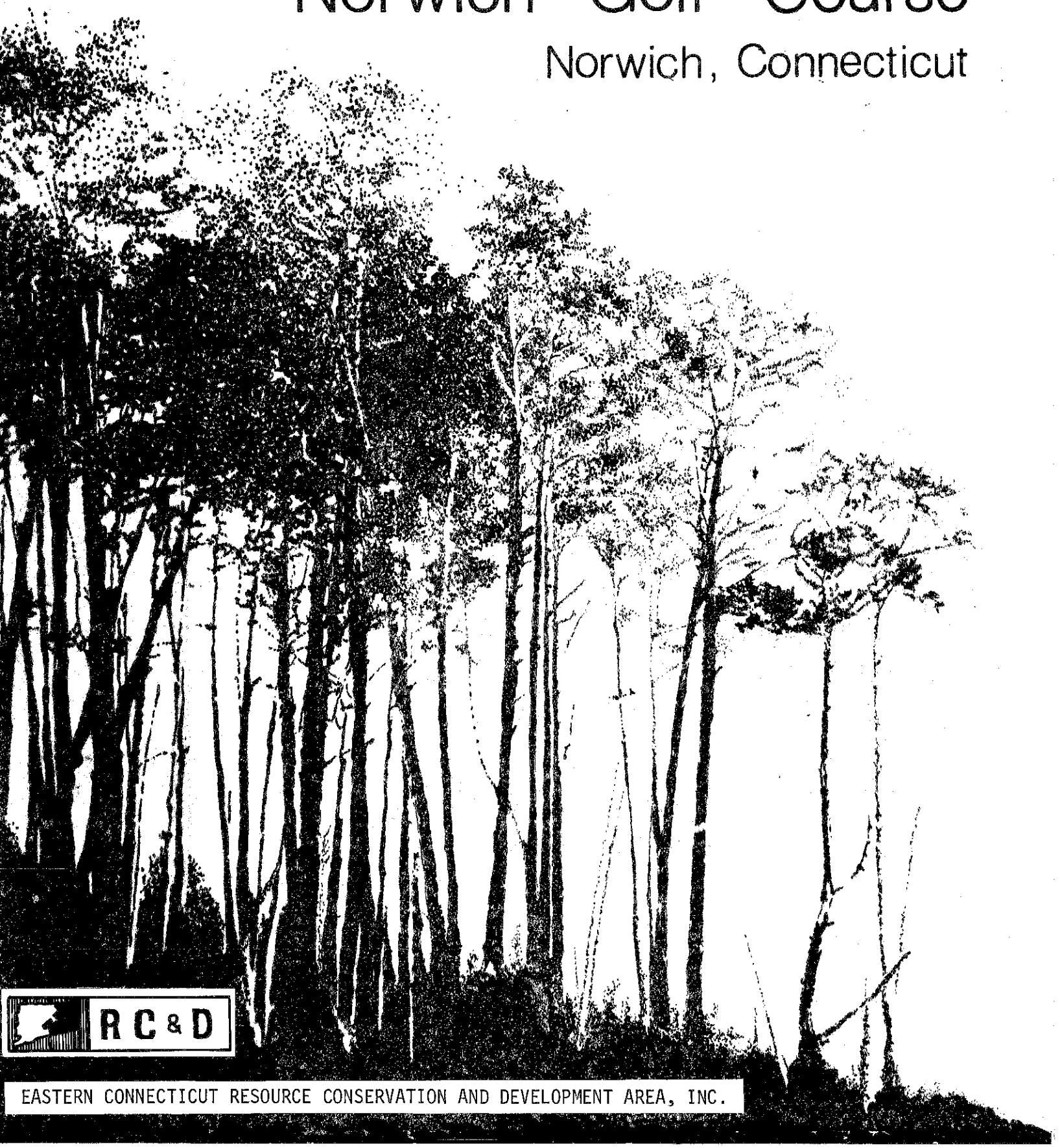
Environmental Review Team Report

Norwich Golf Course

Norwich, Connecticut



RC&D

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team Report

on

Norwich Golf Course

Norwich, Connecticut

December 1978

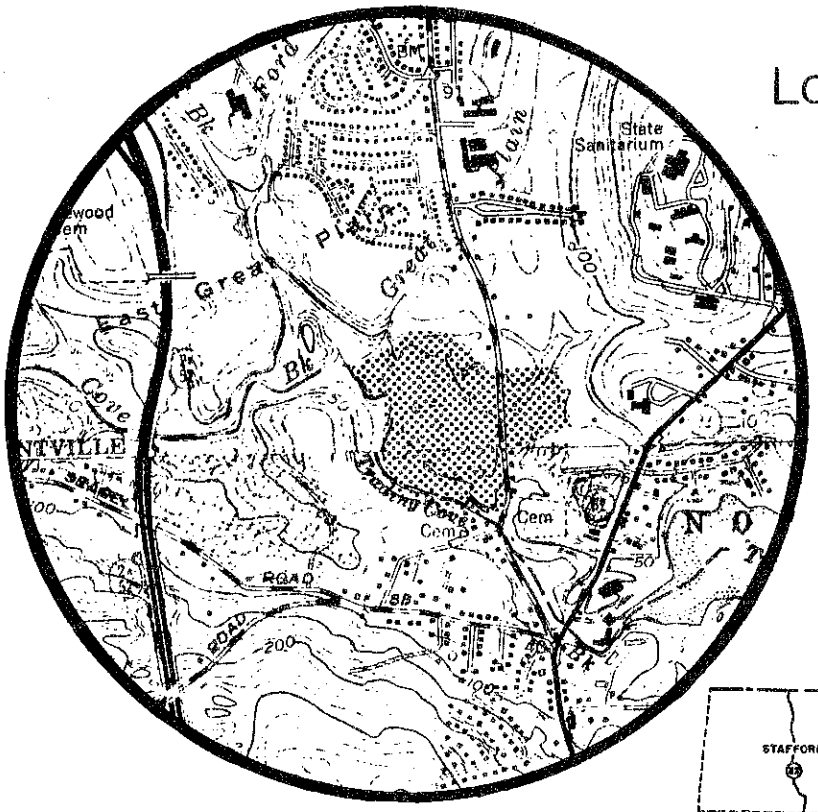
RC&D

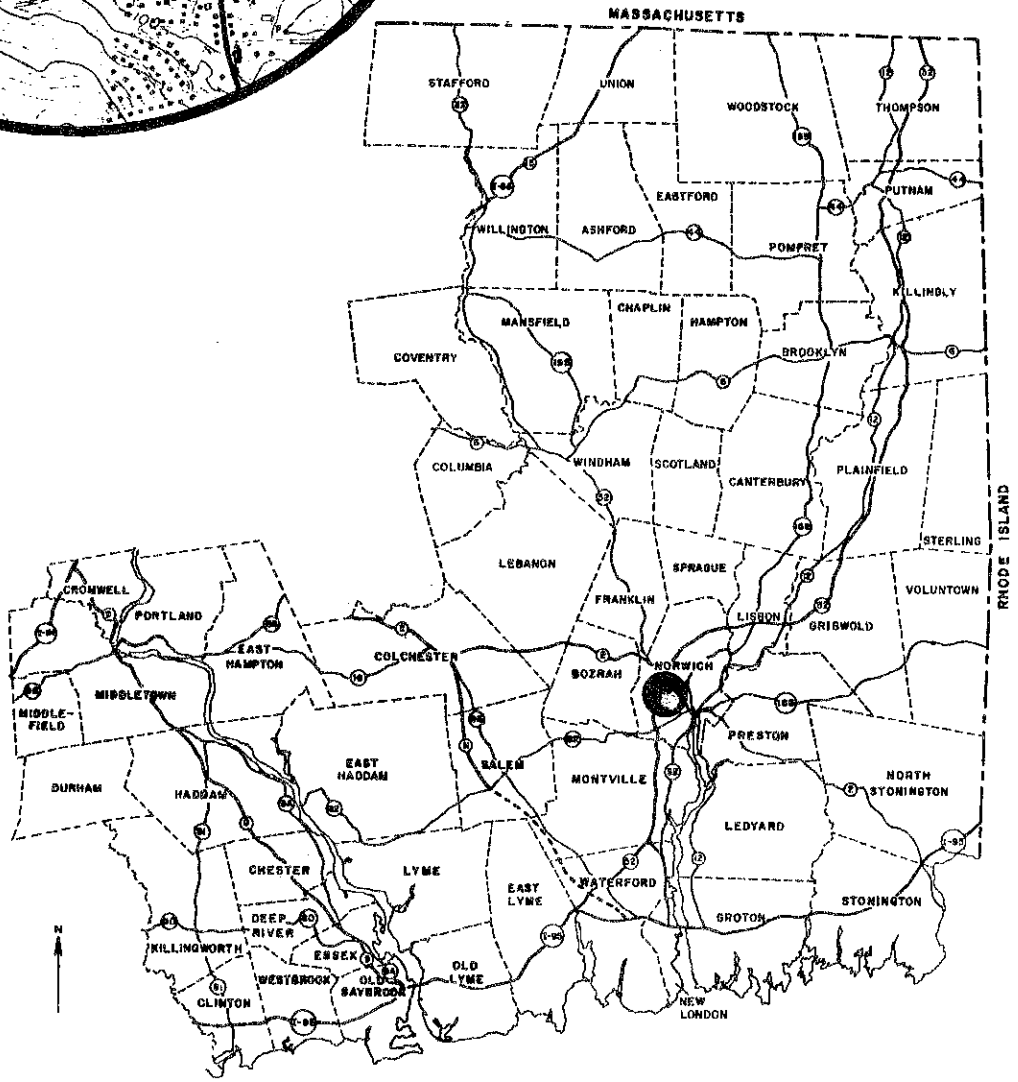
eastern connecticut resource conservation & development area

environmental review team
139 boswell avenue
norwich, connecticut 06360

Location of Study Site

NORWICH GOLF COURSE
NORWICH, CONNECTICUT





EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT
ON
NORWICH GOLF COURSE
NORWICH, CONNECTICUT

This report is an outgrowth of a request from the Norwich Golf Course Authority 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 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: Gary Parker, District Conservationist, Soil Conservation Service (SCS); Tim Hawley, Forester, Connecticut Department of Environmental Protection (DEP); Michael Zizka, Geologist, DEP; Tom Seidel, Regional Planner, Southeastern Connecticut Regional Planning Agency; Andy Petracco, Recreation Specialist, DEP; Robert Jacobs, Fisheries Research Assistant, DEP; and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

The Team met and field checked the site on Thursday, August 17, 1978. Reports from each contributing Team member were sent to the ERT Coordinator for review and summarization for the final report.

