenetrable stand of oak and ash about ten feet high has grown up.

At the base of the ledges, there is a mixture of forest communities, ranging from a pure beech stand to an area of poorly drained soil that supports a cover of early-successional black birch, ash, and red maple. Differences in soil moisture patterns caused by the ledges probably account for the lack of forest cover continuity here.

The strip of woods at the eastern edge of the Lake Mohegan tract, between the ledges and Morehouse Highway, is mostly mid-successional. The predominant species are black birch and oak, interspersed with sassafras, ash, hickory, and red maple. In some places the walking is difficult due to dense growths of Japanese honeysuckle and greenbrier where the forest cover is youngest.

On the west side of the Mill River, between the north end access road and the power line, there is a large wooded area, only about a third of which is in Town ownership (Fig. 12-C). The boundary between Town and private ownership is not marked; people using this section make no distinction between the two ownerships.[24] Two woods roads lead north from the access road, joining before reaching the power line right-of-way and continuing past the Cascades. The roads are heavily traveled by automobiles and motorcycles, and are severely rutted in places.

The forest cover of the section west of the river is composed mainly of terminal stage communities. Near the edge of the river, there is sycamore, hemlock, yellow birch, and beech. Oak, beech, hickory, and black birch predominate on the flat alluvial terraces. The same species, plus some hemlock, sugar maple, and tulip poplar, cover the hillside that climbs up to Morehouse Highway. The hillside has a fairly dense undergrowth of viburnum and spicebush, but the lower areas are very open and easy to walk in.

Beginning at the north end access road is a hillside, sloping down to the edge of Lake Mohegan, that extends south to the lake outlet. The hillside supports a terminal-stage forest cover of oak, ash, hickory, black birch, hemlock, and beech. There are many flowering dogwoods in the understory. One stand of dogwoods, opposite the lake inlet (Fig. 12-B), is so dense that the Town should consider removal of some of the overtopping hardwood trees to promote springtime blossoming of dogwoods. The entire section of woods is quite open, which makes walking easy and permits a view of the lake from Morehouse Highway. Just inside the edge of the woods, a well-used path follows the lakeshore from the outlet to the north end parking area.

[24]The privately-owned section of this wooded area is recommended for Town acquisition.

Present and Potential Use

Use of the forested areas of the Lake Mohegan tract includes picnicking (at tables provided at the north-end parking area, and in areas without tables along the river), walking, motorcycle riding, and camping. As shown on Fig. 13, a network of trails already exists, some of which is on privately owned land. The trails are in constant use by hikers and motorcyclists during the spring, summer, and fall.

Because camping requires level ground and shade, the river terraces comprise the only area of the tract suitable for use as a campground. However, the Town does not presently own enough of the area to construct satisfactory campground facilities — access roads, fireplaces, running water, and sanitation. Camping should not be permitted unless running water, toilets, and trash receptacles are installed and regularly maintained.

Motorcycles have caused bank erosion where the trails cross the river. Moreover, each time a motorcycle fords the river, sediment in the riverbed is stirred up, adding to the sediment load of the stream and increasing siltation of downstream pools. Because of these adverse effects, and because of their noise, motorcycles should be banned from the tract.

Most of the forested areas have been proposed for "wildlife and conservation" use (Fig. 13) because:

1) The topographical and vegetative diversity of the forested areas supports a variety of wildlife habitat that needs no management if it is left undisturbed.

2) The vegetative cover should be preserved for reasons of watershed protection.

3) If it is managed for wildlife and conservation purposes, the land will provide open space benefits for more people than if the land were developed for a more limited use. Preservation of the forested areas for wildlife and conservation purposes does not preclude non-intensive uses such as hiking, picnicking, and cross-country skiing.

EDUCATIONAL USE OF THE LAKE MOHEGAN TRACT

The three ecosystems — lake, river, and uplands — of the Lake Mohegan tract offer Fairfield's schools, Scout groups, and other youth organizations a great variety of opportunities for use as "outdoor laboratories." Because of the natural diversity of the tract, possible subjects of study include practically all fields of the natural sciences.

Because of its proximity to the Lake Mohegan tract, the North Stratfield Elementary School in particular could benefit from the tract's opportunities for educational use. Should other schools and organizations decide to include field study of the tract in their programs, there is sufficient parking space for buses at both ends of Lake Mohegan.

MANAGEMENT PROPOSALS FOR THE LAKE MOHEGAN TRACT

The Lake Mohegan tract, the northernmost of the open space lands that the Town owns along the Mill River, is in an important location with regard to watershed management. By acting as a buffer zone between the river and

encroaching housing subdivisions, the tract reduces the harmful effects that urbanization could have on the river's hydrology (see Chapter 3). If properly managed, the tract can continue to provide watershed protection while offering the Town space for the recreational activities and educational uses discussed above.

The following criteria govern the suggestions for management of the Lake Mohegan tract:

1) Watershed protection.
2) Maximization of potentials for conservation, educational use, and recreation, to provide a variety of activities that can be enjoyed by as many residents of Fairfield and the Greater Bridgeport region as possible.
3) Control of use intensity, to prevent abuse of the lake, river, and upland ecosystems.

Conservation

Conservation of the Lake Mohegan tract should be the Town's overall management objective. Recommendations for realizing that objective are:

1. The forested areas of the Lake Mohegan tract should be preserved. Dead trees should be left standing (unless they threaten to fall across a trail) because they can serve as den trees for wildlife.

2. In some instances, preservation or enhancement of understory shrubs or ground cover vegetation may require removal of the overstory trees. Such removal should be done in the nongrowing season (October to April), and the branches of the felled trees should be removed and piled to provide wildlife shelter.

3. The Town can increase the tract's capabilities for supporting wildlife by manipulating existing vegetation and by planting grains, shrubs, and other plants that yield wildlife food on the power line right-of-way,[25] at the edge of the cleared areas east of the lake, and around the lake itself. A list of native wildlife food plants is given in Appendix 5.

Education

The only specific recommendation to be made regarding educational use of the Lake Mohegan tract is that organizations using the area should design programs of field study for small groups. Large groups of people concentrated in small areas unavoidably harm fragile vegetation and compact soils, and can destroy what they set out to study.

Recreation

Bathing. 1. The sources of pollution of the Mill River upstream from the Merritt Parkway must be found and eliminated. The river is the major source of water for Lake Mohegan, and if its pollution is not eliminated, Lake Mohegan may experience the recurrence of unsatisfactorily high coliform bacteria concentrations.

2. If coliform bacteria concentrations continue to reach unsatisfactory levels after the contamination from the upper Mill River has ceased, the Town should then consider augmenting the natural flow of water into the lake. In the long run, the cheapest and most practical means of augmenting flow would be to sink one or more wells near the south end of the lake, where the stratified drift deposit is 10 to 20 feet thick and aquifer transmissibility is 10,000 to 50,000 gallons per day per foot.[26] Water from the well (or wells) should enter the lake at the east end of the bathing beach, to create a flow of fresh water along the beach. Augmentation of flow in the manner described should dilute to safe levels any coliform contamination caused by bathing.

3. As an alternative or supplement to sinking its own wells, the Town could try to obtain a sustained minimum flow (or to schedule periodic water releases) from the Bridgeport Hydraulic Company. However, such an arrangement would probably prove more costly in the long run than wells.[27] There is also the possibility that the Hydraulic Company might not be able to release water during periods of drought.

4. If pollution sources upriver are eliminated, flow augmentation could make the following, less desirable pollution control remedies unnecessary:

— installation of aerators (which proved ineffective when used in the 1970 season)
— limitation of the daily number of bathers, undesirable because of the high demand for the bathing facilities
— chlorination of the bathing area, a procedure that is both difficult to regulate properly in an open body of water and potentially damaging to the ecology of the lake and of the river.

5. The north end of the lake has no beach, no lifeguards, and no sanitary facilities. Bathing should not be permitted at the north end for reasons of safety and pollution control.

Boating. 1. The lake is large enough to be fished from rowboats and canoes, but is too small to accommodate both swimmers and motorboats. Motorboats would also contribute to water pollution, and their noise would be objectionable in an otherwise relatively quiet location. Motorboating on the lake should be prohibited.

2. Boats should be launched only at the north end of the lake, where the Town should consider installing a small dock, below the inlet (Fig. 13-C), for launching purposes.

Fishing. 1) The depth of Lake Mohegan (Fig. 12) indicates that the lake could support a trout population. Management would have to be on a "put-and-take" basis, because the low flow and pollution of the Mill River prevent reproduction of trout species. Stocking would normally be necessary every spring, but additional stocking might be necessary if fishing pressure is high.

2. Smallmouth bass can survive and reproduce in the lake. A few bass have already been released into the lake. Adding to their number by another stocking could establish a self-sustaining population, depending upon fishing pressure.

In deciding on a fish management program, the Town should consult the regional Fish Division office of the State Department of Fish and Game.

Picnicking. 1. More picnic tables should be added to those next to the north end access road (Fig. 13). The two tables that are now there provide insufficient space for weekend picnickers, resulting in overflow into the surrounding woods, where no trash barrels are provided.

[25]This will require cooperation with the Connecticut Light and Power Company.

[26]**Connecticut Water Resources Bulletin No. 17.**

[27]**The Fairfield Department of Public Works estimates that it would cost the Town approximately $8,000 for the season to have 500,000 gallons per day released from Easton Reservoir.**

2. Picnicking should not be permitted in areas without tables unless trash barrels are provided and maintained on a regular schedule.

Camping. 1. Satisfactory facilities for camping require cleared, level ground for tent sites, shade, access roads, permanent fireplaces, running water, and sanitation. Because these facilities are now lacking, camping should not yet be permitted at Lake Mohegan.

2. At present, the Lake Mohegan tract does not include any areas large enough to meet the above requirements without conflicting with other uses. However, if the rest of the level wooded area between the north end access road and the power line right-of-way can be acquired by the Town, it should provide enough space for a small campground (Fig. 13-D).

Use of Motor Vehicles. 1. Motor vehicles, especially trail motorcycles, cause soil compaction, erosion, stream siltation, and destruction of vegetation, and their engine noise generally offends the majority of people who visit the tract in pursuit of quiet activities. Motor vehicles should be prohibited from all areas, other than paved surfaces, of the Lake Mohegan tract.

2. Posts with locked chains or cables should be placed where the two woods roads leave the north end access road (Fig. 13). The gates would prevent private vehicle entrance, yet allow Town vehicles to enter for trash cleanup and fire suppression.

3. Permanent log barriers should be placed at the north end parking area to prevent vehicles from parking less than 100 feet from the water's edge.

Hiking. 1. The trails proposed on Fig. 13 could provide easy walks for visitors of all ages. Trails should avoid steep slopes and areas of wet soil, yet should pass through as many diverse plant communities as possible to increase the variety of plants and wildlife seen by visitors.

2. Present trails should be maintained free of obstructions. On steep slopes, where erosion is a present or potential problem, water bars can be constructed to divert surface runoff. On the power line right-of-way, where motorcycles have destroyed the vegetative cover, the compacted soil should be broken up and seeded with a mixture of plants such as Japanese millet, Sudan grass, and dwarf sunflower to stabilize the soil and provide food for wildlife.

3. The path on the west bank of the river should be kept at least a few feet away from the water's edge to prevent bank cave-ins due to foot traffic and to protect the streamside vegetation.

4. Where the trail crosses the river below the power line right-of-way, the Town should place large stepping stones to provide easier stream crossing.

Winter Sports. 1. As shrubs and trees begin to grow on the cleared area east of Lake Mohegan, the Town should keep part of the slope clear of any shrubs and trees that might interfere with sledding, tobogganing, and skiing. Brush should be cut in the fall and piled for wildlife shelter.

2. The Town should keep safety equipment — ladders and lifebuoys attached to lengths of rope — on the shores of the lake in case of skating or ice fishing accidents.

General Management

The following recommendations pertain to the general management of the Lake Mohegan tract.

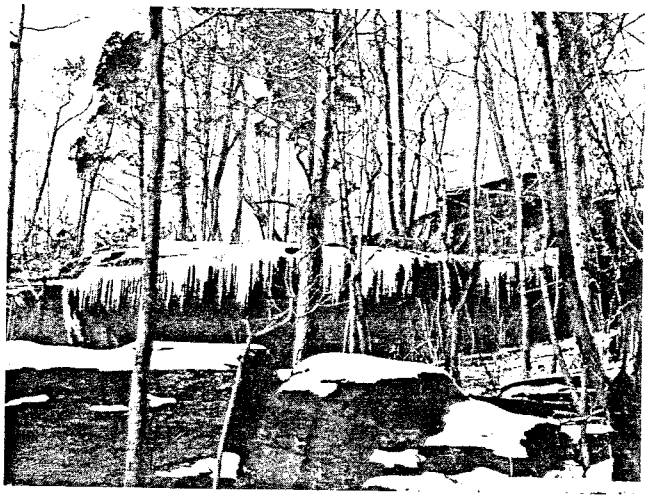


PLATE 39
A trail should provide access to these cliffs above and to the east of Lake Mohegan.

1. A permanent dam should be built at the outlet of Lake Mohegan. The present pile of rocks and gravel does not permit control of the water level of the lake, and is in danger of washing away in time of high water.

2. The parking lot at the south end bathing area should be landscaped with plantings of trees and shrubs along the edges and in island divider strips across the lot. The planted islands would help to organize parking as well as provide shade and visual relief.

3. For reasons of forest fire prevention, no open fires outside of approved fireplaces should be permitted.

4. The Town should regularly empty trash receptacles at the north end access road and picnic area.

5. The river and all hiking trails should be periodically cleaned of litter.

CHAPTER 6

HOYDEN'S HILL

The section of Fairfield known as Hoyden's Hill lies north of the Merritt Parkway and is bounded by Congress Street, Morehouse Highway, North Street, and Hoyden's Hill Road (Fig. 1). The top of Hoyden's Hill, 450 feet above sea level, is Fairfield's highest point, commanding a view that extends to Long Island when the air is clear. Though much of the hill is forested, open fields (many of them now converted to golf greens and fairways) predominate; residential housing is still light.

