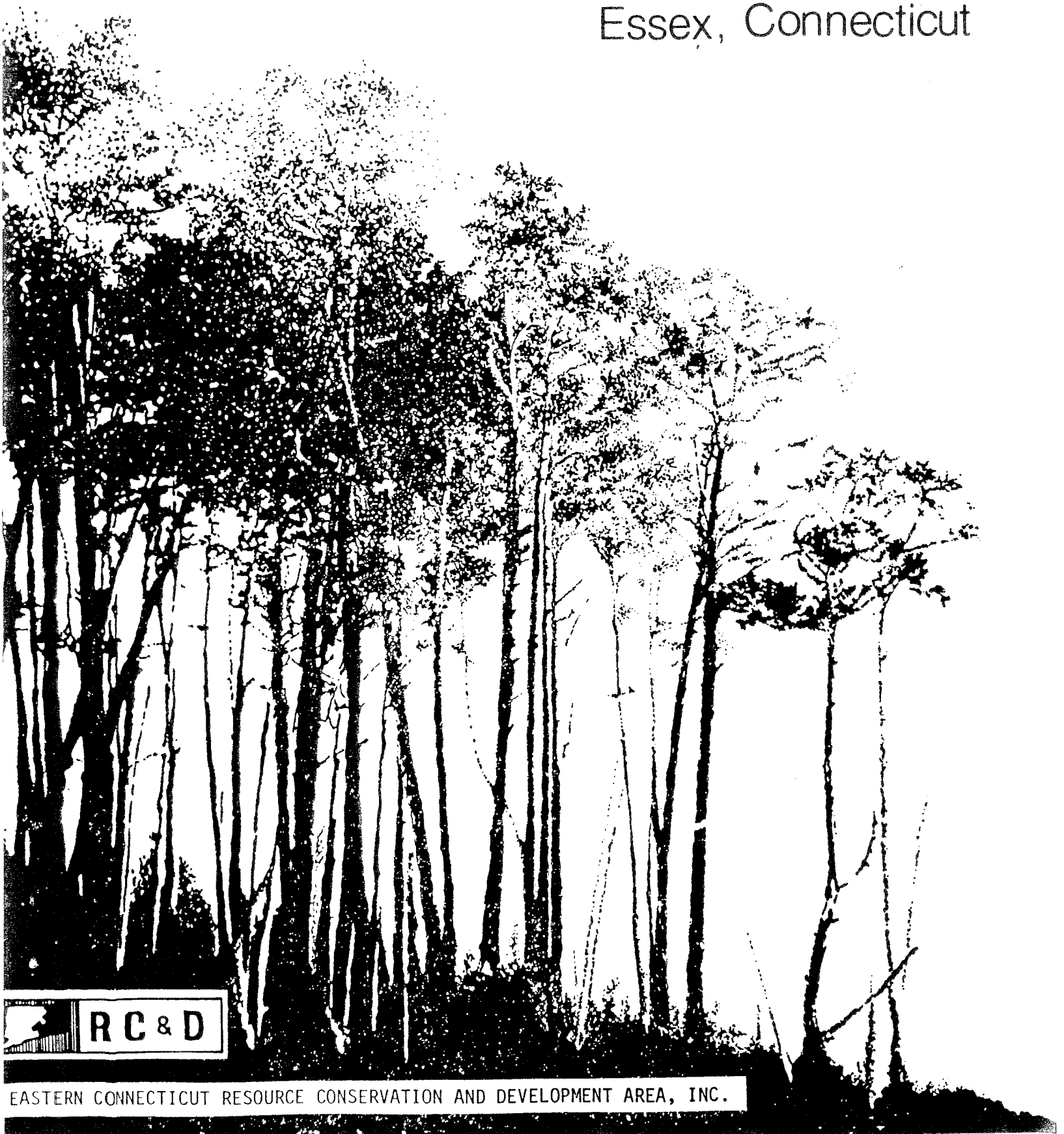
Environmental Review Team Report

Clark Condominiums

Essex, Connecticut



RC&D

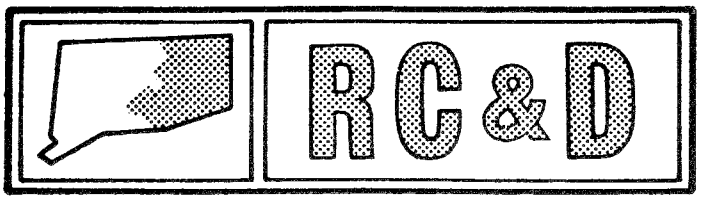
EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team
Report

