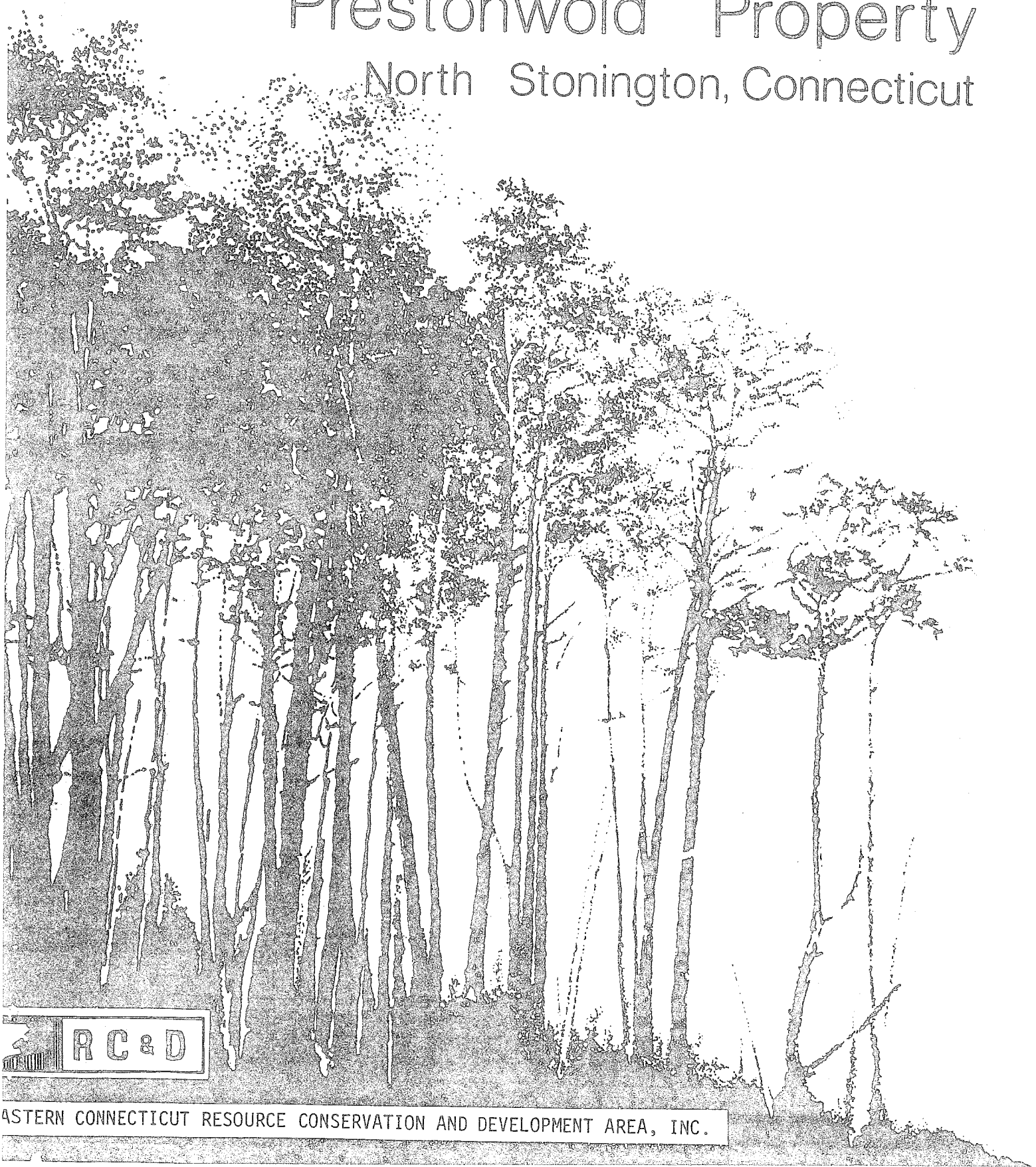
Environmental Review Team Report

Prestonwold Property

North Stonington, Connecticut



R C & D

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team Report

on

Prestonwold Property

North Stonington, Connecticut

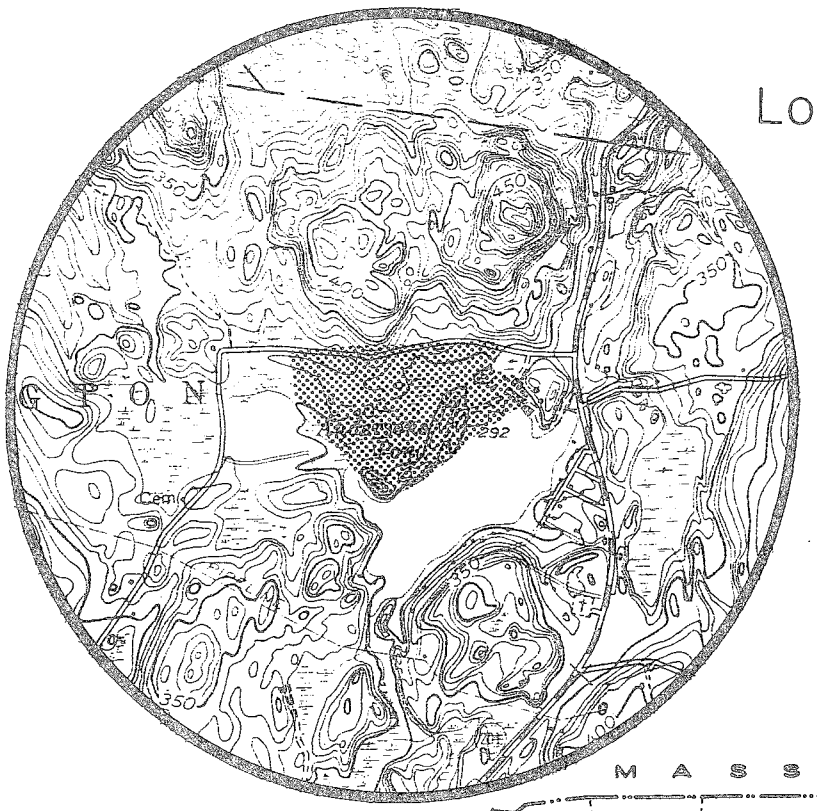
April 1981

eastern connecticut resource conservation & development area

environmental review team
139 boswell avenue
norwich, connecticut 06360

Location of Study Site

PRESTONWOLD PROPERTY
NORTH STONINGTON, CONNECTICUT



EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT
ON
PRESTONWOLD PROPERTY
NORTH STONINGTON, CONNECTICUT

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

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

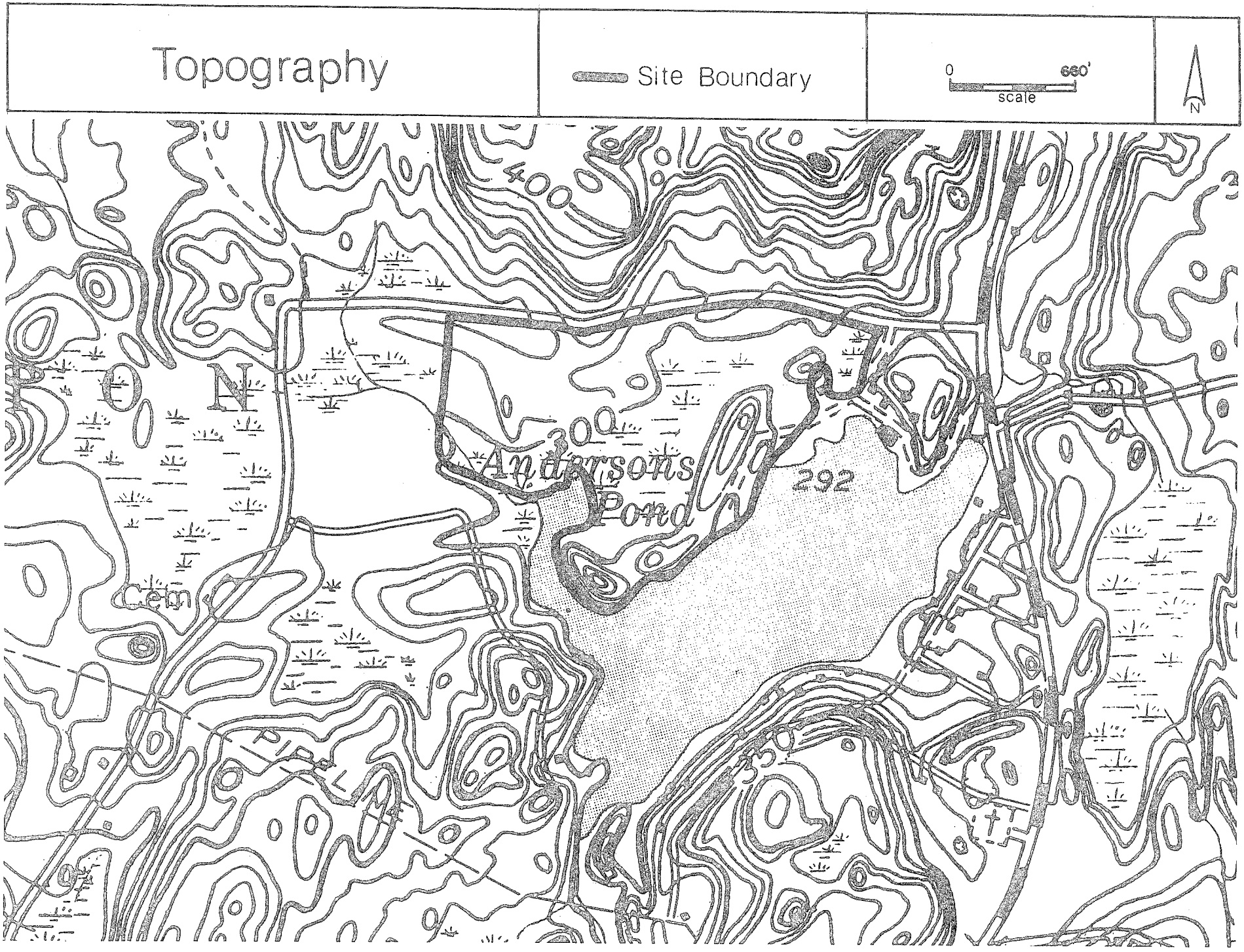
The ERT that field checked the site consisted of the following personnel: Gary Domian, District Conservationist, Soil Conservation Service (SCS); Mike Zizka, Geologist, Department of Environmental Protection (DEP); Rob Rocks, Forester,(DEP); Frank Homiski and Theodore Willeford, Sanitarians, State Department of Health; Tom Seidel, Regional Planner, Southeastern Connecticut Regional Planning Agency; Lisa