In December 1966, the Town of Fairfield acquired 263.5 acres on Hoyden's Hill for its Open Space program. The tract consisted of 57.5 acres of land north of Hoyden's Lane (Hoyden's Hill North) and 206 acres between Hoyden's Lane and Congress Street (Hoyden's Hill South). In April 1970, the Town purchased an additional 41 acres adjacent to Hoyden's Hill South, increasing the total size of the Hoyden's Hill Open Space tract to 304.5 acres (Fig. 1).

Appendix B: Soil Descriptions

AGAWAM SERIES

BRIEF DESCRIPTION: This is a well drained, moderately coarse textured, friable glacial fluvial (outwash) soil.

SERIES CLASSIFICATION AND MAP UNIT DESCRIPTIONS

Agawam series

The Agawam series consists of well drained soils that formed in a loamy mantle over stratified sand and gravel derived mainly from gneiss and schist. Agawam soils are on outwash plains and terraces in stream valleys. Slopes range from 0 to 15 percent but are dominantly 3 to 8 percent.

Agawam soils are on the landscape with well drained Haven soils, excessively drained Hinckley soils, somewhat excessively drained Merrimac soils, moderately well drained Ninigret soils, poorly drained Raypol soils, and very poorly drained Scarboro soils. Agawam soils have a coarser textured solum than Haven soils.

Typical pedon of Agawam fine sandy loam, 3 to 8 percent slopes, in the town of Greenwich, on the E. Thompson Boy Scout Reservation, 600 feet east of the Merritt Parkway and 20 feet north of a woods road:

O2—2 inches to 0, very dark brown (10YR 2/2) partially decomposed leaf litter.

Ap—0 to 9 inches, dark brown (10YR 3/3) fine sandy loam; weak medium granular structure; friable; common fine and medium roots; 5 percent coarse fragments; strongly acid; clear wavy boundary.

B21—9 to 19 inches, strong brown (7.5YR 5/6) fine sandy loam; massive; friable; common fine and medium roots; 5 percent coarse fragments; strongly acid; clear wavy boundary.

B22—19 to 29 inches, yellowish brown (10YR 5/6) fine sandy loam; massive; friable; few fine roots; 5 percent coarse fragments; strongly acid; gradual wavy boundary.

IIC1—29 to 35 inches, light yellowish brown (2.5Y 6/4) sand; single grain; loose; 15 percent coarse fragments; medium acid; gradual wavy boundary.

IIC2—35 to 60 inches, pale olive (5Y 6/3) sand; single grain; loose; 15 percent coarse fragments; medium acid.

The solum is 15 to 35 inches thick. Coarse fragments make up 0 to 20 percent of the solum, 0 to 30 percent of the IIC horizon above a depth of 40 inches, and 0 to 50 percent of the IIC horizon below 40 inches. The soil is very strongly acid to slightly acid.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4.

The B horizon has hue of 7.5YR to 2.5Y, value of 4 to 7, and chroma of 3 to 8. It is fine sandy loam or very fine sandy loam in the upper part and fine sandy loam in the lower part. Some pedons have a B3 horizon of sandy loam up to 5 inches thick.

The IIC horizon has hue of 10YR to 5Y, value of 3 to 7, and chroma of 1 to 4. It is loamy fine sand, loamy sand, fine sand, sand, or their gravelly analogues.

AfA—Agawam fine sandy loam, 0 to 3 percent slopes. This nearly level, well drained soil is on plains and terraces in stream valleys. The areas are irregular shape and mostly range from 5 to 50 acres.

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.

Included with this soil in mapping are small areas of excessively drained Hinckley soils, somewhat excessively drained Merrimac soils, well drained Haven soils, and moderately well drained Ninigret soils. Included areas make up about 15 percent of this map unit.

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

Most areas of this soil are used for community and industrial development. Some areas are used for corn, vegetables, and nursery crops, and a few are wooded.

The rapid permeability of this soil causes a hazard of ground-water pollution in areas used for onsite septic systems. The soil is unstable and thus is limited for excavations. Quickly establishing plant cover, mulching, and using siltation basins help to reduce erosion and sedimentation during construction.

This soil is well suited to cultivated crops and trees. Minimum tillage and the use of cover crops help to control a slight erosion hazard in cultivated areas. Machine planting is practical in areas used for woodland.

The capability class is I.

AfB—Agawam fine sandy loam, 3 to 8 percent slopes. This gently sloping, well drained soil is on plains and terraces in stream valleys. The areas are mostly irregular in shape and range from 5 to 50 acres.

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.

Included with this soil in mapping are small areas of excessively drained Hinckley soils, somewhat excessively drained Merrimac soils, well drained Haven soils, and moderately well drained Ninigret soils. Included areas make up about 15 percent of this map unit.

The permeability of this Agawam soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. Runoff is medium, and available water

capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to slightly acid.

Most areas of this soil are used for community and industrial development, and a few are used for corn, vegetables, and nursery crops (fig. 6). Some small scattered areas are wooded.

The rapid permeability of the soil causes a hazard of ground-water pollution in areas used for onsite septic systems. The soil is unstable and thus is limited for excavations. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

This soil is well suited to cultivated crops and trees. The hazard of erosion is moderate. Minimum tillage, stripcropping, and the use of cover crops help to control erosion and to maintain fertility. Machine planting is practical in areas used for woodland.

The capability subclass is IIe.

AfC—Agawam fine sandy loam, 8 to 15 percent slopes. This sloping, well drained soil is on terraces in stream valleys. The areas are mostly irregular in shape and range from 3 to 20 acres.

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.

Included with this soil in mapping are small areas of excessively drained Hinckley soils, somewhat excessively drained Merrimac soils, and well drained Haven soils. Included areas make up about 15 percent of this map unit.

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

Most areas of this soil are used for community development. A few areas are wooded, and a few are farmed.

Slope is the major limitation of this soil for community development. The rapid permeability of the soil causes a hazard of ground-water pollution in areas used for onsite septic systems. The soil is unstable and thus is limited for excavations. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

This soil is suitable for cultivated crops and trees. The hazard of erosion is severe; minimum tillage and the use of cover crops help to control erosion in cultivated areas. Machine planting is practical in areas used for trees.

The capability subclass is IIIe.

SUITABILITY FOR ON-SITE SEWAGE DISPOSAL

This well drained soil is suitable for on-site sewage disposal. Percolation rates are generally in the range of 5 to 15 minutes per inch. Bedrock is mostly at depths of 7 ft. or more. No special design considerations are normally necessary.

CHARLTON SERIES

BRIEF DESCRIPTION: This is a well drained, moderately coarse textured, friable, deep glacial till soil.

SERIES CLASSIFICATION AND MAP UNIT DESCRIPTIONS

Charlton series

The Charlton series consists of well drained and nonstony to extremely stony soils that formed in loamy glacial till derived mainly from gneiss and schist. Charlton soils are on hills and ridges of glacial till uplands. Slopes range from 3 to 45 percent but are dominantly 3 to 15 percent.

Charlton soils are on the landscape with somewhat excessively drained Hollis soils, well drained Paxton soils, moderately well drained Sutton soils, and poorly drained Leicester and Ridgebury soils. Charlton soils have a more friable C horizon than Paxton soils.

Typical pedon of Charlton fine sandy loam, 3 to 8 percent slopes, in the town of Redding, 1,300 feet northwest of the intersection of Umpawaug Road and Seventy Acres Road:

O2—1 inch to 0, partially decomposed hardwood leaf litter.

A1—0 to 6 inches, very dark brown (10YR 2/2) fine sandy loam; weak medium granular structure; friable; common fine and medium roots; 5 percent rock fragments; strongly acid; clear wavy boundary.

B21—6 to 16 inches, strong brown (7.5YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 15 percent rock fragments; strongly acid; gradual wavy boundary.

B22—16 to 29 inches, yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; 15 percent rock fragments; strongly acid; gradual wavy boundary.

C—29 to 60 inches, light olive brown (2.5Y 5/4) gravelly sandy loam; massive; friable; 20 percent rock fragments; medium acid.

The solum is 20 to 36 inches thick. Rock fragments make up 5 to 35 percent of the solum and 5 to 65 percent of the C horizon. The soil is very strongly acid to medium acid.

The A horizon has hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 1 to 3. It has weak or moderate, medium or fine granular structure and is very friable or friable.

The upper part of the B horizon has hue of 7.5YR or 10YR and value and chroma of 4 to 6, and the lower part has hue of 10YR or 2.5Y and value and chroma of 4 to 6. The B horizon is fine sandy loam, sandy loam, or their gravelly analogues. It has weak medium subangular blocky structure, or the horizon is massive. It is friable or very friable.

The C horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 2 to 4. It is sandy loam, fine sandy loam, or their gravelly analogues. It is very friable or friable and many places have firm lenses.

CfB—Charlton fine sandy loam, 3 to 8 percent slopes. This gently sloping, well drained soil is on hills and ridges. The areas are mostly irregular in shape and range from 4 to 100 acres.

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.

Included with this soil in mapping are small areas of somewhat excessively drained Hollis soils, well drained Paxton soils, and moderately well drained Sutton soils and small areas of soils with bedrock at a depth of 20 to 40 inches. Included areas make up about 15 percent of this map unit.

The permeability of this Charlton soil is moderate or moderately rapid. Runoff is medium, and available water capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to medium acid.

Most areas of this soil have been cleared, and many are used for community development. Some areas are used for hay, corn for silage, pasture, vegetables, and woodland.

This soil is generally suitable for community development. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

The soil is well suited to cultivated crops and trees. The hazard of erosion is moderate. Minimum tillage, the use of cover crops, and stripcropping help to control erosion in cultivated areas. Machine planting is practical in wooded areas.

The capability subclass is IIe.

CfC—Charlton fine sandy loam, 8 to 15 percent slopes. This sloping, well drained soil is on hills and ridges. The areas are mostly irregular in shape and range from 4 to 100 acres.

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.

Included with this soil in mapping are small areas of somewhat excessively drained Hollis soils, well drained Paxton soils, and moderately well drained Sutton soils and small areas of soils with bedrock at a depth of 20 to 40 inches. Included areas make up about 15 percent of this map unit.

The permeability of this Charlton soil is moderate or moderately rapid. Runoff is rapid, and available water capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to medium acid.

Most areas of this soil have been cleared. A few areas are used for community development, and a few others are used for hay, corn, pasture, vegetables, and woodland.

Slope is the main limitation of this soil for community development, especially in areas used for onsite septic systems. Such systems need careful design and installation to prevent effluent from seeping to the surface. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

This soil is suited to cultivated crops and trees. The hazard of erosion is severe. Minimum tillage, maintaining a permanent plant cover, and using cover crops help to control erosion in cultivated areas. Machine planting is practical in areas used for trees.

The capability subclass is IIIe.

CfD—Charlton fine sandy loam, 15 to 25 percent slopes. This moderately steep, well drained soil is on hills and ridges. The areas are mostly irregular in shape and range from 4 to 100 acres.

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.

Included with this soil in mapping are small areas of somewhat excessively drained Hollis soils and well drained Paxton soils and small areas of soils with bedrock at a depth of 20 to 40 inches. Included areas make up about 15 percent of this map unit.

The permeability of this Charlton soil is moderate or moderately rapid. Runoff is rapid, and available water capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to medium acid.

Most areas of this soil are wooded. A few areas have been cleared and are used for community development or for hay or pasture.

Slope is the main limitation of this soil for community development, especially in areas used for onsite septic systems. Such systems require special design and installation to prevent effluent from seeping to the surface. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

Slope and a severe hazard of erosion make this soil poorly suited to cultivated crops. The soil is suitable for trees, however, and machine planting is practical. Minimum tillage, stripcropping, and the use of cover crops help to control erosion in cultivated areas.

The capability subclass is IVe.

ChB—Charlton very stony fine sandy loam, 3 to 8 percent slopes. This gently sloping, well drained soil is on hills and ridges. Stones and boulders cover 1 to 5 percent of the surface. The areas are mostly irregular in shape and range from 4 to 100 acres.

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.

Included with this soil in mapping are small areas of somewhat excessively drained Hollis soils, well drained Paxton soils, and moderately well drained Sutton soils and small areas of soils with bedrock at a depth of 20 to 40 inches. Included areas make up about 15 percent of this map unit.

The permeability of this Charlton soil is moderate or moderately rapid. Runoff is medium, and available water capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to medium acid. The hazard of erosion is moderate.

Most of the acreage of this soil is wooded, but many areas are used for community development. A few areas have been cleared and are used for pasture.

The stones and boulders on the surface are the main limitation of this soil for community development, especially for landscaping. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

The stones and boulders on the surface limit the use of farming equipment and make the soil generally unsuitable for cultivated crops. Although the stones and boulders hinder machine planting, the soil is well suited to trees, and machine planting is feasible in most areas.

The capability subclass is VIs.

ChC—Charlton very stony fine sandy loam, 8 to 15 percent slopes. This sloping, well drained soil is on hills and ridges. Stones and boulders cover 1 to 5 percent of the surface. The areas are mostly irregular in shape and range from 4 to 100 acres.

Typically, the surface layer is 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.

Included with this soil in mapping are small areas of somewhat excessively drained Hollis soils, well drained Paxton soils, and moderately well drained Sutton soils and small areas of soils with bedrock at a depth of 20 to 40 inches. Included areas make up about 15 percent of this map unit.

The permeability of this Charlton soil is moderate or moderately rapid. Runoff is rapid, and available water capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to medium acid. The hazard of erosion is severe.

Most areas of this soil are wooded. Some of the acreage is used for community development, and a few small areas are used for pasture.

Slope and the stones and boulders on the surface limit this soil for community development. Slope makes careful design and installation of onsite septic systems necessary to prevent effluent from seeping to the surface. The removal of stones and boulders is necessary for landscaping. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

The stones and boulders on the surface limit the use of farming equipment and make the soil generally unsuitable for cultivated crops. Although the stones and boulders hinder machine planting, the soil is suitable for trees, and machine planting is feasible in most areas.

The capability subclass is VIs.