Clark Condominiums

Essex, Connecticut

May, 1984

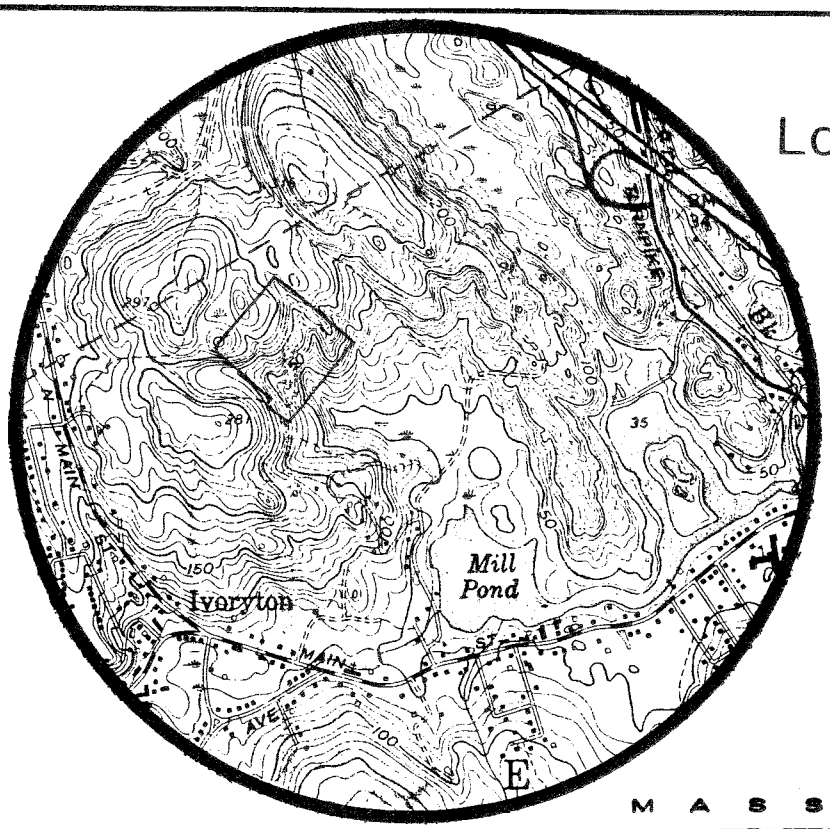


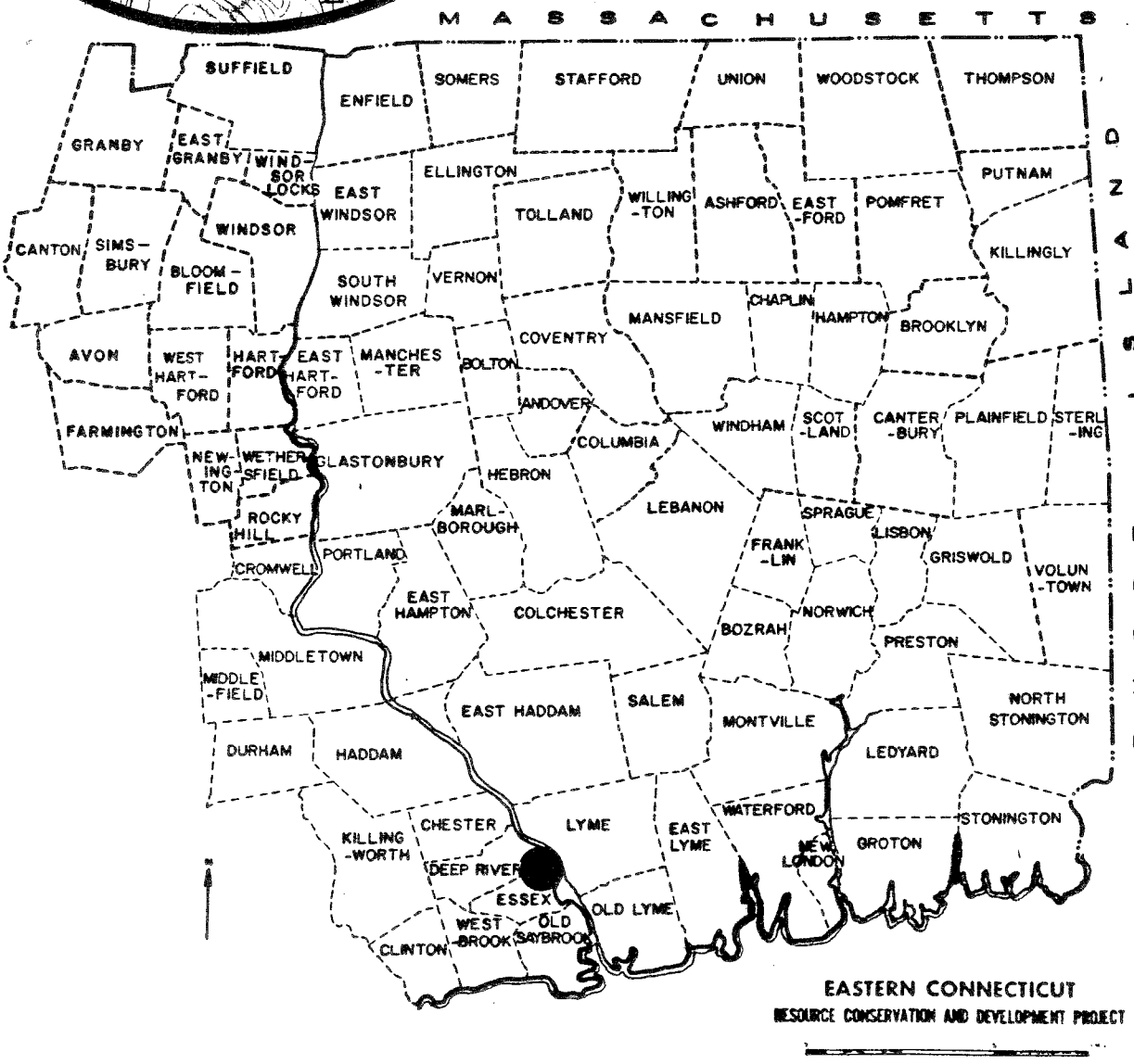
Eastern Connecticut Resource Conservation & Development Area

Environmental Review Team
PO Box 198
Brooklyn, Connecticut 06234

Location of Study Site

CLARK CONDOMINIUMS
ESSEX, CONNECTICUT





ENVIRONMENTAL REVIEW TEAM REPORT
ON
CLARK CONDOMINIUM PROPOSAL
ESSEX, CONNECTICUT

This report is an outgrowth of a request from the Essex Inland Wetland Commission to the Middlesex 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. The request was approved for the RC&D Executive Committee by Tom O'Dell, Committee President, and the measure was reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The soils of the site were mapped by a soil scientist from the United States Department of Agriculture, Soil Conservation Service (SCS). Reproductions of the soil survey map, a table of soils limitations for certain land uses and a topographic map showing property boundaries were distributed to all Team members prior to their review of the site.