LaSorsa, Wildlife Ecologist, Connecticut College; Andy Petracco, Recreation Specialist (DEP); Nancy Parent, Lake Ecologist (DEP); and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

The Team met and field checked the site on Tuesday, February 17, 1981. Reports from each Team member were sent to the ERT Coordinator for review and summarization for the final report.

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

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

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


Topography
Site Boundary
0
660'
scale
N
400
300
Anderson's
Pond
292
350
Cem

INTRODUCTION

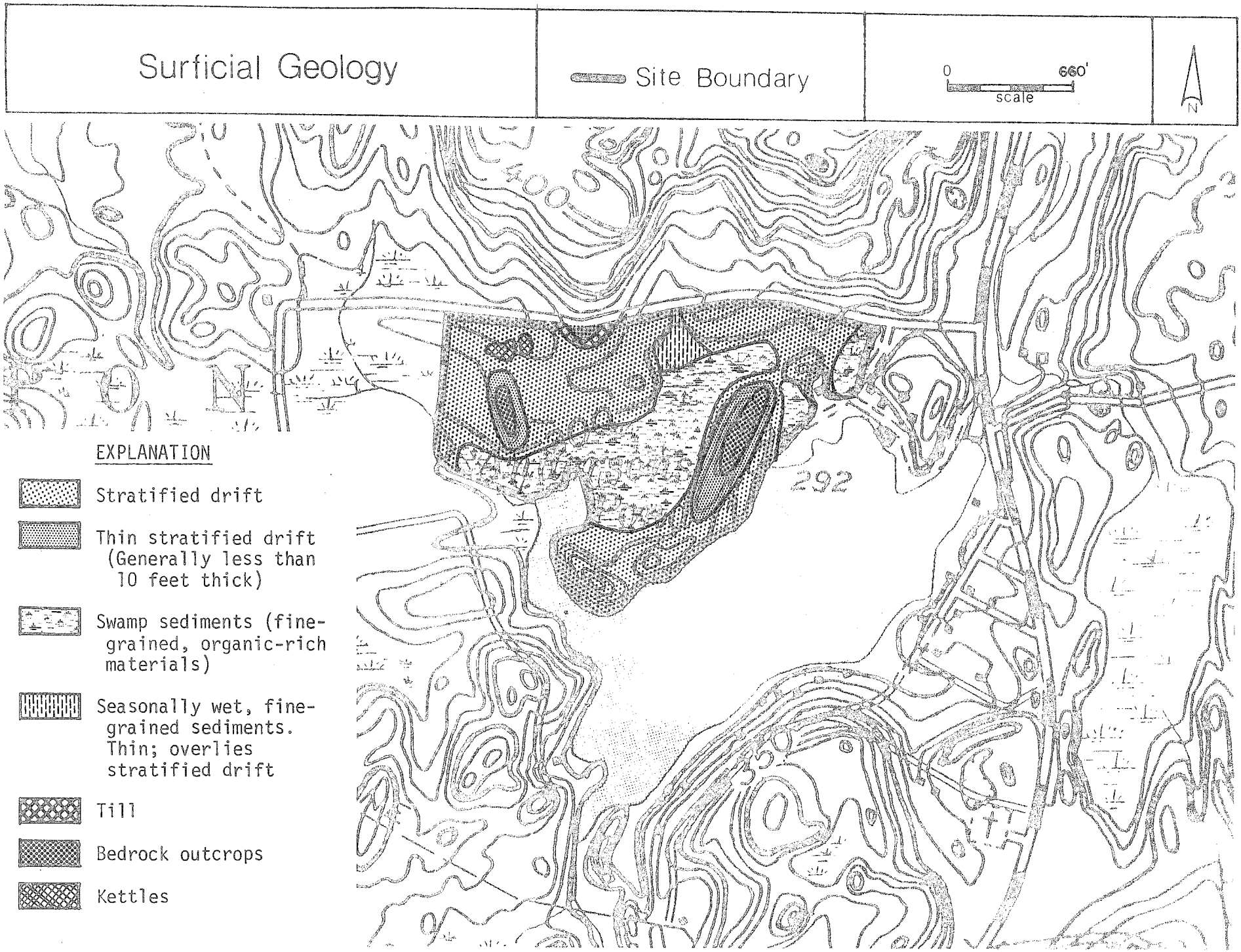
The Eastern Connecticut Environmental Review Team was asked to prepare an environmental assessment of a seasonal campground proposal for a 50± acre site located on the north shore of Blue Lake in North Stonington. The property is presently owned by Prestonwold, Inc. This firm also owns the lake itself. No preliminary engineering plans were available at the time of the field review. Prestonwold, Inc., hopes to use the information provided in this report to determine the density of campsites feasible from an environmental standpoint.