CnC—Charlton extremely stony fine sandy loam, 3 to 15 percent slopes. This gently sloping to sloping, well drained soil is on hills and ridges. Stones and boulders cover 5 to 35 percent of the surface. The areas

are mostly irregular in shape and range from 5 to 150 acres.

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.

Included with this soil in mapping are small areas of somewhat excessively drained Hollis soils, well drained Paxton soils, and moderately well drained Sutton soils and small areas of soils with bedrock at a depth of 20 to 40 inches. Included areas make up about 15 percent of this map unit.

The permeability of this Charlton soil is moderate or moderately rapid. Runoff is rapid, and available water capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to medium acid. The hazard of erosion is moderate.

Most of the acreage of this soil is in woodland. Some scattered areas are used for community development, and a few small areas are used for pasture.

Slope and the stones and boulders on the surface are the main limitations of this soil for community development. Slope makes careful design and installation of onsite septic systems necessary to prevent effluent from seeping to the surface. The removal of stones and boulders is necessary for landscaping. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

The stones and boulders on the surface make the use of farming equipment impractical and make the soil generally unsuitable for cultivated crops. The soil is suitable for trees, but the stones and boulders make machine planting impractical.

The capability subclass is VIIs.

CnD—Charlton extremely stony fine sandy loam, 15 to 35 percent slopes. This moderately steep and steep, well drained soil is on hills and ridges. Stones and boulders cover 5 to 35 percent of the surface. The areas are mostly irregular in shape and range from 5 to 150 acres.

Typically, the surface layer is very dark brown fine sandy loam 4 inches thick. The subsoil is strong brown and yellowish brown fine sandy loam 25 inches thick. The substratum is light olive brown gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Hollis soils and well drained Paxton soils and small areas of soils with bedrock at a depth of 20 to 40 inches. Also included are a few small areas where stones and boulders cover less than 5 percent of the surface. Included areas make up about 15 percent of this map unit.

The permeability of this Charlton soil is moderate or moderately rapid. The erosion hazard is severe. Available water capacity is moderate. The soil is very strongly acid to medium acid.

Most areas of this soil are wooded. Some scattered areas are used for community development, and a few small areas are used for pasture.

Slope and the stones and boulders on the surface are the main limitations of this soil for community development. Slope makes careful design and installation of onsite septic systems necessary to prevent effluent from seeping to the surface. The removal of stones and boulders is necessary for landscaping. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

The stones and boulders on the surface make the use of farming equipment impractical and make the soil generally unsuitable for cultivated crops. The soil is suitable for trees, but the stones and boulders make machine planting impractical.

The capability subclass is VIIs.

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. The areas of the complex are mostly irregular in shape and range from 4 to 250 acres. They have an undulating topography marked with exposed bedrock, a few drainageways, and a few small, wet depressions. 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.

Included with this complex in mapping are small areas of well drained Paxton soils, moderately well drained Sutton soils, poorly drained Leicester soils, and very poorly drained Adrian soils. Also included are small areas of soils with bedrock at a depth of 20 to 40 inches and a few larger areas, mostly in the southern part of the county, that have been cleared of stones and boulders.

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. The soils dry out and warm up early in spring. They are very strongly acid to medium acid.

Most areas of this complex are wooded. Many areas are used for community development (fig. 8), and a few small areas are used for pasture.

The major limitations of this complex for community development are the shallow depth to bedrock in the Hollis soils, the areas of exposed bedrock, and the stones and boulders on the surface. The depth to bedrock limits the soils as a site for onsite septic systems and hinders excavations. Removal of the stones and boulders is necessary for landscaping. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

The exposed bedrock and stones on the surface make the use of farming equipment impractical and make the soils generally unsuitable for cultivated crops. The

complex is suitable for trees, but the exposed bedrock and stones also limit machine planting and droughtiness in the Hollis soils limits growth. The shallow rooting depth in the Hollis soils causes the uprooting of many trees during windy periods.

The capability subclass is VIs.

CrE—Charlton-Hollis fine sandy loams, very rocky, 15 to 45 percent slopes. This complex consists of moderately steep to very steep, well drained and somewhat excessively drained soils on hills and ridges. The areas of the complex are mostly irregular in shape and range from 5 to 300 acres. They are marked with exposed bedrock, a few drainageways, and a few small, wet depressions. 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, 30 percent Hollis soils, and 20 percent other soils and exposed bedrock. The Charlton and Hollis soils are so intermingled 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 brown and dark yellowish brown fine sandy loam that extends to bedrock at a depth of 17 inches.

Included with this complex in mapping are small areas of well drained Paxton soils, moderately well drained Sutton soils, and poorly drained Leicester soils. Also included are small areas of soils with bedrock at a depth of 20 to 40 inches; a few larger areas, mainly in the southern part of the county, that have been cleared of stones and boulders; and a few areas where stones and boulders cover more than 5 percent of the surface.

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

Most areas of this complex are in woodland. A few scattered areas are used for community development, and a few small areas are used for pasture.

The major limitations of this complex for community development are slope, the stones and boulders on the surface, the areas of exposed bedrock, and the shallow depth to bedrock in the Hollis soils. Slope especially limits the complex as a site for onsite septic systems, and such systems commonly require special design and installation to prevent effluent from seeping to the surface. The depth to bedrock limits excavations in the Hollis soils. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

Slope, the stones and boulders, and the exposed bedrock make the use of farming equipment impractical and make the soils generally unsuitable for farming. The complex is suitable for trees, but the same limitations that restrict the use of farming equipment also limit machine planting. Slope and the shallow rooting depth in the Hollis soils result in the uprooting of many trees during windy periods.

The capability subclass is VIIs.

SUITABILITY FOR ON-SITE SEWAGE DISPOSAL

This well drained soil is suitable for on-site sewage disposal. Percolation rates are generally in the range of 10 to 20 minutes per inch. Bedrock is mostly at a depth of 7 ft. or more. No special design consideration are normally necessary.

In those places where there are complexes of Charlton and Hollis soils, some areas may not be acceptable for on-site sewage disposal because the depth to bedrock may be less than 4 ft.

HINCKLEY SERIES

BRIEF DESCRIPTION: This is an excessively drained, gravelly coarse textured, loose glacial fluvial (outwash) soil.

SERIES DESCRIPTION AND MAP UNIT DESCRIPTIONS

Hinckley series

The Hinckley series consists of excessively drained soils, moderately well drained Sutton soils, poorly mainly from gneiss and schist. Hinckley soils are on outwash terraces, plains, kames, and eskers in stream valleys. Slopes range from 3 to 35 percent but are dominantly 3 to 15 percent.

Hinckley soils are on the landscape with somewhat excessively drained Merrimac soils, well drained Agawam and Haven soils, moderately well drained Ninigret soils, poorly drained Raypol and Walpole soils, and very poorly drained Scarboro soils.

Typical pedon of Hinckley gravelly sandy loam, 8 to 15 percent slopes, in the town of Newtown, 0.1 mile south of Brushy Hill Road and 380 feet east of Huntington Road:

Ap—0 to 5 inches, dark brown (10YR 3/3) gravelly sandy loam; weak medium granular structure; friable; common fine roots; 20 percent coarse fragments; strongly acid; abrupt wavy boundary.

B21—5 to 9 inches, strong brown (7.5YR 5/6) gravelly sandy loam; weak medium granular structure; friable; common fine and medium roots; 20 percent coarse fragments; strongly acid; clear wavy boundary.

B22—9 to 15 inches, dark brown (7.5YR 4/4) gravelly loamy sand; single grain; very friable; common fine roots; 35 percent coarse fragments; strongly acid; gradual wavy boundary.

C1—15 to 30 inches, light olive brown (2.5Y 5/4) gravelly sand; single grain; loose; few fine roots; 40 percent coarse fragments; medium acid; clear wavy boundary.

C2—30 to 60 inches, light olive brown (2.5Y 5/4) very gravelly sand; single grain; loose; 60 percent coarse fragments; medium acid.

The solum is 12 to 30 inches thick. Coarse fragments make up 10 to 40 percent of the solum and 35 to 70 percent of the C horizon. The soil is very strongly acid to medium acid.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 to 3. It is sandy loam, loamy sand, or their gravelly analogues.

The B horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 8 in the upper part; and hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 8 in the lower part. The B horizon is sandy loam, loamy coarse sand, or their gravelly analogues to a depth of 10 inches. Below a depth of 10 inches, the B horizon is loamy fine sand to loamy coarse sand or their gravelly analogues. The horizon has weak granular structure, or it is single grain. The horizon is loose or very friable.

The C horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 4 to 8. It is gravelly loamy fine sand to very cobbly coarse sand, and it is stratified.

HkB—Hinckley gravelly sandy loam, 3 to 8 perce slopes. This gently sloping, excessively drained soil is on terraces, kames, and eskers in stream valleys. The areas are irregular in shape and mostly range from 3 tc 30 acres.

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

Included with this soil in mapping are small areas of somewhat excessively drained Merrimac soils and well drained Agawam and Haven soils. Included areas mak up about 15 percent of this map unit.

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 capacit is very low. The soil dries out and warms up early in spring. It is very strongly acid to medium acid.

Many areas of this soil are used for community and industrial development. Some scattered areas are used as a source of sand and gravel, and a few areas are used for corn, vegetables, and nursery crops.

The main limitations of this soil for community development are the very rapid permeability in the substratum and droughtiness. The permeability causes hazard of ground-water pollution in areas used for onsi septic systems. Droughtiness makes watering necessa for lawns, gardens, and shrubs on this soil. The soil is unstable, thus limiting excavations. Quickly establishing plant cover, mulching, and using siltation basins help tc control erosion and sedimentation during construction.

The soil is suitable for cultivated crops and trees, but droughtiness is a limitation for both uses. Minimum tillage and the use of cover crops help to control erosic in cultivated areas. Machine planting is practical in area used for woodland.

The capability subclass is IIIs.

HkC—Hinckley gravelly sandy loam, 8 to 15 percent slopes. This sloping, excessively drained soil i on terraces, kames, and eskers in stream valleys (fig. 9 The areas are irregular in shape and mostly range from 3 to 30 acres.

Typically, the surface layer is dark brown gravelly sandy loam 4 inches thick. The subsoil is 10 inches thick. The upper 4 inches is strong brown gravelly sand 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.

Included with this soil in mapping are small areas of somewhat excessively drained Merrimac soils and well drained Agawam and Haven soils. Included areas make up about 15 percent of this map unit.

The permeability of this Hinckley soil is rapid in the surface layer and subsoil and very rapid in the substratum. Runoff is medium, 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.

Many areas of this soil are used for community and industrial development. A few areas are used as a source of sand and gravel, and a few small areas are used for corn, vegetables, and nursery crops.

The main limitations of this soil for community development are the very rapid permeability in the substratum, droughtiness, and slope. The permeability causes a hazard of ground-water pollution in areas used for onsite septic systems. Droughtiness makes watering necessary for lawns, gardens, and shrubs on this soil. The soil is unstable, thus limiting excavations. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

The soil is suitable for cultivated crops and trees, but droughtiness is a limitation for both uses. Minimum tillage and the use of cover crops help to control a moderate hazard of erosion in cultivated areas. Machine planting is practical in areas used for woodland.

The capability subclass is IVs.

HkD—Hinckley gravelly sandy loam, 15 to 35 percent slopes. This moderately steep to steep, excessively drained soil is on terraces, kames, and eskers in stream valleys. The areas are long and narrow and mostly range from 5 to 30 acres.

Typically, the surface layer 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.

Included with this soil in mapping are small areas of somewhat excessively drained Merrimac soils and well drained Agawam soils. Included areas make up about 15 percent of this map unit.

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.

Most areas of this soil are wooded. A few areas are used as a source of sand and gravel, and a few scattered areas are used for community and industrial development.

The main limitations of this soil for community development are slope and the very rapid permeability in the substratum. The permeability causes a hazard of ground-water pollution in areas used for onsite septic systems. Droughtiness makes watering necessary for lawns, gardens, and shrubs on this soil. The soil is unstable, thus limiting excavations. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

Slope restricts the use of equipment and, along with droughtiness, makes this soil poorly suited to cultivated crops and trees.

The capability subclass is VIs.

SUITABILITY FOR ON-SITE SEWAGE DISPOSAL

This excessively drained soil is suitable for on-site sewage disposal However, because the permeability of the soil is very rapid a hazard for groundwater pollution could occur. Percolation rates are generally in the range of 3 to 6 minutes per inch. Bedrock is mostly at depths of 7 ft. or more. Special design considerations may be necessary if the perm-eability is excessive.

HOLLIS SERIES

BRIEF DESCRIPTION: This is an excessively drained, moderately coarse textured, friable, shallow to bedrock glacial till soil.

SERIES CLASSIFICATION AND MAP UNIT DESCRIPTIONS

Hollis series

The Hollis series consists of somewhat excessively drained, nonstony to extremely stony soils that formed in a thin mantle of loamy glacial till derived mainly from gneiss and schist. Hollis soils are on hilltops, ridgetops, and side slopes of bedrock-controlled uplands. Slopes range from 0 to 45 percent but are dominantly 15 to 45 percent.

Hollis soils are on the landscape with well drained Charlton soils, moderately well drained Sutton soils, poorly drained Leicester and Ridgebury soils, and very poorly drained Adrian, Carlisle, and Whitman soils.

Typical pedon of Hollis fine sandy loam, in an area of Charlton-Hollis fine sandy loams, very rocky, 3 to 15 percent slopes, in the town of Wilton, 0.3 mile south of the intersection of Millstone Road, on the east side of Grey Rock Road:

A1—0 to 3 inches, very dark grayish brown (10YR 3/2) fine sandy loam; weak medium granular structure; friable; common fine and medium roots; 15 percent rock fragments; very strongly acid; clear wavy boundary.

B21—3 to 14 inches, dark brown (7.5YR 4/4) gravelly fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 25 percent rock fragments; strongly acid; gradual wavy boundary.

B22—14 to 17 inches, dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 15 percent rock fragments; strongly acid; abrupt wavy boundary.

R—17 inches, hard unweathered schist bedrock.