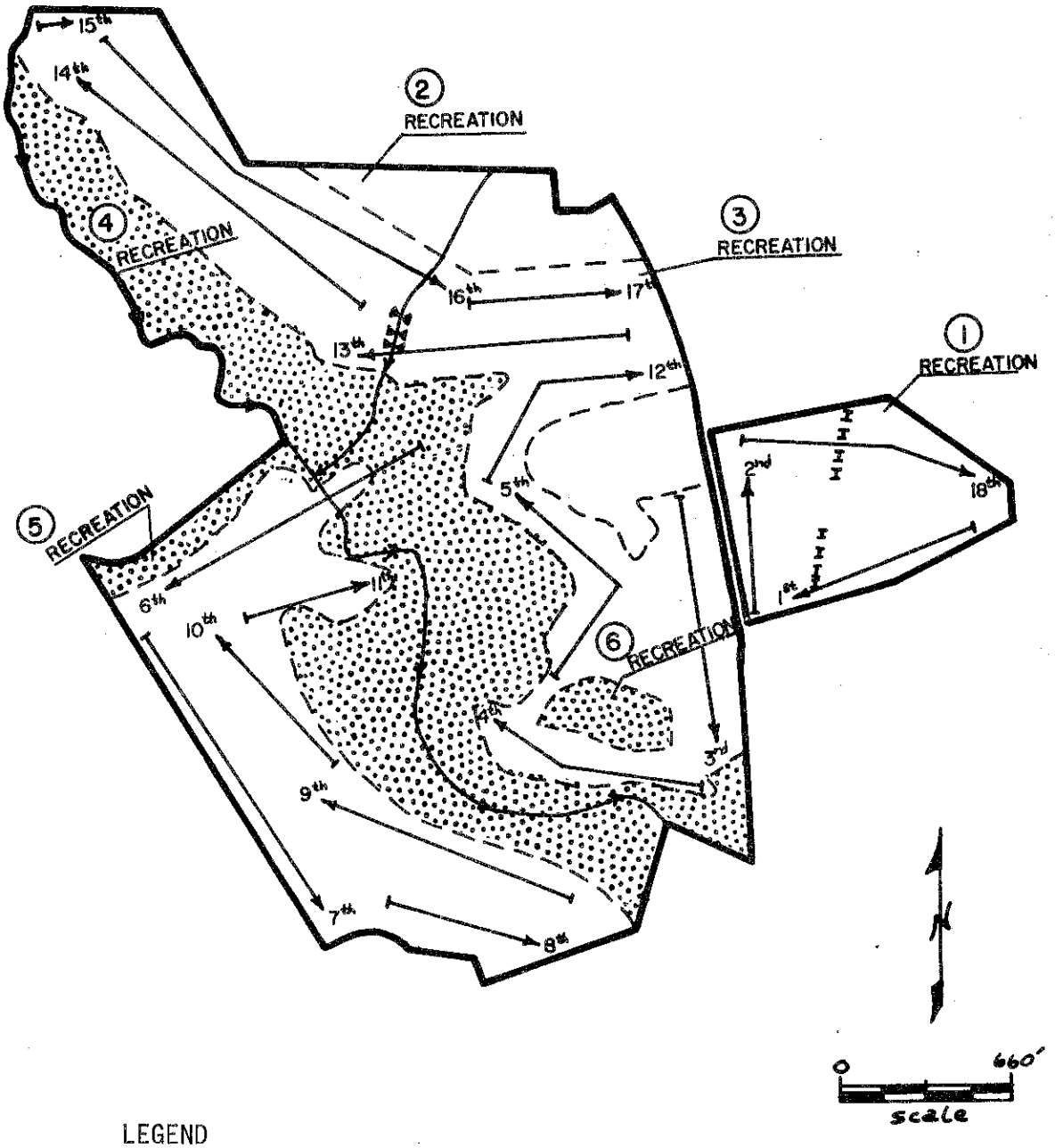
This report is not meant to compete with private consultants. As requested by the Town, this report, which identifies the existing resource base of the Norwich Golf Course, shall constitute the environmental assessment portion of the Authority's open space application for Federal Department of the Interior, Heritage Conservation and Recreation Service funds to assist in the development of this property.

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, 139 Boswell Avenue, Norwich, Connecticut 06360, 889-2324.

GOLF COURSE LAYOUT

NORWICH, CONNECTICUT



LEGEND

Woodland

18th Golf fairways (Direction of play)

DESCRIPTION OF THE PROPOSAL

The City of Norwich Golf Course Authority is in the process of applying for Heritage Conservation and Recreation Service development funding for construction of additional recreational facilities on the newly purchased Golf Course lands. These additional recreational facilities would include picnic areas, outdoor classrooms, nature trails, stay-fit trails and winter sports. The site is currently used exclusively as a golf course by persons from the greater Norwich area. Any additional facilities to be offered would be intended for use by persons in this area.

The course has a varied terrain. Rough areas are forested and contain streams and associated wetlands. Most of the site remains in turf cultivation for golf.