Prestonwold, Inc., has submitted a preliminary proposal in writing to the North Stonington Planning and Zoning Commission which is reproduced in the Appendix to this report. Briefly, they intend to develop a seasonal campground (operating from May 15 to October 1) over a five year period. Occupancy of campsites would be limited to thirty days, except for several seasonal sites available from July 1 to Labor Day. An expansion to 200 campsites is presently planned. Supporting facilities to be developed on site include buildings with showers, wash basins, toilets and coin-operated laundry facilities. Several other buildings are also planned. One will house an office, camp store and residence for the camp manager. Another will be used as a game room during inclement weather and will also serve as storage for camp equipment (boats, tables, etc.) during the months the camp is closed. Activity areas will be planned for swimming, boating, fishing and outdoor games.

The site is characterized by moderately sloping topography in the northwest and a steeply sloping ridge in the southern section of the site which fronts on the lake. An extensive wetland area bisects the property. Soils on the site range from regulated wetland soils to steeply sloping well drained soils. The parcel is totally forested, although a timber harvest has taken place on the southern section of the site during the past several years.

The Team is concerned with the effect of this proposal on the natural resource base of the site. Although severe limitations to development can be overcome, in many cases, with proper engineering techniques, these measures can become costly, making a project financially unfeasible for a developer. The Prestonwold property is generally limited by the large wetland which bisects the site and steep slopes on the lake shore. These limitations will make layout of a single access campground difficult. The Team members generally found the northwest section of the site best suited for camping activities. Use of the southern section for camping will be difficult, due to State Health Code regulations concerning the location of sanitary facilities and their necessary proximity to campsites. In order to use both the northwest and southern sections of the property from a single access point, it will be necessary to cross the wetland with either a permanent causeway for vehicle access or a footbridge for camper access to the beach area. The Hydrology and Recreation Potential sections of this report discuss these aspects in greater detail.

Based on the environmental constraints of the site, the Team has concluded that a reduction in the total number of planned campsites (200) will probably be necessary in order to maintain the developer's objective of providing a "natural area" campground. An additional concern which should be considered by the Planning and Zoning Commission is the zone change to "industrial" which will be required before campground development can take place. Presently, North Stonington Zoning Regulations allow campground development as a special exception only in an industrial zone.


Surficial Geology
Site Boundary
0
660'
scale
N
400
292
EXPLANATION
Stratified drift
Thin stratified drift (Generally less than 10 feet thick)
Swamp sediments (fine-grained, organic-rich materials)
Seasonally wet, fine-grained sediments. Thin; overlies stratified drift
Till
Bedrock outcrops
Kettles

ENVIRONMENTAL ASSESSMENT

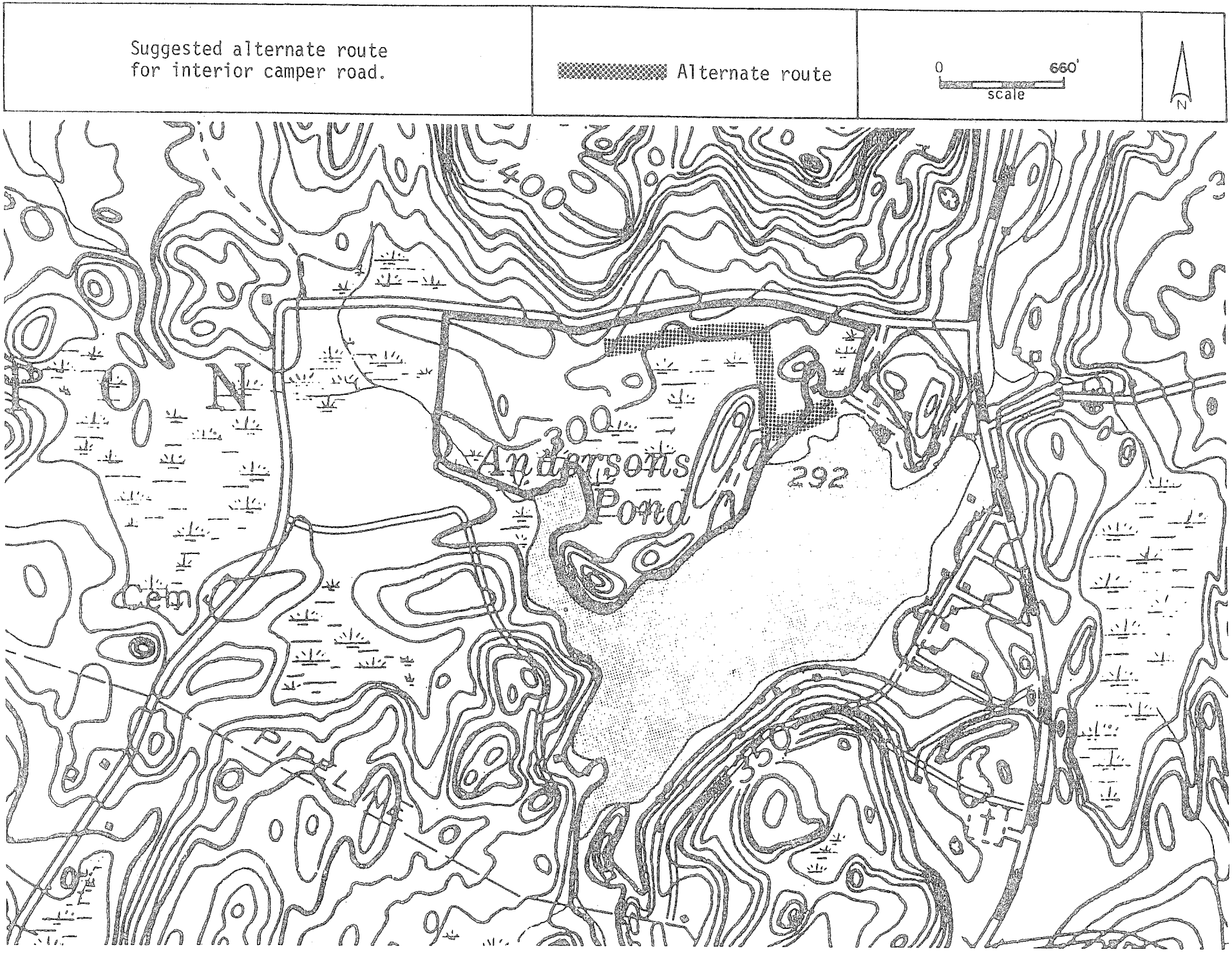
GEOLOGY

The Prestonwold property is located in an area of North Stonington that is encompassed by the Jewett City topographic quadrangle. A surficial geologic map of the quadrangle, prepared by Byron D. Stone, has been published by the U.S. Geological Survey (Map GQ-1434). The map indicates that most of the surficial materials on the site are sand and gravel. These materials were deposited during the most recent glacial period by meltwater streams flowing from wasting masses of ice. The sediment was deposited around ice blocks in some areas, wholly or partially burying the blocks. When the ice subsequently melted, the sediment collapsed to form basins, called "kettles." Several small kettles are present in the northwestern section of the parcel.

