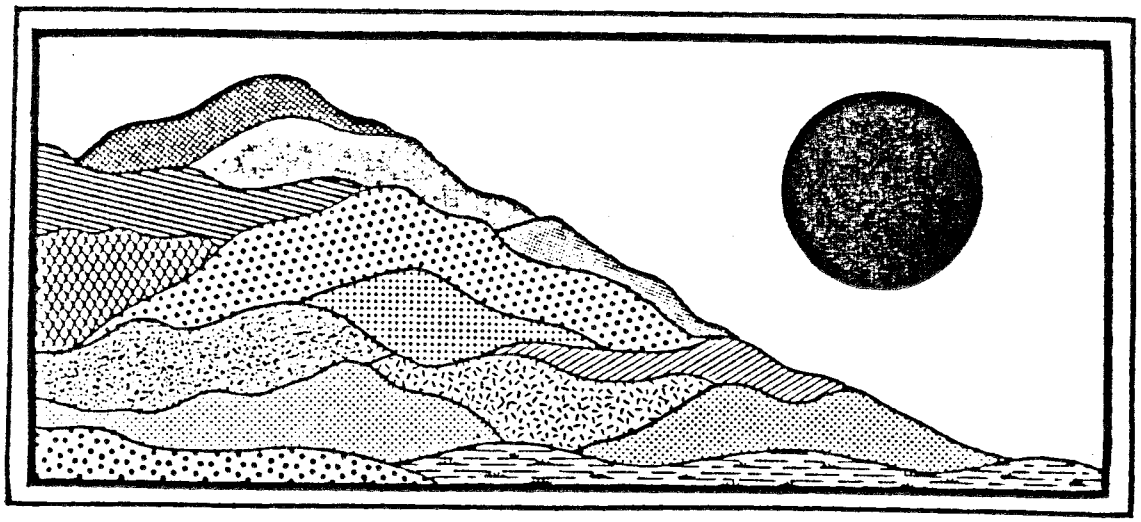
ELDERLY HOUSING

Lisbon, Connecticut

April 1988



ENVIRONMENTAL REVIEW TEAM REPORT

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

ELDERLY HOUSING

Lisbon, Connecticut

Review Date: FEBRUARY 29, 1988

Report Date: APRIL 1988

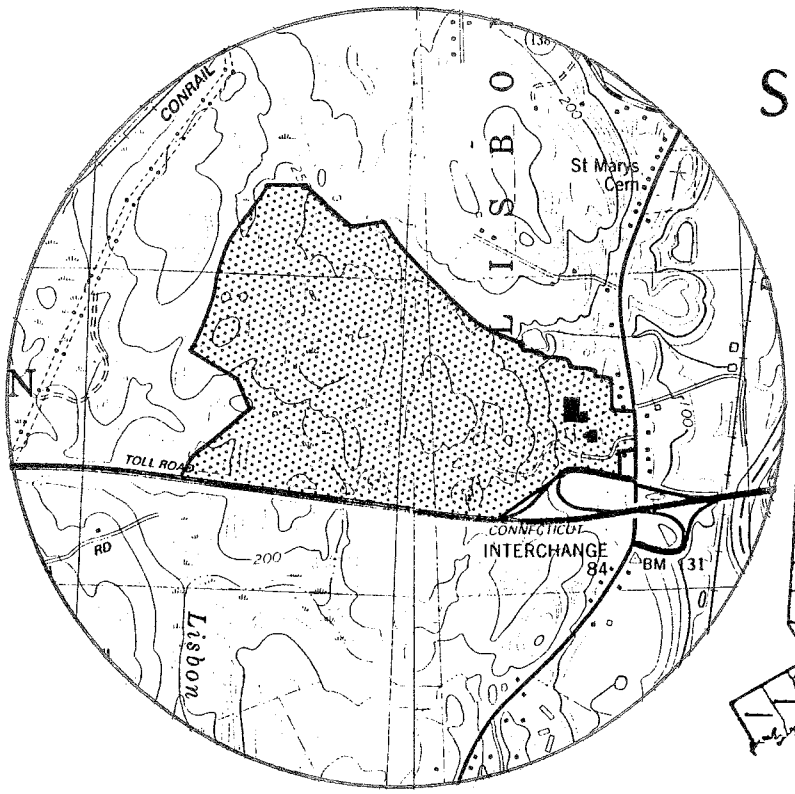
RC&D

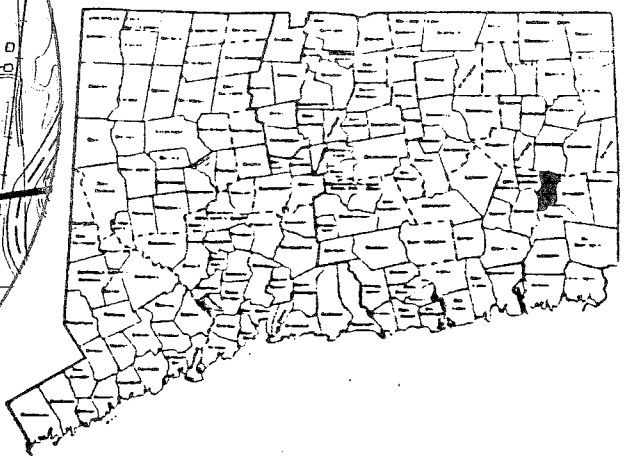
ENVIRONMENTAL REVIEW TEAM
PO BOX 198
BROOKLYN, CONNECTICUT 06234

Site Location

ELDERLY HOUSING PROJECT

LISBON, CONNECTICUT





EASTERN CONNECTICUT

RESOURCE CONSERVATION

& DEVELOPMENT AREA

ENVIRONMENTAL REVIEW TEAM REPORT

ON

ELDERLY HOUSING PROJECT

LISBON, CONNECTICUT

This report is an outgrowth of a request from the Lisbon Planning and 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. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The ERT met and field checked the site on Monday, February 29, 1988. Team members participating on this review included:

Don Capellaro	--Sanitarian - CT Department of Health
Elizabeth Rogers	--Soil Conservationist _ U.S.D.A., Soil Conservation Service
Tom Seidel	--Regional Planner - Southeast CT Regional Planning Agency
Elaine Sych	--ERT Coordinator - Eastern CT RC&D Area
Bill Warzecha	--Geologist - DEP, Natural Resources Center

Prior to the review day, each team member received a summary of the proposed project, a list of the Town's concerns, a location map, a topographic map and a soils map. During the field review the team members were given preliminary plans. The Team met with, and were accomanied by the Town Planner, the landowner, and two (2) representatives of the applicant's engineering firm. Following the review, reports from each team member were submitted to the ERT Coordinator for compilation and editing into this final report.

This report represents the Team's findings. It is not meant to compete with private consultants by providing site designs or detailed solutions to development problems. The Team does not recommend what final action should be taken on a proposed project--all final decisions and conclusions rest with the Town and landowner. 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. The results of this Team action are oriented toward the development of better environmental quality and the long-term economics of land use.

The Eastern Connecticut RC&D Executive Committee hopes you will find this report of value and assistance in making your decisions on this proposed elderly housing project.