There are no other recreation projects scheduled in the area. No other agencies are involved in comprehensive planning efforts for the area.

DESCRIPTION OF THE ENVIRONMENT

PRESENT/PAST LAND USES

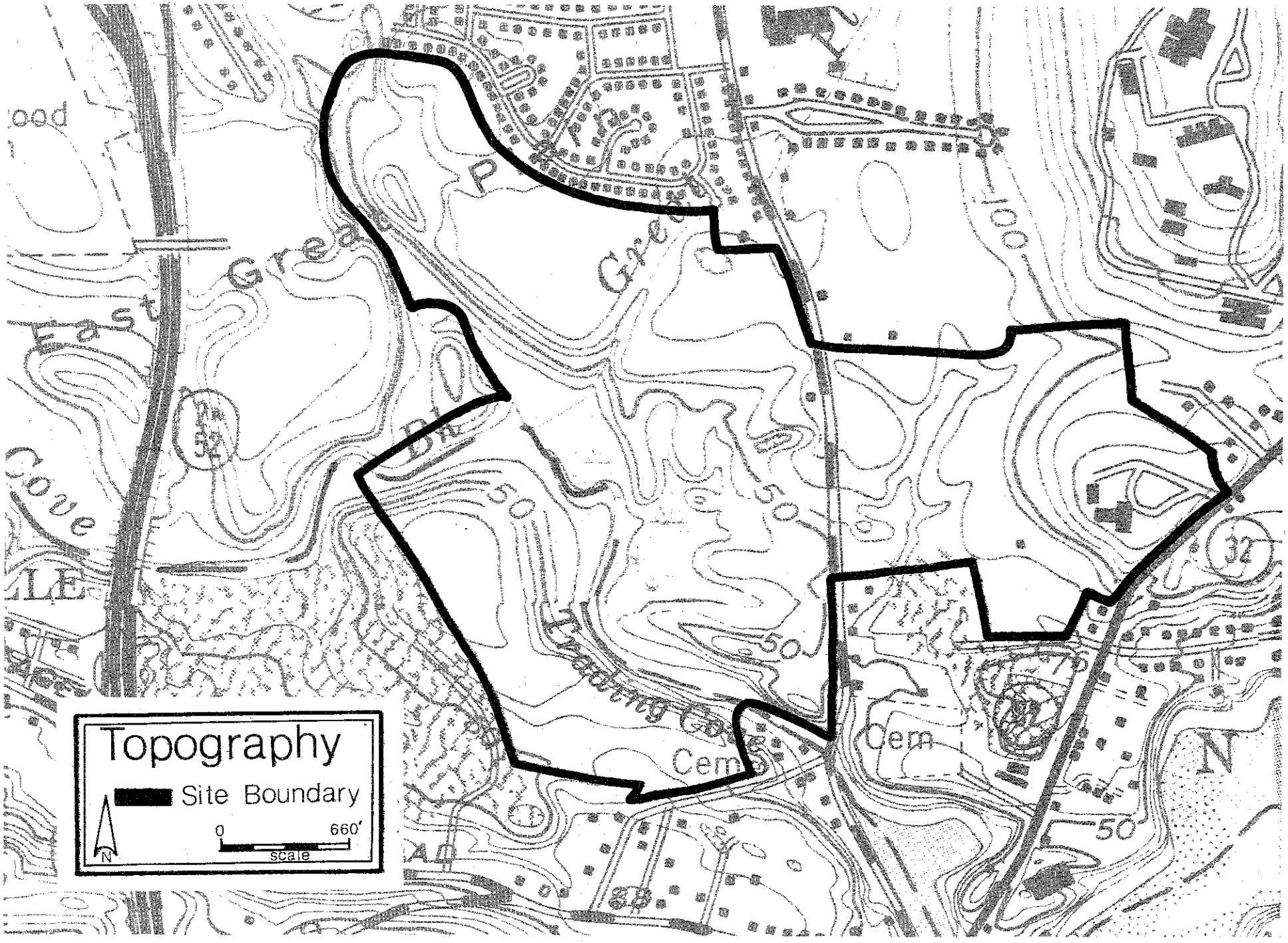
Present and past land use of the site has been as a golf course. Surrounding land is residential, institutional or undeveloped.

EXISTING TRANSPORTATION ROUTES

Bus service is, and will continue to be, available along New London Turnpike to the Norwich Regional Technical School, which is about 1/4 mile north of the golf course on New London Turnpike. This will help to provide non-automobile access to any new recreational facilities, but off-street parking should be provided also, especially if a future clubhouse is to be developed between the third and twelfth holes. A lot with capacity for 200 cars is recommended for an 18-hole course.

The area along the sixteenth and seventeenth fairways appears to be best suited for active recreational uses although some type of screening should be provided along the fairway edges. Access to this area could be from Village Court, which is a dead end street, or from New London Turnpike.

Access to the undeveloped areas along the streambelt presents a problem because it means crossing fairways at some point. One possible solution would be to provide access only at the southern and northern ends of the property. Access at the southern end could be off New London Turnpike or Old Fitch Hill Road in Montville. Since no parking area is available or possible in these areas, access would have to be by bicycle or on foot. At the northern end of the course Ford and Gardner Brooks join in the wooded area west of the fifteenth hole. A possible parking area and access point exists at the Thomas Mahan School; however, a cemetery on private land is located between the school and the golf course land precluding


Topography
Site Boundary
0
660'
scale
N
East
Cove
Cem
50
100

use of this approach. Another possibility at the northern end would be to extend Maplewood Court Road southeast towards the brook to provide access and parking. This would open up the wooded area west of the fourteenth fairway as well as provide access to any brookside trails or pathways; however, it would involve the purchase of a right-of-way and/or land.

SURFACE AND SUBSURFACE GEOLOGIC CHARACTERISTICS

The surficial geology and the bedrock geology of the golf course area have been mapped and described in several publications of the U.S. Geological Survey. These publications include geologic maps of the Norwich quadrangle (Maps GQ-144 and GQ-165) and the Uncasville quadrangle (Maps GQ-138 and GQ-576). Because of the substantial thickness of the surficial materials, bedrock is not likely to be a factor in the consideration of the recreational and economic potential of the property. A map of the surficial geology of the property, modified from the sources mentioned above, is included in this report.

The principal geologic material in the golf course is stratified drift, a glacial sediment consisting principally of sand and gravel that was deposited by meltwater from wasting glacier ice. In a narrow, irregular band flanking Trading Cove Brook, sediments deposited during periods of flooding form a thin cover on the stratified drift. These deposits consist principally of silt, sand, and gravel. In a few areas, where stagnant or sluggishly moving water tends to be present most of the year, decayed plant matter, silt, sand, and clay have collected, forming a limited cover. At the eastern edge of the property, on a knoll, the surficial geologic material is till, a typically stony, compact accumulation of rock particles of all shapes and sizes. The till, which was deposited directly by glacier ice, is generally less than 10 feet thick.