There are several conspicuous outcrops of bedrock on the site. The most prominent is located at the eastern end of a ridge near the northern shore of Blue Lake. This rock is a strongly foliated quartzite containing abundant calc-silicate layers. The structure of the rock indicates that it has gone through severe deformational stresses which caused folding, fracturing and shattering. The ridge of which this outcrop is a part, is distinct from the undulating, generally lower and longer ridge which forms the actual northern shore of the lake. The latter ridge appears to be composed of glacial meltwater sediments (stratified drift) and is seemingly not shallow-to-bedrock. This ridge probably was formed by sediments which were deposited in a large fracture in the glacier ice.

Outcrops of gabbro, a very dark-colored, coarse-grained rock, are located along Miller Road and along a wall near the western boundary of the site. The major mineral components in the rock are labradorite and augite; other minerals may include amphiboles, epidote, albite, chlorite, scapolite, sphene, hypersthene, olivine, ilmenite, apatite, and quartz. The depth to bedrock in the northwestern section of the site is probably greater than five feet in most places although it clearly is thinner in the immediate vicinity of the bedrock exposures.

The central part of the parcel consists of a broad, flat wetland. Fine-grained sediments rich in organic material thinly cover stratified drift deposits in this area. Construction of a road through the wetland could be costly and difficult, and it might result in ponding to the north of the road, depending upon the size, location, and position of any culverts used. Access to the northwestern corner from Miller Road is clearly preferable from an environmental standpoint. If, however, a new access road is desired, the best path would appear to be due north from the eastern end of the previously-mentioned bedrock ridge (near the lake's northern shore) to the highland area adjoining Miller Road, then due west parallel to and about 25 to 50 feet south of Miller Road. This path would minimize wetland disruption. An illustration accompanying this report indicates the alternate route.


Suggested alternate route
for interior camper road.
Alternate route
0
660'
scale
N
400
300
Anderson's
Pond
292
Cem

HYDROLOGY

Blue Lake (shown as Andersons Pond on the topographic maps) has an area of approximately 54 acres, a maximum known depth of 7 feet (an adjacent landowner believes it may be deeper in some places), and an estimated average depth of 4 feet. The drainage area of the lake is approximately 900 acres, of which about 75 percent is stratified drift (materials deposited by glacial meltwaters). From statistical data outlined in Connecticut Water Resources Bulletin No. 8, published by the U.S. Geological Survey, it may be estimated that inflow to the lake equals or exceeds 67,000 gallons per day 99 percent of the time. The lake volume may be estimated (from data given above) to be 70,570,000 gallons. The Department of Health Services uses the following formula to calculate the number of daily swimmers that a lake or pond can accommodate, assuming that the water initially is satisfactory for swimming:

$$N = \frac{(V/180) + F}{1000}$$

In this formula, N is the maximum number of swimmers per day; V is the volume of the lake or pond; and F is the inflow rate. Under this formula, it may be calculated that Blue Lake could support about 460 swimmers daily, even during times of low flow. It must be cautioned, however, that this assessment is based only upon dilution criteria; other critical factors, such as the adequacy of beach space or of swimming depths, could require a lower total.

The principal concern in terms of hydrology will be the effect of sewage disposal on groundwater resources and on Blue Lake. The northwestern section of the property is best suited for subsurface sewage disposal facilities. The most likely limitations in that area would be shallow-to-bedrock conditions and high water tables. Neither limitation would be expected to affect more than a small percentage of the area, but of course, site-specific testing will be needed for a better evaluation. Sand and gravel is not as effective a filter for septic effluent as soils with a higher fine-particle content, but the parcel's central swamp would be an effective buffer for most nutrients that could be carried through the soil. In general, then, no major problems should arise from carefully designed and installed subsurface sewage disposal systems in the northwestern section.

Particular care should be used in planning campsites or sewage disposal facilities for the ridge at the northern shore of Blue Lake. Excavation of the southern slope should be avoided if possible, to minimize the potential for sedimentation into the lake. In addition, it would be preferable to avoid the disposal of large amounts of wastewater through any one septic system in proximity to the lake. The sandy and gravelly surficial deposits of the ridge are technically suitable for subsurface sewage disposal, but as mentioned above, they may not be as effective in renovating septic effluent. A concentrated discharge of wastewater from a heavily utilized central sanitary facility along the ridge could cause localized deterioration of the water quality near the shore. On the other hand, if the wastewater discharges were dispersed along the ridge, the risk of such deterioration should be low. That the discharges would be dispersed seems likely in view of the linear nature of the ridge. The overall length of the ridge is approximately 1400 feet. Since a central sanitary facility is required to be no more than 300 feet from the campsites that would use it, at least three such facilities would be needed to service campers if the entire ridge were utilized for camping. Fewer facilities would be required if a portion of the ridge is left open or if a portion is designated for "remote campsites."

The latter alternative may be the most practical from both a physical and an economic standpoint.

The Team is concerned with the proposal to create a camper road through a long stretch of the central wetland. Although access to the northwestern section of the property is available from Miller Road, the landowners prefer to maintain a single gate for control purposes along the southern access road. It is possible that a wetland road could have a damming effect, causing a rise in normal water levels in the northeastern portion of the wetland. Such a rise may have adverse consequences on the vegetation. This problem could be alleviated by proper placement of culverts. A more difficult problem may be the road construction itself. Special care would be needed in the development of the road in order to prevent future maintenance troubles, such as uneven settling, rutting, or erosion. In general, it is difficult to justify such an extensive swath of disruption through the wetland when alternatives are available. If a single entrance is an overriding concern, there does appear to be a route that would involve much less wetland activity. This route is shown in an accompanying illustration.

SOILS

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

The nearly level terraces or outwash plains are occupied by Tisbury silt loam. The soil mapping unit symbol is 45A. The letter "A" denotes a 0-3 percent slopes. Tisbury soils formed in silt-mantled glacial outwash. The soils are moderately well drained and have a seasonal high water table that is 18 to 24 inches below the surface. Surface runoff is slow to moderate.

The gently sloping to sloping terraces or outwash plains are occupied by Hinckley gravelly sandy loam. The soil mapping unit symbol is 60C. The letter "C" denotes a slope range of 3 to 15 percent. Hinckley soils formed in water sorted outwash. The soils are excessively drained and have rapid permeability in the surface layer and subsoil and very rapid permeability in the substratum. Runoff is slow.