The solum thickness and the depth to bedrock are 10 to 20 inches. Rock fragments make up 5 to 25 percent of the solum. The soil is very strongly acid to medium acid.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 2 and 3.

The B horizon has hue of 7.5YR and 10YR, value of 4 or 5, and chroma of 4 through 8. It is fine sandy loam, sandy loam, or their gravelly analogues. The horizon has weak medium subangular blocky structure, or it is massive. Consistence is very friable or friable.

HpC—Hollis-Charlton-Rock outcrop complex, 3 to 15 percent slopes. This complex consists of gently sloping and sloping soils on hills and ridges. The areas are irregularly shaped and mostly range from 5 to 200 acres. They have an undulating topography marked with exposed bedrock, a few narrow drainageways, and a few small, wet depressions. Stones and boulders cover 1 to 5 percent of the surface.

The complex is about 35 percent somewhat excessively drained Hollis soils, 20 percent well drained Charlton soils, 20 percent exposed bedrock, and 25 percent other soils. The Hollis and Charlton soils and exposed bedrock are so intermingled on the landscape that it was not practical to map them separately.

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

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

Included with this complex in mapping are small areas of moderately well drained Sutton soils, poorly drained Leicester soils, and very poorly drained Adrian soils. Also included are areas of soils with bedrock at a depth of 20 to 40 inches, a few areas where stones cover more than 5 percent of the surface, and a few areas with no stones or boulders on the surface.

These Hollis and Charlton soils have moderate or moderately rapid permeability. Runoff is medium to rapid. The available water capacity is low in the Hollis soils and moderate in the Charlton soils. Both soils dry out and warm up early in spring. Both are very strongly acid to medium acid.

Most areas of this complex are in woodland. Some small scattered areas are used for community development, and a few small areas have been cleared and are used for pasture.

The major limitations of this complex for community development are the shallow depth to bedrock in the Hollis soils and the areas of exposed bedrock. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

The complex is unsuitable for cultivated crops and poorly suited to trees. The major limitations for both uses are the areas of exposed bedrock, the shallow depth to bedrock in the Hollis soils, and the stones on the surface. The use of farming equipment is impractical in areas of this complex. The shallow depth to bedrock causes the uprooting of many trees during windy periods.

The capability subclass is VIs.

HrE—Hollis-Rock outcrop-Charlton complex, 15 to 45 percent slopes. This complex consists of moderately steep to very steep soils on hills and ridges. The areas are irregularly shaped and mostly range from 5 to 300 acres. They have an undulating topography marked with exposed bedrock, a few narrow drainageways, and a few small, wet depressions. Stones and boulders cover 1 to 5 percent of the surface.

The complex is about 40 percent somewhat excessively drained Hollis soils, 25 percent exposed bedrock, 20 percent well drained Charlton soils, and 15 percent other soils. The Hollis and Charlton soils and the areas of exposed bedrock are so intermingled that it was not practical to map them separately.

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

Typically, the Charlton soils have a surface layer of very dark brown fine sandy loam 4 inches thick. The subsoil is strong brown and yellowish brown fine sandy loam 25 inches thick. The substratum is light olive brown gravelly sandy loam to a depth of 60 inches or more.

Included with this complex in mapping are small areas of moderately well drained Sutton and Woodbridge soils, poorly drained Leicester soils, and very poorly drained Adrian soils. Also included are small areas of soils with bedrock at a depth of 20 to 40 inches. A few small areas have slopes of as much as 90 percent, and in a few areas stones and boulders cover more than 5 percent of the surface.

These Hollis and Charlton soils have moderate or moderately rapid permeability. Runoff is rapid or very rapid. Available water capacity is low in the Hollis soils and moderate in the Charlton soils. Both soils dry out and warm up early in spring. Both are very strongly acid to medium acid.

Most areas of this complex are in woodland. Some small scattered areas are used for community development, and a few small areas have been cleared and are used for pasture.

The major limitations of this complex for community development are slope, the shallow depth to bedrock in the Hollis soils, the stones on the surface, and the areas of exposed bedrock. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

Slope, the shallow depth to bedrock, the areas of exposed bedrock, and the stones on the surface make this complex unsuitable for cultivated crops and poorly suited to trees. The use of farm equipment in areas of this complex is impractical. The shallow depth to bedrock causes the uprooting of many trees during windy periods.

The capability subclass is VIIs.

Rp—Rock outcrop-Hollis complex. This complex is on hills and ridges. It consists of gently sloping to steep, somewhat excessively drained soils and areas of exposed bedrock. The areas of the complex are mostly long and narrow or irregularly shaped and range from 3 to 80 acres. Most have a rough topography marked with exposed bedrock, a few small drainageways, and a few small, wet depressions. Stones and boulders cover 1 to 25 percent of the surface. Slopes range from 3 to 45 percent.

The complex is about 50 percent exposed bedrock, 30 percent Hollis soils, and 20 percent other soils. The exposed rock and Hollis soils are so intermingled on the landscape that it was not practical to map them separately.

Typically, the Hollis soils have a surface layer of very dark grayish brown fine sandy loam 3 inches thick. The subsoil is dark brown and dark yellowish brown fine sandy loam that extends to bedrock at a depth of 14 inches.

Included with this soil in mapping are small areas of well drained Charlton soils, moderately well drained Sutton soils, poorly drained Leicester soils, and very poorly drained Adrian soils and areas of soils with bedrock at a depth of 20 to 40 inches. A few areas have slopes of more than 45 percent.

These Hollis soils have moderate to moderately rapid permeability. Available water capacity is low, and runoff is rapid or very rapid. The soil is very strongly acid to medium acid.

Most of this complex is wooded. Some small scattered areas are used for community development.

The areas of exposed bedrock, the shallow depth to bedrock, and slope limit this complex for community development, especially for onsite septic systems and excavations.

Slope, the shallow depth to bedrock, the areas of exposed bedrock, and the stones and boulders on the surface make the complex unsuitable for cultivated crops and poorly suited to trees. The use of farming and timber equipment is impractical. The shallow depth to bedrock limits rooting depth, and many trees are uprooted during windy periods.

The capability subclass is VIIs.

SUITABILITY FOR ON-SITE SEWAGE DISPOSAL

This mostly shallow to moderately deep to bedrock soil is generally unsuitable for on-site sewage disposal, because the bedrock in most places in less than 4 ft. deep. Infrequent areas in the map unit may contain deep Charlton soil that would be suitable for on-site sewage disposal.

BRIEF DESCRIPTION: This is a moderately well drained, moderately coarse textured, friable glacial fluvial (outwash) soil.

SERIES CLASSIFICATION AND MAP UNIT DESCRIPTIONS

Ninigret Series

This series consists of moderately well drained to somewhat poorly drained, moderately coarse to medium textured soils. The sediments from which these soils have developed were derived mainly from crystalline rocks. Some of the sediments, however, were from sedimentary Triassic sandstone and shale. Ninigret soils are associated with the Agawam soils on glaciofluvial or glaciolacustrine and stream terraces. They are the moderately well drained member of the Agawam catena. They differ from the moderately well drained Sudbury soils in being almost free of gravel to a depth of 4 or 5 feet. They differ from the Elmwood soils in underlying material; the Elmwood soils are underlain by silt and clay at depths of 2 to 4 feet.

Typical profile (Ninigret very fine sandy loam, 0 to 3 percent slopes, in a forest):

A_{00}	4 to 2 inches, raw oak leaves and pine needles.
A_0	2 inches to 0 inch, partly decomposed litter.
A_1	0 to 3 inches, very dark grayish-brown (10YR 3/2) very fine sandy loam; massive; very friable.
B_{21}	3 to 16 inches, yellowish-brown (10YR 5/6) very fine sandy loam; breaks into soft, medium, subangular blocky clods when disturbed; very friable; boundary clear.
B_{22g}	16 to 26 inches, yellowish-brown (10YR 5/4) very fine sandy loam mottled with grayish brown (2.5Y 5/2) and strong brown (7.5YR 5/6); breaks into soft, medium, subangular blocky clods; very friable.
B_{23g}	26 to 30 inches, color same as in overlying horizon; texture is sandy loam.
C_{1g}	30 to 56 inches, mottled gray (10YR 6/1), yellowish-brown (10YR 5/8), and strong-brown (7.5YR 5/6) fine sand.
C_{2g}	56 to 60 inches, mottled gray (2.5Y 5/0), dark yellowish-brown (10YR 3/4), and strong-brown (7.5YR 5/8) loamy very fine sand; weak, thick, platy structure; firm.

Textures range from very fine sandy loam to sandy loam. In cultivated fields the color of the surface soil is generally very dark grayish brown (10YR3/2). The upper subsoil ranges from yellowish brown (10YR 5/4) to strong brown (7.5YR 5/6). Depth to mottling varies because drainage ranges from moderately good to somewhat poor. Areas associated with the Enfield and Merrimac soils contain a small amount of gravel and pockets of discontinuous thin strata of sand and gravel in places. Areas associated with Elmwood and Swanton soils contain, in places, thin strata of silt or very fine sand at depths of 3 to 5 feet. A few small areas in the northeastern part of the county have reddish-colored profiles.

The principal inclusions are small areas of the Sudbury, Walpole, Elmwood, and Agawam soils.

Ninigret fine sandy loam, 0 to 3 percent slopes (NnA).—This soil has a light fine sandy loam and sandy loam surface soil and upper subsoil. It is rapidly permeable above the seasonal high water table and has a moderate moisture-holding capacity. Because the texture is coarser, it dries out faster in spring than Ninigret very fine sandy loam, 0 to 3 percent slopes. Small areas of loamy fine sand are included with this soil.

About 25 percent of the acreage is in forest. Cleared areas are used mainly for tobacco (fig. 10), potatoes, hay and pasture. Some of the acreage is used for silage corn sweet corn, vegetables, nursery stock, and alfalfa. Without drainage, the soil generally is suited to silage corn late vegetables, hay, and pasture. Fully drained or partly drained areas are suitable for tobacco, potatoes, and general crops. However, tobacco and potatoes are subject to damage in very wet seasons during the summer. Fertilizers are needed to produce high yields. Applied plant nutrients, however, leach out fairly rapidly. This soil requires management that will maintain the supply of organic matter and good tilth. (Capability unit IIw–1.)

Ninigret fine sandy loam, 3 to 8 percent slopes (NnB).—This soil is used for the same crops as Ninigret fine sandy loam, 0 to 3 percent slopes, and is suited to them. Fields used for clean-cultivated crops need simple practices to control runoff. Otherwise, management should be the same as for Ninigret fine sandy loam, 0 to 3 percent slopes. (Capability unit IIwe–1.)

Ninigret very fine sandy loam, 0 to 3 percent slope (NsA).—This soil is moderately permeable, but a seasonal high water table interferes with internal drainage. Mottles at depths of 12 to 18 inches indicate that the lower subsoil is waterlogged in wet seasons. The soil is easy to work and fairly easy to drain, and it responds to good management. The A_p horizon in cultivated areas is generally very dark grayish brown (10YR 3/2).

Compared to Agawam very fine sandy loam, 0 to percent slopes, this soil dries out somewhat more slowly in spring. However, crops are damaged less by lack of moisture during the growing season.

About 75 percent of the acreage has been cleared. The soil is used mainly for potatoes, tobacco, hay, and pasture, but some areas are used for silage corn, sweet corn vegetables, and nursery stock. Except for seepy spots this soil is generally suited without drainage to silage corn, late vegetables, hay, and pasture. Fully drained or partly drained areas are suited to potatoes, tobacco, and general crops. Preparation of the soil for planting tobacco and potatoes is delayed in spring except in fully drained areas. In wet summer seasons, these crops may be damaged by excess moisture. This soil needs fertilizer, drainage for some crops, and careful management to maintain the supply of organic matter and good tilth. (Capability unit IIw–1.)

Ninigret very fine sandy loam, 3 to 8 percent slope (NsB).—This soil has better surface drainage than Ninigret very fine sandy loam, 0 to 3 percent slopes. However, it is used for and suited to the same purposes. It occurs in small areas. Simple practices are needed to control erosion in fields used for clean-cultivated crops. (Capability unit IIwe–1.)

SUITABILITY FOR ON-SITE SEWAGE DISPOSAL

This moderately well drained soil is suitable for on-site sewage disposal if the seasonally high groundwater is drained and/ or systems are elevated above the water table. Percolation rates are generally in the range of 10 to 20 minutes per inch. Bedrock is mostly at depths of 7 ft. or more. Fields are often elevated above the seasonal high groundwater elevation by adding friable fill to the site. Curtain drains also often aid in lowering groundwater.

Pootatuck series

The Pootatuck series consists of moderately well drained soils that formed in recent alluvium derived mainly from gneiss and schist. Pootatuck soils are on flood plains of small and large streams throughout the county. Slopes range from 0 to 3 percent.

Pootatuck soils are on the landscape with poorly drained Rippowam soils and very poorly drained Adrian, Carlisle, Saco, and Scarboro soils.

Typical pedon of Pootatuck fine sandy loam, in the town of Easton, 300 feet east of Connecticut Route 58, 0.2 mile north of Silver Hill Road, and 75 feet west of the Aspetuck River:

A1—0 to 4 inches, very dark grayish brown (10YR 3/2) fine sandy loam; weak medium granular structure; friable; common fine and medium roots; strongly acid; clear wavy boundary.

B21—4 to 14 inches, dark brown (10YR 4/3) fine sandy loam; weak coarse subangular blocky structure; friable; common fine and medium roots; strongly acid; gradual wavy boundary.

B22—14 to 28 inches, dark brown (10YR 3/3) sandy loam; common medium distinct grayish brown (10YR 5/2) and strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; common fine roots; medium acid; clear wavy boundary.

C1—28 to 35 inches, dark brown (10YR 4/3) sand; common medium distinct grayish brown (10YR 5/2) and strong brown (7.5YR 5/6) mottles; massive; very friable; few fine roots; medium acid; clear wavy boundary.

C2—35 to 40 inches, grayish brown (2.5Y 5/2) sand; few fine faint pale brown (10YR 6/3) mottles; single grain; loose; 5 percent coarse fragments; medium acid; clear wavy boundary.