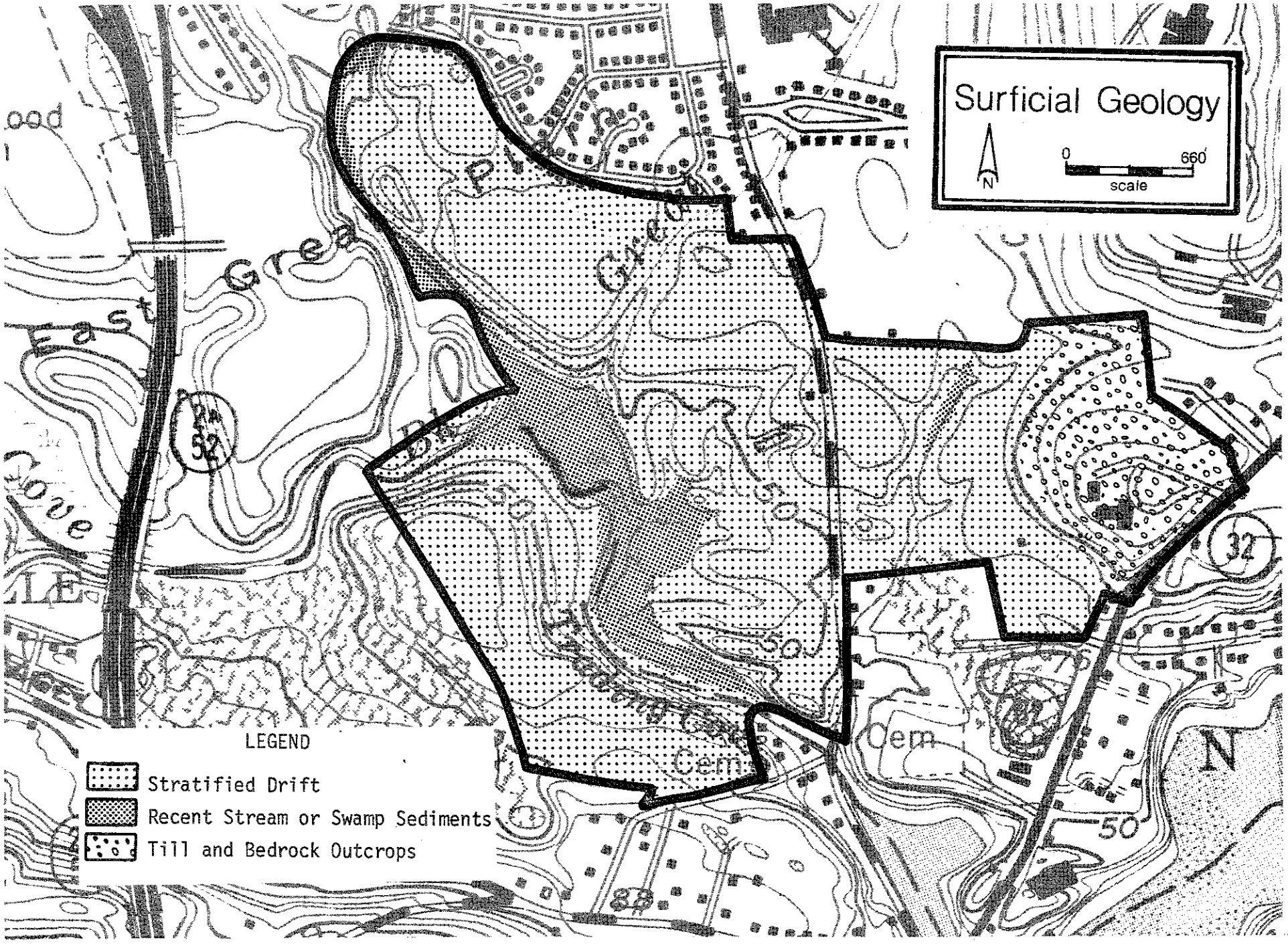
Published data, as well as field inspection of a large excavation west of the seventh fairway, indicate that the upper few feet of the stratified drift is composed largely of cobble gravel. Below this layer, pebble and cobble gravel is interlayered with sand and silt. Underlying these units are deep sands, occasionally interspersed with gravelly lenses. In one section of the excavation, a layered body of silt and clay at least 6 feet thick was observed. The total depth of the stratified drift ranges from less than 10 feet at the eastern end to more than 40 feet in the western section.

The gravel in the stratified drift probably has a moderate commercial value. Gravel mining has been extensive in the pit west of the seventh fairway. The deposits underlying fairways number 7, 9, 10, and 13-17 probably are similar to those found in the adjoining pit.

SOILS

The soils found on the Norwich Golf Course site fall into the following categories:

1) The Hinckley series (60A, 60BC, 158D) consists of nearly level, gently sloping, sloping, moderately steep, and steep, excessively drained soils on stream terraces, outwash plains, kames and eskers. They formed in water-sorted outwash. Hinckley soils have rapid and very rapid permeability. Major limitations are related to slope and droughtiness.


Surficial Geology
N
0
660
scale
LEGEND
Stratified Drift
Recent Stream or Swamp Sediments
Till and Bedrock Outcrops
East Great
Cem
Cem
50
50
32
52
N

2) The Narragansett series (200BC, 300) consists of gently sloping, sloping, and moderately steep, well-drained soils on uplands. They formed in silt-mantled, friable glacial till. Narragansett soils have moderate permeability in the surface layer and subsoil, and moderately rapid or rapid permeability in the substratum. Major limitations are related to stoniness.

3) The Hollis series (200BC, 300) consists of gently sloping, sloping, moderately steep and steep, shallow, well-drained soils on uplands where relief is influenced by the underlying bedrock. They formed in glacial till less than 20 inches deep, over granite, gneiss, and schist bedrock. Hollis soils have moderate permeability. Major limitations are related to depth to bedrock, rockiness, and slope.

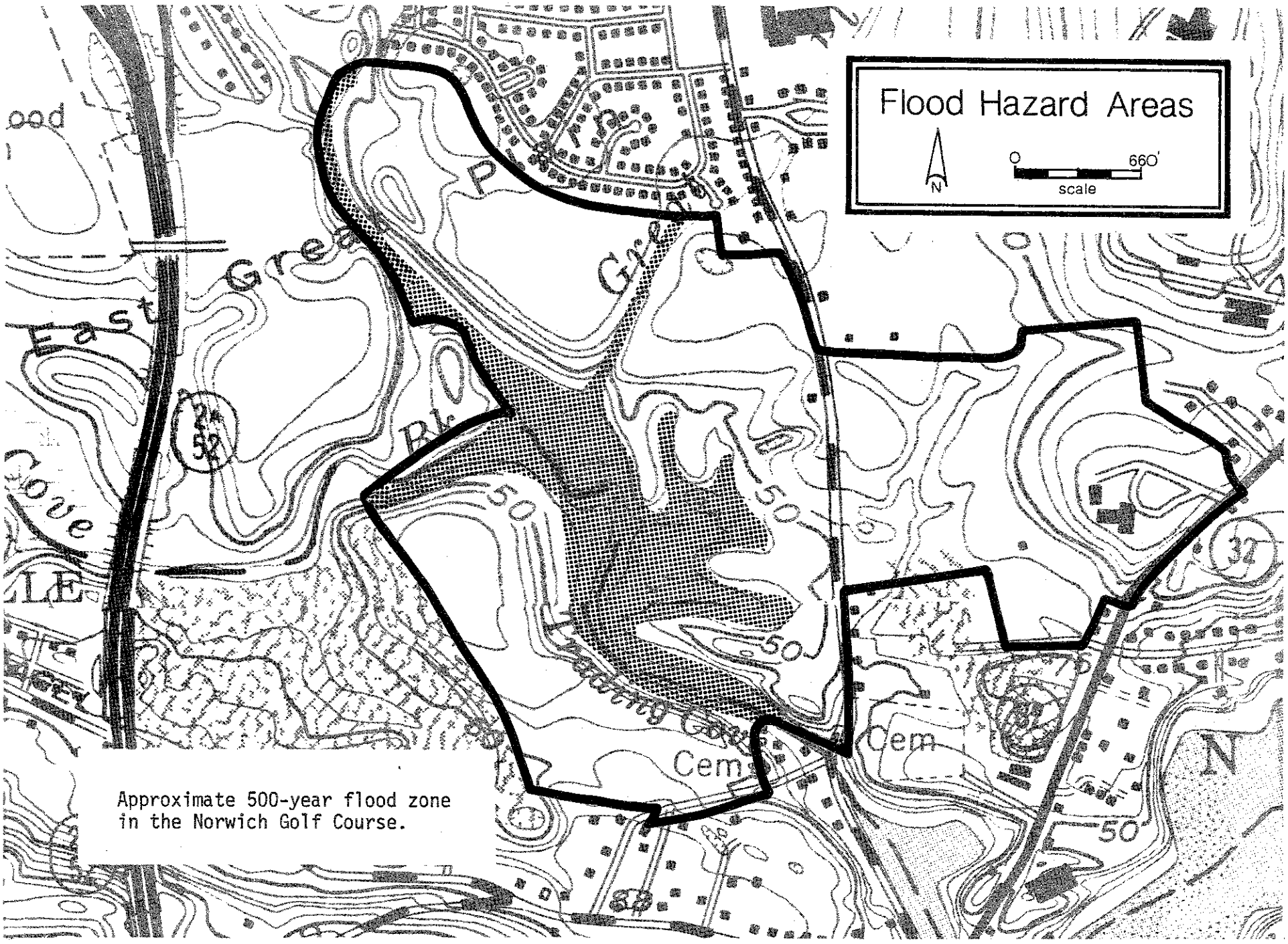
4) The Rumney series (58) consists of nearly level, poorly drained soils on flood plains. They formed in recent alluvial sediments. Rumney soils have moderately rapid to rapid permeability; flood annually at times of maximum runoff, commonly for 2 to 7 days duration; and have a high water table at or near the surface 7 to 9 months of the year. Major limitations are related to flooding and wetness.