If you require any additional information, please contact:

Elaine A. Sych
ERT Coordinator
Eastern Connecticut RC&D Area
P. O. Box 198
Brooklyn, CT 06234
(203) 774=1253

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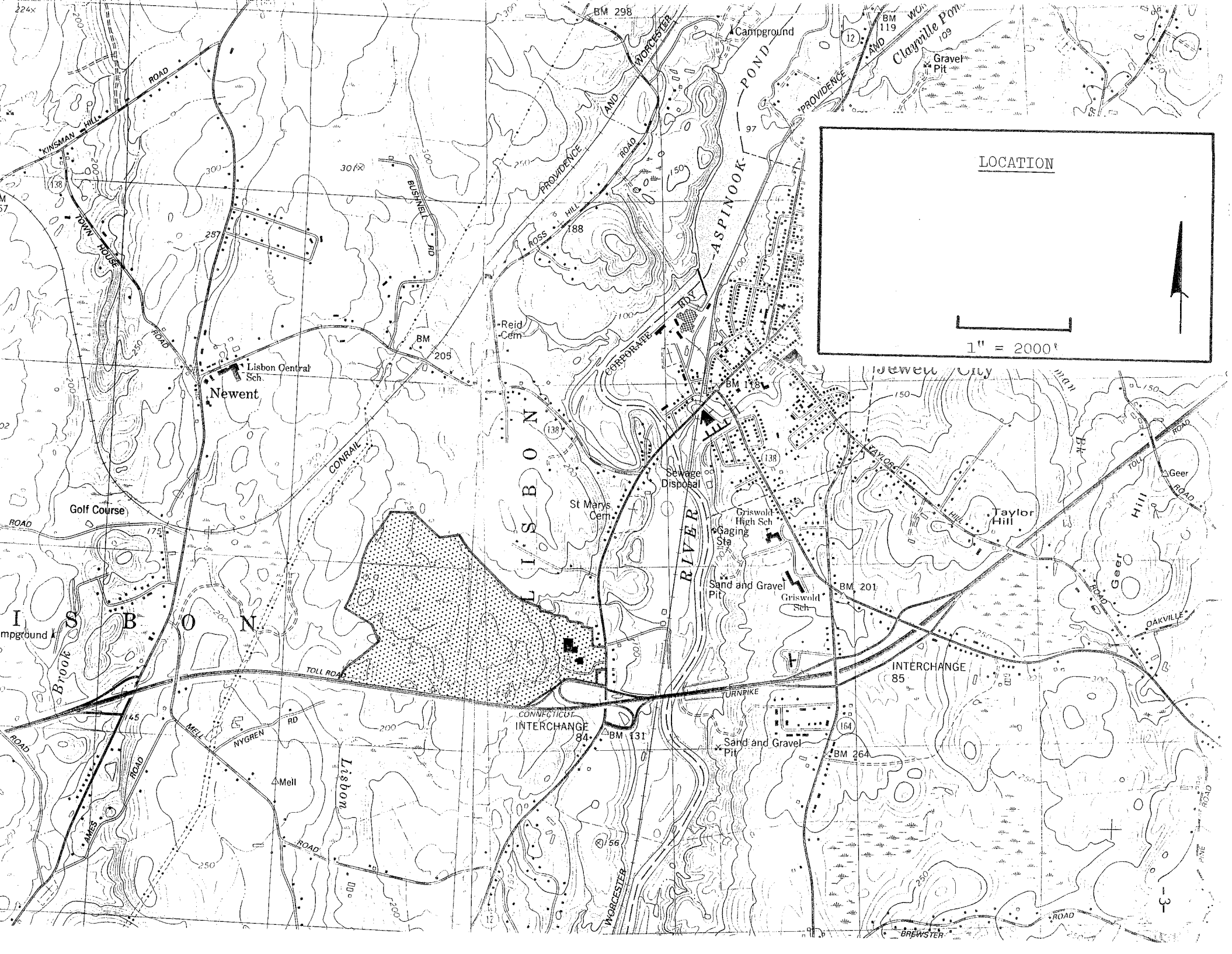
TABLE OF MAPS

ONE: INTRODUCTION

The Eastern Connecticut Environmental Review Team has been asked to assist the Town of Lisbon in reviewing preliminary plans for an elderly housing complex. The following sections contain information about the natural resource base of the site, and highlight areas of concern. A brief summary is also included at the end of the report.

The proposed site is located on the west side of Route 12 (near McDonalds Restaurant and behind Better Value Supermarket) and is bordered by the Connecticut Turnpike (I-395) on the south side. The main feature of this mostly wooded 225 acre parcel is the steeply rising terrain from the lower eastly side to a relatively large, flat centered knoll. Interspersed are areas of wetlands and drainageways with some drainage going towards the north, others drain to the south and east, while wetlands at the far west portion continue in a westerly direction. The largest wetland area is located along the north side with most of the drainage going to a pond and outlet stream on an adjoining northerly property. At the south portions there is an existing dirt roadway into the property. Also, there are two wetlands below the knoll which were made into lagoons and formerly utilized for the disposal of some type of industrial wastes which were pumped up from a textile plant located at the base of the hill. The northerly lagoon is essentially intact, although overgrown, and some waste residue can be seen on the ground within the perimeter. The southerly one has apparently been leveled and regraded. Some surface rock was showing in this area.

A preliminary site plan has been prepared by Roland Harris and Associates indicating a possible elderly housing complex consisting of 47 duplex buildings and a community building. The first phase of construction would be located on the rocky knoll area above and behind the two front wetlands/lagoons. A new access road would be located towards the north side of the property.


LOCATION
1" = 2000'
Newent
Lisbon Central Sch
Golf Course
Reid Cem
St Marys Cem
Sewage Disposal
Campground
Gaging Sta
Griswold High Sch
Griswold Sch
Sand and Gravel Pit
Sand and Gravel Pit
Gravel Pit
Mell
Taylor Hill
Geer Hill
INTERCHANGE 85
INTERCHANGE 84
CONNECTICUT TURNPIKE
TOLL ROAD
CONRAIL
PROVIDENCE AND WORCESTER
WORCESTER
ASPINOOK POND
LISBON
Brook
River
BM 298
BM 205
BM 118
BM 201
BM 131
BM 264
BM 119
KINSMAN HILL ROAD
TOWN HOUSE ROAD
BUSHNELL RD
ROSS HILL
CORPORATE DR
TAYLOR
GEER ROAD
OAKVILLE ROAD
MELL
NYGREN RD
AMES ROAD
BREWSTER ROAD