The moderately steep to steep terraces or outwash plains are occupied by Hinckley gravelly sandy loam. The soil mapping unit symbol is 60D. The letter "D" denotes a slope range of 15 to 35 percent. Hinckley soils formed in water sorted outwash. The soils are excessively drained and have rapid permeability

in the surface layer and subsoil and very rapid permeability in the substratum. Runoff is slow.

The gently sloping to sloping land forms adjacent to the highest elevations in the landscape are occupied by Charlton-Hollis fine sandy loams, very rocky. The soil mapping unit symbol is 17LC. The letter "L" denotes very rocky, and "C" denotes a slope range of 3 to 15 percent. Both these soils are well drained. Charlton soils formed in deep, friable glacial till and the Hollis soils formed in shallow glacial till less than 20 inches deep over bedrock. Charlton soils have moderate to moderately rapid permeability and Hollis soils have moderate permeability. Surface runoff is medium to very rapid for Hollis soils and medium to rapid for Charlton soils.

The concave, nearly level areas along flood plains are occupied by Rippowam fine sandy loam. The soil mapping unit symbol is 855. (Rippowam fine sandy loam was formerly mapped as Rumney fine sandy loam with the same mapping unit symbol.) Rippowam soils formed in recent alluvial sediments. The soils are poorly drained. Permeability is moderate to moderately rapid in the surface layer and subsoil, and rapid to very rapid in the substratum. The high water table is at or near the surface 7 to 9 months of the year. Surface runoff is slow. This soil is designated as a wetland soil and is regulated under Public Act 155.

The nearly level depressional areas within outwash plains, glacial moraines and glacial till plains are occupied by Adrian and Palms mucks. The soil mapping unit symbol is 91. Adrian muck and Palms muck are very poorly drained. Adrian muck formed in mucky organic deposits, 16 to 51 inches thick, over sandy mineral deposits. Palms muck also formed in mucky organic deposits, 16 to 51 inches thick over loamy mineral deposits. Adrian soils have rapid permeability and a high water table at or near the surface 9 to 10 months of the year. Palms soils have moderately slow surface 9 to 10 months of the year. Palms soils have moderately slow permeability and a high water table at or near the surface 9 to 10 months of the year. Surface runoff is very slow to ponded for both of these soils. These soils are designated as wetland soils and are regulated under Public Act 155.

There are some limitations for using the soils on site for campground development, and the most severe limitations are due to wetness, excessive permeability and steep slopes. There are also small areas of shallow to bedrock soils found on site that will limit land uses needing a deep soil depth.

The Hinckley soils, mapped as 60D, have limitations to campsite development due to moderately steep to steep slopes. Locating roads can also be limited because of slope. If the campsites are to be located immediately off of the road, then a cut and fill type of a road would be necessary to gain access to the side slope sites. Some of the individual campsites would have to be graded out of the side slope to allow for car parking and tent site pads. If a picnic table, fireplace and rubbish disposal can is located on the campsite, the square footage of the site will have to be large enough to accommodate these components. Large mobile units would need wider roads, and a wider turning radius which would make limitations more difficult to overcome. An area of shallow to bedrock soils are found on the northern tip of the elongated, northeasterly orientated hill in the southeast section of the property. This area poses obvious limitations due to steep slopes, and shallow depth to bedrock. The area is small and would be an excellent area for passive use, such as picnicking or locating nature lookout stations.

The gently sloping to sloping Hinckley soils mapped as 60C have limitations that are less restrictive due primarily to slopes that aren't as steep. Developing sites for larger mobile units would have fewer limitations; these soils are moderately limited for septic waste disposal.

The Hinckley soils symbol 60D have severe limitations for septic waste disposal because of excessive permeability. This means that leachate from the disposal system could permeate shallow well water supplies or leach into the wetlands or other bodies of water. This is not only a concern for the soils immediately adjacent to the lake, but also for the soils near drainage areas and along brooks that drain into the lake. Several such drainage ways drain south into the lake and wetlands. Leaching systems should be kept off of the steep slopes, particularly those that face the lake. The wet spot symbols (W) within the 60C mapping unit indicate depressions in the landscape that have water in them during the early spring and late fall months.

The wetland soils mapped as Adrian and Palms muck (91) have severe limitations to most development uses. These soils are an asset to a campground because they provide a large natural area. This area can be improved to attract more birds by planting food species and improving the nesting habitat. Another wetland soil, Rippowam (855), is also an area that is best left undisturbed. These soils are floodplain soils and can be inundated with water for short periods during the year. Filling in floodplain soils would cause flooding to shift elsewhere on site and possibly onto areas that have not been flooded previously. Building a road across the floodplain is possible, however, adequate drainage must be provided under the road to permit drainage from the watershed behind it. To avoid road drainage problems, avoid the wetlands.

The soils mapped as Tisbury silt loams are moderately well drained which means it has a seasonal high water table in the early spring and late fall. Major limitations to using this soil are due to the water table and the location of these soils, which are in natural drainageways. Other soils on site are Charlton-Hollis (17LC) soils that have pockets of deep soils within areas of shallow to bedrock soils. These soils occupy a small area of the total site and could be used for campsite development or be left as a passive use or natural area.

LAKE/WETLAND RESOURCES

Eutrophication is a natural aging process through which a waterbody gradually increases in fertility and biological productivity, and fills in with accumulations of organic deposits. As eutrophication proceeds, algae blooms increase in both intensity and duration, and aquatic plant growth becomes more prolific. The lake becomes shallower and the deep, cold waters are lost. During the latter stages of this process, the waterbody becomes a boggy or marshy wetland.

The lake characteristics directly associated with eutrophication are nuisance algae blooms, extensive beds of aquatic weeds, reduced depth and the loss of cold water. These characteristics may interfere with a lake's desired recreational uses.

Under natural conditions, the eutrophication process usually advances very slowly over thousands of years. The process can be accelerated by activities of man which increase nutrient and sediment inputs to the waterbody.

In general, there are three accepted stages of eutrophication which are defined as follows:

1. Oligotrophic - early stages of the process, very infertile, low biological productivity, high transparency, usually highly oxygenated and relatively deep with little accumulation of organic sediments on the bottom.

2. Mesotrophic - a mid-range between the two extremes of oligotrophic and eutrophic.

3. Eutrophic - late stages of the process, very fertile (high in plant nutrients such as nitrogen and phosphorous), high in biological productivity, low in transparency, bottom waters usually show reduced levels of dissolved oxygen and usually shallow with an abundance of organic matter on the bottom.

Analysis of lakes throughout the state has shown that the majority of shallow, artificial impoundments are eutrophic. It is generally accepted that residential development within a lake watershed accelerates the eutrophication process, leading to a further deterioration in water quality. Blue Lake is probably already eutrophic; the proposed changes would exacerbate conditions.

Phosphorous has been identified as the growth limiting nutrient in the majority of Connecticut lakes. The term "limiting nutrient" refers to the nutrient which is in the shortest supply relative to growth requirements. In general, algae and macrophytes will grow until the supply of some basic nutrient is depleted. Then any increase in that nutrient will result in a corresponding increase in biological productivity. Similarly, a reduction in that nutrient will reduce potential biological productivity. Enrichment of a lake with plant nutrients is the fundamental cause of eutrophication.