5) The Raynham series (463) consists of nearly level, poorly drained soils on lake and outwash plains. They formed in water-sorted deposits of silt loam and very fine sand. Raynham soils have moderately slow permeability in the surface layer and subsoil, slow permeability in the substratum, and a high water table at or near the surface 7 to 9 months of the year. Major limitations are related to wetness and slow permeability.

The majority of the site falls within Natural Soil Group A-1, terrace soils overlying water-deposited beds of sand and gravel. Permeability of these soils is rapid. The shallowness to sand or gravel severely limits their water holding capacity. Natural fertility of these soils is also low. Grass, trees, and shrubs are difficult to establish and maintain because of the low moisture-holding capacity and low natural fertility. The steeper slopes add further difficulty to these problems. Because the soil is droughty, reseeding disturbed areas could be a problem. Using water from the brook and/or spring, irrigation could be used to insure the success of the seeding. Without irrigation, the best time to reseed is in the spring when there is more rainfall.

The terrace soils are generally suitable for buildings and roads, though the steep slopes in areas would require extensive cut-and-fill. If roads and/or buildings were to be planned, it is suggested that the existing topography be considered so as to minimize cut-and-fill. When cuts and fills are used, the topsoil should be spread back over the disturbed areas. Also, provisions should be made to control erosion and prevent siltation of the brooks.

Several of the soils on the site, 58, 463, and 464, are classified as inland wetland soils due to their high seasonal water table. Though the composition of these soils vary, they all have a high water table that remains within 6 inches of the soil surface during the wettest part of the year. The high water table often persists into late spring and may reappear after prolonged or heavy summer rains or during periods of high stream flow (58). Because of their wetness and flood hazard (58), these soils have severe limitations for most urban uses. Intensive and costly drainage and land fill measures would be required to overcome the high water table.



Approximate 500-year flood zone in the Norwich Golf Course.

On the eastern portion of the site, in the vicinity of the Inn, the soils are rocky and shallow to bedrock (Natural Soil Group D). These soils generally conform to the area of till shown on the surficial geology map. This complex consists of about 55 percent deep well drained silty soils and about 45 percent of the deeper soils to hold water for plant growth is good where the till is loamy, and fair where the till is sandy.

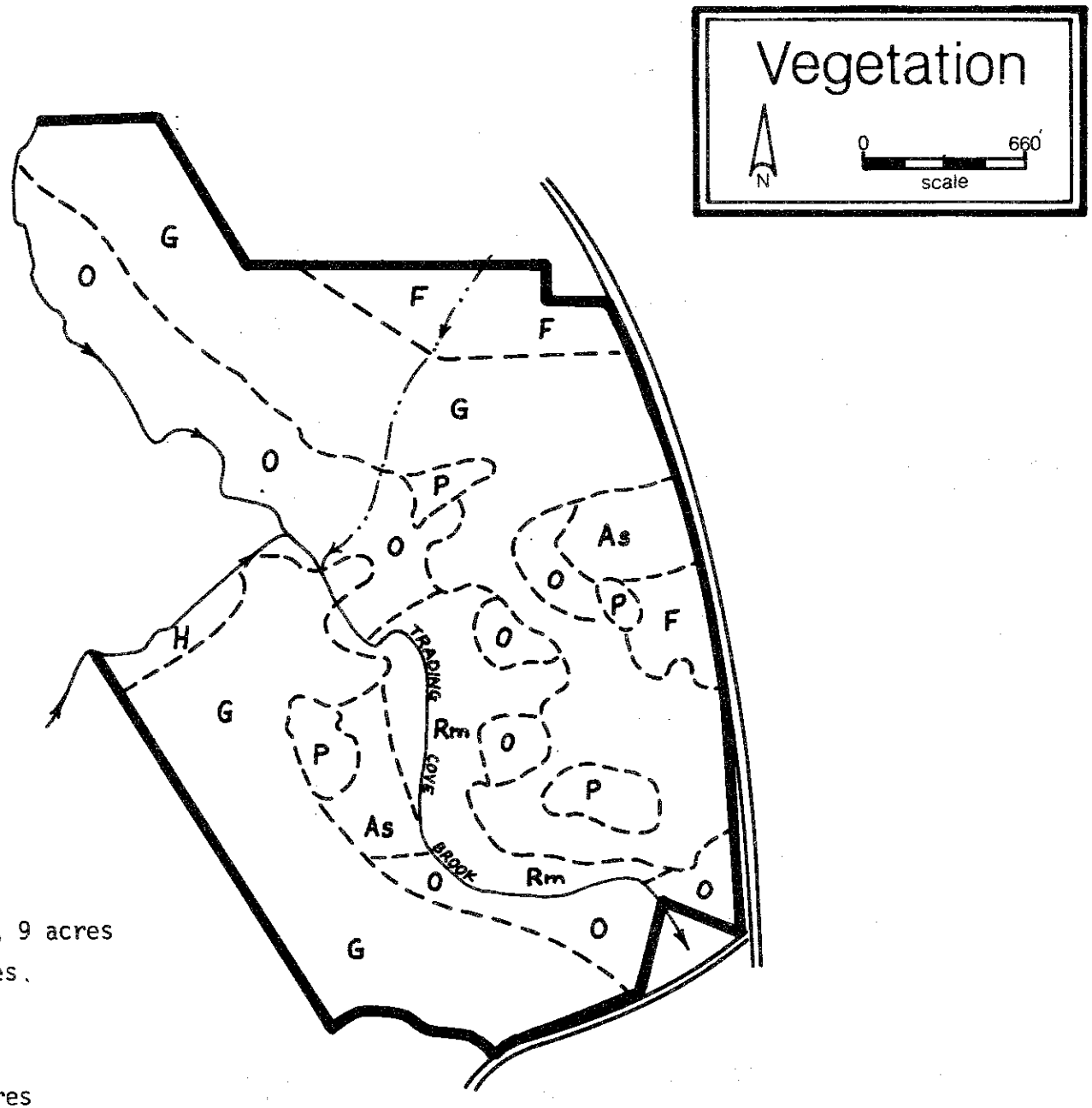
It was noted that there are areas eroding on the golf course because of a combination of steep slopes, droughty soil, foot traffic, and golf carts. If this is maintained as a golf course these problems could be corrected. Sections of the stream banks are eroding and this, in conjunction with erosion from the golf course, has resulted in quite severe siltation of the stream bottom. Remedial measures could be taken to correct the problems, but should not be undertaken without first having a study made by a qualified engineer.

Although this has been a golf course for many years, it has been a problem to maintain the fairways during dry spells. This is because of the droughty nature of the terrace soils. Irrigation could solve this problem, but it is a very expensive solution.