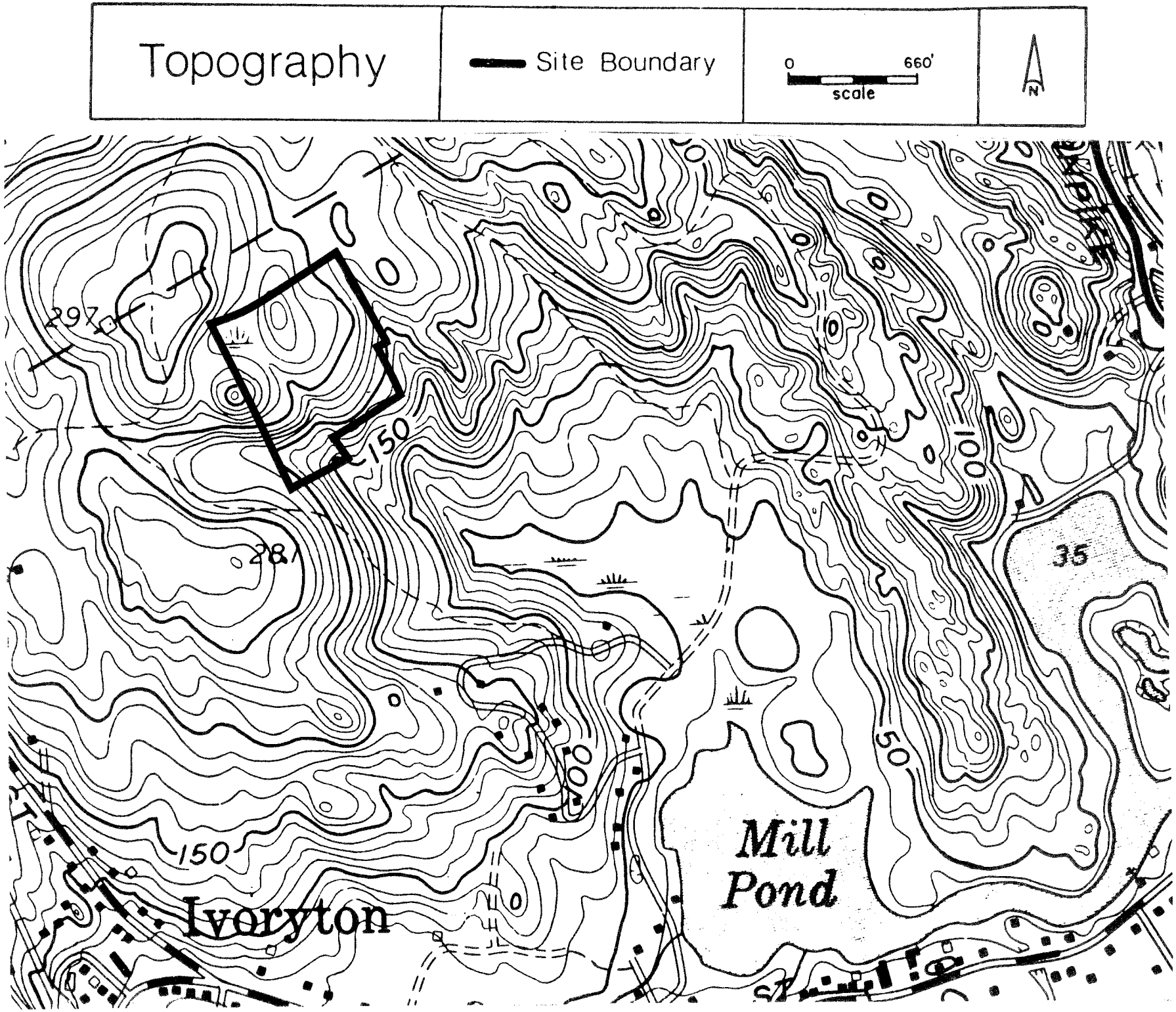
The ERT that field-checked the site consisted of the following personnel: Pat Scanlon, District Conservationist, Soil Conservation Service (SCS); Bill Warzecha, Geologist, Connecticut Department of Environmental Protection (DEP); Judy Wilson, Biologist, DEP; Richard Joly, Regional Planner, Connecticut River Estuary Regional Planning Agency; Don Capellaro, Sanitarian, State Department of Health; Brian Curtis, Sanitarian, DEP; and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

The Team met and field-checked the site on Tuesday, April 3, 1984. Reports from each contributing 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 considerations that should be of concern to the developer and the Town of Essex. 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 Area Committee hopes that this report will be of value and assistance in making any decisions regarding this particular site.

If you require any additional information, please contact: Ms. Jeanne Shelburn, Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, P.O. Box 198, RTE. 205, Brooklyn, CT 06234, 774-1253.


Topography
Site Boundary
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Mill
Pond
Ivoryton

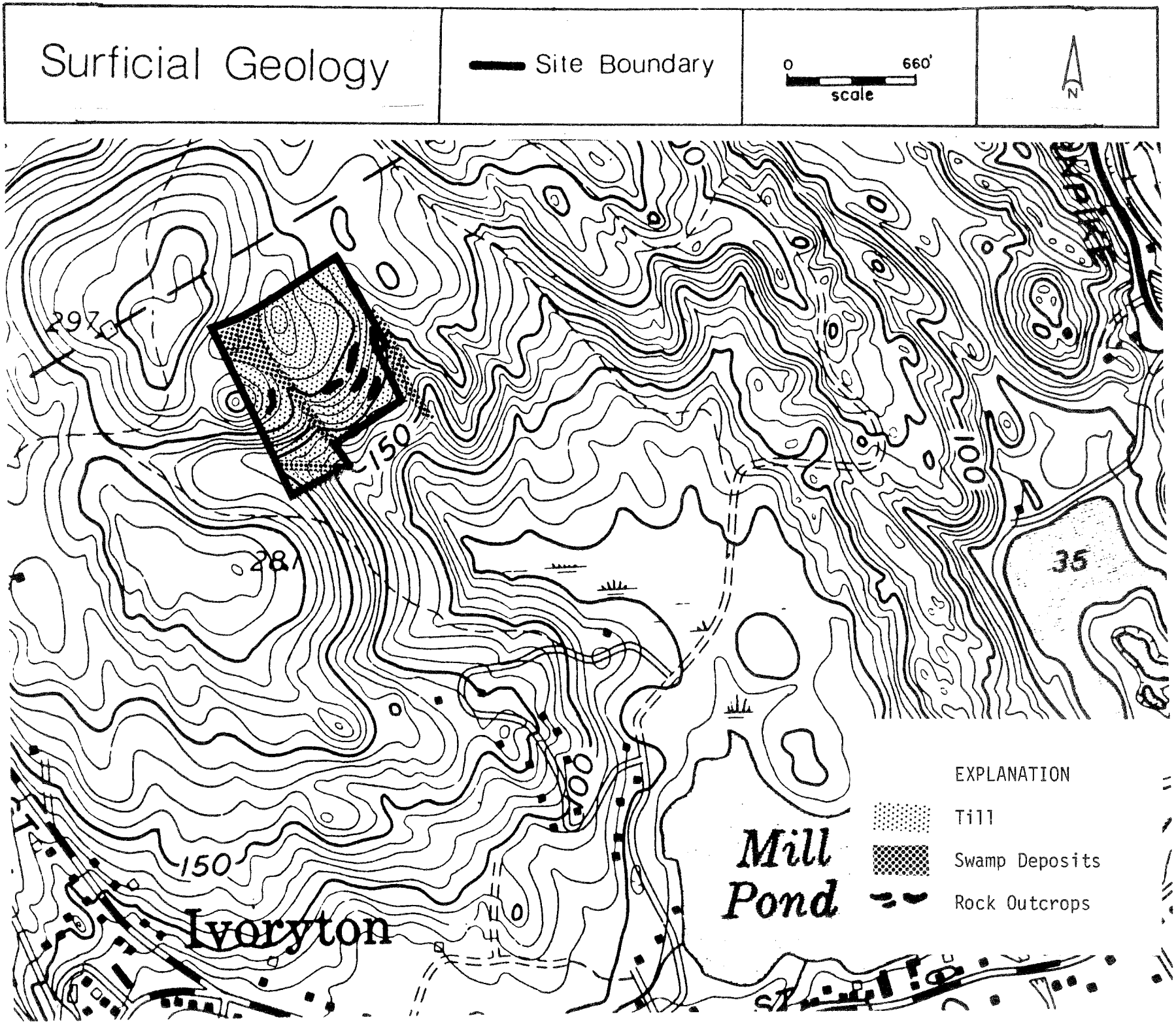
INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to prepare an environmental assessment of a proposed condominium development in the Town of Essex. The property is approximately 15 acres in size and is located off Mitchell Terrace in the Ivoryton section of Essex. The property is being developed by Ellen Clark and engineeringn plans have been prepared by Roland Harris Associates.

