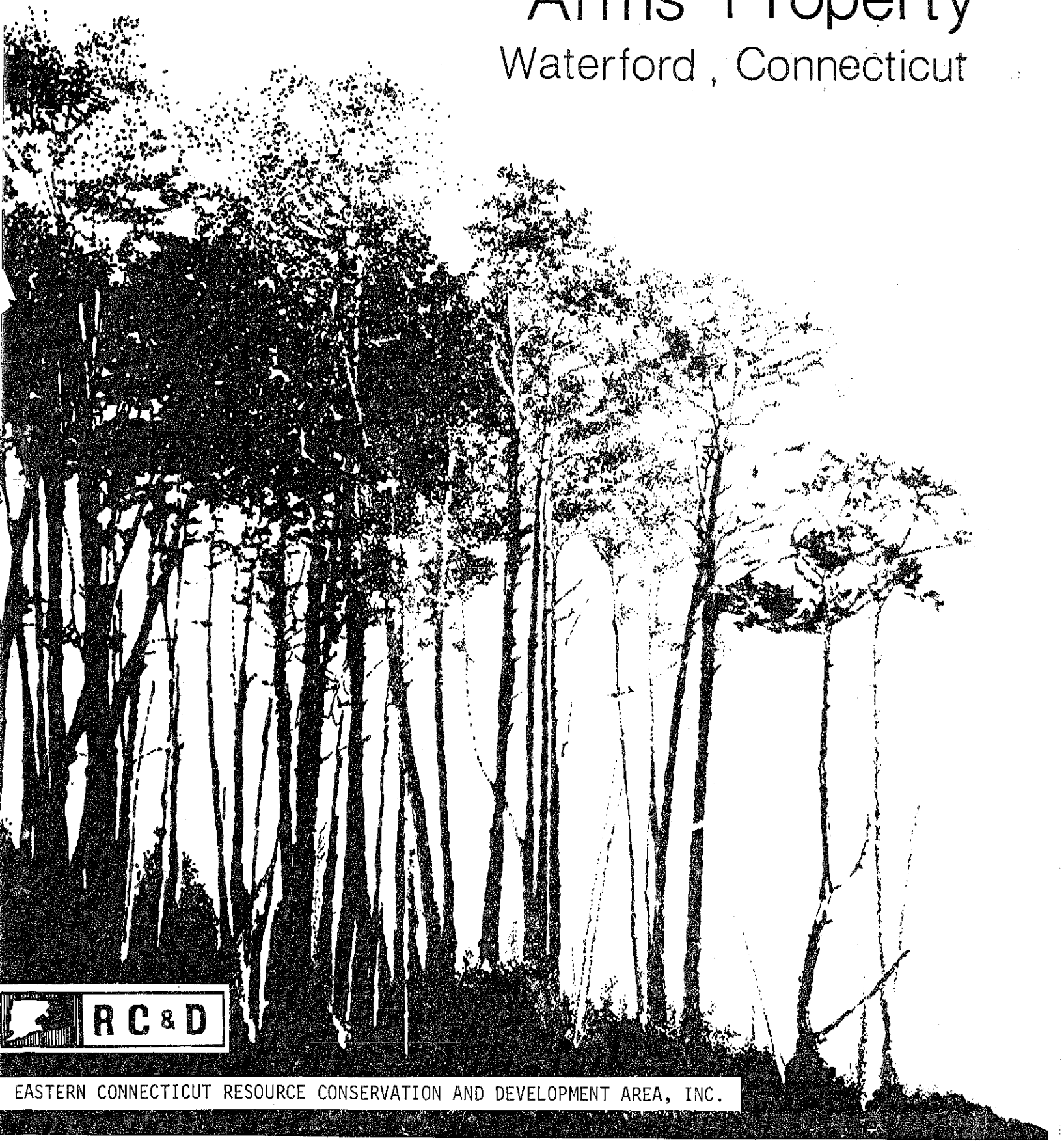
Environmental Review Team Report

Arms Property

Waterford, Connecticut



RC&D

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

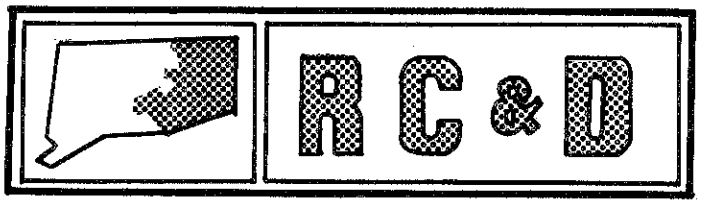