WATER RESOURCES

The golf course lies within the watershed of Trading Cove Brook, which flows through the southwestern section of the property. All surface and groundwater runoff from the course passes either directly or via small tributary streams into Trading Cove Brook. The largest such tributaries are Gardner Brook, which enters the property near its northernmost point, and Great Plain Brook, which enters north of the sixteenth green. Gardner Brook is joined by a tributary, Ford Brook, near its point of entrance to the golf course. All three brooks flow through or adjacent to heavily developed areas. Much of Great Plain Brook has been rechanneled or buried within the last twenty years. Trading Cove Brook itself originates in and flows through a relatively undeveloped area in the towns of Bozrah and Montville before reaching the Town of Norwich and the golf course. Consequently, the overall water quality in Trading Cove Brook at any time tends to be somewhat better than that of the water in the tributary streams.

The stratified drift on the golf course is part of an extensive system of glacial meltwater deposits that may be suitable for development as a water supply in the future. The quality of the groundwater in the part of the property lying north of Trading Cove Brook probably is being influenced by discharge from septic systems in the dense residential development between Ford Brook and New London Turnpike. Groundwater in the part of the property lying south of the brook is not within the normal flow-path of the septic effluent, but high-yield wells placed in this area might occasionally be affected by the quality of water in Trading Cove Brook. Any use of this property for future water-supply wells should be preceded by at least a year of testing to determine the actual groundwater quality and the possible yields. Wells placed in the northern section of the course probably would not be suitable until the aforementioned residential development became serviced by sewers.



LEGEND

Rm Red Maple Swamp, Pole-size, 9 acres

As Aspen, Sapling-size, 6 acres

O Oak, Pole-size, 27 acres

P Pine, Pole-size, 5 acres

H Hemlock, Sawlog-size, 2 acres

F Fields, 9 acres

G Turf for Golf Course

CLIMATE

The following data was taken from The Climate of Connecticut, Connecticut Geological and Natural History Survey, Bulletin 99, 1965.

Mean Annual Precipitation:	50 inches
Annual Mean Temperature:	50° Farenheit
Average date of last occurrance of 32°F. temperature in spring:	April 15
Average date of first occurrence of 32°F. temperature in fall:	October 15
Average length of freeze-free season:	183 days

The climate should not significantly affect the use of this site for recreational activities.

VEGETATION

Plant communities are delineated on the Vegetation Map. The forest land is primarily in a zone averaging 300 feet in width along Trading Cove Brook. In addition to golf course turf (Type G), six communities are identified.

Type O (approximately 27 acres): Pole-size black and scarlet oak are predominant, although clumps of beech occur. The trees are slow-growing and of poor quality because the sites are droughty. Nevertheless, the trees are healthyand not in need of any improvement cutting.

Type Rm (approximately 9 acres): Red maple swamp is adjacent to Trading Cove Brook. The pole-sized trees are crowded, but ferns, jewelweed, stinging nettle, sweet pepperbush and silky dogwood occupy the understory where sunlight penetrates.

Type As (approximately 6 acres): Sapling size trembling aspen and bigtooth aspen have grown up on two old fields. Huckleberry, bayberry and goldenrod are present underneath and adjacent to the aspens. The light shade and attractive fall color of the aspens enhance the aesthetic appeal of the area.

Type P (approximately 5 acres): Pole-sized red pine occurs in several separate blocks. The trees are closely spaced, and the understory is limited to widely scattered white pine seedlings and, along the edges, poison ivy. The introduced red pine scale insect will probably kill all of the red pine within twenty years. There is no known way of controlling the insect. The mortality apparent in 1978 is probably due to Fomes root rot which advances slowly.

Type H (approximately 2 acres): A small grove of hemlock approaching sawlog size on a steep slope above Trading Cove Brook is the only area in this forest type. The stand is too dense for any undergrowth to occur, but the health of the trees is not in jeopardy. The deep shade and open forest floor provide high aesthetic appeal.

Type F (approximately 9 acres): There are two old fields which are slowly reverting to forest. Goldenrod and grasses still dominate the vegetation, but black cherry, oak, and red cedar seedlings have become established and will eventually dominate.

The remainder of the area is turf for the golf course. The trees in all the various types have high aesthetic value and are helpful in reducing the erosive tendencies of the soil. Development of the proposal will cause few changes in the current vegetation. Thus, recreational uses will be compatible with maintenance of most of the present forest.

WILDLIFE

The golf course does not provide a very good wildlife habitat. The areas of grassland are poor habitat due to a lack of cover. The wooded areas provide some cover for wildlife but cannot be considered high in quality. The area as a whole has little potential as a wildlife habitat due to the low fertility of the terrace soils and the seasonal high water table of the wetland soils.

PROBABLE FUTURE ENVIRONMENT

Should this development proposal not be initiated, the land use would remain as a recreational golf course facility.

ENVIRONMENTAL IMPACT

QUANTIFIABLE LAND USE CHANGES

This development proposal should not cause any additional land use changes in the vicinity, as the site is currently being used as a recreational facility.

SOCIO/ECONOMIC CHANGES

Minimal economic changes would result in the development of additional recreation facilities on this site. Maintenance costs of these facilities could be handled through a seasonal fee charged to the users.

EFFECT ON WATER RESOURCES

No noticeable changes to any aspects of the local water resources are expected from this proposal.

EFFECT ON VEGETATION

The primary effects of intensified use of the wooded areas on the vegetation would be soil compaction, vandalism to trees and trampling of small plants. If openings must be created in the forest, poison ivy may take advantage of the increase in sunlight and become more widespread.

The extent of damage to trees depends largely on the concentration of people using the sites. Severe damage and mortality of trees should not reach problematic

levels. Occasionally, it would be necessary to remove individual trees which have died as a result of heavy use.

Trampling may destroy wildflowers and tree seedlings on parts of the site. This can increase the danger of erosion and diminish the aesthetic value of the area. However, the golf course is no more susceptible to damage than any other site might be.

Vegetation management should include programs to replace the red pine stands before they die, control poison ivy, and remove hazardous dead and dying trees.

Blocks of conifers have high aesthetic appeal, offering visual diversity, cool summer shade, and protection from winter wind. As loss of the red pine is imminent, a mixture of white pine, hemlock, Norway spruce and European larch should be planted at approximately 8 to 10 foot intervals, underneath the red pine. A thinning to reduce the red pine density by one-third should be conducted prior to planting. Borax should be applied to freshly cut stumps in order to reduce Fomes root rot infection. A private forester should be hired to supervise both thinning and planting. Chemical control of poison ivy is not recommended. Knowledge of long-term effects of herbicides is not sufficient to justify their use in recreational areas. Plantings which case heavy shade, such as hemlock, spruce, mountain laurel and flowering dogwood, might be useful along the edges of woodland openings to discourage poison ivy.

EFFECT ON WILDLIFE

More intensive development of the woodlands on the golf course site would diminish the already meager value of these areas for wildlife habitat.