Plans show 32-two bedroom units, separated into eight buildings. Each building will be served by a separate on-site septic system. Water will be supplied by an on-site well or wells. A single road extending into the site from Mitchell Terrace will provide access to all units. Approximately two parking spaces will be provided per unit.

The site is bounded by wetland areas on both the east and west and by a Connecticut Light and Power right-of-way to the south. The property has a steep and rocky terrain. The site is currently zoned for multi-family residential dwellings.

The Team is concerned with the effect of this proposed development on the natural resource base of this site. Although many severe limitations to development can be overcome with appropriate engineering techniques, these measures can become costly, making a project financially unfeasible for a developer. This may be particularly true in the case of this proposed development. Severe limitations to development have been noted by members of the Team in most of the following sections of this report. These include, but are not limited to, steep slopes, shallow soil depth to bedrock, wetland soils and questionable adequacy of water supply. Additional traffic generation and emergency vehicle access may also become considerable problems. More detailed discussion of these limiting factors can be found in the following sections of this report. The Team feels that given the severe constraints to development in this area, the Town may wish to reconsider its designation as a multi-family (high density) zone.


Surficial Geology
Site Boundary
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Mill Pond
Ivoryton
EXPLANATION
Till
Swamp Deposits
Rock Outcrops

ENVIRONMENTAL ASSESSMENT

TOPOGRAPHY

The proposed condominium site consists of approximately 15 acres and is located off Mitchell Terrace in the Ivoryton section of Essex.

Slopes on the site range from gentle to steep. The steepest slopes occur in the south central part of the site and are associated primarily with rock outcrop areas. Gentle slopes are found in the northern portion of the parcel. The land surface rises from the southern property line to the northern and western boundaries of the site. Maximum and minimum elevations are about 300 feet and 500 feet above mean sea level. A few intermittent drainage channels were visible on the field review day in the southern, central and eastern portions of the site. A small ponded area in the southern section appears to be an impoundment of an intermittent drainage channel which resulted from road construction.

GEOLOGY

The site is located within the Essex topographic quadrangle. A bedrock geologic map (QR-15) prepared by Lawrence Lundgren, Jr. and a surficial geologic map (QR-31) by Richard Foster Flint for the quadrangle have been published by the Connecticut Geological and Natural History Survey. Both maps are available for purchase or review at the Department of Environmental Protection's Natural Resource Center in Hartford.

Bedrock outcrops are visible mainly in the south central and southern parts of the site. The bedrock underlying or cropping out has been interpreted as Monson gneiss. It consists of a light grey, medium to coarse grained gneiss interbedded with amphibolite and pink alaskitic granite. The minerals composing the rock include plagioclase feldspar, quartz, biotite and hornblende. The term 'gneiss' refers to crystalline, metamorphic (geologically altered by great heat and pressure deep within the earth's crust) rock which has a streaked or banded appearance. The banding occurs when thin bands of elongate or flaky minerals alternate with layers of granular minerals. The term "amphibolite" refers to rocks consisting of amphibole mineral, i.e., hornblende, actinolite, tremolite and plagioclase. Quartz is generally absent in the rock or present only in small quantities. "Alaskitic granite" refers to a rock which contains only a small percent of dark minerals

(i.e., hornblende) which formed from molten magma deep beneath the surface of the earth. It consists of the minerals orthoclase, microcline and lesser amounts of quartz. Bedrock is closest to the ground surface in the area delineated as HpE (Hollis-Charlton soils) on the Middlesex County Soil Survey.

The site is covered entirely by a thin blanket of unconsolidated material referred to as till. Till, which is derived largely from granite, schist and gneiss rocks, is a complex mixture of rock particles that vary in size from clay to boulders and in shape from flat to angular to round. The texture of till generally varies from sandy and loose in the upper few feet to silty, hard, and compact at depth.

As glacial ice flowed over and abraded the pre-existing landscape, earth material was incorporated into the ice sheet. This material was subsequently deposited onto the ground directly by the glacial ice. Thickness of the till found on the site probably ranges from zero, where rock outcrops occur, to not much more than 10 feet at various points in between the outcrops. The thickest deposits are probably found in the north central parts of the property.

Overlying till in the northwest corner of the site, and along intermittent drainage swales are areas of seasonal wetness. During the wet times of the year, the water table is at or near the the surface of the ground. A certified soil scientist hired by the developer has flagged the wetland areas on the site, which for the most part, include the areas mentioned above. Disturbance of wetlands should be avoided, but if necessary, pursuit requests should be processed through the appropriate local agency for review and comment.

In terms of the proposed condominium development, the major geological limitations found on the site include (1) moderate to steep slopes in the south central parts of the site, (2) bedrock outcrop areas, (3) generally shallow soil conditions, and (4) the compact nature of till soils. These limitations will weigh heaviest on the ability to provide adequate subsurface sewage systems. Each of the proposed seven buildings are to be served by a community sewage disposal system. Since the design sewage flow for the proposed project exceeds 5,000 gallons per day, a permit from the Department of Environmental Protection Water Compliance Unit will be required. There is a possibility the previously mentioned geologic limitations could be surmounted with properly engineered sewage disposal systems.

Also, because of the numerous bedrock outcrops and the generally shallow soil cover, there is the possibility that blasting may be required in order to construct access roads, install water supply lines and place building foundations.