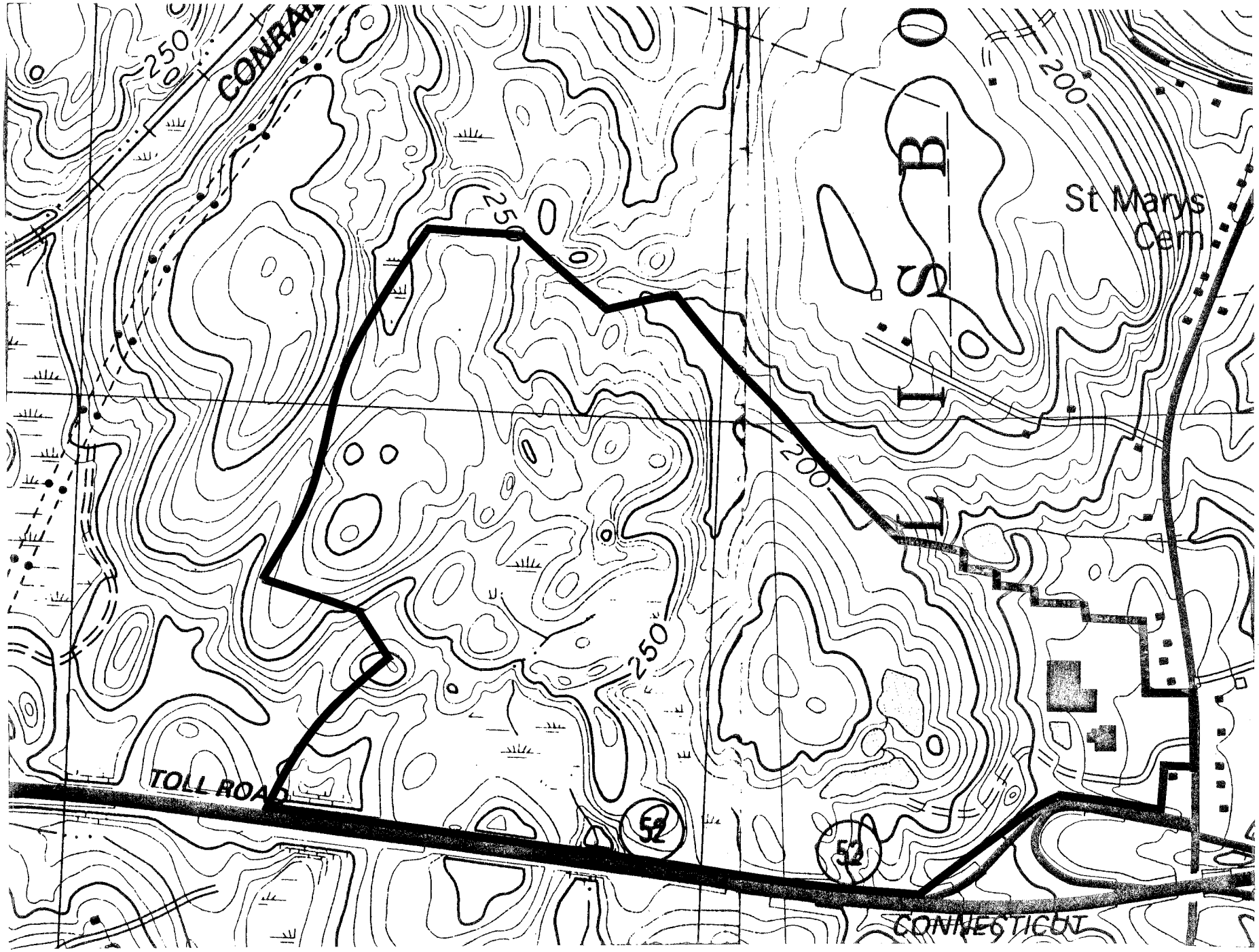
TWO: TOPOGRAPHY AND SETTING

The site, approximately 225 acres in size, is located in east-central Lisbon. The site abuts State property (Connecticut Turnpike I-395) on the south, commercial properties on the east and private undeveloped lands on the west and north. Access into the site is anticipated to be from Route 12 on the east.

The site is located mainly in a residential zone, which would allow the proposed elderly housing complex by special permit. The eastern part or front portion is located in a commercial zone. Based on a 1934 air photo, the latter area was formerly comprised of farmland. The remainder of the site was forested, as it is at the present time. The presence of stone walls transecting the property confirms agricultural land-use on the site during the 1800's. In general, changes in the site's land use since the 1800's include a decrease in active farmland acreage, an increase in wooded acreage and an increase in commercial development and pavement in the eastern limits.

The topography of the site consists of hummocky and irregular terrain controlled by the underlying bedrock. Site elevations range from a high of 310 feet above mean sea level at the western limits of the site to a low of 115 feet above mean sea level at the eastern limits. Slopes generally range from gentle to moderately steep across the site. The gentle slopes prevail mainly in the area of the proposed housing units and subsurface sewage disposal system. Areas of steep slopes are associated with bedrock (ledge) outcroppings on the site. Numerous bedrock exposure were observed during the field walk, especially on the crests and flanks of the steeper hills.

No major streamcourses were visible during the field review. Several pockets of inland-wetland soils are found on the site. Seasonal watercourses drain these inland-wetland pockets enroute to the Quinebaug or Shetucket Rivers.



TOPOGRAPHY

Approximate Site Boundary

Scale 1" = 660'

THREE: BEDROCK AND SURFICIAL GEOLOGY

The proposed elderly housing project site is located within the Norwich and Jewett City topographic quadrangle areas.

Bedrock and surficial geologic maps have been prepared by the U.S. Geological Survey for both quadrangles. These maps are available at the Department of Environmental Protection's Natural Resources Center in Hartford. The Team's geologist also referenced John Rodgers' Bedrock Geological Map of Connecticut, 1985.

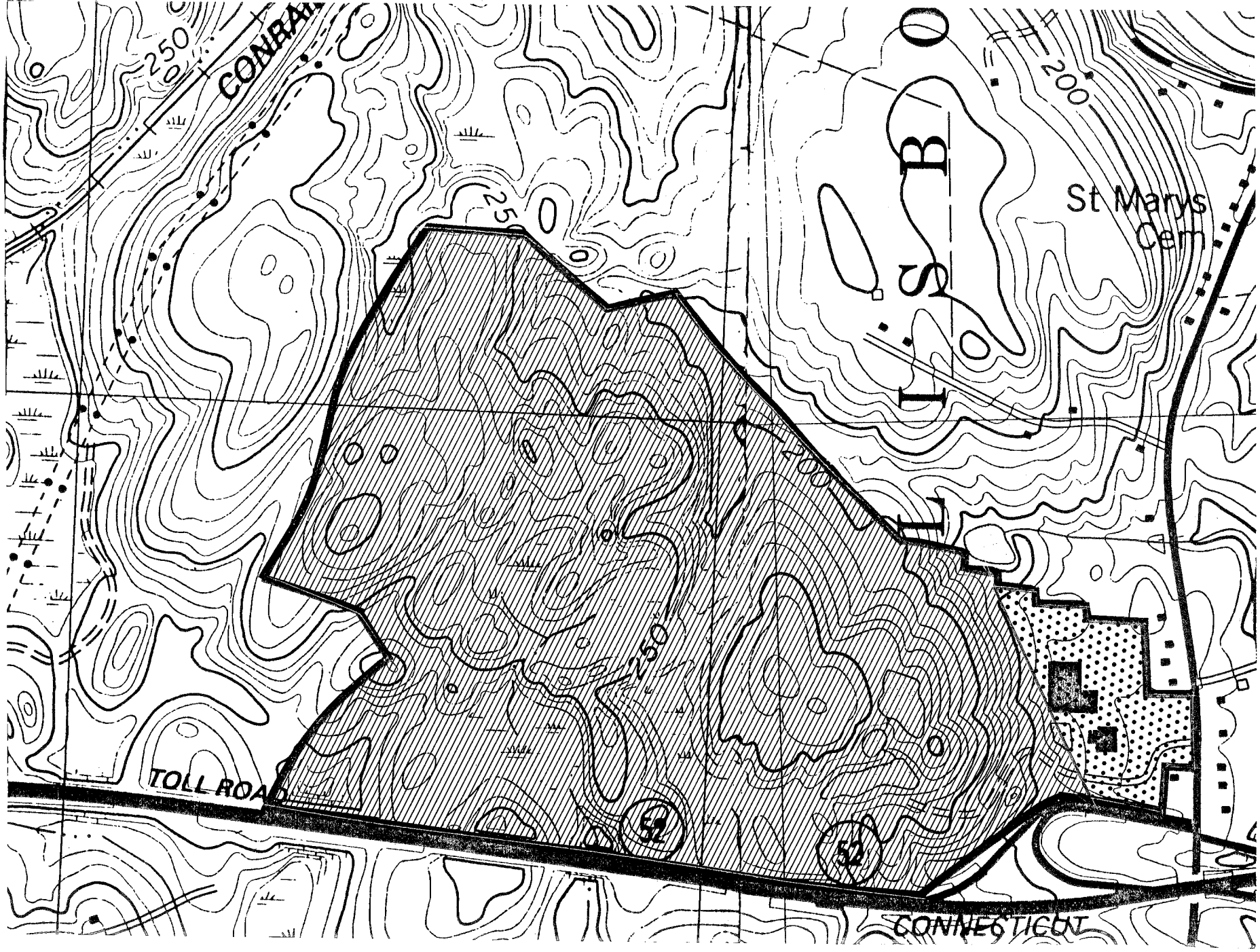
As mentioned earlier bedrock is exposed at or near ground surface throughout most of the site. The site is underlain by metamorphic rocks, which have a very complex history. The rocks, which range in age from 438 to 505 million years old, have been subjected to the heat and pressure of mountain building. They are greatly changed since their deposition as muck, silt, sand or volcanic material. Foliation or the layering in the rock has developed as micas and other platy minerals grew along preferred directions in reponse to the heat and pressure. The resulting metamorphic rocks are schists and gneisses. The foliation plane of the bedrock on the site dips westward.

With the exception of the commercially developed portions of the site in the eastern part, the site is underlain by gray to dark gray medium grained gneisses or schists known as the Tatnic Hill Formation. The eastern limits are underlain by a gray to dark gray, medium-grained, well-layered gneiss known as the Quinebaug Formation.

The difference between these two rock types has been described mainly for the purpose of thoroughness in the natural resources inventory. The presence of bedrock at shallow depth on the site suggests that blasting will probably be required in order to place on-site utilities such as electric, water and sewer lines, for road construction, or installation of house foundations and septic systems. Any blasting that takes place on the site should be done with utmost care and under the strict supervision of people experiences with the newest technology in blasting techniques. Also, in view of the surrounding development it is suggested that a pre-blast survey be conducted prior to blasting. This will hopefully reduce the chance of unnecessary siesmic shock and possible damage claims.