MITIGATING MEASURES INCLUDED IN THE PROPOSAL

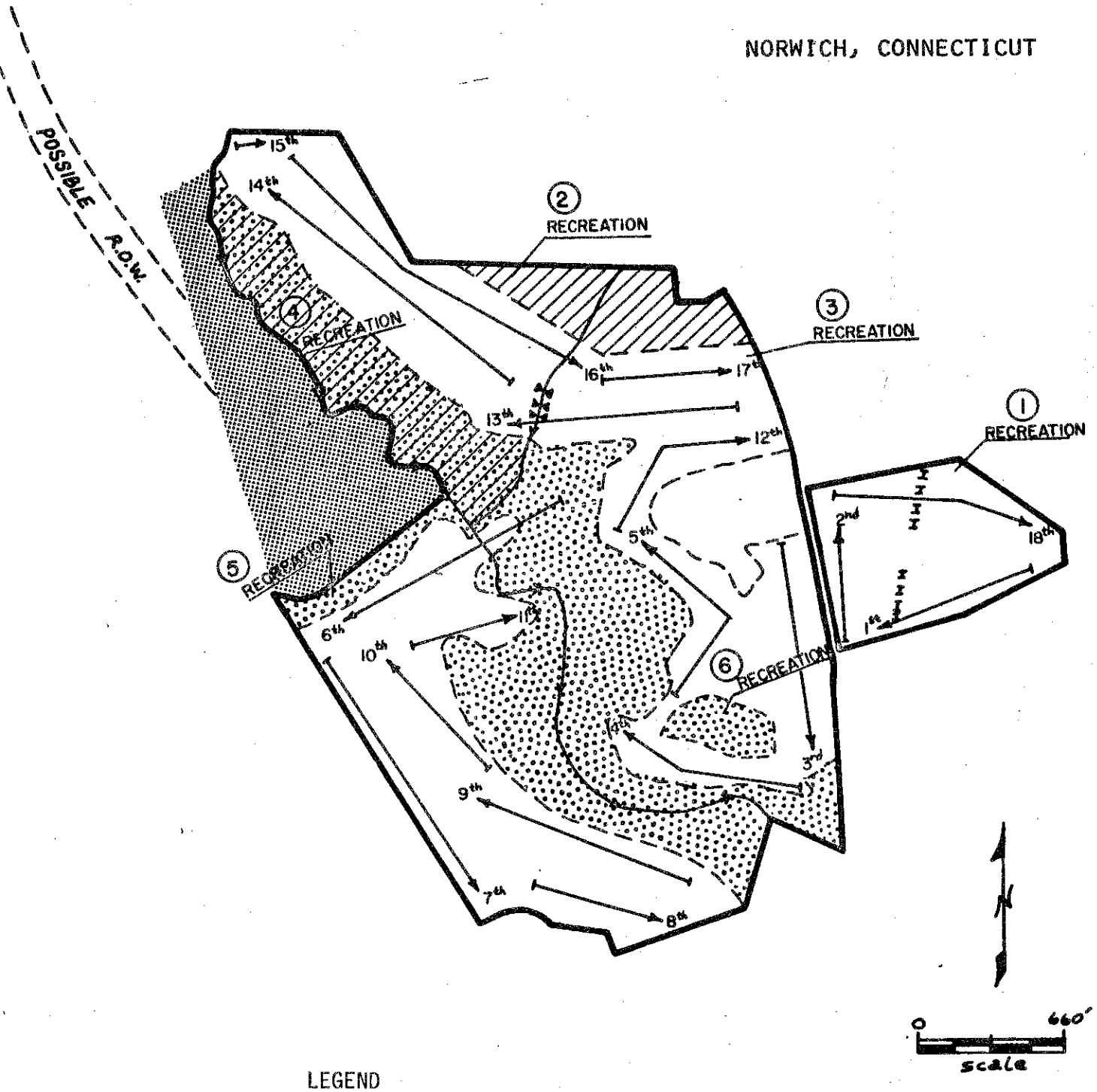
In order to reduce soil compaction, picnic table sites should be rotated at about 10-year intervals, and intensive use of areas with fine-textured soils should be minimized. Signs describing the natural history of the site might be helpful in preventing damage to vegetation, although vandalism of signs often occurs. Steep slopes throughout much of the wooded area will present a severe erosion problem with increased foot or vehicular traffic. The resulting sedimentation may have a significant impact on the water quality in Trading Cove Brook, a stocked trout stream. Trampling of small plants can be reduced by establishing clearly marked trails, bordered by rocks or logs, and leaving brush intact in the woods.

ADVERSE ENVIRONMENTAL EFFECTS

Although none of the problems discussed in the Impact section of the report can be completely eliminated, careful management should reduce their impacts to tolerable levels.

GOLF COURSE LAYOUT

NORWICH, CONNECTICUT



LEGEND

Woodland

18th Golf fairways (Direction of play)

Sites written up as possibly usable.

Proposed for acquisition

IRREVERSIBLE COMMITMENTS OF RESOURCES

Although the sand and gravel underlying the property may have some economic value, the type of development anticipated would not irreversibly commit these resources.

SHORT TERM VS. LONG TERM PRODUCTIVITY

As the proposed uses will have relatively little impact on the vegetation, long-term site quality and productivity would not be compromised. The project would insure protection of valuable green space in a developed suburban environment. Maintenance of the present forest cover will aid in protecting Trading Cove Brook and its banks.

RECREATION POTENTIAL

The proposal to use the Norwich Golf Course for various recreation activities, including picnicking and foot trails, does not seem to be a completely viable one. A distinct hazard would be posed to those non-golfers using the area in anything but the bad-weather months of winter. The danger of errant golf balls hitting someone at or near a fairways' edge is very real. No activities should be planned within 200 feet of any fairway without a golf ball barrier in place. For this reason, it is strongly suggested that planned activities should be restricted to winter types (skating, tobogganing, cross-country and novice skiing, snowshoeing, etc.). Snow cover will ensure minimal risk as there would be no golfers.

At present the city runs a major recreation area - Mohegan Park. This is an approximately 352-acre complex offering a playground, fishing, hiking, picnicking, bocce courts and a zoo. Skating is offered in the winter.

The golf course layout precludes use of most of the areas which might otherwise be suitable for recreation activities. The problem posed is that it is necessary to cross fairways to gain access to all portions except the relatively level area at the northwest portion of the site which abuts the Norwich-New London Turnpike. Excluding the danger of golf balls, this area might lend itself to a playground setup where swings, seesaws, sandboxes, etc. could be provided. Other activities for consideration would be a basketball court, handball and squash courts, volley ball, badminton and tennis, bocce and other activities requiring relatively flat terrain, but not necessarily all of these, since the size of the area is limited. The residents immediately north of this area would be the primary beneficiaries of any facilities installed.

There appear to be two options for parking lot access to this level area; one is directly off the Norwich-New London Turnpike and the other is off the dead-end road near the drainage ditch which divides the site. This ditch must be crossed to gain access to the western section of the site. Use of a culvert would be the simplest and most economical way of accomplishing this access. A vehicle parking

lot would probably be best located in the area between the drainage ditch and the Norwich-New London Turnpike.

Picnic tables (about 15-20) could be set either in one location or scattered about the site (or a combination of the two). A centralized location would facilitate garbage pick-up and servicing.

A paved basketball court or a portion of a parking lot could be designed so that flooding with 4-6 inches of water would provide a safe ice skating area during the coldest months.

If squash and handball courts were incorporated into any design of this area, they might be situated so that the concrete walls could comprise a barrier to golf balls but yet not trap balls to ricochet within the court.

It would also be desirable to surround this area with screening trees (e.g. hemlock) which would help reduce the errant golf ball hazard and help screen the back yards of adjacent homes. Multiple planting rows would be necessary. Any moderate to large scale plans for cutting or planting of trees should be done according to a forester's recommendations.

The large open fairways and sand traps would probably be irresistable temptations to youngsters so that there will undoubtedly be inherent problems with those summer-type activities provided in addition to golf.

Sanitary facilities of either the flush toilet or rental type would be a necessity for any large-scale recreation plan. City water is readily available.

The only other area seriously considered as lending itself to foot trails (hiking, nature and stay-fit) would be the wooded hillside area west of the 14th fairway, which lies between the brook and fairway. Here again, access is a problem and the fairway would have to be crossed. One way to alleviate this is by acquiring a right-of-way via the tract west of the brook and west of fairway 14. The wooded tract (privately owned) located here is attractive and would lend itself to picnic sites and trail development. A further problem, however, is that access must be through property now owned by the Maplewood Cemetery, and via Maplewood Court, a dead end street.

Another possibility is the building of a 350- to 400-foot long pedestrian tunnel in the low point in fairway 14 (a trench opposite a dead end street). Neither of these two possibilities appear economically or practically feasible.