Environmental Review Team Report

on

Arms Property

Waterford, Connecticut

February 1980

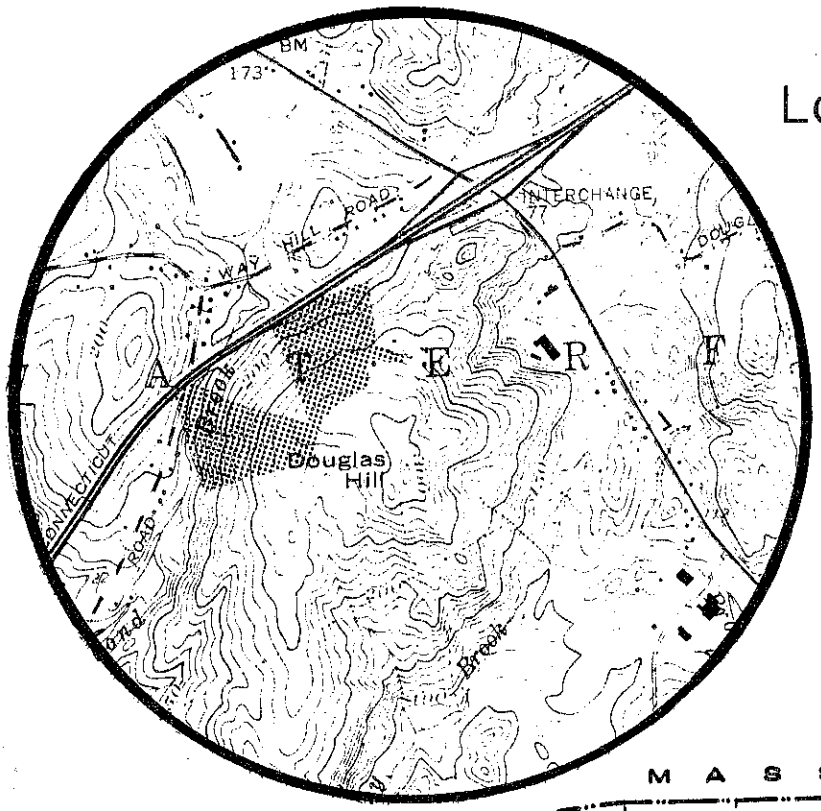


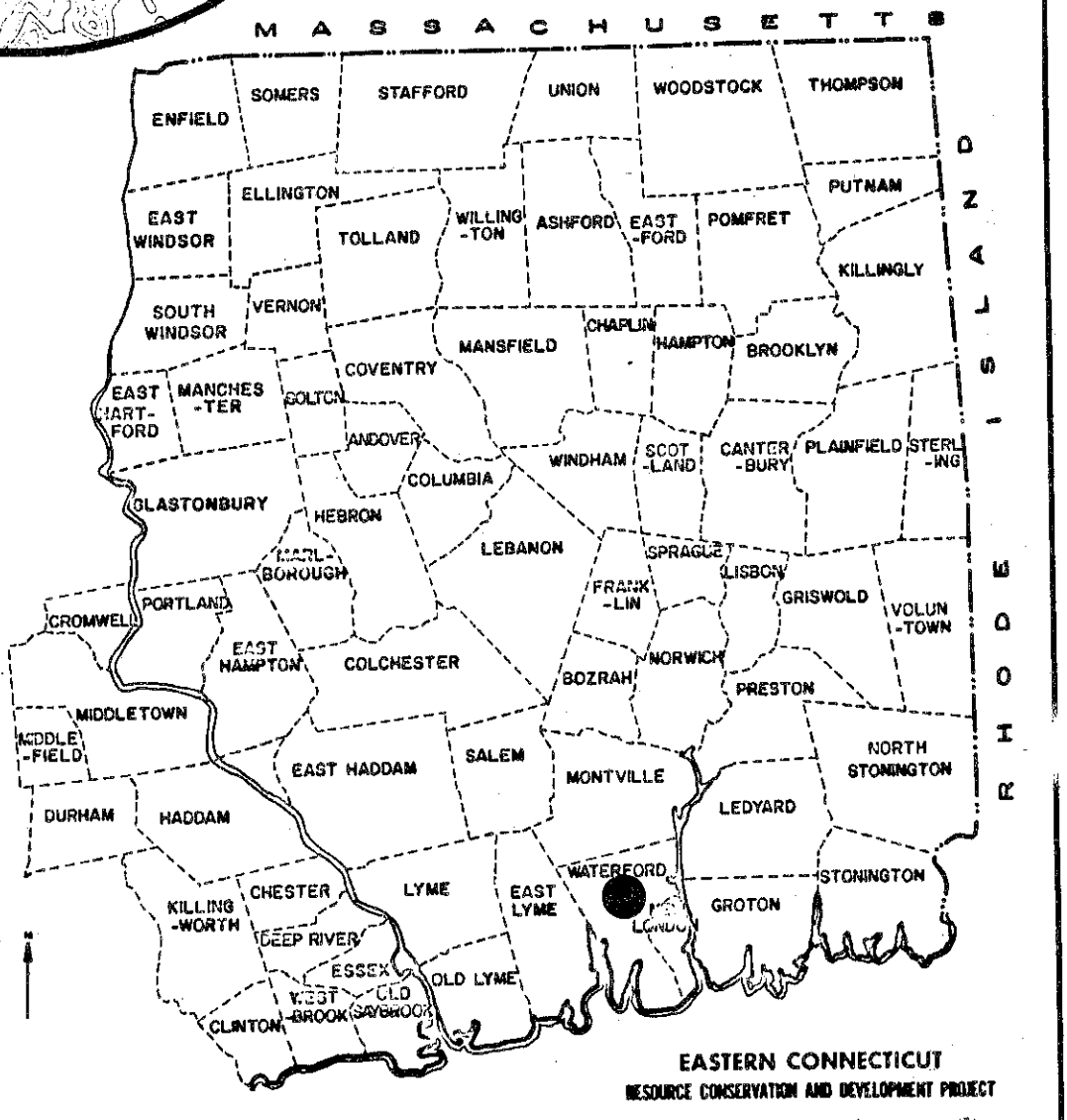
eastern connecticut resource conservation & development area