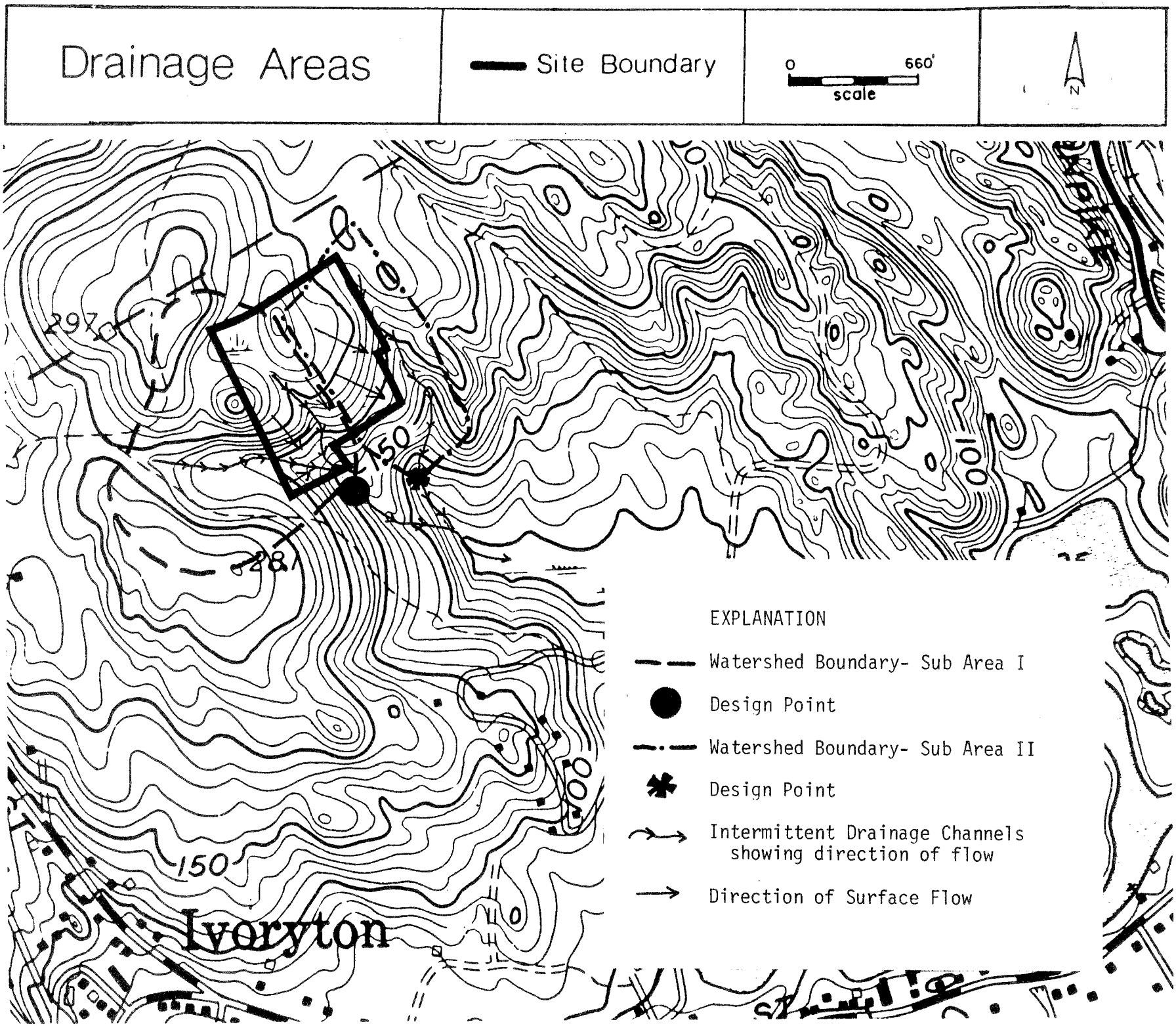
HYDROLOGY

The proposed condominium site lies within the Falls River watershed. Surface runoff generally flows in a south to southeastward direction by sheetflow and/or by intermittent drainage channels into a wetland area north of Mill Pond, which is south of the property. Mill Pond is an impoundment of the Falls River. From the outlet of Mill Pond, Falls River flows generally eastward enroute to the Connecticut River.

Development of the site will cause increases in the volume of runoff. These increases would be caused by (1) removal of vegetation, (2) compaction of soils, and (3)

TABLE 1. Runoff increases estimated for the proposed multi-family development. (All estimates recorded in inches, curve number is shown in parenthesis for each of the drainage areas under existing or proposed land use.

DRAINAGE AREA I	25 Year Storm
Under existing conditions Curve number (62)	1.81"
Under proposed plan Curve number (64)	1.98"
Percent Increase	9%
DRAINAGE AREA II	
Under existing conditions Curve number (62)	1.81"
Under proposed plan Curve number (65)	1.98"
Percent Increase	14%


Drainage Areas
Site Boundary
0
660'
scale
N
297
150
100
150
Ivoryton
EXPLANATION
Watershed Boundary- Sub Area I
Design Point
Watershed Boundary- Sub Area II
Design Point
Intermittent Drainage Channels showing direction of flow
Direction of Surface Flow

creation of impurvious surfaces such as roofs, paved parking, and access streets. An estimate may be made of the runoff change likely to occur from the proposed land use modification. Technical Release No. 55 of the Soil Conservation Service provides a technique which may be used in formulating the estimate. This method involves the determination of runoff curve numbers, which relate the amount of precipitation to amounts of runoff. For convenience, the larger drainage area (Falls River) was broken down into smaller units in order to provide a perspective in terms of runoff increases due to the proposed development (see Drainage Area Map). Each watershed area is based upon a certain point of outflow and shows all the land from which runoff ultimately reaches that point. It is estimated that development in subarea I would increase the curve number of the property by 2 (from 62 to 64) and in subarea II by 3 (from 62 to 65). Under these conditions, runoff depth for a 25-year storm event in subarea I would increase from 1.81 inches to 1.98 inches (an increase of approximately 9%), while in subarea II would increase from 1.81 inches to 2.06 inches (an increase of approximately 14%). Although these increases are not high, the increases may cause some additional stream bank erosion. It is not expected, however, that the increases would create flooding problems downstream. Nevertheless, it is important that a judicious stormwater management plan be formulated for the site. Therefore, it is recommended the developer be required to submit detailed hydrological information on pre- and post-development runoff volumes and peak flows from the property. Estimates should be provided for a 10, 25, 50 and 100 year storm.

In view of the steeply sloping areas found on the site, there is potential for erosion problems unless adequate precautions are taken. For this reason, it is recommended a comprehension erosion and sediment control plan be formulated for the project.

On the field review day, a Town commissioner stated that the Inland-Wetland Commission would like to see off-site stormwater flows following the development be maintained at present levels. The most likely resolution of maintaining the present peak flow would be the installation of one or more detention basins. The project designer stated two detention basins are being considered for the project, one in the western portion of the site and one in the eastern part. Construction of a detention pond in the latter area may be difficult and possibly precluded due to the presence of steep slopes. If construction of a detention pond in the eastern part of the site is not possible, the detention pond constructed in the western parts may be overdesigned thereby compensating for increased runoff in the eastern half of the site.

These ponds may also serve a sediment retention function. Detailed design specifications for detention ponds should be submitted for town review. All storm drain outlets should include a designed energy dissapator to help protect areas below the outlet from eroding.

SOILS

The soil type over most of the site, as mapped by the Soil Conservation Service, is a Hollis-Charlton extremely stony fine sandy loam complex on 15 to 40% slopes. This complex consists of about 40% Hollis soils, 35% Charlton soils and 25% other soils and bedrock outcrops. These soils occur in such an intricate pattern that it was not practical to map them separately.