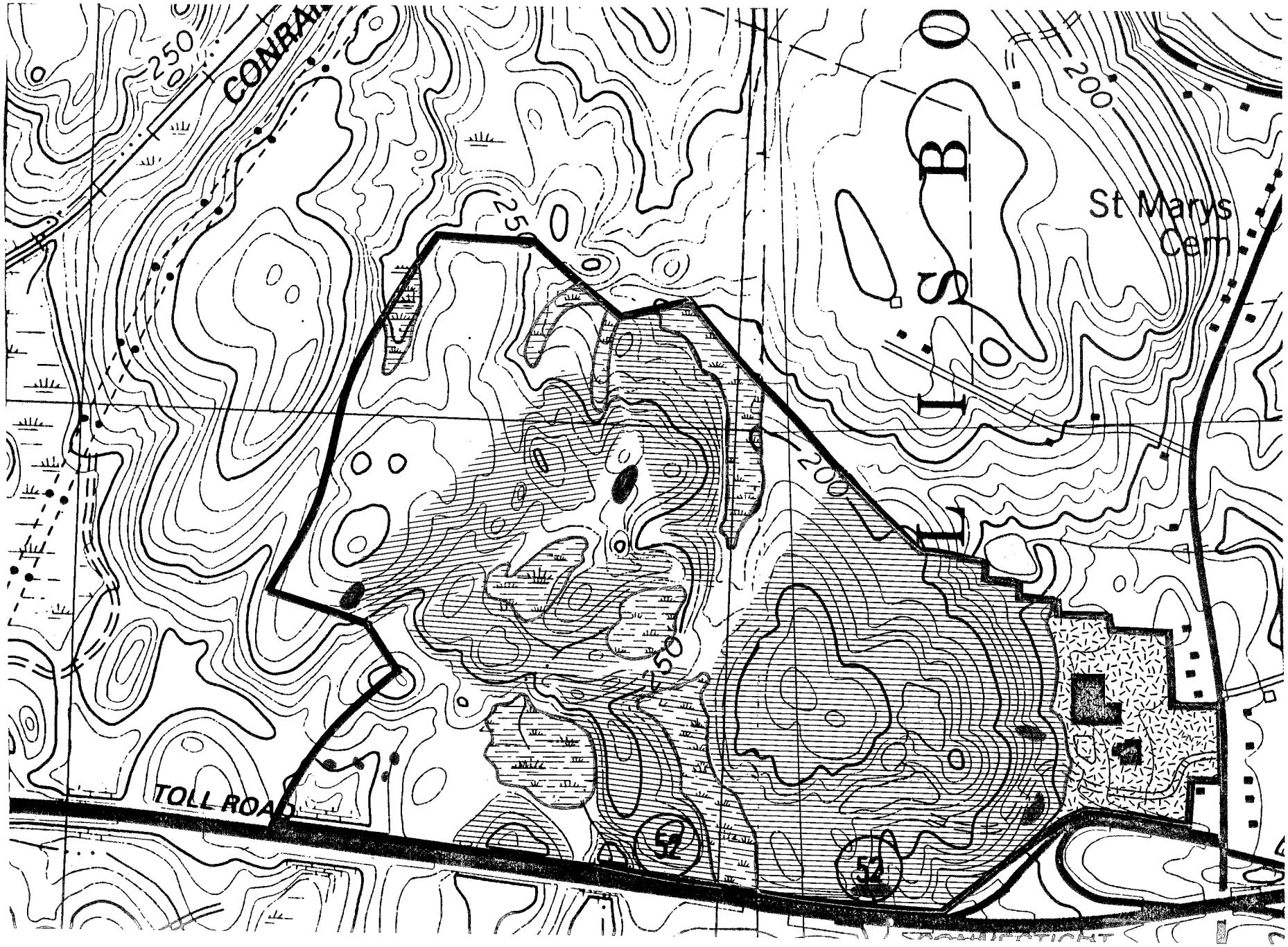
Except for the eastern limits of the site (commercially developed parts), the ±225 acre site is covered by a relatively thin layer of glacial sediment called till. The eastern limits of the site are covered by stratified drift, which is also a glacial sediment.

The till consists of materials that were deposited directly from glacier ice with much re-working by meltwater. These materials are made up of varying proportions of sand, silt, gravel, clay and boulders. Particles of different



GEOLOGY

Tatnic Hill Formation*
Quinebaug Formation*
* See GEOLOGY section for detailed descriptions
Scale 1" = 660'



SURFICIAL GEOLOGY

Stratified Drift
Rock Outcrops
Inland Wetlands (Approximate)

Till
Areas where bedrock is at or near surface
Scale 1"=660'

sizes are generally mixed together in a complex fashion. Based on soils mapping data, the bulk of the till on the parcel is sandy, stony and loose to moderately loose.

The stratified drift, whose major components are sand and gravel cover the eastern limits. The stratified drift deposits are laid down by glacial melt-water streams in the Quinebaug River Valley. Several tens of feet of sand and gravel may overlie bedrock in this area.

FOUR: SOILS INFORMATION

A. Soil Descriptions

Aa-Adrian and Palms mucks

These nearly level, very poorly drained soils are in pockets and depressions of stream terraces, outwash plains, and glacial till uplands. Slopes range from 0 to 2 percent. Mapped areas consist of either Adrian soils or Palms soils, or both. These soils were mapped together because there are no major differences in most uses and management. Adrian soils have a high water table which is at or near the surface for most of the year. Permeability is moderately rapid in the organic layers and rapid in the substratum. The available water capicity is high. Runoff is very slow or ponded. Adrian soils are stronly acid through slightly acid. Palms soils have a high water table which is at or near the surface for most of the year. Permeability is moderately rapid in the organic layers and moderately slow in the substatum. The available water capacity is high. Runoff is very slow or ponded. Palms soils are strongly acid through slightly acid. Under P.A. 155 this is a designated wetland soil.

CbC-Canton and Charlton fine sandy loams, 8 to 15 percent slopes

These sloping, well drained soils are on glacial till upland hills, plains, and ridges. Typically, the Canton soil has a very dark grayish brown, fine sandy loam surface layer 8 inches thick. The subsoil is dark yellowish brown fine sandy loam and sandy loam 16 inches thick. The substratum is grayish brown gravelly sand to a depth of 6 inches or more. The Charlton soil is typically a very dark grayish brown, fine sandy loam surface layer 8 inches thick. The subsoil is dark yellowish brown, yellowish brown, and light olive brown fine sandy loam 21 inches thick. The substratum is grayish brown fine sandy loam to a depth of 60 inches or more. Permeability of the Canton soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. The available water capacity is moderate. Runoff is rapid. This soil warms up and dries out rapidly in the spring. Permeability of the Charlton soil is moderate or moderately rapid. The available water capacity is moderate. Runoff is rapid. The soil warms up and dries out rapidly in the spring. These soils are capability subclass IIIe.

CcB - Canton & Charlton very stony fine sandy loams, 3-8 percent slope

These gently sloping, well drained soils are on glacial till, upland hills, plains and ridges. Stones and boulders cover 1-8 percent of the surface.

Typically, the Canton soil has a black, fine sandy loam surface layer 1 inch thick. The subsoil is dark yellowish-brown, fine sandy loam and sandy loam 23 inches thick. The substratum is grayish-brown gravelly sand to a depth of 60 inches or more.

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

Permeability in the Canton soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. The available water capacity is moderate. Runoff is medium. The soil warms up and dries out rapidly in the spring.

Permeability of Charlton soil is moderate to moderately rapid. The available water capacity is moderate. Runoff is medium. This soil warms up and dries out rapidly in the spring.

CcC - Canton & Charlton very stony,
fine sancy loams, 8 to 15 percent slope

These sloping, well-drained soils are on glacial till, upland hills, plains and ridges. Stones and boulders cover 1 to 8 percent of the surface.