Regarding the request for establishment of foot trails, the site requirements are normally minimal; however, any trails established in this area of dense population would probably get very heavy use by joggers, so that erosion (particularly on steeper slopes) of foot-compacted soil must be considered. Another consideration is illegal mini and trail bike activity which is likely to occur on trails. Enforcement of rules and regulations will be a necessary component of the operation of the area. Some walk around obstacles (possibly in conjunction with a line of boulders) at strategic points (e.g. trail heads, road crossings) may help discourage motorcyclists, but enforcement will be necessary to eliminate this activity.

Any trails established should follow the contours of the land and not be routed straight up and down hillsides. Where trails change elevation, they may

have to be constructed so that water is carried off or percolates through the surface. A gravel or crushed stone base with a stone dust surface may be required.

The Thomas W. Mahan Elementary School, located on Route 80 may be able to utilize the wooded portions of the course for outdoor classrooms and field trips.

On the south end of the tract near the ninth tee is an older cemetery (grave dates noted were early and mid 1800's) which is in disrepair and reverting to woodland. This cemetery is on the U.S.G.S. Quadrangle map and is in the Town of Montville. Montville has an active program of maintenance of historic cemeteries. Should the town not be aware of this cemetery, it should be mentioned to town officials.

In general the picnicking and trails activities proposed would be basically incompatible with the present golf course operation since most of the readily usable parts of the course are already used for golf. The winter sports activities mentioned are probably more compatible with the present land use, should lawn damage not become a factor. Unless additional land can be acquired along with an access route to enlarge the buffer zones, there is limited potential for multiple recreation use without prohibitively high expenditures of money.

Considering the present population levels and the anticipated benefits of further recreational development of the site, it might be more practical; at this time, to look to Fort Shantok State Park and Mohegan Park to serve the needs of local people.

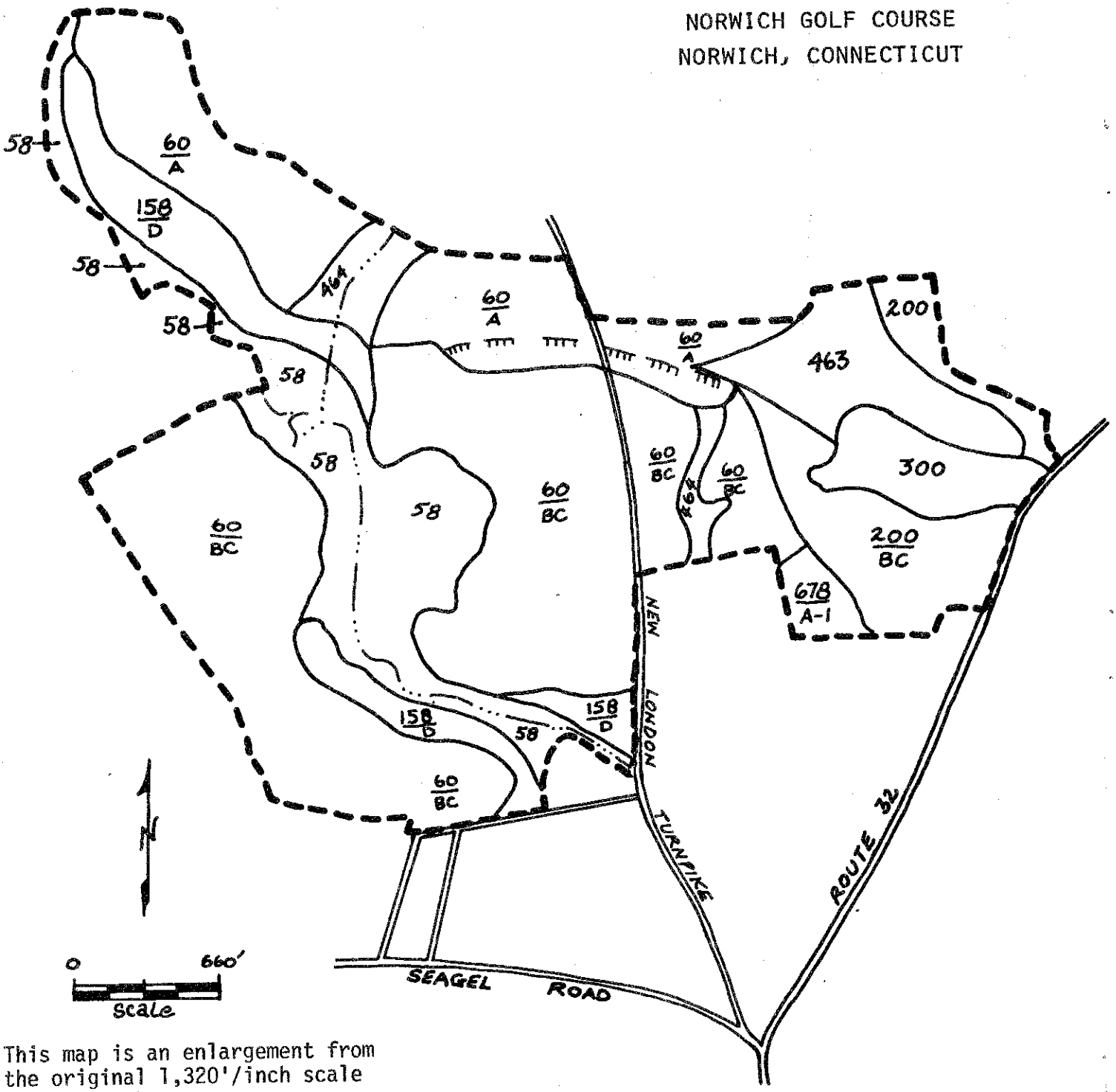
ALTERNATIVES TO THE PROPOSED ACTION

One alternative to the proposed project would be to explore use of the City-owned Lucas Woods located east of the golf course and Route 32 along the Thames River for recreational uses such as picnic areas and hiking, nature, and stay-fit trails. This was one of the open-space recommendations in the City's Plan of Development.

Appendix

SOILS

NORWICH GOLF COURSE
NORWICH, CONNECTICUT



This map is an enlargement from the original 1,320'/inch scale to 660'/inch.

Information taken from: Interim Soil Survey Report, New London County, Connecticut, Soil Survey Sheet No. 1761, prepared by the United States Department of Agriculture, Soil Conservation Service. Advance copy, subject to change.

NORWICH GOLF COURSE
NORWICH, CONNECTICUT

PROPORTIONAL EXTENT OF SOILS AND THEIR LIMITATIONS FOR CERTAIN LAND USES

Soil Series	Natural Soil Group	Soil Symbol	Approx. Acres	Percent of Acres	Principal Limiting Factor	Urban Use Limitations* On-Site Sewage	Buildings with Basements	Streets & Parking	Land-Scaping	Athletic Fields
Hinckley	A-1a	60A	37.5	19	Droughtiness	1	1	1	2	2
Hinckley	A-1b	60BC	75.5	39	Droughtiness, slope	2	1	2	3	3
Windsor	A-1a	678A-1	3	1	Droughtiness	1	2	1	3	2
Hinckley	A-1c	158D	16	8	Slope, Droughtiness	3	3	3	3	3
Raynham	A-3a	464	5	3	High water table	3	3	3	3	3
Narragansett-Hollis	D-1	200BC	17.5	9	Depth to rock, Slope Stoniness	3	3	3	3	3
Narragansett-Hollis	D-1	300	7.5	4	Depth to rock, Slope, Stoniness	3	3	3	3	3
Rumney	E-3a	58	22.5	11	Variable drainage	3	3	3	3	3
Raynham	G-3a	463	11	6	Variable drainage	3	3	3	3	3
			195.5	100						

Urban Use Limitations: 1 = slight, 2 = moderate, 3 = severe.

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.