C3—40 to 60 inches, grayish brown (10YR 5/2) gravelly sand; single grain; loose; 25 percent coarse fragments; medium acid.

The solum is 20 to 40 inches thick. Coarse fragments make up 0 to 15 percent of the solum and 0 to 15 percent of the part of the C horizon at a depth of less than 40 inches. Coarse fragments make up 0 to 40 percent of the C horizon at a depth of more than 40 inches. The soil is strongly acid to slightly acid.

The A horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 to 4.

The B horizon has hue of 10YR to 2.5Y and value and chroma of 3 to 6. It is fine sandy loam or sandy loam. The horizon has weak medium granular structure or weak subangular blocky structure.

The C horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 6. It is loamy fine sand to coarse sand or is their gravelly analogues at a depth of more than 40 inches.

Ps—Pootatuck fine sandy loam. This nearly level, moderately well drained soil is on flood plains of the major streams and their tributaries. Most areas are long and narrow and range from 4 to 20 acres. Slopes range from 0 to 2 percent.

Typically, this soil has a surface layer of very dark grayish brown fine sandy loam 4 inches thick. The subsoil is dark brown fine sandy loam and sandy loam 24 inches thick and is mottled in the lower part. The substratum is brown, mottled sand and gravelly sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of poorly drained Rippowam soils and very poorly drained Saco soils. Also included are a few small areas of well drained soils and soils that have a surface layer and subsoil of silt loam. Included areas make up about 15 percent of this map unit.

This Pootatuck soil is subject to frequent flooding. It has a seasonal high water table at a depth of about 20 inches from late fall until spring. Permeability is moderate or moderately rapid in the surface layer and subsoil and rapid or very rapid in the substratum. Runoff is slow, and available water capacity is moderate. The soil dries out and warms up slowly in spring. It is very strongly acid to slightly acid.

Many areas of this soil are wooded. A few areas have been cleared and are used for corn, hay, pasture, and vegetables. A few scattered areas have been filled and are used for community development.

Flooding limits this soil for community development, and slopes of excavations in the soil are unstable.

The soil is well suited to cultivated crops and trees. Its use is limited by the seasonal high water table and flooding, but most areas are seldom flooded during the summer growing season. Machine planting is practical in areas used for trees.

The capability subclass is IIw.

RAYPOL SERIES

BRIEF DESCRIPTIONS: This is a poorly drained, medium over coarse textured, friable glacial fluvial (outwash) soil.

SERIES DESCRIPTION AND MAP UNIT DESCRIPTION

Raypol series

The Raypol series consists of poorly drained soils that formed in a mantle of silt loam or very fine sandy loam over stratified sand and gravel derived mainly from gneiss and schist. Raypol soils are in depressional areas of outwash plains and terraces. Slopes range from 0 to 3 percent but are dominantly less than 1 percent. The Raypol soils in this survey area are a taxadjunct because they are nonacid.

Raypol soils are on the landscape with poorly drained Walpole soils and very poorly drained Adrian, Carlisle, Saco, and Scarboro soils. They are adjacent to well drained Agawam and Haven soils and moderately well drained Ninigret soils. Raypol soils have a finer textured solum than Walpole soils.

Typical pedon of Raypol silt loam, in the town of Shelton, about 170 feet west of Israel Hill Road, 0.6 mile south of the intersection of Connecticut Route 110 and Israel Hill Road:

Ap—0 to 6 inches, black (10YR 2/1) silt loam; weak medium granular structure; friable; common fine roots; strongly acid; clear wavy boundary.

B21—6 to 10 inches, grayish brown (2.5Y 5/2) silt loam; many medium distinct yellowish brown (10YR 5/6) and light gray (10YR 7/2) mottles; weak medium subangular blocky structure; friable; few fine roots; strongly acid; clear wavy boundary.

B22—10 to 16 inches, light brownish gray (2.5Y 6/2) silt loam; many medium distinct yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine roots; strongly acid; clear wavy boundary.

B3—16 to 19 inches, light brownish gray (2.5Y 6/2) very fine sandy loam; common medium distinct yellowish brown (10YR 5/8) and light yellowish brown (10YR 6/4) mottles; massive; friable; few fine roots; strongly acid; clear wavy boundary.

IIC1—19 to 22 inches, brown (10YR 5/3) loamy sand; common medium faint light brownish gray (10YR 6/2) and brownish yellow (10YR 6/6) mottles; massive; friable; strongly acid; clear wavy boundary.

IIC2—22 to 45 inches, brown (10YR 5/3) sand; few medium faint light yellowish brown (10YR 6/4) mottles; single grain; loose; 5 percent coarse fragments; medium acid; clear wavy boundary.

IIC3—45 to 60 inches, yellowish brown (10YR 5/4) sand; single grain; loose; 10 percent coarse fragments; medium acid.

The solum thickness and depth to sand and gravel are 18 to 40 inches. Coarse fragments make up 0 to 10 percent of the solum and 0 to 50 percent of the IIC horizon. The soil is very strongly acid or strongly acid in the solum and strongly acid through slightly acid in the substratum.

The A horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 or 2.

The B horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 to 4. It has distinct or prominent mottles. The horizon is silt loam, very fine sandy loam, or loam. It has weak or moderate medium subangular blocky structure, or it is massive. Consistence is very friable or friable.

The IIC horizon has hue of 10YR to 2.5Y, value of 4 to 6, and chroma of 2 to 4. It is loamy sand, sand, or gravelly sand.

Rb—Raypol silt loam. This nearly level, poorly drained soil is in depressions on plains and terraces. The areas are irregularly shaped and mostly range from 3 to 45 acres. Slopes range from 0 to 3 percent.

Typically, this soil has a surface layer of black silt loam 6 inches thick. The subsoil is grayish brown and light brownish gray, mottled silt loam and very fine sandy loam 13 inches thick. The substratum extends to a depth of 60 inches or more. It is 3 inches of brown, mottled loamy sand underlain by mottled sand.

Included with this soil in mapping are small areas of moderately well drained Ninigret soils, poorly drained Walpole soils, and very poorly drained Saco and Scarboro soils. Also included are a few areas of soils that have loamy material to a depth of more than 40 inches. Included areas make up about 20 percent of this map unit.

This Raypol soil has a seasonal high water table at a depth of about 6 inches from fall until late spring. The permeability of the soil is moderate in the surface layer and subsoil and rapid or very rapid in the substratum. Runoff is slow, and available water capacity is moderate. The soil dries out and warms up slowly in spring. It is very strongly acid or strongly acid in the surface layer and subsoil and strongly acid to slightly acid in the substratum.

Most areas of this soil are wooded. A few scattered areas are used for hay, pasture, corn, and vegetables, and a few small areas are used for community development.

The seasonal high water table and the rapid permeability in the substratum limit this soil for community development. Ground-water pollution is a hazard in areas used for onsite septic systems. Excavations in the soil are commonly filled with water, and many areas do not have drainage outlets. Quickly establishing plant cover and using siltation basins help to control erosion and sedimentation during construction.

The soil is suitable for cultivated crops. Many areas need drainage, but a lack of suitable outlets makes the soil difficult to drain. The soil is poorly suited to trees. The high water table restricts root growth, and many trees are uprooted during windy periods.

The capability subclass is IIIw.

SUITABILITY FOR ON-SITE SEWAGE DISPOSAL

This poorly drained wetland soil is unsuitable for on-site sewage disposal because of prolonged high groundwater.

RIDGEBURY SERIES

BRIEF DESCRIPTION: This is a poorly drained, moderately coarse textured, compact, deep glacial till soil.

SERIES CLASSIFICATION AND MAP UNIT DESCRIPTIONS

Ridgebury series

The Ridgebury series consists of poorly drained, nonstony to extremely stony soils that formed in loamy compact glacial till derived mainly from gneiss and schist. Ridgebury soils are on side slopes, in slightly concave positions, and in drainageways on drumlins and till plains. Slopes range from 0 to 8 percent but are dominantly less than 3 percent.

Ridgebury soils are on the landscape with well drained Charlton and Paxton soils, moderately well drained Sutton and Woodbridge soils, poorly drained Leicester soils, and very poorly drained Whitman soils. Ridgebury soils have a firmer and more compact C horizon than the Leicester soils.

Typical pedon of Ridgebury fine sandy loam, in the town of Monroe, 0.25 mile east of Connecticut Route 111 and 75 feet west of a pond southeast of Marion Heights Academy:

Ap—0 to 8 inches, very dark grayish brown (10YR 3/2) fine sandy loam; weak medium granular structure; friable; common fine roots; 5 percent rock fragments; strongly acid; clear smooth boundary.

B21—8 to 14 inches, brown (10YR 5/3) fine sandy loam; common medium distinct yellowish red (5YR 5/8) and grayish brown (2.5Y 5/2) mottles; weak medium subangular blocky structure; friable; few fine roots; 5 percent rock fragments; strongly acid; clear wavy boundary.

B22—14 to 18 inches, light brownish gray (2.5Y 6/2) fine sandy loam; many medium prominent yellowish red (5YR 4/6) and many medium distinct yellowish brown (10YR 5/4) mottles; weak coarse subangular blocky structure; friable; few fine roots; 5 percent rock fragments; strongly acid; clear wavy boundary.

C1x—18 to 30 inches, grayish brown (2.5Y 5/2) fine sandy loam; many coarse distinct strong brown (7.5YR 5/8) mottles and many medium distinct yellowish brown (10YR 5/4) mottles; moderate medium platy structure; firm, brittle; 15 percent rock fragments; medium acid; clear smooth boundary.

C2x—30 to 60 inches, dark yellowish brown (10YR 4/4) fine sandy loam; many medium distinct yellowish red (5YR 5/8) mottles and many coarse distinct light gray (10YR 7/1) mottles; moderate medium platy structure; very firm, brittle; 15 percent rock fragments; medium acid.

The solum thickness and the depth to the fragipan are 10 to 30 inches. Rock fragments make up 5 to 35 percent of the soil. The soil is very strongly acid to medium acid.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. The horizon is fine sandy loam or loam. It has weak, fine or medium granular structure, and consistence is very friable or friable.

The B horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 0 to 3. It is fine sandy loam, loam, or their gravelly analogues. It has weak medium or coarse subangular blocky structure.

The Cx horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 to 4. It is sandy loam, fine sandy loam, loam, or their gravelly analogues. The horizon has weak or moderate, medium or thick platy structure, or it is massive. The horizon is firm or very firm and brittle.

Rd—Ridgebury fine sandy loam. This nearly level to gently sloping, poorly drained soil is in low areas and drainageways on drumlins and hills. The areas are mostly long and narrow and range from 4 to 30 acres. 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.

Included with this soil in mapping are small areas of moderately well drained Woodbridge soils, poorly drained Leicester soils, and very poorly drained Whitman and Adrian soils. Also included are a few small areas of soils with a surface layer and subsoil of silt loam and soils that have slopes of more than 5 percent. Included areas make up about 15 percent of this map unit.

This Ridgebury soil has a high water table 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 soil dries out and warms up slowly in spring. It is very strongly acid or medium acid.

Most areas of this soil have been cleared and are used for hay or pasture. A few areas are wooded, and some scattered areas are used for community development.

The seasonal high water table and the slow or very slow permeability in the substratum limit this soil for community development, especially for onsite septic systems. Slopes of excavations are unstable when wet, and lawns are frequently soggy. Quickly establishing plant cover and using siltation basins help to control erosion and sedimentation during construction.

The soil is suitable for cultivated crops and trees. Artificial drainage is needed. Even when drained, however, the soil usually remains wet for several days after heavy rains, restricting the use of farming equipment. The high water table restricts the root growth of trees, and many trees are uprooted during windy periods.

The capability subclass is IIIw.

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. The areas are irregularly shaped or long and narrow and mostly range from 3 to 50 acres. Slopes range from 0 to 8 percent but are dominantly less than 3 percent.

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 4 inches thick. The subsoil is brown, mottled fine sandy loam and gravelly fine sandy loam 25 inches thick. The substratum is olive brown, mottled gravelly fine sandy loam to a depth of 60 inches or more.

Typically, the Whitman soils have a surface layer of very dark gray 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.

Included with this unit in mapping are small areas of moderately well drained Woodbridge and Sutton soils and very poorly drained Adrian and Scarboro soils. Also included are small areas where stones and boulders cover less than 5 percent of the surface or more than 35 percent and small areas that have slopes of more than 8 percent.

The major soils in this unit have a seasonal high water table 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 medium acid, and the Whitman soils are very strongly acid to slightly acid. These soils dry out and warm up slowly in the spring.

Most areas of this unit are wooded (fig. 10). A few small areas are used for pasture, and a few small areas are used for community development.

The high water table, ponding, and the stones and boulders on the surface limit these soils for community development. Onsite septic systems require extensive filling and special design and installation because of the high water table. Excavations are commonly filled with water, and many areas do not have suitable drainage outlets. Quickly establishing plant cover and using siltation basins help to control erosion and sedimentation during construction.

The stones and boulders on the surface make the use of farming equipment impractical and make the soils generally unsuitable for cultivated crops. The soils are suitable for trees, but the stones and boulders also limit the use of woodland planting and harvesting equipment. The seasonal high water table in these soils restricts the rooting depth of trees and causes the uprooting of many trees during windy periods.

The capability subclass is VIIs.

SUITABILITY FOR ON-SITE SEWAGE DISPOSAL

This poorly drained wetland soil is unsuitable for on-site sewage disposal, because of prolonged high groundwater.

RIPPOWAM SERIES

BRIEF DESCRIPTION: This is a poorly drained, moderately coarse textured, friable alluvial soil formed on the floodplain.

SERIES DESCRIPTION AND MAP UNIT DESCRIPTIONS

Rippowam series

The Rippowam series consists of poorly drained soils that formed in recent alluvial sediment derived mainly from gneiss and schist. Rippowam soils are on flood plains of small and large streams. Slopes range from 0 to 3 percent.

Rippowam soils are in a drainage sequence with moderately well drained Pootatuck soils. They are associated on the landscape with very poorly drained Scarboro soils.