Typically, the Canton soil has a black, fine sandy loam surface layer 1 inch thick. The subsoil is dark yellowish-brown, fine sandy loam and sandy loam 23 inches thick. The substratum is grayish-brown gravelly sand to a depth of 60 inches or more.

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

Permeability of the Canton soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. The available water capacity is moderate. Runoff is rapid. The soil warms up and dries out rapidly in the spring.

Permeability of the Charlton soil is moderate or moderately rapid. The available water capacity is moderate, runoff is rapid. The soil warms up and dries out rapidly in the spring.

These soils are in capability subclass VIs.

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

This gently sloping to sloping complex consists of somewhat excessively drained and well drained soils on glacial till uplands. Rock outcrops cover up to 10 percent of the surface. Stones and boulders cover 1 to 8 percent of the surface. The soils of this complex are so intermingled on the landscape that it was not practical to separate them in mapping at the scale used. Permeability of the Charlton soil is moderate or moderately rapid. The available water capacity is moderate. Runoff is medium or rapid. Charlton soil warms up and dries out rapidly in the spring. It is strongly acid or medium acid.

Permeability of the Hollis soil is moderate or moderately rapid above the bedrock. The available water capacity is low. Runoff is medium or rapid. Hollis soil warms up and dries out rapidly in the spring. It is strongly acid or medium acid.

These soils are not suited to cultivated crops. Stoniness and rock outcrops generally make the use of farming equipment impractical. The Hollis soil has a shallow rooting depth and is droughtly. The hazard of erosion is moderate to severe. These soils are in capability subclass VIs.

CrD-Charlton-Hollis fine sandy loams, very rocky
15 to 45 percent slopes

This moderatly steep to steep complex consists of somewhat excessively drained and well drained soils on glacial till uplands. Rock outcrops cover up to 10 percent of the surface. Stones and boulders cover 1 to 8 percent of the surface. Permeability of the Charlton soil is moderate or moderately rapid. The available water capacity is moderate. Runoff is rapid or very rapid. Charlton soil warms up and dries out rapidly in the spring. It is strongly acid or medium acid.

Permeability of the Hollis soil is moderate or moderately rapid above the bedrock. The available water capacity is low. Runoff is rapid or very rapid. Hollis soil warms up and dries out rapidly in the spring. It is strongly acid or medium acid.

These soils are not suited to cultivated crops. Stoniness and rock outcrops make the use of farming equipment impractical. The Hollis soil has a shallow rooting depth and is droughty. These soils are in capability subclass VIIs.

HrC-Hollis-Charlton-Rock outcrop complex, 3 to 15 percent slopes

This gently sloping to sloping complex consists of somewhat excessively drained and well drained soils and Rock outcrop on glacial till uplands. Stones and boulders cover 1 to 8 percent of the surface. The soils and Rock outcrop in this complex are so intermingled on the landscape that it was not practical to separate them in mapping at the scale used.

Permeability of the Hollis soil is moderate or moderately rapid above the bedrock. The available water capacity is low. Runoff is medium or rapid. Hollis soil warms up and dries out rapidly in the spring. It is strongly acid or medium acid.

Permeability of the Charlton soil is moderate or moderately rapid. The available water capacity is moderate. Runoff is medium or rapid. Charlton soil warms up and dries out rapidly in the spring. It is strongly acid or medium acid.

These soils are not suited to cultivated crops. Stoniness and the Rock outcrop make the use of farming equipment impractical. The hazard of erosion is moderate to severe. These soils are in capability subclass VIIs

HrD-Hollis-Charlton-Rock outcrop complex, 15 to 45 percent slopes

This moderately steep to very steep complex consists of somewhat excessively drained and well drained soils and Rock outcrop on galcial till uplands. Stones and boulders cover 1 to 8 percent of the surface. These soils and Rock outcrop in this complex are so intermingled on the landscape that it was not practical to separate them in mapping at the scale used.

Permeability of the Hollis soil is moderate or moderately rapid above the bedrock. The available water capacity is low. Runoff is rapid or very rapid. Hollis soil warms up and dries out rapidly in the spring. It is strongly acid or medium acid.

Permeability of the Charlton soil is moderate or moderately rapid. The available water capacity is moderate. Runoff is rapid or very rapid. Charlton soil warms up and dries out rapidly in the spring. It is strongly acid or medium acid.

These soils in this complex are not suited to cultivated crops.

Stoniness and the Rock outcrop make the use of farming equipment impractical. The hazard of erosion is severe. These soils in this complex are in capability subclass VIIs.

MyB-Merrimac sandy loam, 3 to 8 percent slopes

This gently sloping, somewhat excessively drained soil is on stream terraces, outwash plains, kames, and eskers. Permeability of the Merrimac soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. The available water capacity is moderate. Runoff is medium. Merrimac soil warms up and dries out rapidly in the spring. Unless limed, it is strongly acid or medium acid. This soil is well suited to cultivated crops. It is droughty during the drier periods in summer. This soil is in capability subclass IIs.

Rp - Rock outcrop-Hollis complex

This gently sloping to very steep complex consists of Rock outcrop and a somewhat excessively drained soil on glacial till uplands. Rock outcrop is hard, unweathered, exposed bedrock. Typically, the Hollis soil has a very dark brown, fine sandy loam surface layer 2 inches thick. The subsoil is dark brown and dark yellowish brown fine sandy loam 15 inches thick. Hard, unweathered bedrock is at a depth of 17 inches. Permeability of the Hollis soil is moderate or moderately rapid above the bedrock. The available water capacity is low. Runoff is medium through very rapid. Hollis soil warms up and dries out rapidly in the spring. It is strongly acid or medium acid. This complex is in capability subclass VIIs.

Rn-Ridgebury, Leicester, and Whitman extremely stony fine sandy loams

These nearly level, poorly drained and very poorly drained soils are in drainageways and depressions of glacial till upland hills, ridges, plains, and drumloidal landforms. Stones and boulders cover 8 to 25 percent of the surface. These soils were mapped together because there are no major differences in use and management. The Ridgebury soil has a seasonal high water table at a depth of about 6 inches. Permeability is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. The available water capacity is moderate. Runoff is very slow or slow. Ridgebury soil warms up and dries out slowly in the spring. It is strongly acid through slightly acid.

The Leicester soil has a seasonal high water table at a depth of about 6 inches. Permeability is moderate or moderately rapid. The available water capacity is moderate. Runoff is very slow or slow. Leicester soil warms up and dries out slowly in the spring. It is very strongly acid through medium acid.

The Whitman soil has a high water table at or near the surface for most of the year. Permeability is moderate or moderately rapid in the surfacelayer and subsoil and slow or very slow in the substratum. The available water capacity is moderate. Runoff is very slow, or the soil is ponded. Whitman soil warms up and dries out very slowly. It is very strongly acid through slightly acid.

These soils are not suited to cultivated crops. Stoniness makes the use of farming equipment impractical. These soils are in capability subclass VIIs.

SwB-Sutton very stony fine sandy loam, 0 to 8 percent slopes

This nearly level to gently sloping, moderately well drained soil is on upland glacial till plains, hills, and ridges. Stones and boulders cover 1 to 8 percent of the surface. The Sutton soil has a seasonal high water table at a depth of about 18 inches. Permeability is moderate or moderately rapid. The available water capacity is moderate. Runoff is slow or medium. Sutton soil warms up and dries out slowly in the spring. It is strongly acid or medium acid in the surface layer and subsoil and strongly acid through slightly acid in the substratum. This soil is not suited to cultivated crops. Stones and boulders make the use of farming equipment difficult. This soil is in capability subclass VIs.

Ud - Udorthents & Urban Land Complex

This complex consists of excessively drained to moderately well drained soils that have been disturbed by cutting or filling and areas that are covered by buildings or pavement.

Most areas were cut or filled in order to smooth sites for community developments, recreational facilities, and roads. This complex requires onsite investigation and evaluation for most uses.