The transport of eroded soil to a lake contributes to eutrophication in two ways. First, phosphorous and other plant nutrients are introduced into the lake by erosion and secondly, sediment particles are deposited in the lake, reducing the depth and thereby creating an environment more conducive to aquatic macrophyte growth.

Wetlands

A large portion of the proposed site has been legally defined as wetland soils, and any activity in these areas is regulated in accordance with Connecticut's "Inland Wetlands and Watercourses Act" (Sections 22a-36 through 22a-45 of the Connecticut General Statutes).

Scientific research has demonstrated that wetlands play a vital role in regulating the timing of transport of phosphorus to downstream waters. During the spring and summer biological growth period, wetlands remove significant amounts of phosphorus from overlying waters and effectively withhold that phosphorus from transport downstream. Mechanisms by which wetlands retain phosphorus include physical entrapment of particulate phosphorus, chemical

sorption by organic matter and soil particles, uptake by aquatic plants and attached algae, and utilization by bacteria and other microorganisms. During the fall and winter, wetlands release phosphorus as decomposition of wetland vegetation takes place. Transport of this phosphorus to downstream waters subsequently occurs at a time of the year when the phosphorus is least likely to contribute to nuisance algae blooms and weed growth.

Thus, although little phosphorus is permanently withheld by wetlands on an annual basis, the "spring and summer storage/fall and winter release" pattern of phosphorus flux through a wetland serves to minimize summer algae blooms and weed problems in downstream waters.

The perpetuation of a wetland's phosphorus regulatory function involves, quite simply, maintaining the wetland in a natural state. Alteration or elimination of wetland reduces or eliminates the effectiveness of this regulatory role and contributes to a worsening of the trophic conditions in downstream waters.

A second important function of wetlands relating to water quality of downstream lakes is the control of flooding and erosion. Wetlands retain water during periods of high runoff and gradually release water at moderated rates of flow. This flow regulation reduces flooding and erosion which could contribute sediment and phosphorus to lakes downstream. The importance of this function for a particular wetland depends on the topography of the surrounding land, the position within the drainage basin, and the wetland area relative to the drainage basin area.

Alteration or elimination of wetlands would impair this function, and sediment and phosphorus loads to downstream lakes would increase.

It would appear that the proposed development would have the least detrimental effect on the lake water quality if it were placed north of the wetland. If the sites were located in this manner, the wetland would aid in buffering any adverse effects of the development.

The local Inland Wetlands Agency should utilize, to the extent possible, the authorities of Connecticut's Inland Wetlands and Watercourses Act to maintain the wetlands within Blue Lake's watershed in their natural state to protect lake water quality by providing for continued regulation of seasonal phosphorus loads, and continued control of flooding which could cause erosion. This would appropriately take place during the process of weighing environmental impacts of proposed actions, and weighing irreversible and irretrievable commitments of resources involved in the proposed actions.

The local health officials should exercise exceptional care in overseeing the design and construction of the proposed subsurface disposal systems. The majority of the soils within the proposed development site possess severe limitations for on-site sewage disposal. Proper administration and enforcement of the State Public Health Code is essential to protecting public health and protecting the water quality of the lake.

During the construction of the site, every effort should be made to minimize erosion and sediment contributions to the lake from areas which must be disturbed. Technical assistance in the development of an erosion and sedimentation control plan can be sought from the New London County Soil and Water Conservation District located in Norwich.

Chemical control of algae and weeds is governed by State statute (Sec. 430 of Public Act 872) and should proceed under the review and permit of the Pesticide Compliance Unit of the DEP. Chemical treatments are generally "cosmetic" and any long-term solutions to weed and algae problems will be the result of well planned watershed management.

The Environmental Protection Agency has established policies and procedures governing the granting of Federal financial assistance to the State for the protection and restoration of publicly-owned freshwater lakes as authorized by Section 314 of the Clean Water Act. A publicly-owned freshwater lake is defined by the EPA as one which offers public access through publicly-owned contiguous lands, so that any member of the public may have equivalent opportunity to enjoy the privileges and benefits of the lake as any other member of the public. Blue Lake is presently eligible for federal financial assistance because there are public access facilities.

The State Legislature annually appropriates funding for reimbursement to towns and lake authorities for algae and weed control in accordance with the provisions of Section 25-3c of the Connecticut General Statutes. Reimbursement is limited solely to towns or lake authorities established in accordance with Section 7-151a of the Connecticut General Statutes.

VEGETATION

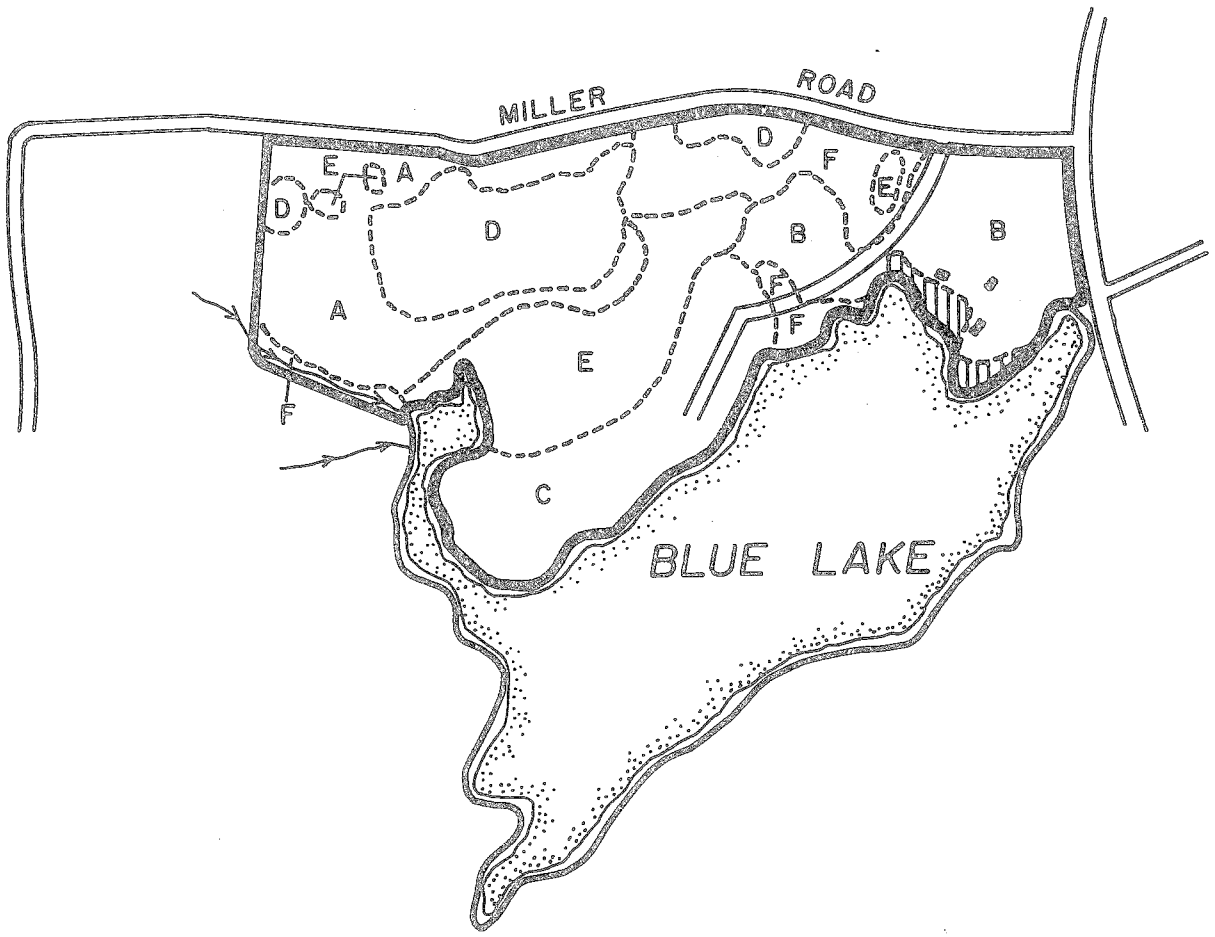
The Prestonwold, Inc., property may be divided into four vegetation types. These include three mixed hardwood stands which total approximately 31 acres; an old field area, 10± acres; an open shrub swamp, 9± acres, and a hardwood swamp area of 8± acres.