environmental review team
139 boswell avenue
norwich, connecticut 06360

Location of Study Site

ARMS PROPERTY
WATERFORD, CONNECTICUT





EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT
ON
ARMS PROPERTY
WATERFORD, CONNECTICUT

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

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

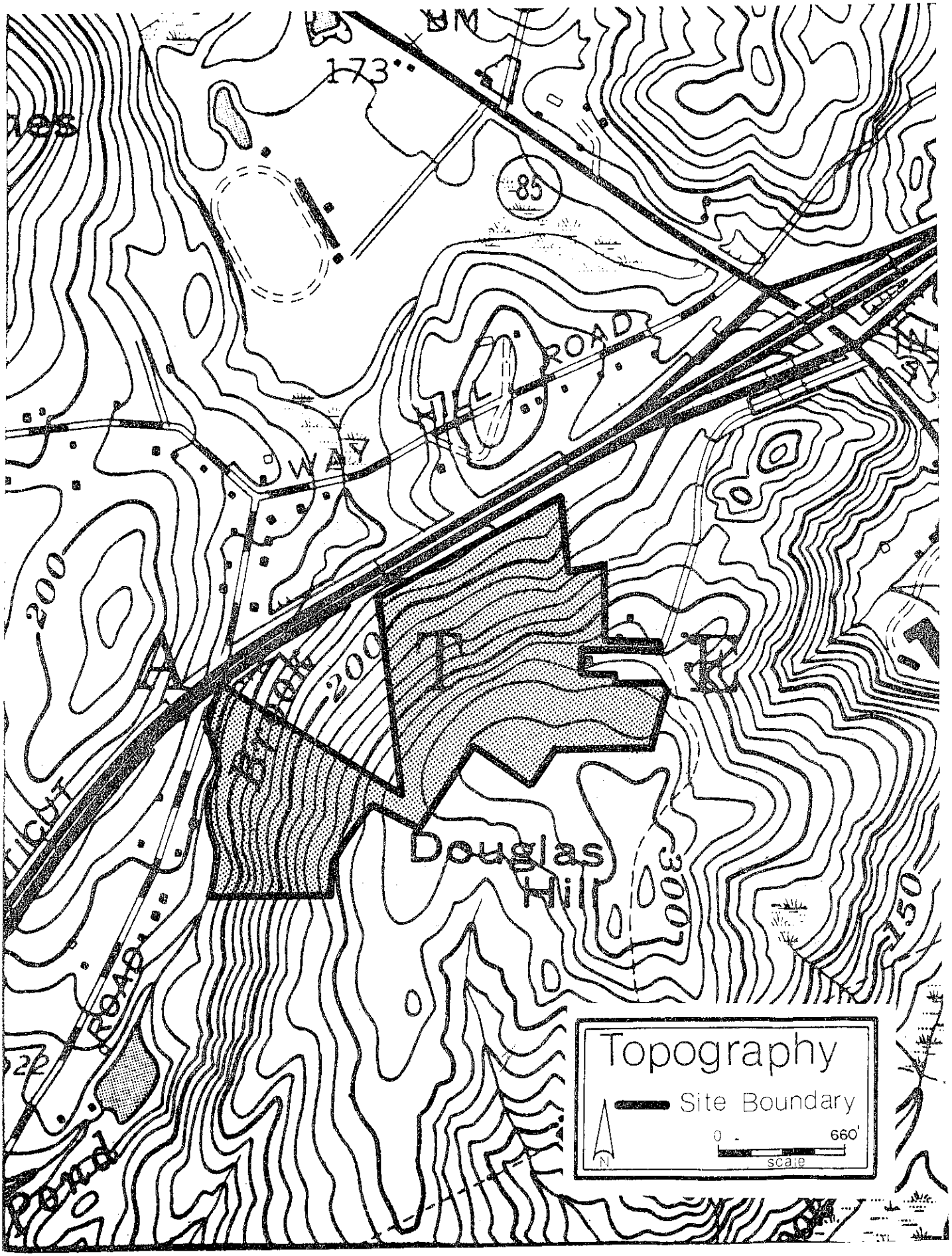
The ERT that field checked the site consisted of the following personnel: Gary Domian, District Conservationist, Soil Conservation Service (SCS); Mike Zizka, Geologist, Department of Environmental Protection (DEP); Rob Rocks, Forester, (DEP); Don Capellaro, Sanitarian, State Department of Health; Gerhard Amt, Regional Planner, Southeastern Connecticut Regional Planning Agency; and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

The Team met and field checked the site on Thursday, January 17, 1980. Reports from each Team member were sent to the ERT Coordinator for review and summarization for the final report.

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

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

If you require any additional information, please contact: Ms. Jeanne Shelburn, Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, 139 Boswell Avenue, Norwich, Connecticut 06360, 889-2324.


Topography
Site Boundary
0
660'
scale
N
Douglas
Hill
ROAD
WAY
200
150
85

INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to prepare an environmental assessment for a 44± acre parcel in the Town of Waterford. The site is located on Fargo Road, southwest of the intersection of Routes 85 and 52. The parcel has been proposed for a zone change from RA-120 (three acre residential) to C-G (general commercial). No preliminary plans for development of the property were available for Team review.

Major features of the site include a semi-wooded area once used as pasture land, a wooded wetland which defines the outer perimeter of the parcel, a steeply sloping wooded hillside and Lakes Pond Brook on the northwestern border. Access to the site is provided by Fargo Road, which would require substantial improvement if commercial development were to occur. Fargo Road reverts to a dirt roadway or trail immediately past the entrance to the site. Several houses, a school bus parking area and the Waterford racquet club are the only other uses on the paved portion of the road. No development exists off the dirt roadway.

The Team is concerned with the potential impact of the proposed zone change on the natural resource base of this site. Although limitations to development may exist on a site, many of these can be overcome with proper engineering techniques. These corrective measures, however, are costly and in some instances can make a project economically unfeasible for the developer.

Soils mapped on this site indicate moderate to severe development limitations due to associated slope, shallow depth to bedrock, seasonal high water tables and susceptibility to frost heaving. Should the area be used for commercial development, there is the potential for run-off increases to double those that would occur from 3-acre residential development. (See Hydrology Section of this report). Run-off retention and development of erosion control plans will become major concerns under a commercial option. There would also be a potential for degrading the water quality on site and in the immediate area from road salts and oils discharged on parking lots.

Water supply for commercial development on this site should be supplied by a public source, available on Route 85. An alternative to extending the water mains would be the establishment of a single community well, drilled in bedrock, with several storage tanks for additional capacity if the gallon per minute yield is insufficient.

Waste disposal will of necessity be provided by on-site septic systems. One section of the parcel appears to be well suited for this purpose; most areas, however, are limited for establishment of on-site systems due to seasonal high water table, perched water table and steeply sloping conditions.

After research and on-site investigation of all factors concerned, it would seem that environmental conditions and availability of support facilities substantiate the present zoning designation. In the Team opinion there do not seem to be enough easily developed sections of this parcel to warrent a zone change to commercial use when access to the site is also in poor condition.

ENVIRONMENTAL ASSESSMENT

GEOLOGY

The Fargo Road site lies within the Montville topographic quadrangle. A bedrock geologic map (Map GQ-609) and a surficial geologic map (Map GQ-148) of that quadrangle have been prepared by Richard Goldsmith and published by the U.S. Geological Survey.