Wd-Walpole fine sandy loam

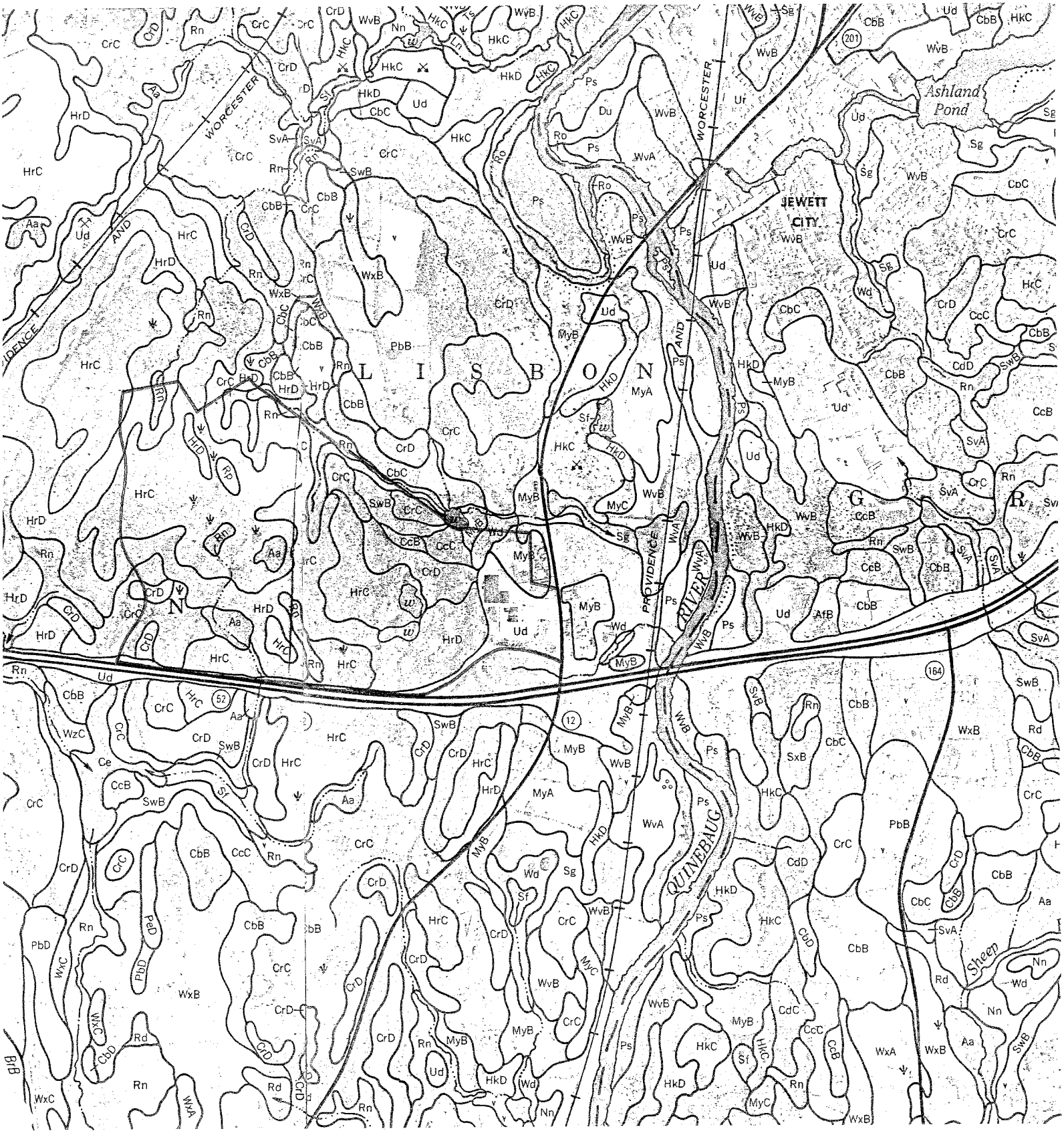
This nearly level, poorly drained soil is on stream terraces and outwash plains. Slopes range from 0 to 3 percent. The Walpole soil has a seasonal high water table at a depth of about 6 inches. Permeability is moderately rapid in the surface layer and subsoil and rapid or very rapid in the substratum. The available water capacity is moderate. Runoff is slow. Walpole soil warms up and dries out slowly in the spring. It is strongly acid or medium acid. This soil is suited to cultivated crops. This soil is in capability subclass IIIw.

United States Department of Agriculture

Soil Conservation Service

New London County USDA-SCS
562 New London Turnpike
Norwich, CT 06360
887-4163

Scale 1" = 1320'



B. LIMITATION CHART FOR BUILDING SITE DEVELOPMENT

Soil name and map symbol	Dwellings without basements	Dwellings with basements	Local roads and streets	Lawns and landscaping
*Aa:				
Adrian	Severe: ponding, low strength	Severe: ponding	Severe: ponding, low strength, frost action.	Severe: excess humus, ponding
Palms	Severe: ponding, low strength	Severe: ponding	Severe: ponding, frost action, low strength	Severe: ponding, excess humus
CbC:				
Canton	Slight	Slight	Slight	Slight
Charlton	Moderate: slope	Moderate: slope	Moderate: slope	Moderate: slope
CcB:				
Canton	Slight	Slight	Slight	Moderate:large stones
Charlton	Slight	Slight	Slight	Moderate:large stones
CcC:				
Canton	Moderate: slope	Moderate: slope	Moderate: slope	Moderate: slope, large stones
Charlton	Moderate: slope	Moderate: slope	Moderate: slope	Moderate: slope, large stones
CrC:				
Charlton	Moderate: slope	Moderate: slope	Moderate: slope	Moderate: slope, large stones
Hollis	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe:thin layer
CrD:				
Charlton	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Hollis	Severe: slope, depth to rock	Severe:slope,depth to rock	Severe:slope,depth to rock	Severe: slope, thin layer
HrC:				
Hollis	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: thin layer
Charlton	Moderate: slope	Moderate: slope	Moderate: slope	Moderate: slope, large stones
Rock Outcrop				
HrD:				
Hollis	Severe: slope, depth to rock	Severe:slope,depth to rock	Severe:slope,depth to rock	Severe: slope, thin layer
Charlton	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Rock Outcrop				
#MyB:				
Merrimac	Slight	Slight	Slight	Slight
Rp				
Rock Outcrop				
Hollis	Severe: slope, depth to rock	Severe:slope,depth to rock	Severe:slope, depth to rock	Severe: slope, thin layer
*Rn:				
Ridgebury	Severe: wetness	Severe: wetness	Severe:wetness,frost action	Severe: wetness
Leicester	Severe: wetness	Severe: wetness	Severe:wetness,frost action	Severe: wetness
Whitman	Severe: ponding	Severe: ponding	Severe:frost action,ponding	Severe: ponding

SwB:				
Sutton	Moderate: wetness	Severe: wetness	Moderate:frost action,wetness	Moderate:large stones wetness
Ud:				
Udorthents				
Urban Land	See description of the map unit for composition and behavior characteristics of the map unit. These soils should be evaluated by on-site inspection.			
Wd:				
Walpole	Severe: wetness	Severe: wetness	Severe:wetness,frost action	Severe: wetness

*Under P.A. 155 this is a designated wetland soil
#This map unit is considered a Prime Farmland
°This map unit qualifies as additional Farmland of Statewide Importance