Typical pedon of Rippowam fine sandy loam, in the town of Redding, 100 feet south of Cross Highway and 100 feet east of the Little River:

A1—0 to 5 inches, very dark grayish brown (10YR 3/2) fine sandy loam; weak medium granular structure; friable; common fine and medium roots; strongly acid; gradual wavy boundary.

B21—5 to 12 inches, dark grayish brown (10YR 4/2) fine sandy loam; common medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; common fine and medium roots; very strongly acid; clear wavy boundary.

B22—12 to 19 inches, dark gray (10YR 4/1) fine sandy loam; many medium distinct yellowish red (5YR 4/6) mottles; weak medium subangular blocky structure; friable; few fine and medium roots; strongly acid; clear wavy boundary.

B23—19 to 24 inches, grayish brown (10YR 5/2) sandy loam; common medium distinct strong brown (7.5YR 5/6) mottles; massive; friable; few fine and medium roots; strongly acid; clear wavy boundary.

B24—24 to 27 inches, very dark gray (10YR 3/1) sandy loam; massive; friable; few fine and medium roots; medium acid; clear wavy boundary.

IIC1—27 to 31 inches, dark gray (10YR 4/1) loamy sand; massive; friable; medium acid; clear wavy boundary.

IIC2—31 to 60 inches, grayish brown (10YR 5/2) gravelly sand; single grain; loose; 35 percent coarse fragments; medium acid.

The solum is 20 to 40 inches thick. Coarse fragments make up 0 to 15 percent of the solum and 0 to 40 percent of the IIC horizon. The soil is very strongly acid to slightly acid; some medium acid or slightly acid subhorizons are between the surface and a depth of 40 inches.

The A horizon has hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 1 or 2.

The B horizon has hue of 10YR to 5Y, value of 3 to 6, and chroma of 1 or 2. It has faint to prominent mottles. The horizon is sandy loam, fine sandy loam, or loam. It has weak or moderate, fine or medium subangular blocky or granular structure. Consistence is very friable or friable.

The IIC horizon has hue of 10YR or 5Y, value of 3 to 6, and chroma of 1 or 2. It is loamy sand, sand, or their gravelly analogues.

Ro—Rippowam fine sandy loam. This nearly level, poorly drained soil is on flood plains of major streams and their tributaries. The areas are long and narrow or irregularly shaped and mostly range from 3 to 30 acres. Slopes are less than 3 percent.

Typically, this soil has a surface layer of very dark grayish brown fine sandy loam 5 inches thick. The subsoil is brown and gray, mottled fine sandy loam and sandy loam 19 inches thick. The substratum is dark gray loamy sand and grayish brown gravelly sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of moderately well drained Pootatuck soils and very poorly drained Saco and Scarboro soils. Also included are a few areas with a surface layer and subsoil of silt loam. Included areas make up about 15 percent of this map unit.

This Rippowam soil is subject to frequent flooding. It has a seasonal high water table 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 rapid or very rapid in the substratum. Runoff is slow or very slow, and available water capacity is moderate. The soil dries out and warms up slowly in spring. It is mainly very strongly acid to slightly acid, but some layers above a depth of 40 inches are medium acid or slightly acid.

Most areas of this soil are wooded. A few areas are used for hay, pasture, and corn, and a few small scattered areas have been filled and are used for community development.

The frequent flooding and the seasonal high water table are the main limitations of this soil for community development. Extensive filling is needed for onsite septic systems. Excavations are commonly inundated by water, and slopes of excavations are unstable when wet.

This soil is suitable for cultivated crops. The high water table and frequent flooding limit farming, but most areas are seldom flooded during the summer. The soil is poorly suited to trees. Wetness limits the use of equipment, and the seasonal high water table restricts rooting depth and causes the uprooting of many trees during windy periods.

The capability subclass is IIIw.

SUITABILITY FOR ON-SITE SEWAGE DISPOSAL

This poorly drained floodplain soil is unsuitable for on-site sewage disposal because of high groundwater and flood hazard.

SUTTON SERIES

BRIEF DESCRIPTION: This is a moderately well drained, moderately coarse textured, friable, deep glacial till soil.

SERIES CLASSIFICATION AND MAP UNIT DESCRIPTIONS

Sutton series

The Sutton series consists of moderately well drained, nonstony to extremely stony soils that formed in loamy glacial till derived mainly from gneiss and schist. Sutton soils are on concave positions on lower slopes or in slight depressions of glaciated uplands. Slopes range from 3 to 8 percent.

Sutton soils are on the landscape with somewhat excessively drained Hollis soils, well drained Charlton and Paxton soils, moderately well drained Woodbridge soils, and poorly drained Leicester and Ridgebury soils. Sutton soils have a more friable C horizon than Woodbridge soils.

Typical pedon of Sutton fine sandy loam, in an area of Sutton very stony fine sandy loam, 3 to 8 percent slopes, in the town of Monroe, 140 feet south of utility pole number 2709 on Bugg Hill Road, and 0.1 mile east of Cross Hill Road:

Ap—0 to 8 inches, dark grayish brown (10YR 4/2) fine sandy loam; weak medium granular structure; friable; common fine and medium roots; 15 percent rock fragments; strongly acid; clear smooth boundary.

B21—8 to 18 inches, yellowish brown (10YR 5/6) fine sandy loam; few medium faint strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; common fine roots; 10 percent rock fragments; strongly acid; clear wavy boundary.

B22—18 to 24 inches, yellowish brown (10YR 5/4) fine sandy loam; common medium distinct strong brown (7.5YR 5/6) and light brownish gray (2.5Y 6/2) mottles; weak medium subangular blocky structure; friable; few fine roots; 10 percent rock fragments; medium acid; clear wavy boundary.

C1—24 to 32 inches, yellowish brown (10YR 5/4) fine sandy loam; many medium distinct strong brown (7.5YR 5/6) and light brownish gray (2.5Y 6/2) mottles; weak thick platy structure; friable; 15 percent rock fragments; medium acid; gradual wavy boundary.

C2—32 to 60 inches, yellowish brown (10YR 5/4) fine sandy loam; many medium distinct strong brown (7.5YR 5/6) and light brownish gray (2.5Y 6/2) mottles; massive; friable; 10 percent rock fragments; medium acid.

The solum is 20 to 36 inches thick. Rock fragments make up 5 to 35 percent of the soil. The soil is very strongly acid to medium acid in the solum and very strongly acid to slightly acid in the substratum.

The A horizon has hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 1 or 2. It has weak or moderate medium granular structure.

The B horizon has hue of 7.5YR or 10YR and value and chroma of 4 to 6. It is fine sandy loam, loam, or sandy loam. The horizon has weak granular or subangular blocky structure, or it is massive. Consistence is very friable or friable.

The C horizon has hue of 2.5Y or 10YR, value of 4 to 6, and chroma of 2 to 4. The horizon has weak thick platy structure, or it is massive. Consistence is friable; firm lenses are in many places.

SvB—Sutton fine sandy loam, 3 to 8 percent slopes. This gently sloping, moderately well drained soil is in slight depressions and on the sides of hills and ridges. The areas are irregular in shape and mostly range from 4 to 40 acres.

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

Included with this soil in mapping are small areas of well drained Charlton and Paxton soils, moderately well drained Woodbridge soils, and poorly drained Leicester and Ridgebury soils. Also included are a few areas of soils with slopes of less than 3 percent or more than 8 percent. Included areas make up about 15 percent of this map unit.

This Sutton soil has a seasonal high water table 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 dries out and warms up slowly in the spring. It is very strongly acid to medium acid in the surface layer and subsoil and very strongly acid to slightly acid in the substratum.

Many areas of this soil are used for community development. A few small areas are used for pasture, hay, corn, and vegetables, and a few are wooded.

The seasonal high water table limits community development and makes special design and installation of onsite septic systems necessary. Footing drains help prevent wet basements. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

This soil is well suited to cultivated crops and trees. Artificial drainage is needed in most farmed areas. Minimum tillage and the use of cover crops help to control a moderate erosion hazard in cultivated areas. Machine planting is practical in areas used for trees.

The capability subclass is IIw.

SwB—Sutton very stony fine sandy loam, 3 to 8 percent slopes. This gently sloping, moderately well drained soil is in slight depressions and on the sides of hills and ridges. Stones and boulders cover 1 to 5 percent of the surface. The areas are irregularly shaped and mostly range from 4 to 30 acres.

Typically, this soil has a surface layer of dark grayish brown fine sandy loam 8 inches thick. The subsoil and substratum are yellowish brown, mottled fine sandy loam

to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Charlton and Paxton soils, moderately well drained Woodbridge soils, and poorly drained Leicester and Ridgebury soils. Also included are a few areas of nearly level soils. Included areas make up about 15 percent of this map unit.

This Sutton soil has a seasonal high water table 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 hazard of erosion is moderate.

Many areas of this soil are wooded. Some scattered areas are used for community development, and a few small areas are used for hay or pasture.

The seasonal high water table and the stones and boulders on the surface limit community development. Onsite septic systems require special design and installation because of the seasonal high water table. Footing drains help prevent wet basements. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

The stones and boulders on the surface limit the use of farming equipment and make the soil generally unsuitable for cultivated crops. The stones and boulders also limit machine planting for woodland, but the soil is well suited to trees, and machine planting is practical in most areas.

The capability subclass is VIs.

SxB—Sutton extremely stony fine sandy loam, 3 to 8 percent slopes. This gently sloping, moderately well drained soil is in slight depressions and on the sides of hills and ridges. Stones and boulders cover 5 to 35 percent of the surface. The areas are irregularly shaped and mostly range from 4 to 30 acres.

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.

Included with this soil in mapping are small areas of well drained Charlton and Paxton soils, moderately well drained Woodbridge soils, and poorly drained Leicester and Ridgebury soils. Also included are a few areas with slopes of more than 8 percent or less than 3 percent. Included areas make up about 15 percent of this map unit.

This Sutton soil has a seasonal high water table 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.

Most areas of this soil are wooded. Some scattered areas are used for community development, and a few small areas are in pasture.

The seasonal high water table and the stones and boulders on the surface limit community development. Onsite septic systems require special design and installation because of the seasonal high water table. Footing drains help prevent wet basements. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion during construction.

The stones and boulders on the surface make the use of farming equipment impractical and make the soil generally unsuitable for cultivated crops. The soil is well suited to trees, but the stones and boulders make machine planting impractical.

The capability subclass is VIIs.

SUITABILITY FOR ON-SITE SEWAGE DISPOSAL

This moderately well drained soil is suitable for on-site sewage disposal if the seasonally high groundwater is drained and/ or systems are elevated above the water table. Percolation rates are generally in the range of 10 to 20 minutes per inch. Bedrock is mostly at depths exceeding 7 ft. Fields are often elevated above the season high groundwater elevation by adding friable fill to the site. Curtain draining also often aids in lower the groundwater.

UDORTHENTS

BRIEF DESCRIPTION: This is a well to moderately well drained disturbed soil that has had two (2) feet or more of its original soil surface excavated or filled.

SERIES DESCRIPTION AND MAP UNIT DESCRIPTION

Udorthents

Udorthents consist of excessively drained to moderately well drained soils that have been cut or filled. The areas have had more than 2 feet of the upper part of the original soil removed or have more than 2 feet of fill on top of the original soil. These soils formed in material in loamy glacial till and in sandy or gravelly outwash with a loamy mantle. Udorthents are on glacial till plains and outwash plains and terraces. Slopes range from 0 to 25 percent.

Udorthents are on the landscape with excessively drained Hinckley soils; well drained Charlton, Paxton, and Agawam soils; moderately well drained Ninigret and Woodbridge soils; poorly drained Raypol, Ridgebury, and Walpole soils; very poorly drained Adrian, Saco, Scarboro, and Westbrook soils; and Urban land.

Rock fragments make up 0 to 45 percent of Udorthents. The soils are very strongly acid to neutral.

UD—Udorthents, smoothed. This unit consists of areas that have been altered by cutting or filling. The areas are commonly rectangular and mostly range from 5 to 100 acres. Slopes are mainly 0 to 25 percent. The material in these areas is mostly loamy, and in the filled areas it is more than 20 inches thick. Some of the filled areas are on flood plains, in tidal marshes, and on areas of poorly drained and very poorly drained soils.

Included with this unit in mapping are small areas of soils that have not been cut or filled. Also included are a few larger urbanized areas and a few small areas containing material such as logs, tree stumps, concrete, and industrial wastes. A few areas have exposed bedrock. Included areas make up about 30 percent of this map unit.

The properties and characteristics of this unit are variable, and the unit requires onsite investigation and evaluation for most uses.

This unit is not assigned to a capability subclass.

SUITABILITY FOR ON-SITE SEWAGE DISPOSAL

The suitability of this soil for on-site sewage disposal is variable. Depth th bedrock, seasonal high groundwater, texture and structure of the underlying original soil must be evaluated on each site.

UDORTHENTS, SMOOTHED, HIGH GROUNDWATER VARIANT

BRIEF DESCRIPTION: This is a poorly or very poorly drained disturbed soil that has had two (2) feet or more of its surface excavated or filled, has a seasonally high groundwater condition and either supports wetland vegetation or is capable of supporting wetland vegetation.

SERIES CLASSIFICATION AND MAP UNIT DESCRIPTION

The classification and mapping of these disturbed wetland soils is described in the State of Connecticut, Department of Environmental Protection, Wetland Advisor, Issue No. 9, dated March 1982. A copy of that description follows.

CLARIFICATION OF WETLAND SOIL CRITERIA

The determination of whether a specific area qualifies as a regulated wetland can be a complex issue. This is particularly true when the soils of the area in question have been disturbed as is the case for cut and fill land. The March and September, 1981 issues of the "Wetland Advisor" discussed Soil Taxonomy[1] and explained the formative elements used to classify and name soils. Application of the criteria used in the soil classification system can help to clarify the properties and features of wet soils that make up areas of wetlands.