The soils are somewhat excessively drained and well drained and occur on ridges where the relief is affected by the underlying bedrock or on upland glacial till plains. The areas where these soils are found have a rough surface with bedrock outcrops, narrow intermittent drainageways, and small wet depressions. In most areas 3 to 5% of the surface is covered with stones and boulders.

The Hollis-Charlton complex has poor potential for community development. The soils are limited mainly by the steep slopes, shallowness to bedrock, rock outcrops, and stoniness. Excavation is difficult because of the shallow depth to bedrock in many places. Onsite septic systems require very careful and often special design and installation. With careful planning many areas of this complex can provide a scenic and picturesque setting for homes.

Small areas of soils mapped as Charlton-Hollis very stony fine sandy loams occur on 3%-15% slopes in the northeastern and southwestern sections of the parcel. This complex consists of gently sloping and sloping, well drained and somewhat excessively drained soils on ridges where the relief is affected by the underlying bedrock and on upland glacial till plains. The complex is about 50% Charlton soils, 30% Hollis soils, and 20% other soils and bedrock outcrops. Stones and boulders over 0.1 to 3% of the surface. As in the Hollis-Charlton complex, the soils of this complex are in such an intricate pattern that it was not practical to map them separately.

This complex has fair potential for community development. The shallow depth to bedrock in the Hollis soils and the bedrock outcrops make excavation difficult. Onsite septic systems require careful design and installation.

A detailed soils map and a chart showing soil limitations for urban development are included in the appendix to this report.

To overcome the development limitations posed by the soils and topography on the site, plans submitted for the proposed condominium project show extensive grade modifications involving the import of about 35,000 cubic yards of fill. Road fill material would be placed at depths of over 16 feet in some sections. The condominium units are clustered within two plateaus on the site where extensive fill depths of up to 12 feet are planned.

The placement of earth fill should be controlled according to strict construction methods and materials. Some of the units are to be sited on earth fill of varying depths. This can cause unequal consolidation which could cause cracking of the foundations.

The steep slopes and the extensive quantities of fill material to be placed on the site greatly increase the potential for erosion and sedimentation problems during and after construction. A plan should be developed which presents in detail the sequence and staging of construction activities. Appropriate sediment and erosion control measures should be developed and implemented to prevent erosion during each construction stage. Sediment and erosion control measures include, but are not limited to, the following: sediment barriers placed at the toe of all fill slopes; construction of energy dissipators that are specifically designed to handle outflow velocities and volumes at the outlets to storm sewers; construction of benches to break up long fill slopes; use of watertight stormwater drainage pipes on steep slopes where velocities are high; direction of drainage around the units in stabilized channels and not in exposed fill material where gullies can form; and timely seeding and mulching of all disturbed areas. Construction should be

scheduled during favorable weather and a winter shutdown procedure should be prepared and implemented if necessary.

A small pond, 4 to 5 feet deep, has formed behind fill placed for the existing access road to the site. An 18-inch corrugated metal pipe extends through the road fill. The existing embankment is unsafe for several reasons. There are exposed boulders and tree stumps on the upstream and downstream slopes of the embankment. Although the extent to which these occur within the core of the embankment could not be determined, their presence raises some doubt as to the proper composition and placement of the embankment fill. There are several seeps along the downstream toe which may indicate that the foundation was not cleaned of organic material and that an impervious cutoff trench was not installed prior to placement of the fill. The spillway pipe is currently discharging directly onto the downstream toe of the embankment, a situation which could cause backcutting into the fill.

The existing fill material should be removed and the pond and road embankment installed according to designs prepared by a professional engineer registered in the State of Connecticut. As the proposed fill is to be about 20 feet high, a construction permit must be obtained from the Department of Environmental Protection. Soil Conservation Service engineering standards require a top width of 26 feet for earthen dams with two-way traffic flow as well as guardrails or other safety devices to meet the requirements of the responsible road authority.

The pond could be used as a detention basin to restrict runoff flow increases from the development for the 2, 10, and 100 year frequency storms. A riser could be installed and adequate storage should be provided. If the pipe spillway is to act as an emergency spillway, it should have a cross sectional area of 3 square feet or a minimum diameter of 24 inches. Trash racks should be provided to prevent clogging. Anti-seep collars should also be installed around the pipe.

WILDLIFE/VEGETATION

The majority of the 15 acre site is covered by hardwood forest. The property is bounded on the west and east by wetland areas. The Connecticut Light & Power Company right-of-way forms the southerh boundary of the property.

The property is steep and rocky with elevations ranging from 150 to 300 feet.

Developing any small area by building on it will leave the majority of the area unavailable for wildlife use.

Development will decrease the amount of habitat simply because the land will be occupied by physical building. The quality of the habitat will be decreased because an undeveloped area of land will be broken up with buildings and human activity.

Some species which require larger undeveloped areas will probably be forced out or will reduce their use of the area. They may be able to move into adjacent undeveloped areas if there is suitable habitat available and the competition with other species already occupying the area is not too great.

Other species which are more adaptable to man's presence will probably remain. Some new species may even be attracted to the area.

If the following general wildlife recommendations are carried out, the impact to some species using the area can be lessened. The area may be made even more attractive to some species such as songbirds.

1. Clearing--when the initial clearing for building is done, try to leave as many trees and shrubs as possible, especially those useful to wildlife. Some useful species include:

White Oak (Quercus alba)	Quaking Aspen (Populus tremuloides)
Red Oak (Quercus rubra)	Red-osier Dogwood (Cornus stolonifera)
Black Cherry (Prunus serotina)	Apple (Malus spp.)

2. Landscaping--on a small acreage with many buildings, landscaping can do a great deal to provide habitat and make an area attractive to wildlife. First, leave as many trees as possible around the eight buildings. This will not only benefit wildlife by providing food, cover and nesting sites (especially for songbirds), but will also be more aesthetically pleasing for the residents of the condominiums.

   Leave as many snag trees (standing dead trees) and den trees (trees with holes) as possible. These trees are used by insect eating birds and cavity nesting birds and mammals.

   Plant trees and shrubs which are useful to wildlife and landscaping such as: Japanese barberry (Berberisvulgaris); Flowering dogwood (Cornus florida); Honeysuckle (Lonicera spp.); Juniper (Juniperus spp.); Bayberry (Myrica pensylvanica); Maple-leaved virburnum (Viburnum acerifolium); Chokecherry (Prunus virginiana); American Holly (Ilex opaca); American mountain ash (Sorbus americana); Autumn-olive (Elaegnus umbellata); winterberry (Ilex verticillata); American cranberrybush (Viburnum trilobum); Red Maple (Acer rubrum); Red osier dogwood (Cornus stolonifera); Alternate-leaf dogwood (Cornus alternifolia).