C. SOIL POTENTIAL RATINGS FOR SEPTIC TANK ABSORPTION FIELDS BY MAP UNIT

MAP SYMBOL	MAP UNIT NAME	POTENTIAL RATING	CONCERNS	CORRECTIVE MEASURES	ADDITIONAL CONSIDERATIONS	STATE REGULATIONS
Aa	- Adrian muck	EXTREMELY LOW	Organic soils, depth to water table.		Drainage needed. Access to drainage outlet unlikely.	2,3,4
CbC	- Canton and Charlton fine sandy loams, 8-15% slopes	VERY HIGH				
CcB	- Canton and Charlton very stony fine sandy loams, 3-8% slopes		None.			
CcC	- Canton and Charlton very stony fine sandy loams, 8-15% slopes	VERY HIGH				
CrC	- Charlton-Hollis fine sandy loams, very rocky, 3-15% slopes	MEDIUM			Feasibility study. Increase area of investigation to utilize the deepest soils. Verify depth to bedrock.	
	Charlton part	very high	None.			
	Hollis part	extremely low	Depth to bedrock.			5
CrD	- Charlton-Hollis fine sandy loams, very rocky, 15-45% slopes	VERY LOW			Feasibility study. Increase area of investigation to utilize the deepest soils and flattest slopes. Verify depth to bedrock.	
	Charlton part	high#	Slope.	Design and installation to accommodate for slope.		1 for slopes >25%
	Hollis part	extremely low	Slope, depth to bedrock.			5
HrC	- Hollis-Charlton-Rock outcrop complex, 3-15% slopes	LOW			Feasibility study. Increase area of investigation to utilize the deepest soils. Verify depth to bedrock.	
	Hollis and Rock outcrop parts	extremely low	Depth to bedrock.			5
	Charlton part	very high	None.			
HrD	- Hollis-Charlton-Rock outcrop complex, 15-45% slopes	VERY LOW			Feasibility study. Increase area of investigation to utilize the deepest soils and flattest slopes. Verify depth to bedrock.	
	Hollis and Rock outcrop parts	extremely low	Depth to bedrock, slope.			5
	Charlton parts	high#	Slope.	Design and installation to accommodate for slope.		1 for slopes >25%
MyB	- Merrimac sandy loam, 3-8% slopes	HIGH				
Rn	- Ridgebury, Leicester, and extremely stony fine sandy loams	VERY LOW**				2,3,4
Rp	- Rock outcrop-Hollis complex	EXTREMELY LOW	Depth to bedrock, slope.			5

SOIL POTENTIAL RATINGS FOR SEPTIC TANK ABSORPTION FIELDS BY MAP UNIT

MAP SYMBOL	MAP UNIT NAME	POTENTIAL RATING	CONCERNS	CORRECTIVE MEASURES	ADDITIONAL CONSIDERATIONS	STATE REGULATIONS
SwB	- Sutton very stony fine loam, 0-8% slopes	LOW	Depth to water table.	Fill, curtain drain and drainage swale.	Access to drainage outlet.	1
Ud	- Udorthents-Urban land complex	NOT RATED				
Wd	- Walpole sandy loam	VERY LOW**	Fast perc rate, depth to water table.	Curtain drain and fill. Double separating distance between wells and absorption field.	Access to drainage outlet.	2,3,4

This rating applies to slopes up to 25%. On slopes greater than 25%, the potential rating may be significantly lower.

**The rating assumes that the water table in the naturally occuring soil can be drained to a depth of 18 inches or more.

1 Identified as an area of special concern by state regulations - engineer's design required.
2 Identified as unsuitable in its natural condition by state regulations - an engineer's evaluation is needed to determine whether an absorption field can be built.
3 Identified as inland wetlands or tidal wetlands by state regulations. Local, state, and/or federal wetland permits may be required.
4 A permit to install an absorption field cannot be issued if the site cannot be drained. A permit cannot be issued if the groundwater level is less than 18 inches below the soil surface for one month or longer.
5 A permit to install an absorption field cannot be issued if the depth to bedrock, of the naturally occurring soil, is less than 24 inches.

D. EROSION AND SEDIMENT CONTROL

An erosion and sediment control plan was not submitted with the proposal. It is recommended that one be prepared and contain the following:

A. A narrative describing:

1) the development
2) the schedule for grading and construction activities including:

   a. start and completion dates
   b. sequence of grading and construction activities
   c. sequence for installation and for application of soil erosion and sediment control measures
   d. sequence for final stabilization of the project site

3) the design criteria for proposed soil erosion and sediment control measures and stormwater management facilities
4) the construction details for proposed soil erosion and sediment control measures and stormwater management facilities
5) the installation and/or application procedures for proposed soil erosion and sediment control measures and stormwater management facilities
6) the operations and maintenance program for proposed soil erosion and sediment control measures and stormwater management facilities

B. A site plan map at a sufficient scale to show:

1) the location of the proposed development and adjacent properties
2) the existing and proposed topography, including soil types, wetlands, watercourses and water bodies
3) the existing structures on the project site
4) the proposed area alternatives including cleared, excavated, filled or graded areas and proposed structures, utilities, roads, etc.

When the erosion and sediment control plan is completed the Soil Conservation Service, working through the New London County Soil and Water Conservation District, will be available to review the plan at the Town's request.

FIVE: GEOLOGIC DEVELOPMENT CONCERNS

Based on available geologic and soil mapping data, the principal geologic concerns with respect to the proposed project include the presence of relatively thin till soils, rock outcrop areas, seasonally high water table and the moderate to steep slopes. The latter are largely concentrated in the rock outcrop areas. It is understood that the elderly housing complex would be served by public water from the Jewett City Water Company. In this regard, it should be demonstrated first that the proposed project can be adequately served by the Jewett City Water Company. Since public sewers are not available to this section of Town, domestic sewage generated from the proposed project would be discharged to an on-site community septic system.

Although no subsurface exploration for the on-site sewage disposal has been conducted to date, it seems likely that the geologic limitations mentioned in the preceding paragraph will be a hindrance to the ability to provide adequate subsurface sewage disposal systems on the site.

Based on present plans, it is estimated that the proposed elderly housing complex will discharge sewage in excess of 5,000 gallons per day. As a result, the Department of Environmental Protection's Water Compliance Unit must issue a permit.

Before the DEP could act on a permit application, the applicant's engineer would have to provide detailed technical information on the hydrogeologic conditions in the disposal area, the design of each sewage disposal system; a thorough hydraulic analysis of the disposal areas; and analysis of the probable impact on any nearby water resources and the underlying aquifer from a drinking water quality standpoint. This last requirement should include an analysis of bacterial travel, virus removal and nitrate and phosphate transport. The "burden of proof" is clearly upon the developer here to show that the proposed sewage disposal system(s) will function properly and not pose a threat to environmental or public health. Prior to acting on a permit application, the applicant should be required to make arrangements for ownership, operation and maintenance of the sewage disposal system. The Lisbon Health Department, in conjunction with the DEP will also play an important role in the permit application, review of the plans and inspection of the sewage disposal system(s) during installation.

Development of the site should proceed only within the limits of acceptable density as to the capacity of the soil. Based on the field walk and soil mapping data, the "approximate location of subsurface sewage disposal system" shown on the site plan distributed to Team members appears to be the most favorable area (in its natural condition) to investigate on the site for a community septic system. However, as discussed earlier, only with detailed soil testing can it be determined if the area can adequately handle the anticipated sewage flows.

It is understood that the inland-wetland boundaries shown on the site plan were delineated on the map from the New London County Soil Survey. If development occurs on the site, it is suggested that a private soil scientist flag the wetland soils in the field and that their boundaries be surveyed for delineation onto the subdivision map. The soil scientist should review the map and sign a statement on the map(s) certifying that the information is substantially correct.