The Connecticut General Statutes define inland wetlands as: "land, including submerged land, not regulated pursuant to sections 22a-28 to 22a-35, inclusive, which consists of any of the soil types designated as poorly drained, very poorly drained, alluvial and flood plain by the National Cooperative Soils Survey, as may be amended from time to time, of the Soil Conservation Service of the United States Department of Agriculture." One should not confuse the meaning of "soil types" used in this definition. Soil types, here simply means "kinds of soils" (namely poorly drained, very poorly drained, alluvial and flood plain). This definition encompasses soils classified and named at any level in Soil Taxonomy.

The issues of the "Wetland Advisor," mentioned earlier, point out that soil moisture regime is one of the factors used in classifying soils. The soils that form in an aquic moisture regime are wet. That is, they have a reducing environment virtually free of oxygen resulting from saturation with water. This lack of oxygen over an extended period allows the soils to develop wetnes features. Such features include dull or gray colors, intense mottling, presence of sulfur compounds and other chemical, physical and biological properties commo to a reducing environment.

Based on Soil Taxonomy, the soils of Connecticut with aquic moisture regimes are considered to be poorly drained and very poorly drained by the National Coop erative Soil Survey. Thus, for purposes of 22a-38 of the State Statutes, these soils are wetland soils. At the Suborde level of classification, soils included would be:

1. Aquents (wet Entisols) - recent
2. Aquepts (wet Inceptisols) - inception
3. Fibrists, Hemists, Saprists (Histosols) - organic soils
4. Aquolls (wet Mollisols) - rare in Connecticut
5. Aquods (wet Spodosols) - rare in Connecticut

[1]Soil Survey Staff. 1975. Soil Taxonomy A Basic System for Making and Interpretin Soil Surveys. U.S. Department of Agriculture, Soil Conservation Service, Agri. Hbk. No. 436, 754 pp. illus.

Whether filled or disturbed soil areas qualify as regulated wetlands raises some questions. Does the destruction of the surface layers by grading, stripping, or grubbing remove wetland soils from regulation? How much fill placed over a wetland effectively removes the area from wetland status? Soil Taxonomy and the interpretation of soil moisture regim can resolve these difficult questions.

Those disturbed soils with aquic moisture regimes qualify as wetland soils. Areas of these soils would therefore be considered wetlands and regulated under the Inland Wetlands and Watercourses Act. Again, at the Suborder level of classification, these soils are Aquents and Aquepts. At the Subgroup level, the disturbed soils could include Aquic Udorthents and Aquic Udipsamments.

For example, sandy fill that exhibits saturation and an aquic moisture regime could be classified Aquic Udipsamments (a wet, sandy, recent soil). Graded, smoothed, cut, borrow or filled land which is wet enough to exhibit an aquic moisture regime could be classified Aquic Udorthents. So classified, the disturbed soils of these areas would be regulated under the Inland Wetlands and Watercourses Act.

Due to the variability of filled and graded areas, it is difficult to determine without detailed site analysis what fill thickness would remove a particular area from consideration as a wetland. However, as a general rule, areas with more than two feet of earthy fill placed over wet mineral soils and more than three feet of earthy fill placed over wet organic or tidal marsh soils would be excluded from the wetlands category. In most cases, the soils of these areas will no longer exhibit the aquic moisture regime. This general rule should not be substituted for on-site inspections by a qualified soil scientist in those cases where questions or disputes arise.

Once determination of the regulatory status of an area has been made, the agency can then begin an assessment of the functions and values of the wetland. This may entail the input of other professional disciplines such as biology, botany and engineering.

The map unit symbol used by Soil Science Services is (UDw). The Soil Conservation Service has not established a map unit symbol for this soil.

SUITABILITY FOR ON-SITE SEWAGE DISPOSAL

This poorly or very poorly drained disturbed wetland soil is unsuitable for on-site sewage disposal because of prolonged high groundwater.

Appendix C: Plant Inventory

TREES

Sugar Maple	Acer saccharum
Japanese Maple	Acer palmatumge
Silver Maple	Acer saccharinum
Red Maple	Acer rubrum
Striped Maple	Acer pensylvanicum
Tree of Heaven	Ailanthus altissima
Speckled Alder	Alnus rugosa
Black Birch	Betula lenta
Yellow Birch	Betula lutea
Gray Birch	Betula populifolia
Bitternut Hickory	Carya cordiformis
Shagbark Hickory	Carya ovata
Mockernut Hickory	Carya tomentosa
Northern Catalpa	Catalpa speciosa
Flowering Dogwood	Cornus florida
Persimmom	Diospyros virginiana
American Beech	Fagus grandifolia
White Ash	Fraxinus americana
Common Witch Hazel	Hamamelis virginiana
Red Ceder	Juniperus virginiana
Tulip Tree	Liriodendron tulipifera
Hornbean	Ostrya virginiana
Norway Spruce	Picea albies
White Pine	Pinus strobus
Sycamore	Platanus occidentalis
Cotton Wood	Populus deltoides
Quaking Aspen	Populus tremuloides
Black Cherry	Prunus serotina
Choke Cherry	Prunus virginiana
White Oak	Quercus alba
Red Oak	Quercus borealis
Scarlet Oak	Quercus coccinea
Chestnut Oak	Quercus montana
Pin Oak	Quercus palustris
Black Oak	Quercus velutina
Bristly Locust	Robinia hispida
Black Locust	Robinia pseudoacacia
Yellowstem Willow	Salix alba vitellina
Weeping Willow	Salix babylonica
Sassafrass	Sassafras albidum
American Yew	Taxus canadensis
Arbor Vitae	Thuja occidentalis
Eastern Hemlock	Tsuga canadensis
American Elm	Ulmus americana

VINES AND SHRUBS

Speckled Alder	Alnus rugosa
Indigo Bush	Amorpha fruticosa
Ironwood	Carpinus caroliniana
Bittersweet	Celastrus scandens
Button Bush	Cephalanthus occidentalis
Sweet Fern	Comptonia peregrina
Silky Dogwood	Cornus amomum
St. John's-wort	Hypericum sp.
Mountain Laurel	Kalmia latifolia
Common Spice Bush	Lindera benzion
Honeysuckle	Lonicera sp.
Virgina Creeper	Parthenocissus quinquefolia
Boston Ivy	Parthenocissus tricuspidata
Common Buckhorn	Rhamnus cathartica
Poison Ivy	Rhus radicans
Stag Horn Sumac	Rhus typhina
Multiflora Rose	Rosa multiflora
Red Raspberry	Rubus idaeua
Black Raspberry	Rubus occidentalis
Pussy Willow	Salix discolor
Common Green Brier	Smilax rotundifolia
Bitter Nightshade	Solanum dulcamara
Meadow Sweet	Spiraea sp.
Lowbush Blueberry	Vaccinium angustifolium
Highbush Blueberry	Vaccinium corymbosum
Mapleleaf Viburnum	Viburnum acerifolium
Northern Arrow Wood	Viburnum recognitum
Wild Grape	Vitis aestivalis

WILD FLOWERS

Broad-Leaved Arrowhead	Sagittaria latifolia
Jack-in-the-Pulpit	Arisaema atrorubens triphyllum
Arrow Arum	Peltandra virginica
Skunk Cabbage	Symplocarpus foetidus
Fragrant Bedstraw	Galium triflorum
Partridge Berry	Mitchella repens
Rough Bedstraw	Galium asprellum
Venus Looking Glass	Specularia perfoliata
Climbing False Buckwheat	Polygonum scandens
Common Smart Weed	Polygonum hydropiper
Curled Dock	Rumex crispus
Long-Bristled Smartweed	Polygonum cespitosum
Pale Smartweed	Polygonum lapathifolium
Sheep Sorrel	Rumex acetosella

Common Buttercup	*Ranunculus acris*
Creeping Buttercup	*Ranunculus repens*
Common Cattail	*Typha latifola*
Aster, Arrow Leaved	*Aster sagittifolius*
Aster, Late Purple	*A. patens*
Aster, Large Leaf	*A. macrophyllus*
Aster, New England	*A. novae-angliae*
Aster, Small Whitewood	*A. vimineus*
Aster, White Wood	*A. divaricatus*
Aster, Health	*A. ericoides*
Black-eyed Susan	*Rudbeckia hirta*
Burdock	*Arctium minus*
Dandilion, Common	*Taraxacum officinale*
Fleabane, Common	*Erigeron annuus*
Goldenrod	*Solidago sp.*
Thistle, Field	*Cirsium discolor*
Yarrow	*Achillea millefolium*
Common Evening Primrose	*Oenothera biennis*
Bur-cucumber	*Sicyos angulatus*
Mountain Laurel	*Kalmia latifolia*
Wintergreen	*Gaultheria procumbens*
Japanese Honeysuckle	*Lonicera japonica*
Common Milkweed	*Asclepias syriaca*
Ground Ivy	*Glecoma hederacea*
Common Morning Glory	*Ipomoea purpurea*
Queen Anne's Lace	*Daucus carota*
Clover, Red	*Trifolium pratense*
Clover, White	*Melilotus alba*
Clover White Sweet	*Trifolium repens*
Partridge Pea	*Cassia fasciculata*
Pickerelweed	*Pontederia cordata*
Chickweed	*Stellaria media*
Pokeweed	*Phytolacca americana*
Cinquefoil, Common	*Potentilla simplex*
Cinquefoil, Silver	*Potentilla argentea*
Meadow Sweet	*Spirea latifolia*
Butter and Egg	*Linaria vulgaris*
Mullen, Common	*Verbascum thapsus*
St. John's-wort, Common	*Hypericum perforatum*
Horsenettle	*Solanum carlinense*
Nightshade, Bittersweet	*Solanum dulcamara*
Nightshade, Common	*Solanum nigrum*
Spotted Touch-me-not	*Impatiens capensis*
Wood Sorel, Creeping	*Oxalis corniculata*
Wood Sorel, Yellow	*Oxalis stricta*

AQUATIC PLANTS

Arrow Arum	*Peltandra virginica*
Cattail, Broadleaf	*Typha latifolia*
Duckweed, Lesser	*Lemna minor*
Pickerelweed	*Pontederia cordata*
Waterlily, Yellow	*Nuphar advena*

Appendix D: Wildlife Inventories

FISH

Blacknose Dace	*Rhinichthys atratulus*
Carp	*Cyprinus carpio*
Minnow, Cutlip	*Exoglossum maxillingua*
Minnow, Bluntnose	*Pimephales notatus*
Minnow, Fathead	*Pimephales promelas*
Shiner, Bridled	*Notropis bifrenatus*
Shiner, Common	*Notropis cornutus*
Shiner, Golden	*Notemigonus crysoleucas*
Stickleback, Ninespine	*Pungitius pungitius*
Stickelback, Threespine	*Gasterosteus aculeatus*
Bass, Largemouth	*Micropterus salmoides*
Bass Smallmouth	*Micropterus dolomieui*
Black Crappie	*Pomixis maculatus*
Blue Gill Sunfish	*Lepomis macrochirus*
Pumpkinseed	*Lepomis gibbosus*
Red-Breasted Sunfish	*Lepomis auritus*
White Sucker	*Catostomos commersoni*
Brown Bullhead	*Ictalurus nebulosus*
Chain Pickerel	*Esox niger*
Tesselated Darter	*Etheostoma olmstedi*
Yellow Perch	*Perca flavescens*
Trout, Brook	*Salvelinus fontinalis*
Trout, Brown	*Salmo trutta*
Trout, Rainbow	*Salmo gairdneri*

AMPHIBIANS

Frog, Bull	*Rana catesbeiana*
Frog, Green	*R. clamitans*
Frog, Pickerel	*R. palustris*
Frog, Leopard	*R. pipiens*
Frog, Tree	*Hyla sp.*
Salamander, Two Lined	*Eurycea bislineata*
Salamander, Redbacked	*Plethodon cinereus*
Toad, American	*Bufo americanus*

REPTILES

Turtle, Painted	*Chrystemys picta*
Turtle, Snapping	*Chelydra serpentina*
Turtle, Spotted	*Clemmys guttata*
Snake, Garter	*Thamnophis sirtalis*
Snake, Water	*Natrix sipedon*

BIRDS

Belted Kingfisher	*Megaceryle alcyon*
Blackbird, Redwing	*Agelaius phoeniceus*
Cardinal	*Richmondena cardinalis*
Catbird	*Dumetella carolinensis*
Chickadee, Black-capped	*Parus atricapillus*
Cowbird, Brown Headed	*Molothrus ater*
Creeper, Brown	*Certhia familiaris*
Crow, Common	*Corvus brachyrhynchos*
Dove, Morning	*Zenaidura macroura*
Dove, Rock	*Columba livia*
Finch, House	*Carpodacus mexicanus*
Flicker, Common	*Colaptes auratus*
Gnatcatcher, Blue Gray	*Polioptila caerulea*
Goldfinch, American	*Spinus tristis*
Grackle, Common	*Quiscalus quisculus*
Grouse, Ruffed	*Bonasa umbellus*
Goose, Canada	*Branta canadensis*
Gull, Great Blackback	*Larus marinus*
Hawk, Broadwing	*Buteo platypterus*
Hawk, Redtailed	*Bueto jamaicensis*
Hawk, Sharp-shinned	*Accipiter striatus*
Heron, Great Blue	*Ardea herodias*
Jay, Blue	*Cyanocitta cristata*
Junco, Dark-eyed	*Junco hyemalis*
Kestrel	*Falco sparvenis*
Mockingbird	*Mimus polyglottos*
Nuthatch, White Breasted	*Sitta carolinensis*
Ospray	*Pandion baliaetus*
Oven Bird	*Seiurus aurocapillus*
Owl, Screech	*Otus asio*
Phoebe, Eastern	*Sayornis phoebe*
Redstart, American	*Setophaga ruticilla*
Robin	*Turdus migratorius*
Rufous-side Towhee	*Pipilo erythrophthalmus*
Scaup, Greater	*Aythya marila*
Scaup, Lesser	*Aythya affinis*
Sparrow, Chipping	*Spizella passerina*
Sparrow, Field	*Spizella pusilla*
Sparrow, House	*Passer domesticus*
Sparrow, Savannah	*Passerculus sandwichensis*
Sparrow, Song	*Melospiza melodia*
Sparrow, Swamp	*Melospiza georgiana*
Starling	*Sturnus vulgaris*
Swallow, Barn	*Hirundo rustica*
Swallow, Tree	*Iridoprocne bicolor*
Thrasher, Brown	*Toxostoma rufum*
Titmouse, Tuffted	*Parus bicolor*
Veery	*Catharus fuscescens*
Vireo, Red-eyed	*Vireo olivaceus*
Vireo, White-eyed	*Vireo griseus*
Warbler, Black-headed	*Mniotilta varia*