A variety of trees and shrubs should be used. Most species of wildlife need to have cover when they move from place to place. By leaving corridors of vegetation this will allow wildlife to utilize the area and also have access to adjacent areas. Large expanses of lawn with no trees or shrubs present should be discouraged. These factors will allow wildlife to better utilize the area and thus make it more attractive to wildlife.

Wetland Areas

Development adjacent to the outlying wetlands should be avoided. Wetlands are important areas for many species of wildlife because they provide food, cover and nesting areas. Any impact on them should be minimized.

WATER SUPPLY

According to the project designer, the extension of a public water supply line (Connecticut Water Supply Company) would be too costly for the developer. For this reason, the developer wishes to supply the proposed condominiums with water by an on-site well or wells. The only suitable aquifer on the site appears to be the underlying bedrock. An "aquifer" may be defined as a geologic formation that is capable of yielding a usable amount of water to a well. Yields from bedrock wells depend upon the number and size of water-bearing fractures that are intersected by the well or wells. Density and size of fractures in different bedrock zones vary widely but they generally occur within the first 100 to 150 feet below the land surface since the yield of a given well depends upon the number and size of water-bearing fractures that it intersects, and since the distribution of fractures in the bedrock is irregular, there is no practical way, outside of expensive geophysical testing, for predicting the yield of a well drilled in a particular location. It has been shown that the probability of increasing the yield of a well decreases with depth below 250 feet.

According to plans submitted to Team members on the field review day, the proposed development will include 32 two-bedroom units which are separated into 8 buildings. By making some assumptions, it is possible to estimate the total water demand of the proposed condominium development. Assuming an average occupancy of 2 persons per bedroom and an average per capita water use of 75 gallons per day, the total water demand for the development would be about 9,600 gallons per day. Based on an 18-hour pumping period, a total yield of about 9 gallons per minute (gpm) would, therefore, be required from the well. Such a water supply system would require a surface water storage facility to meet the irregular demand for water during the peak periods of the day.

In a survey of 314 wells in the lower Connecticut River basin, it was found that about 90% of bedrock-based wells tapping a rock similar to that underlying the site provided almost 2 gallons per minute or more; 50% yielded about 6.5 gallons per miniute or more; and only about 28% yielded 9 gallons per minute or more. Based on this information (source: Connecticut Water Resources Bulletin No. 31 Lower Connecticut River Basin), it may be necessary to drill several wells in order to supply the developments' needs. As a precautionarymeasure, it might be safer to drill the well or wells first to determine what the potential yield would be.

As this well(s) would be classified as a public water supply, necessary approval for any well locations would have to be obtained from the State Department of Health Services, Public Water Supply Section. It is recommended that they be contacted as soon as possible to discuss the proposal. Water quality, yield, along with plans for pumpage, storage and distribution would need to be reviewed and approved by the Public Water Supply Section.

If more than one well is required, they should be spaced at least 250 to 300 feet apart, if possible, to avoid the risks of mutual interference (i.e., the yield of one well detracting from the yield of another). In addition, wells should be located as far from any source of pollution (i.e., sewage disposal system, fuel storage tank, etc.) as possible. A well or wells should also be placed uphill from the sources of pollution.

The quality of natural groundwater in the vicinity of the development should be good. There may be a possibility that an elevated mineral content, particularly iron and/or manganese, will be present in the water. If well water proves to be high in mineral content, there are filtration methods available to overcome such problems.

WASTE DISPOSAL

The condominium development as proposed will include a total of 32 two-bedroom units producing a design sewage flow rate of 9600 gallons per day. Since this falls within the greater than 5000 gallons per day range, a State Discharge Permit from the Department of Environmental Protection will be required for the sewage discharge pursuant to Section 22a-430 of the Connecticut General Statutes. The actual design of the sewage system must meet the following criteria:

a. The leachfield system must be adequately sized to treat sewage flows based upon established long term acceptance rates of the biological growth layer that will develop in those soils in contact with the leachfield systems stone.

b. Soils surrounding and downgradient of the leachfield systems must have adequate hydraulic capacity to transmit sewage flows without surface breakout.

c. Pollutants associated with the sewage discharge must be adequately renovated by the soil-groundwater to the point of being clean water prior to crossing any property lines or entering any surface waters. This would include an analysis of nitrates, phosphorous, virus and bacterial pathogens.

Actual construction of any sewage disposal system approved by the Department of Environmental Protection must be overseen by a professional engineer and if warranted full time supervision of certain aspects of construction must take place.

Once construction of the system is completed in accordance with approved plans and specifications, a permit to operate the system would be issued. Usually this is issued to the condominium association who would be required to perform necessary septic tank pumpouts, general maintenance, recording water use, and reporting this data to the Department of Environmental Protection and town annually.

The proposed 15 acre parcel is not well suited for large scale sewage disposal purposes. The major drawback to this land is the shallow depth of soil covering bedrock. In most areas proposed for leachfield system construction, soils are only 3 to 6 feet deep before bedrock is encountered. In order to overcome this limitation, the plans propose to import vast amounts of fill material to the site. The leachfield systems themselves would be constructed entirely within this fill material with the base of the systems located above existing grade elevations. While this concept is feasible from an engineering standpoint, there are numerous points during actual construction where severe problems can potentially arise. These problems could include improper surface preparation, the use of unsuitable fill material, improper fill placement, erosion, leaving stripped area exposed to the weather, etc. For these reasons, the Department of Environmental Protection would require that a detailed construction sequence be spelled out in advance decribing just how this fill concept is to be implemented and supervised.

An additional major concern of the Department of Environmental Protection regarding this proposal is the possible interaction between the proposed sewage systems and on-site water supply wells. Although it has been mentioned that public water lines are likely to be brought to the site, the option of on-site wells is also being considered. With the setting of the proposed leachfield systems at a relatively short distance above bedrock it is always a concern that sewage effluent containing pathogenic bacteria may enter rock fractures prior to receiving adequate renovation. It is most important that the direction of sewage flow be clearly identified and controlled so that water supply wells serving the project will not intercept inadequately treated sewage. It must also be shown that the sewage effluent will be completely renovated prior to leaving the property or entering any of the nearby streams.

One final point for consideration by the town agencies is in regard to the quantity of fill materials proposed for use. During the review team visit to the site a figure in excess of 30,000 yards of fill material was mentioned. A review of the proposed grading plans supports this figure. The town should be aware that this quantity of fill material will require something on the order of 2000 truck loads plus of traffic coming into the site. The effects of this traffic on the local roadway system and residential neighborhood should be evaluated.