Bedrock was seen in outcrop only in an excavated area near the northern border of the property. Most of the bedrock on or underlying the site consists of medium-to coarse-grained gneisses containing the minerals quartz, plagioclase, biotite, microcline, and hornblende. Gneisses are crystalline rocks in which thin banks of elongate or platy minerals alternate with thin bands of more rounded or equidimensional grains. In the northern and northwestern corners of the property, the underlying bedrock is mapped as a combination of schist, a crystalline rock composed largely of layers of platy or flaky minerals, and gneiss. The mineralogy of this unit is similar to that of the gneiss described above, but the schist unit also contains sillimanite, garnet, and sulfide minerals. Thin layers or lenses of hornblende-rich rock, pegmatite (a coarse-grained granitic rock), and calcium-silicate gneiss are dispersed throughout the site.

The bedrock is mostly covered by a thin (generally in the steeper areas) to thick (in the higher, more level areas) blanket of till. Till is a glacial sediment that is composed of rock materials which were deposited directly from an ice sheet. The rock materials are generally nonsorted as to grain size and shape; hence, various amounts of silt, clay, sand, and gravel, as well as large boulders, may be found in different parts of the site. Probably because of the nature of the local bedrock, which was the parent source material of the till, the surface of the till, extending at least through the upper few feet, seems to be generally coarse, with sand being the principal constituent and gravel being a substantial component. At depth, the till may be siltier and more compact.

HYDROLOGY

The soil types on the higher, more level areas of the site suggest that foundation drainage and suitability for on-site subsurface sewage disposal would be generally good. Drainage from the property flows west or northwest toward Lakes Pond Brook, which in turn flows south to Niantic Bay. A change in land use accompanying development would cause increased runoff from the site. With three-acre residential development, the increase in runoff volume would be small. With commercial development, the increase probably would be substantially greater. This result would derive from the greater percentage of land that would be covered by impermeable surfaces (roofs, parking lots, and the like) under the latter proposal. Without specific site plans, it is impossible to estimate the potential amounts of increase; however, commercial areas may involve impermeable cover over 85 percent of the developed land, whereas three-acre residential areas would probably have impermeable cover over less than 10 percent. For a five-inch rainfall, this means that runoff from a commercial development may be as much as two times greater than it would be from a residential development. Hence, runoff-retention and erosion-control measures could be a significant consideration for a commercial development but only a minor consideration for a residential proposal. Water

quality is also more likely to be affected by a commercial site, both because of the increased volume of salt and other contaminants that would be washed from paved areas and because of the different types of discharges generated.

VEGETATION

The parcel proposed for a zone change from 3-acre rural residential to commercial may be divided into 5 vegetation types, including different successional stages of old field, mixed hardwood, and hardwood swamp vegetation types. (See Vegetation type map and Vegetation type description).

Vegetation is limited by grazing practices, droughty soils, and in some areas, a high water table. A thinning that would produce fuelwood as a product is needed in stand type B. The rural atmosphere of this parcel may be jeopardized if the proposed zone change takes place.

Present and past grazing practices in conjunction with somewhat excessively drained soils have limited both the species of vegetation present in stand types A and E, and also the condition of that vegetation.

As a result of grazing in area A,no quality tree species were able to become established. Those species which have become established are those which were unpalatable to animals or protected by thorns. As grazing is restricted from these areas the vegetation will pass through a slow transition to mixed hardwoods. Vegetation type E is presently in this transition state. Mixed hardwood species and also remnant red cedar and apple trees are characteristic of this transition. The lack of adequate soil moisture during the spring period of rapid growth causes slow growth and unhealthy, deformed appearance of the trees in this stand. Although both stand types A and E provide high value food and cover for wildlife, they will never support a high-quality mixed hardwood forest.

The high water table and poor soil aeration present in vegetation type D (hardwood swamp) limits vegetative growth to species which are tolerant of excessive moisture. Tree species such as red maple and yellow birch, can survive under these conditions; however, in this case the trees are of poor quality because of overcrowded conditions in the past. Poor tree quality, slow growth, and shallow root systems cause the trees in this stand to be unstable and of low value for timber production. This hardwood swamp does provide substantial wildlife habitat, because it supplies wildlife with needed water, food, and cover.