Warbler, Blue Winged	Vermivora pinus
Warbler, Hooded	Wilsonia citrina
Warbler, Yellow	Dendroica petchia
Woodpecker, Downy	Dendrocopos pubescens
Woodpecker, Hairy	Dendrocopos villosus
Woodpecker, Red-bellied	Centurus carolinus
Wren, House	Troglodytes aedon
Yellowthroat	Geothlypis trichas

MAMMALS

Chipmunk	Tamias striatus
Cottontail, Eastern	Sylvilagus floridanus
Deer, Whitetail	Odocoileus virginiana
Mole, Eastern	Scalopus aquaticus
Mole, Starnose	Condylura cristata
Mouse, Deer	Peromyscus maniculatus
Mouse, Whitefooted	Peromyscus leucopus
Myotis, little or small brown bat	Myotis sp.
Opposum	Didelphis marsupialis
Pipstrel, Eastern Bat	Pipstrellus subfavus
Raccoon	Procyon lotor
Skunk, Striped	Mephistis mephistis
Squirrel, Eastern Gray	Sciurus carolinensis
Woodchuck	Marmota monax

Appendix E: Water Quality Data

LAKE MOHEGAN

8/31/87

LOCATION	TEMP.	O_2	CO_2	PH	SILICA	SECEHI DISC	NITRATE PHOSPHATES
Middle 33' Surface 0'	75°	8.5 ppm	2.0 ppm	8.0	4.0 ppm	7.5'	0.2 0.2
Middle 16'	68°	4.5 ppm					
Bottom 33' South End	56° Outlet	2.0 ppm					
Surface 0'	74°	8.0 ppm	2.0 ppm	8.0	4.0 ppm	8.0'	
Middle 7'	74°	5.0 ppm					
Bottom 14'	72°	3.5 ppm					

G.E. Pond

9/1/87

LOCATION	O_2	TEMP	CO_2	PH	SILICA	HARDNESS	NITRATE PHOSPHATES
North End 0'	9.0 ppm	70°	7.5 ppm	6.5	40 ppm	180 ppm	0.1
Middle 0'	9.0 ppm	70°	7.5 ppm	6.5	40 ppm		
Middepth 5'	7.5 ppm	70°	8.0 ppm	6.5	40 ppm		
Bottom 10'	6.5 ppm	69°	8.0 ppm	6.5	40 ppm		

Mahegan Water Quality Test 7/22/87

Location	Test	5' Surface	Middle	Bottom
End 6'	Temp	56°F	—	—
	O2	8.7 ppm	—	—
	pH	6.5	—	—
	CO2	5 ppm	—	—
	Hardness	44 ppm	—	—
	Silica	10	—	—
	Nitrate + Phos	0.2	—	—
middle	Temp	0' 57°F	(15') 55°F	(33') 53°F
	O2	8.3 ppm	7.9 ppm	6.3 ppm
	pH	6.5	6.5	6.5
	CO2	5 ppm	5 ppm	5 ppm
	Hardness	44 ppm	44 ppm	48 ppm
	Silica	10	10	8
	Nitrate + Phos	0.2	0.2	0.2
< End 6'	Temp	56°F	—	—
	O2	9.0 ppm	—	—
	pH	6.5	—	—
	CO2	5 ppm	—	—
	Hardness	44 ppm	—	—
	Silica	4	—	—
	Nitrate + Phos	0.2	—	—

PROGRAM # 001-002-003-004-005 DATE / / 87

PROJECT TITLE _____ DAY S-M-T-W-Th-F-S

LOCATION _____ WEATHER SUN-PART-CLDY-RAIN SNOW

O. S. AREA _____ TEMP. _____

HOURS	PERSONNEL	STAFF
	1. DOUGLAS	
	2. JOHN	
	3. TOM	
	4. KEVIN	

MATERIALS NEEDED

EQUIPMENT AND TOOLS NEEDED

DESCRIPTION OF WORK ACCOMPLISHED:

LAKE / POND INVENTORY

GENERAL

NAME Lake Mohegan — DATE 6/7/86

LOCATION Lake Mohegan U.S. Fairfield Ct. — AIR TEMP. 68°F

ELEVATION 78' MSL — WEATHER COND. Sunny

ORIGIN Gravel Pit — TEST SITE #2 Northern Third

PHYSICAL

AREA 16.7 acres — SUBSTRATE COMPOSITION

DEPTH PROFILE — SHORELINE CONFIGURATION 4700 Ft

SEASONAL FLUCTUATION — STRATIFICATION AND TURNOVER

WATER QUALITY

TURBIDITY-SECCHI DISC 8 Ft+

DISSOLVED OXYGEN ppm

	DEPTH	TEMPERATURE	O_2	CO_2	pH	Alkalinity	
Surface	—	65°	8.5				
Mid	16'	60°	8.5				
Bottom	33'	56°	6.5				

BIOLOGICAL

PHYTOPLANKTON	SUBMERGENTS	EMERGENTS	FLOATING-LEAFED	ZOOPLANKTEN	FECAL COLIFORM

FISH	WATERFOWL	OTHER WILDLIFE	NUISANCE SPECIES	RARE/ENDANGERED SPECIES

CRITICAL HABITATS

OTHER ASPECTS OF SURROUNDING LAND USE

LAKE / POND INVENTORY

GENERAL

NAME Lake Mohegan — DATE 10/7/88

LOCATION — AIR TEMP. 68 F

ELEVATION 78 MSL — WEATHER COND. Sunny

ORIGIN Gravel Pit — TEST SITE # 4 outlet

PHYSICAL

AREA 16.7 acres — SUBSTRATE COMPOSITION

DEPTH PROFILE — SHORELINE CONFIGURATION 4700'

SEASONAL FLUCTUATION — STRATIFICATION AND TURNOVER

WATER QUALITY

TURBIDITY-SECCHI DISC —

DISSOLVED OXYGEN

	DEPTH	TEMPERATURE	O_2 ppm	CO_2 ppm	pH	Alkalinity
Surface	—	65°F	7.2	6.0	6.5	56
Mid						
Bottom						

BIOLOGICAL

PHYTOPLANKTON	SUBMERGENTS	EMERGENTS	FLOATING-LEAFED	ZOOPLANKTEN	FECAL COLIFORM

FISH	WATERFOWL	OTHER WILDLIFE	NUISANCE SPECIES	RARE/ENDANGERED SPECIES
—				

CRITICAL HABITATS

OTHER ASPECTS OF SURROUNDING LAND USE

LAKE / POND INVENTORY

GENERAL

NAME Lake Mohegan ⟹. DATE 10/7/86

LOCATION Fairfield, CT Lake Mohegan O.S. AIR TEMP. 68°F

ELEVATION 78' MSL WEATHER COND. Sunny

ORIGIN Gravel Pit 1960's TEST SITE #1 Inlet

PHYSICAL

AREA 16.7 acres SUBSTRATE COMPOSITION

DEPTH PROFILE (SHORELINE CONFIGURATION 4700 Ft.

SEASONAL FLUCTUATION STRATIFICATION AND TURNOVER

WATER QUALITY

TURBIDITY-SECCHI DISC (

DISSOLVED OXYGEN ppm

	DEPTH	TEMPERATURE	O_2	CO_2	pH	Alkal
Surface	1'	65°F	8.5 ppm	6	6.5	68.
Mid						
Bottom						

BIOLOGICAL

PHYTOPLANKTON	SUBMERGENTS	EMERGENTS	FLOATING-LEAFED	ZOOPLANKTEN	FECAL COLIFORM

FISH	WATERFOWL	OTHER WILDLIFE	NUISANCE SPECIES	RARE/ENDANGERED SPECIES

CRITICAL HABITATS

OTHER ASPECTS OF SURROUNDING LAND USE

LAKE / POND INVENTORY

GENERAL

NAME Lk Mohegan — DATE 10/29/96

LOCATION Lk Mohegan O.S — AIR TEMP. 60°

ELEVATION See Topo Map — WEATHER COND. Sunny

ORIGIN Gravel Pit — TEST SITE #2 See Map

PHYSICAL

AREA 16.7ac — SUBSTRATE COMPOSITION

DEPTH PROFILE 30' — SHORELINE CONFIGURATION

SEASONAL FLUCTUATION — STRATIFICATION AND TURNOVER Yes

WATER QUALITY

TURBIDITY-SECCHI DISC

DISSOLVED OXYGEN

	DEPTH	TEMPERATURE	O_2	CO_2	pH	Alkalinity
Surface	—	60°F	8.0ppm	5.0ppm	6.5	86ppm
Mid	15'	57°F	7.5ppm	5.0ppm	6.5	86ppm
Bottom	30'	55°F	6.2ppm	6.0ppm	6.5	86ppm

BIOLOGICAL

PHYTOPLANKTON	SUBMERGENTS	EMERGENTS	FLOATING-LEAFED	ZOOPLANKTEN	FECAL COLIFORM

FISH	WATERFOWL	OTHER WILDLIFE	NUISANCE SPECIES	RARE/ENDANGERED SPECIES
			2) Mute Swans	

CRITICAL HABITATS

OTHER ASPECTS OF SURROUNDING LAND USE

LAKE / POND INVENTORY

GENERAL

NAME Lk Mohegan — DATE 10/27/96

LOCATION Lk Mohegan O.S — AIR TEMP. 60°F

ELEVATION See Topo Map — WEATHER COND. Sunny

ORIGIN Gravel Pit — TEST SITE #3

PHYSICAL

AREA 160.7 ac. — SUBSTRATE COMPOSITION

DEPTH PROFILE 35' — SHORELINE CONFIGURATION

SEASONAL FLUCTUATION — STRATIFICATION AND TURNOVER

WATER QUALITY

TURBIDITY-SECCHI DISC 21

DISSOLVED OXYGEN

	DEPTH	TEMPERATURE	O_2	CO_2	pH	Alkalinity
Surface	—	60	8.0 ppm	5.0 ppm	6.5	86 ppm
Mid	17'	56°F	6.8 ppm	6.0 ppm	6.5	86 ppm
Bottom	35'	52°F	5.8 ppm	7.0 ppm	6.5	90 ppm

BIOLOGICAL

PHYTOPLANKTON	SUBMERGENTS	EMERGENTS	FLOATING-LEAFED	ZOOPLANKTEN	FECAL COLIFORM

FISH	WATERFOWL	OTHER WILDLIFE	NUISANCE SPECIES	RARE/ENDANGERED SPECIES
			2) Mute Swans	

CRITICAL HABITATS

OTHER ASPECTS OF SURROUNDING LAND USE

G.E. Pond 10/15/86

North End	2'
02	6.9ppm
Temp	62o
ph	6.0
Co2	1.2.5ppm
Silica	3.5
Hardness	180ppm
Nitrate Phosphate	.02ppm
Middle Surface	1'
Temp	61o
02	6.9ppm
ph	6.0
Co2	12.5ppm
Silica	3.5
Hardness	180ppm
Nitrate & Phosphate	.02ppm
Middle Bottom	8'
Temp	61o
02	6.8ppm
ph	6.0
Co2	12.5ppm
Silica	3.5
Hardness	180ppm
Nitrate Phosphate	.02ppm
Outlet	1'
Temp	64o
02	6.9ppm
ph	6.0
Co2	12.5ppm
Silica	3.5
Hardness	180ppm
Nitrate Phosphate	.02ppm

Lake Mohegan - Water Sample 10/7/86

Inlet	
#1 Temp	65o
02	8.5ppm
Co2	6.0ppm
ph	6.5
Hardness	68ppm
Silica	3.5
Nitrate & Phosphate	0.1
Surface	0'
#2 Temp	65o
02	8,5ppm
Mid Depth	16'
Temp	60o
02	8.5ppm
Bottom Depth	33'
Temp	56o
02	6.5ppm
#3 Surface	0'
Temp	65o
02	6.9ppm
Mid Depth	17'
Temp	62o
02	6.5ppm
Bottom Depth	35'
Temp	58o
02	5.3ppm
#4 Surface	0'
Temp	65o
02	7.2
ph	6.5
Co2	6.0ppm
Silica	3.5
Hardness	56
Nitrate Phosphate	0.1
Mid Depth	15'
Temp	64o
02	7.2
Bottom Depth	30'
Temp	60o
02	6.0ppm

NOTES

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, soil scientists, foresters, climatologists, landscape architects, recreational 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 83 town area serving western Connecticut.

As a public service activity, the Team is available to serve towns and/or developers within the King's Mark RC & D Area - free of charge.

PURPOSE OF THE ENVIRONMENTAL REVIEW TEAM

The Environmental Review Team is available to assist towns and/or developers in the review of sites proposed for major land use activities. For example, the ERT has been involved in the review of a wide range of significant land use activities including subdivisions, sanitary landfills, commercial and industrial developments, and recreational/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 site, and highlighting opportunities and limitations for the proposed land use.

REQUESTING AN ENVIRONMENTAL REVIEW

Environmental Reviews may be requested by the chief elected official of a municipality, or the chairman of an administrative agency such as planning and zoning, conservation, or inland wetlands. Environmental Review Request Forms are available at your local Soil and Water Conservation District, and the King's Mark ERT Coordinator. This request form 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 investigate. When this request is approved by the local Soil and Water Conservation District and King's Mark RC & D Executive Committee, the Team will undertake the review. At present, the ERT can undertake two (2) reviews per month.

For additional information regarding the Environmental Review Team, please contact your local Soil and Water Conservation District or Nancy Ferlow, ERT Coordinator, King's Mark Environmental Review Team, King's Mark Resource Conservation and Development Area, 322 North Main Street, Wallingford, Connecticut 06492. King's Mark ERT phone number is 265-6695.