Vegetation Type Descriptions

Type A. (Mixed Hardwoods) This 11± acre over-stocked stand is made up of medium to poor quality sapling to pole size red maple, black birch, pignut hickory, shagbark hickory, black cherry, big tooth aspen and scattered eastern white pine. The understory is dominated by blue beech, maple-leaf viburnum, flowering dogwood, sassafras, barberry, high bush blueberry and occasional seedling size eastern red cedar. Grasses, club moss, greenbrier, striped pipsissewa, rattlesnake plantain and partridge berry form the ground cover in this area. The total volume present in this stand ranges between 10 and 14 cords per acre.

Type B. (Mixed Hardwoods) Pole to sawtimber-size white oak, black oak, scarlet oak, black birch, red maple, shagbark hickory and sassafras are present in this fully-stocked 10± acre stand. Hardwood tree seedlings, maple-leaf viburnum

Vegetation



LEGEND

- Road
- Property Boundary
- Vegetation Type Boundary
- Stream
- Beach Area = 1 Acre
- Andersons Pond (Bluelake)

VEGETATION TYPE DESCRIPTIONS*

TYPE A.	Mixed hardwoods, 11±acres, over-stocked, sapling to pole-size.
TYPE B.	Mixed hardwoods, 10±acres, fully-stocked, pole to sawtimber-size.
TYPE C.	Mixed hardwoods, 10±acres, under-stocked, sapling to pole-size.
TYPE D.	Old field, 10±acres, under-stocked, sapling-size.
TYPE E.	Open shrub swamp, 9±acres.
TYPE F.	Hardwood swamp, 8±acres, under-stocked, pole-size.

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

and high bush blueberry make up the understory in this stand. Ground cover is dominated by grasses, barberry, huckleberry and bayberry. The total volume in this stand ranges between 15 and 19 cords per acre.

Type C. (Mixed Hardwoods) This 10± acre understocked stand was harvested of all its merchantable sawtimber-size trees several years ago. The trees remaining are sapling to pole size with occasional larger trees of poor quality. Tree species present include white oak, black oak, scarlet oak, black birch and red maple. The cut stumps left after the harvest are sprouting profusely. High bush blueberry and blue beech are the shrub species which are present. Ground cover consists of grasses, bracken fern, huckleberry and bayberry.

Type D. (Old Field) Sapling-size eastern red cedar, scarlet oak, gray birch, black cherry and big tooth aspen are present in this 10± acre understocked stand along with scattered eastern white pine seedlings. Shrub species which are present include Male berry, high bush blueberry, shadbush and multiflora rose. Grasses, goldenrod, greenbrier, spirea, bayberry, barberry, sweet fern and reindeer lichen form the ground cover in this area.

Type E. (Open Swamp) This 9± acre open swamp is vegetated with scattered red maple seedlings and several shrub species including cranberry, sweet pepperbush, swamp azalea, silky willow, steeple bush, swamp rose and speckled alder. Tussock sedge, skunk cabbage, cinnamon fern and sensitive fern are also present. Several kettles are included in this vegetation type. The vegetation present in these depressions include sensitive fern, cranberry and several species of mosses.

Type F. (Hardwood Swamp) Poor quality pole-size red maple in clumps on hummocks are present in this 8± acre understocked stand. The understory is made up of dense patches of high bush blueberry and sweet pepperbush. Ground cover vegetation consists of cinnamon fern, royal fern, sensitive fern, club moss, sphagnum moss, tussock sedge, skunk cabbage and false hellebore in close proximity to the stream along the western boundary of this property.

The high water table present in vegetation Type E (Open Swamp) and vegetation Type F (Hardwood Swamp) limit vegetation to species which are tolerant of excessive moisture conditions. The red maple which are present in the hardwood swamp areas are able to survive in these saturated soils, but will probably never become high quality trees. Conditions are more severe in the open swamp area where the water table is at the soil surface for most of the year. In this area, water tolerant shrub species dominate because water tolerant tree species are unable to become securely anchored in the muck.

Windthrow is a potential hazard in the hardwood swamp area. Tree species, although established, do not become securely anchored in these saturated soils. Openings and clearings which allow the wind to pass through, rather than over these areas, may cause accelerated windthrow of these unstable trees. Openings in and along side these areas should be avoided to the greatest extent possible.

The large poor quality trees which were left after the recent timber harvest in vegetation Type C represent a potential hazard to users of this property. Many of these trees have large dead branches which could fall, causing injury to people and damage to property. The trees which are potential hazards should be removed during the development of this property and utilized as fuelwood.

Suggested Management

The trees which are present in vegetation Type A (Mixed Hardwoods) are crowded and declining in health and vigor. The trees in vegetation Type B (Mixed Hardwoods), although not crowded, are not growing to their full potential. Fuelwood thinnings in both of these stands would reduce the competition for sunlight, space, moisture and nutrients between residual trees, resulting in healthier, more vigorous trees over time. A crown thinning, removing approximately one third of the total volume in each stand would produce between three and six cords per acre. Only the poorest quality trees should be removed during these thinnings. The high quality trees should be favored and retained for their potential shade and aesthetic value. Ideally, these thinnings should take place prior to development of the camping areas on this property.

A public service forester or private forester could be contacted to help mark the trees that are to be removed if these thinnings are desired. The same individual or a landscape architect would also be able to offer technical assistance on supplemental plantings.

WILDLIFE

The Prestonwold property is composed of a variety of wildlife habitats. Most notably, a large brush swamp bisects the site. This area provides elements of habitat for many species of water-loving birds and mammals, and a water source for other animals. Some of the wildlife attracted to such wetland areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

The quality of the woodland and adjacent open field areas for wildlife habitat is generally fair. Certain vegetation types favored by wildlife for food and cover may be limited by the droughtiness of the soil. Some evidence of deer and rabbit browse were found during the field review. However, these animals do not appear to be heavily utilizing the area as a source of food. Other wildlife common to such wooded and openland habitats include, but are not limited to, ruffed grouse, woodcock, quail, pheasant, seasonal songbirds, squirrel, raccoon and fox.