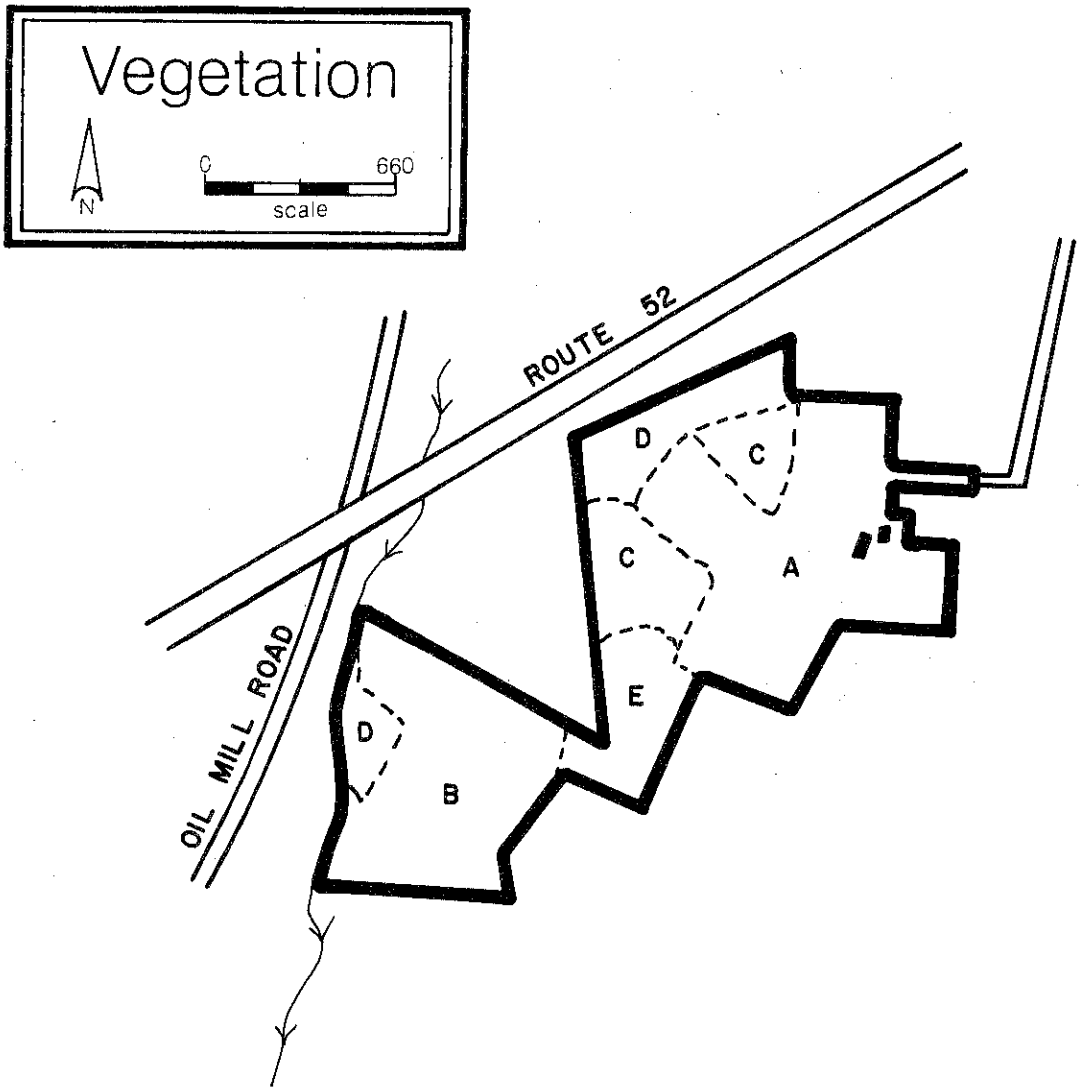
Suggested Management Practices

The trees present in vegetation type B (mixed hardwoods) are beginning to decline in health and vigor as a result of crowding. A fuelwood thinning using the "Crop Tree Selection Method" would reduce competition between each acre's 100 best trees for space, sunlight, nutrients, and water. This thinning would also produce approximately five cords of fuelwood per acre. Over time the selected trees would become healthier and more stable. For the purposes of this thinning, 100 of the highest quality trees growing on each acre should be identified (trees spaced about 20' x 20' will equal 100 trees per acre), and one, two, or three trees that are in direct competition with each of those identified should be removed. The 100 trees per acre that are selected as crop trees should be

VEGETATION TYPE DESCRIPTIONS

Stand Type	Acres	*Main Stand Size Class	Stocking Level	Main Stand Quality	Major Components Of: Overstory	Understory	Ground Cover
A. Old Field	15	Sapling	Understocked	Poor. Trees are slow growing and browsed by livestock.	Eastern red cedar, appletrees, blackcherry.	Staghorn sumac, Arrowwood, Steeplebush, bayberry, barberry, multiflora rose, black raspberry & green-brier.	Grasses, goldenrod, poison ivy.
B. Mixed Hardwoods	12	Pole	Fully-stocked, becoming crowded	Medium. Crowns getting small - Trees declining in vigor.	Red oak, white oak, Mockernut hickory, black birch, white ash and scattered American beech.	Mapleleaf viburnum, mountain laurel, bluebeech and occasional witchhazel.	Club moss, christmas fern, cinnamon fern & grasses.
C. Mixed Hardwoods	6	Seedling to sapling-size	Overstocked	Medium. Crowded small crowns.	Red maple, black-birch, graybirch, black cherry, white ash and scattered appletrees.	Highbush blueberry, bayberry and scattered mountain laurel.	Grasses, moss, steeplebush
D. Hardwood Swamp	6	Pole to sawlog-size	Fully-stocked	Poor. Broken branches, small crowns, poorly formed trees.	Red maple, yellow birch, black birch, occasional white ash.	Spicebush, bluebeech, scattered mountain laurel.	Moss, hay-scented fern, Christmas fern, Japanese honeysuckle greenbrier.
E. Old Field to Mixed Hardwood transition	5	Pole	Understocked	Poor. Broken crowns, dead branches, poorly formed trees.	Red maple, mockernut hickory, occasional Eastern red cedar and appletrees.		Grasses, club moss, Japanese honeysuckle greenbrier.

* Seedling size - Trees less than 1 inch in diameter at 4 1/2 feet above the ground (d.b.h.)
Sapling size - Trees 1 to 5 inches in d.b.h.
Pole size - Trees 5 to 11 inches in d.b.h.
Sawlog size - Trees 11 inches and greater in d.b.h.



LEGEND

- Roads
- Property Boundary
- Vegetation Type Boundary
- Stream
- Buildings

VEGETATION TYPES

TYPE A Old Field, 14-acres.

TYPE B Mixed Hardwoods, 11-acres, fully-stocked, pole-size.

TYPE C Mixed Hardwoods, 5-acres, overstocked seedling to sapling size.

TYPE D Hardwood swamp, 5-acres, fully-stocked, pole to sawlog size.

TYPE E Old field transition to mixed hardwoods, 4-acres, understocked, pole-size.

healthy and large crowned and should show few or no signs of damage. Trees which are not competing with the 100 selected trees should not be removed, unless they are severely damaged.

A publicly employed service forester or consultant forester should be contacted to assist the owner in selecting crop trees, if this thinning is agreed upon.

Impact of the Proposed Zone Change on Vegetation

The proposed zone change from 3-acre rural residential to commercial will allow a large area of vegetation to be removed and replaced with buildings and asphalt.

A substantial alteration of the rural atmosphere of this highly visible hillside may come about as a result of this zone change.

Removal of the vegetation may increase the runoff from this area, potentially causing sedimentation and siltation of the stream along the northwestern boundary of this property.

The vegetation present in stands A and E is not extremely valuable from a forest-product standpoint. A zone change that reduces the extent of these stands will not have much impact on the forest resource of the area because the site quality and the potential productivity of these areas are only marginal.