PLANNING CONCERNS

The only access to this site is by Falls River Drive. The area leading up to the site is extensively developed. In addition to the traffic generated by the existing development there will be a significant increase from this proposed development. Using a trip generation rate of seven vehicle trips per day[1] for each unit times 32 units results in 160 trips per day for this porposed development.

Both the roads leading up to this site and the roads proposed within the site itself have steep slopes and sharp curves which are caused by the steep topography of the area. The nature of these roads will tend to make them dangerous when wet or when there is an accumulation of snow and ice. This will also make necessary the extensive use of road salt in the winter which will threaten the pollution of the wetlands and streams which are located near this site.

Emergency vehicle access for fire trucks, ambulances, etc., is a concern because of the difficult nature of the roads. If the single road leading to this area is made inaccessible for some reason, then emergency vehicle access would be completely cut off. The construction vehicles that would have to travel to this site during construction could create a traffic hazard because of the difficult nature of the road. This is especially significant because of the large amount of fill that will have to be brought to this site.

When the road slopes, geometrics, traffic generation and emergency vehicle access are taken into consideration as discussed above, the adequacy of access to this site becomes a major problem for the development of this site.

The lack of nearby water sources and difficult access for fire protection to this site raises a concern for fire protection. If retention basins are used to control stormwater runoff, there might also be the potential to use them as a water supply for fire protection.

The town should insure, however, that any sources of water for fire protection have adequate capacity to meet the needs of the large number of units in this development.

The severe environmental constraints of this site bring into question its use for multiple family development. The steep slopes bring about the possibility of erosion and sedimentation problems. The shallow depth to bedrock brings about difficulty with sanitary septic system location. The problems with access and fire protction are discussed above. The Zoning Commission may want to reconsider the town's policy in reference to zoning areas such as this for multiple family use.

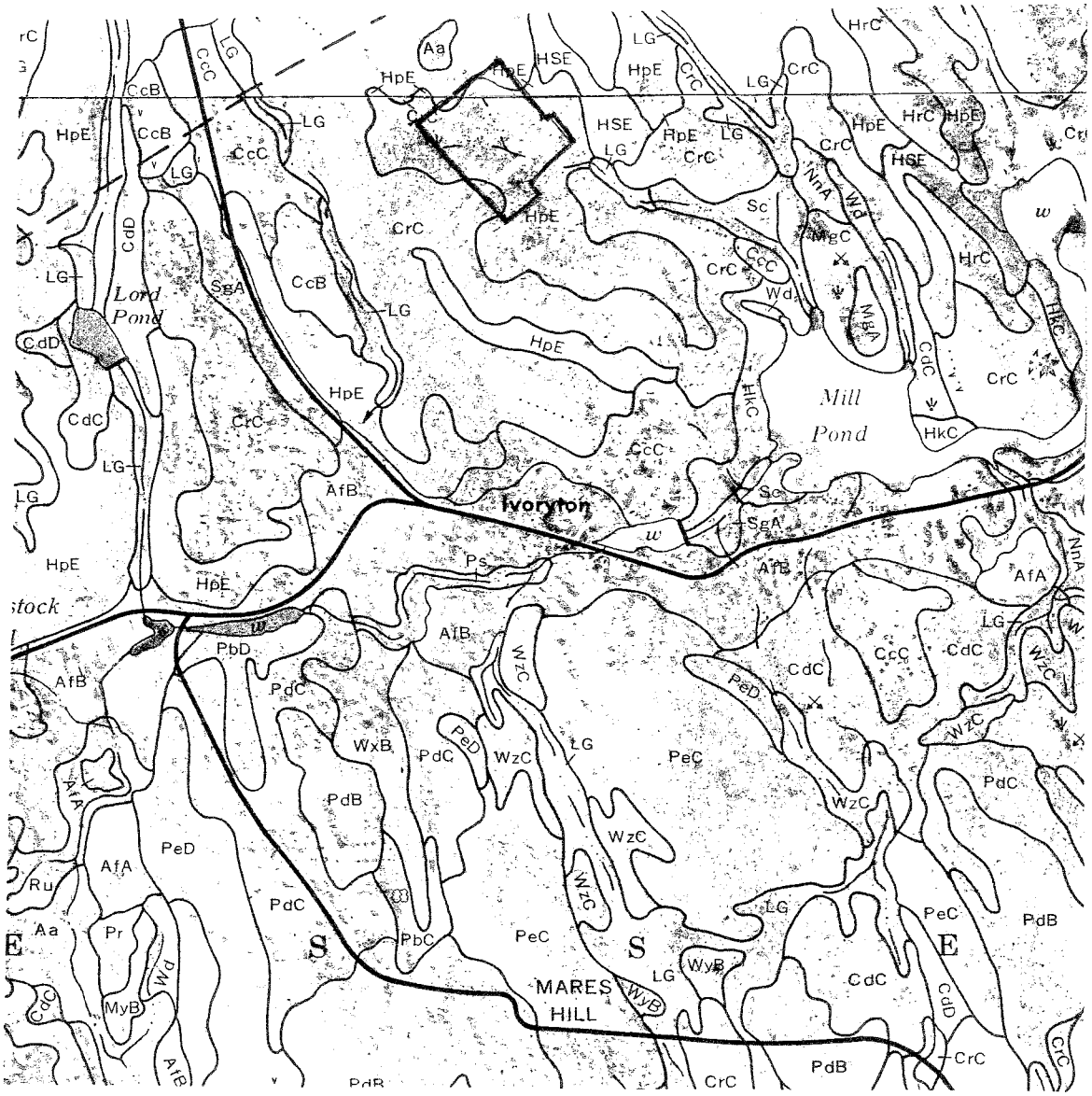
[1] "Traffic Circulation Planning for Communities," Harold Marks, Gruen Associates, 1974.

Appendix

Soils

0 1320'
scale

N



Soil Symbol	Name	Embankments	Dwellings with Basements	Dwellings without Basements	Local Roads & Streets	Lawns/ Landscaping	Septic Tank Absorption Fields
CrC	Charlton-Hollis very stony fine sandy loams, 3-15%	Seepage, large stones	Charlton-moderate: large stones, slope Hollis-severe: depth to rock	Charlton-moderate: large stones, slope Hollis-severe: depth to rock	Charlton-moderate: slope	Charlton-moderate: slope, large stones Hollis-severe: depth to rock	Moderate: slope, large stones
HpE	Hollis-Charlton extremely stony fine sandy loams, 15-40%	Seepage, thin layer	Severe: slope, depth to rock, large stones	Severe: slope, depth to rock, large stones	Severe: slope, depth to rock	Severe: slope, depth to rock, large stones	Severe: slope, depth to rock, large stones

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 activitis. 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 (774-1253), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, P.O. Box 198, Brooklyn, Connecticut 06234.