SIX: HYDROLOGY

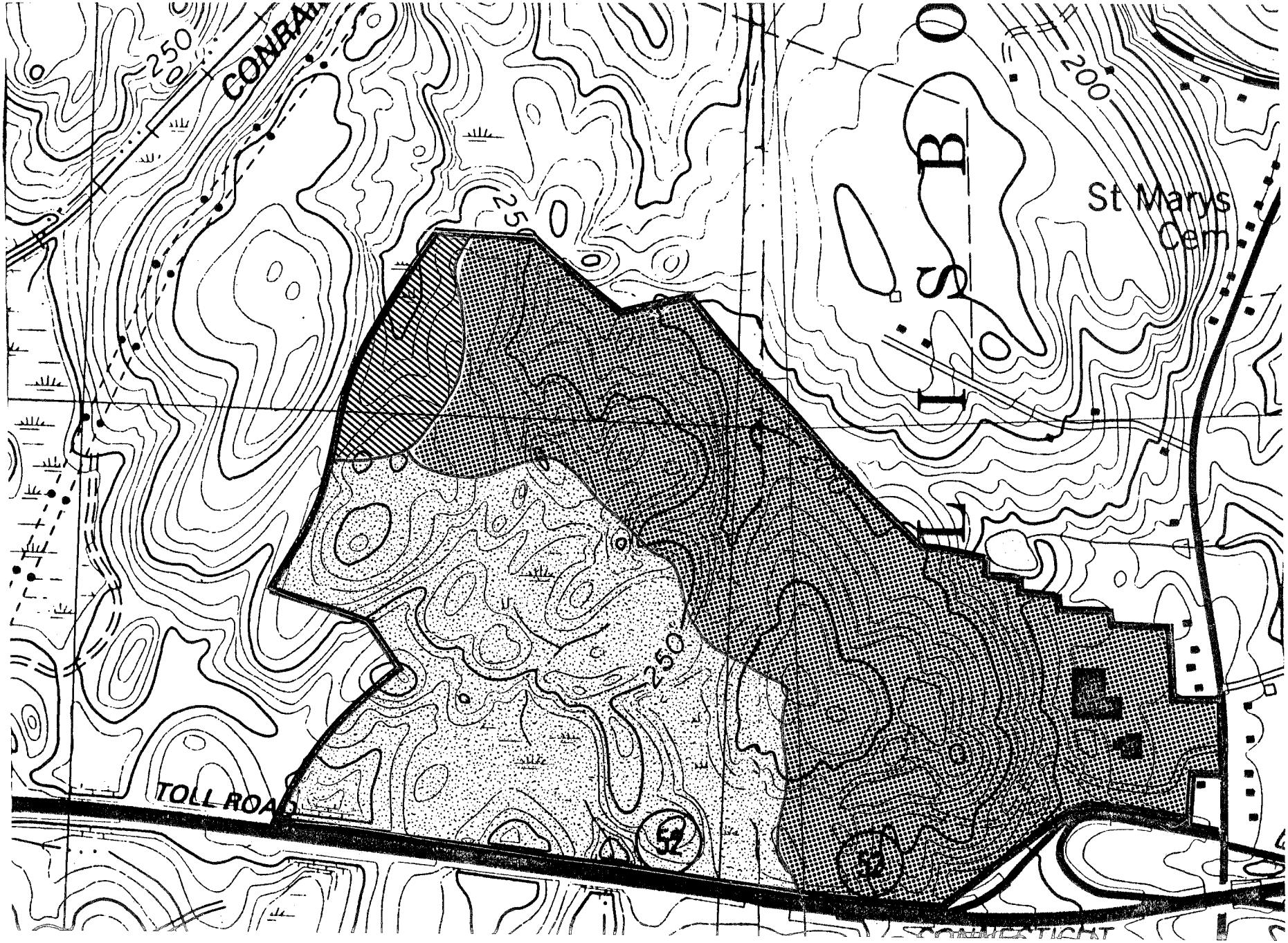
The ± 225 acre site lies entirely within the Quinebaug River drainage basin. Surface runoff arising in the eastern and northern parts drains via intermittent streams to an unnamed Quinebaug River tributary (the outlet stream for the surface waterbody used for industrial purposes just north of the site) or to road drainage along Route 12 and I-395. Water is then routed eastward to the Quinebaug River floodplain. Surface water arising in the southwest corner flows generally southward via intermittent streams to culverts passing under I-395. The water is ultimately routed to Lisbon Brook, a Quinebaug River tributary. Finally, a small area on the northwest corner drains to an unnamed tributary to the Quinebaug River. The stream flows into the Quinebaug River about 2,000 feet northeast of the intersection of Route 138 and Ross Hill Road. (See accompanying watershed boundary map).

No major surface water bodies were observed on the site during the field review. There is a small man-made pond off the site just north of the bulge in the proposed access road to the elderly housing project. It is understood that the water in the pond is used for process water by Lisbon Textile Prints.

It should be pointed out that the inland-wetland pockets east of the proposed elderly housing project site were the location of three former industrial waste (dye) lagoons. Based on air photos of the area, it appears that the lagoons, in which dye wastes and mineral spirits were disposed of, were created around 1970. According to a representative of Lisbon Textile Prints, DEP issued an abatement order around 1976 to cease and disist the disposal of industrial wastes into the lagoons and to clean-up the area. The lagoons were removed at some point between 1980 and 1985. A cursory inspection of this area during the field walk reavealed that it had been disturbed, by heavy machinery, e.g., bulldozers. As a result of this activity, the bedrock surface and groundwater table was encountered in several places.

Development of the site for the elderly housing project would be expected to lead to increases in the amount of runoff shed from the parcel. The amount of increases will depend upon the extent of development, the impervious surface created, and the amount of vegetation removed or preserved. In order to adequately ensure that flooding problems do not occur, the applicant's engineer should submit for Town review a complete stormwater management plan for the entire project that includes detailed drainage calculations. In regard to the latter, the project engineer should reference Connecticut's Guidelines for Soil Erosion and Sediment Control.

The other concern related to increases in runoff from the site is the potential for erosion. The presence of moderate to steep slopes on the site warrants the need for a sound erosion and sediment control plan. An erosion and sediment control plan should accompany the site plan for the project.



WATERSHED BOUNDARY

Scale 1"=660'

Portion of site that drains eastward to Quinebaug River
Portion of site that drains southward to Lisbon Brook
Portion of site that drains northward to an unnamed tributary of Quinebaug River

Groundwater in the eastern part of the site is classified by DEP Water Compliance Unit as GB/GA. This means that the groundwater in the area has been degraded by contaminants disposed of in the former industrial waste lagoons on the site. DEP's ultimate goal is to upgrade the groundwater to grade GA, since the groundwater is being used as a private supply source or could be used for that purpose in the future. It should be pointed out that the site is in a DEP publication entitled an "Inventory of Hazardous Waste Sites in Connecticut, January 29, 1987". The DEP's Hazardous Waste Unit (566-4869) should be contacted for further information regarding the potential for soil and groundwater testing on the site.

As mentioned earlier, it is understood that the proposed elderly housing project would be served by a public water main. In view of the current groundwater quality classification, the extension of the public water main seems paramount. If the site is not served by a public water main and the groundwater on the property is used for dinking water purposes, it would be wise to conduct a detailed hydrogeologic evaluation of surface water and groundwater (bedrock aquifer) on the site.

SEVEN PLANNING - TRANSPORTATION CONCERNS

The proposed development is located west of Route 12 and north of I-395 in a large wooded tract of land. Commercial uses and one industrial use are located east of the proposed site along Route 12. The surrounding area to the south is I-395 and undeveloped land. Undeveloped areas are also located west and north of the proposed site. Low density residential uses are located along Lee Road about one-half mile to the north. The actual area of the proposed eldelry units is in the central portion of the subject property and will be well buffered in all directions by existing forested areas.

Lisbon zoning allows elderly housing projects as a special permit in residential zones at a density of two dwelling units per acre. Any building cannot contain more than five dwelling units. The proposal for this site contains two dwelling units per building. On a land use basis the proposed development should be compatible with surrounding uses.

Data from the Institute of Transportation Engineers indicate an elderly development can be expected to generate 3.3 daily trips per dwelling unit, the lowest rate of any residential land use. Ninety-four new dwelling units would mean about 310 new daily trips using Route 12. Route 12 had a 1985 average daily traffic count of 9,400 in this area. Since the commercial uses and industrial use have numerous driveways entering onto Route 12 in the general vicinity of the proposed access for this elderly proposal, an engineering traffic analysis should be conducted to help determine the best access point or points for this elderly proposal, to help determine any turning movement problems, and to determine if any traffic control devices are needed.

EIGHT: SUMMARY*

In order to properly consider the feasibility of the site for development purposes further information is required. Test holes should be dug and the resulting information provided to town officials. This may affect the overall density of the development. A detailed hydrogeologic evaluation of surface water and groundwater on the site should be conducted along with further study of any possible hazardous wastes present at the site lagoons. This could have some bearing on ground and surface water quality and to what extent the area should be cleaned of any remaining toxic wastes.

*
This is a very brief summary. To properly assess all the issues involved in the decision-making process it is strongly suggested that you read the entire report.

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--an 86 town 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, a statement identifying the specific areas of concern the Team should address, and the time available for completion of the ERT study. 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 Elaine A. Sych (774-1253), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, P.O. Box 198, Brooklyn, Connecticut 06234.