SOILS

A detailed soils map of this site and detailed soils descriptions are included in the Appendix to this report, accompanied by a chart which indicates soil limitations for various urban uses. As the soil map is an enlargement from the original 1,320'/inch scale to 660'/inch, the soil boundary lines should not be viewed as absolute boundaries, but as guidelines to the distribution of soil types on the site. The soil limitation chart indicates the probable limitations of each of the soils for on-site sewage disposal, buildings with basements, streets and parking , and landscaping. However, limitations, even though severe, do not preclude the use of the land for development. If economics permit large expenditures for land development and the intended objective is consistent with the objectives of local and regional development, many soils and sites with difficult problems can be used. The soils map, with the publication, New London County Interim Soil Survey Report, can aid in the identification and interpretation of soils and their uses on this site. "Know Your Land: Natural Soil Groups for Connecticut" can also give insight to the development potentials of the soils and their relationship to the surficial geology of the site.

The sloping landforms highest in the landscape are occupied by Charlton-Hollis, very rocky, fine sandy loams. The mapping unit symbols are 17LC and 17LD. The letter "L" signifies very rocky surface conditions. In the Charlton-Hollis mapping unit, the letter "C" indicates a slope of 3 to 15 percent and "D" indicates a slope of 15 to 45 percent. The Charlton soils formed in glacial till derived mainly from schist and gneiss. The soils are well drained. Charlton soils have moderate to moderately rapid permeability. These soils have medium to rapid surface runoff.

The Hollis soils found in glacial till derived mainly from schist and gneiss. The soils are shallow with bedrock within 10 to 20 inches of the surface. Drainage is well to somewhat excessively well drained. Hollis soils have moderate or moderately rapid permeability. Surface runoff is medium to very rapid.

The sloping to steep landforms down from these landforms are occupied by Canton-Charlton fine sandy loams. The mapping unit symbols are 11B, 11XB, 11XC and 11MD. The letter "X" denotes very stony conditions, while the letter "M" denotes extremely stony conditions. In the Canton and Charlton mapping unit, the letter "B" denotes a 3 to 8 percent slope, "C" an 8 to 15 percent slope and "D" a 15 to 25 percent slope in the non-stony mapping unit and 15 to 35 percent in the extremely stony mapping unit. The Canton soils formed in a fine sandy loam mantle underlain by gravelly, sandy glacial till, derived mainly from gravel and gneiss. The Charlton soils are the same as previously described.

The nearly level to gently sloping landforms are occupied by Woodbridge very stony, fine sandy loam. The soils are designated by the symbol 31XB. The symbol "X" denotes very stony surface conditions. The symbol "B" denotes a 0 to 8 percent slope. The Woodbridge soils formed in compact glacial till. The soils are moderately well drained. These soils have moderate permeability in the surface layer and subsoil, slow to very slow permeability in the substratum (fragipan). The soils have a seasonal highwater table at 18 to 24 inches. Woodbridge soils have slow to rapid surface runoff.

The low lying, nearly level areas along drainageways in the landscape are occupied by Ridgebury, Leicester and Whitman extremely stony, fine sandy loams. The soils are designated by the mapping unit symbol 43M. The Ridgebury and Whitman soils formed in compact glacial till; the Leicester soils formed in friable glacial till. The Ridgebury and Leicester soils are poorly drained and the Whitman soil is very poorly drained. The Ridgebury and Whitman soils have moderate to moderately rapid permeability in the surface layer and subsoil and slow or very slow permeability in the substratum (fragipan). The Leicester soils have moderately rapid permeability throughout. The seasonal highwater table for Ridgebury and Leicester soils is at or near the surface 7 to 9 months of the year. The Whitman soil has a highwater table at or near the surface 9 to 10 months of the year. Whitman soils have high runoff potential. Runoff is slow to medium in Ridgebury soils and slow in Leicester soils. This soil is designated as a wetland soil and is regulated under Public Act 155.

The Limerick silt loam, sandy subsoil variant, occupies nearly level flood plains. The soils are designated by the mapping unit symbol 023. The soils formed in recent silty alluvial sediments less than 40 inches thick over sands and gravels. The soils are poorly drained. Limerick soils have moderate permeability, are subject to flooding and have a high water table at or near the surface for 7 to 9 months of the year. The soils have slow surface runoff. This soil is designated 023, a wetland soil and is regulated under Public Act 155.

Udorthents, smoothed, are indicated by the soil mapping unit symbol ML2. Udorthents are areas which have been disturbed, to an extent that the natural layers are no longer recognizable. This occurs when soil material has been removed, or filling occurs and the original soil profile is buried and no longer a major factor in interpreting an area for land use.

The soils on the property are rated as moderate and severe for most urban uses, primarily due to slope, shallow to bedrock soils and seasonal highwater tables. The areas mapped as wetlands are regulated areas and use is subject to local commission approval.

On site sewage systems would have to be designed to accommodate the Woodbridge soil characteristics of fragipan and perched seasonal highwater tables. Buildings with basements should have foundation drains installed around the perimeter of each basement. The installation of streets and home parking areas will not be a serious problem as long as proper drainage, land grading and proper roadbed materials are used. Frost heaving will be the major problem with streets and parking lots.

The Charlton and Hollis soils have limitations due to slope, surface rockiness and shallow soils over bedrock. The Charlton soils are deep soils over bedrock and have only a moderate limitation to most uses. The Hollis soils are less than 20 inches to bedrock, and are severely limited to most uses. Land grading and depositing fill over areas of Hollis soils will be necessary to accommodate most urban uses.

Canton and Charlton soils occupy most of the property. The gently sloping to sloping areas of Canton and Charlton soils are moderately limited because of surface stoniness and moderate slopes. The Canton and Charlton soils do not have a fragipan within 20 inches of the surface. The limitations of these soils can be overcome by removal of surface stones and regrading. The steeply sloping Canton and Charlton soils are limited due primarily to slope. The steepest slopes are better left undisturbed because of the difficulty encountered in stabilizing and revegetating the cut slopes.

When the plans are developed for a specific land use, a complete sediment and erosion control plan should be developed. With the installation of buildings and parking lots on the site, runoff control will be essential. Erosion control, particularly on the slopes that would lead directly to Lakes Pond Brook, will be necessary on moderate and steep slopes.

The New London County Soil and Water Conservation District can assist the town of Waterford and the developer in developing and reviewing a meaningful sediment and erosion control plan.

Prime Farmland Soil Identification

According to the U.S. Department of Agriculture classification criteria for Prime Farmland Soils; the following soils are classed as Prime Farmland soils: (11B) Canton and Charlton fine sandy loams.

WATER SUPPLY

At the present time the area under consideration does not have public water available. Therefore, development of the area will necessitate the establishment of individual on-site wells, the development of a central public water system or bringing in public water from the New London system which is available along Route 85. Of these possible means, it would be most appropriate to extend public water

to the area. As possible alternate sources, the development of a central public supply would permit more flexibility as to the placement of on-site waste disposal facilities, assuming that public sewers would not be available for this purpose. In addition to sewage, other potential sources of pollution, such as; fuel oil, salt used in winter sanding operations of roads and parking areas and fertilizers used for seasonal lawn and plant care may have an impact on the water supply unless the well(s) is properly located and the underlying ground water source protected from careless and abusive practices. A central well must have sufficient separating distances from potential sources of pollution. This distance is generally based on soil and terrain characteristics and the required withdrawal rate. In some instances it may prove difficult or impossible to obtain a sufficient well yield to meet the needs for a development, large subdivision, or in a few cases a single family home. This would be particularly difficult to determine in this case, as there are no preliminary plans for development or knowledge as to what the eventual (specific) commercial activities might be. Ownership and responsibility for operation and maintenance of a system would also need to be established. The possible use of individual on-site wells should be considered in terms of the potentially smaller lot sizes with an overall increase in density in the commercial zone. Also the type(s) of commercial businesses could be a factor. It has generally been recognized where both on-site water supply and subsurface sewage disposal is to be provided, the lot size should be a minimum of an acre.

WASTE DISPOSAL

Public sewers are not available to this site. As the property is a considerable distance outside of the town areas presently being sewered, it is not expected that sewers would be made available in the near future. Therefore, the use of on-site sewage disposal facilities would become a necessary part of developing the land.

Soil mapping data of this parcel combined with visual observations indicate that a fairly large portion, particularly the upper, flatter terrain, would be generally suitable for on site sewage disposal. The portions which have a moderate to steep slope, especially the western side which goes to Lakes Pond Brook, would be much more restricted. In addition to the wetlands that adjoin the watercourse along this side, there is also a section of wetlands along the lower, northern side which is adjacent to the turnpike. In order to ensure satisfactory on-site sewage disposal, these questionable areas (steep slope and/or wet) should be avoided. This would also provide additional protection to Lakes Pond Brook, which after joining with Oil Mill Brook some 3,500-4,000 feet to the south-west, enters the upper reaches of the Niantic River.

PLANNING CONCERNS

The basic planning question posed by the requested commercial zoning is whether or not commercial zoning is more appropriate than the existing residential designation. The present zoning, RU-120, permits by right low-density single-family residential uses, agriculture, various public facilities, nursing and rest homes, and recreation uses. Other uses allowed by special permit include cemeteries, public safety facilities, educational institutions, riding stables, nurseries, commercial greenhouses, animal hospitals and kennels, golf courses and country clubs, and

waste disposal areas. Although the above represents a broad range of uses, most are types which would be incompatible in higher-intensity zones or which themselves require large amounts of land. Some are best suited to remote areas where impacts on neighbors will be minimized.

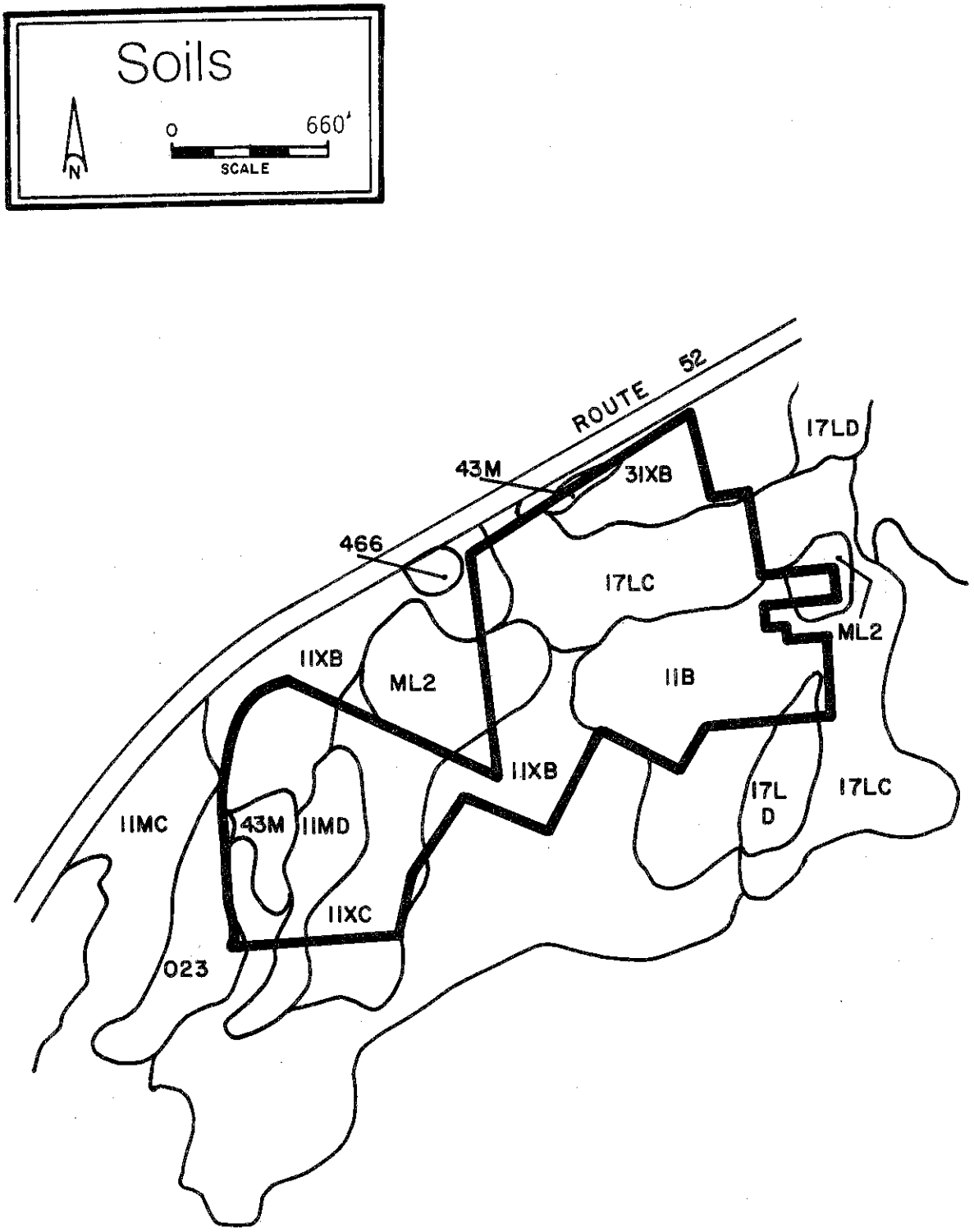
The parcel in question is well suited to the RU-120 designation. Its only present access is via Fargo Road which is paved as far as the site, but which is substandard for most of its distance. More intensive use of land on Fargo Road in this area would certainly need a wider and better road surface than what presently exists. However, improvements of the road will not alter the fact that the Fargo Road intersection with Route 85 is far from desirable. Site distances are poor for traffic exiting from Fargo Road and the nearness of Fargo Road to the north bound entrance and exit ramps of Route 52 complicates traffic movements in the interchange area.

Access to the property from Oil Mill Road presents problems also. Lakes Pond Brook parallels Oil Mill Road and lies about 150 feet from it. Bridging the brook is possible, but the land slopes sharply upward on the property eastward from the brook thus complicating internal circulation. In addition to the physical limitations to access from the west, Oil Mill Road is a decidedly residential street whose character would be threatened by the infusion of any significant amount of commercial traffic.

Although many of the RU-120 uses are also permitted in C-G Districts, the latter also permits a host of uses normally associated with busy commercial centers. These include retail stores, business and professional offices, eating, drinking and entertainment establishments, financial institutions and the like. Generally, uses of this nature are more likely to be successful when located in groupings, rather than isolated from each other. Such uses also rely on convenient access for customers, which this site does not have at present. It would seem that the non-residential uses that might be attracted to property in this area are already permitted either by right or by special permit in RU-120 Districts.

Existing land use and physical conditions in this area support the RU-120 designation at the present time. The same conditions argue against the requested commercial zoning designation.

Appendix


Soils
N
0
660'
SCALE
ROUTE 52
43M
31XB
17LD
466
17LC
ML2
11XB
ML2
11B
11XB
17L
D
17LC
11MC
43M
11MD
11XC
023

ARMS PROPERTY
WATERFORD, CONNECTICUT

PROPORTIONAL EXTENT OF SOILS AND THEIR LIMITATIONS FOR CERTAIN LAND USES

Soil Series	Soil Symbol	Approx. Acres	Percent of Acres	Principal Limiting Factor	Urban Use Limitations*			
					On-Site Sewage	Buildings with Basements	Streets & Parking	Land-Scaping
Charlton-Hollis	17LC	8	13%	Slope,Large Stones	2	2	2	2
Charlton Part					3	3	3	3
Hollis Part								
Charlton-Hollis	17LD	2	4%	Slope,depth to rock	3	3	3	3
Canton-Charlton	11XB	16	29%	Large stones	2	2	2	2
Canton-Charlton	11XC	8	13%	Slope,Large Stones	2	2	2	2
Canton-Charlton	11MD	2	4%	Slope,Large Stones	3	3	3	3
Canton-Charlton	11B	12	21%		1	2	1	1
**Limerick	023	2	4%	Floods,wet-ness	3	3	3	3
**Ridgebury, Leicester & Whitman	43M	2	4%	Wetness,Large Stones,Percs Slowly	3	3	3	3
Woodbridge	31XB	2	4%	Percs slowly, Wetness	3	3	3	2
Udorthents	ML2	2	4%	Limitations Determined on-site.				

Limitations: 1 = slight, 2 = moderate, 3 = severe.
** regulated wetland soil under Public Act 155.

SOIL INTERPRETATIONS FOR URBAN USES

The ratings of the soils for elements of community and recreational development uses consist of three degrees of "limitations:" slight or no limitations; moderate limitations; and severe limitations. In the interpretive scheme various physical properties are weighed before judging their relative severity of limitations.

The user is cautioned that the suitability ratings, degree of limitations and other interpretations are based on the typical soil in each mapping unit. At any given point the actual conditions may differ from the information presented here because of the inclusion of other soils which were impractical to map separately at the scale of mapping used. On-site investigations are suggested where the proposed soil use involves heavy loads, deep excavations, or high cost. Limitations, even though severe, do not always preclude the use of land for development. If economics permit greater expenditures for land development and the intended land use is consistent with the objectives of local or regional development, many soils and sites with difficult problems can be used.

Slight Limitations

Areas rated as slight have relatively few limitations in terms of soil suitability for a particular use. The degree of suitability is such that a minimum of time or cost would be needed to overcome relatively minor soil limitations.

Moderate Limitations

In areas rated moderate, it is relatively more difficult and more costly to correct the natural limitations of the soil for certain uses than for soils rated as having slight limitations.

Severe Limitations

Areas designated as having severe limitations would require more extensive and more costly measures than soils rated with moderate limitations in order to overcome natural soil limitations. The soil may have more than one limiting characteristic causing it to be rated severe.

About the Team

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

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

PURPOSE OF THE TEAM

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

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

REQUESTING A REVIEW

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

For additional information regarding the Environmental Review Team, please contact Jeanne Shelburn (889-2324), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, 139 Boswell Avenue, Norwich, Connecticut 06360.