The impact on wildlife caused by developing this property for campground use will, of course, be affected by the density of development. Native wildlife tends to be displaced as human intrusion into their habitat increases. On this particular site, the deer, as well as some other local animals, would be expected to migrate toward adjacent, undeveloped areas to the north. Native wildlife will be encouraged to remain on the campground site, if considerations are given to enhancing their habitats. This would include planting evergreen vegetation, used for cover, as well as introducing a variety of fruiting trees or shrubs for an attractive food source.

WATER SUPPLY

There is no public water supply available to this area. Campground development generally calls for developing one or more centralized well water supplies to serve the various buildings and campsites. On this particular site, it appears that a minimum of two separate water supply systems will be required since the two developable areas of the site are quite separate from each other.

It is not clear whether the geologic materials on the Prestonwold property would be capable of supporting a high-yield well. Although the surficial materials seem suitably coarse-grained, the thickness of the saturated zone may be small, at least in the northwestern section of the site. Scattered bedrock outcrops in that section may be indicative of a generally thin or only moderately thick overburden. In addition, a well tapping thick sandy deposits on the south side of the lake had a yield of only ten gallons per minute. A dug well that was placed in stratified drift 20 feet thick approximately one mile south of the lake reportedly went dry every summer; the homeowner was forced to put in a drilled well tapping the underlying bedrock. The stratified drift in the ridge at the northern shore of the lake is probably a better bet for a high-yield well, but a drilled rather than dug well will likely be needed. If a high-yielding stratified drift well can be established, the septic systems should be kept as far as is practical from the well to minimize the probability of drawing relatively concentrated effluent into the well.

If the stratified drift proves to be inadequate, bedrock wells should provide satisfactory, albeit more expensive, alternative. Bedrock wells are generally capable of yielding small (less than ten gallons per minute) yields on a sustainable basis. Only rarely do these wells provide high yields that can be maintained for long periods of time. Nevertheless, it should be possible to establish an adequate water supply with a series of bedrock wells in the camping areas. Bedrock wells should be spaced at least 300 feet apart to minimize the potential for mutual interference.

State Health regulations require that the following types of water supply be provided for camping areas:

1. A water supply of satisfactory sanitary quality and in ample quantity shall be provided to meet all the requirements of the maximum number of persons using the campground at any one time.

2. The water supply shall be easily obtainable from distribution taps located within the campground and at a distance of not more than three hundred feet from any campsite except for remote campsites.

3. A camping vehicle watering station with suitable appurtenances for filling the water storage tanks in such vehicle shall be provided.

WASTE DISPOSAL

The soil in both of the high areas on site appears to consist of glacially deposited sand and gravel. The water table throughout the area appears to be consistent at an elevation near or only a few feet above lake level. Bedrock outcropping was noted in only two areas: near the eastern extremity of the high land along the lake, and along the western boundary of the site. At both locations, however, the bedrock appeared to consist of nearly vertical ridges or dikes, affecting only limited areas of the property. In view of these conditions, it must be concluded that there are few marginal soil conditions prevailing on the site, and with proper selection of the area to be used, subsurface

sewage disposal should present no major problem. The wetland and bedrock outcrop areas are obviously unsuitable, and steep slopes in the ridge area along the lake should also be avoided. Sewage disposal for a campground development, unlike that for a housing development, requires only a small number of sewage disposal systems serving the central service buildings. These systems would be somewhat larger than those serving a single family dwelling, but there is considerable flexibility in the location of the service buildings and systems, and there should be no difficulty in locating suitable sites. Even in the ridge area along the lake, three different suitable level areas were identified for sewage disposal systems. Campground development would also call for a small leaching pit to dispose of sink water from every group of three campsites. This should be feasible since the two high areas which would be developed for camping are suitable for sewage disposal purposes. A dumping station and sewage disposal system would also be required for travel trailers near the entrance to the campground. Care should be taken to locate this disposal system a considerable distance from any water supply well, since the holding tank on travel trailers often contains chemical deodorizers or disinfectants. The overall volume of chemicals would be low in relation to the land area, however, and should have no effect on overall ground water quality.

State Health regulations stipulate that a central service building or buildings consisting of flush toilets, lavatories and showers with hot and cold running water shall be provided. The service building(s) must be located in an area where the soils have been examined and tested and found suitable for the installation of a subsurface sewage disposal system.

No campsite shall be located at a distance greater than three hundred feet from such facilities, except for "remote campsites."

The minimum number of sanitary fixtures contained in the service building shall be provided based on the total number of campsites located within the 300 foot radius of the service building.

Depending upon topography, soil conditions and availability of a water distribution system, more than one service building may be necessary to accommodate a specific number of campsites because the sites cannot be located within the three hundred foot radius of one service building.

Sewage disposal systems shall comply with the requirements of Section 19-13-B20 of the Public Health Code as nonresidential buildings except as follows:

Sink waste from semi-dependent camping vehicles may be disposed of by individual subsurface sewage disposal systems consisting of leaching pits or galleries only.

No sink wastes shall be thrown on the surface of the ground or disposed of in open pits.

A dumping station(s) shall be provided for the disposal of wastes from holding tanks in camping vehicles. A water tap with suitable hose and appurtenances shall be provided at the dumping station for periodic clean-up of the area.

The dumping station should be located in an area that is easily accessible from the campground road, preferably near the exit point of the campground. This will be advantageous to the campers who can empty their holding tanks upon departure from the campground.

PLANNING CONCERNS

The property owner, Prestonwold, Inc., proposes to establish a seasonal campground which will operate between May 15 and October 1. Most campers would be limited to a 30-day stay, although some would be permitted to camp for the whole season. It is not clear how this would be done in view of a 30-day limit in the town's zoning regulations.

The area to be used is located along the northwest shore of Blue Lake in North Stonington. The site is totally undeveloped and contains a variety of land forms. The 50-acre site is bounded on the north by Miller Road, on which it has about 2,000 feet of frontage. It has a similar amount of frontage on Blue Lake.

Blue Lake has a surface area of 54.3 acres. Its average depth is about four feet, although it reaches about 7 feet in the center and slightly deeper near the dam at the north end.* The lake is owned by Prestonwold, Inc., but public access to it is provided by a state boat launching area on the shore opposite the campground. There are also about thirty-five private cottages along the lake front, primarily along the eastern side of the lake. Some of these cottages are occupied year round.

Except for the concentration of cottages around the lake, this part of North Stonington is very rural. It consists primarily of rolling, wooded hills, with only occasional residences. The main route of access to the lake is over state Route 201, a north/south highway which connects to Route 2 about four miles to the south. Used by an average of 800 vehicles per day, Route 201 has one of the lowest traffic volumes of any state highway in the region.**

The impact of the proposed use will be confined primarily to the immediate vicinity of Blue Lake. Assuming strict compliance with regulations relating to campgrounds, the economic impact on the town should be negligible. As a seasonal recreation use, there should be none of the community services needed that are generally associated with year round uses. Due to the present low traffic volumes on Route 201 and the rural area it passes through, the traffic generated by the campground should be of little consequence. Access to the campground should be confined to Miller Road and not permitted over nearby Patricia Avenue. Even on Miller Road, access points should be limited to not more than two, and these should be carefully selected to allow maximum sight distance along the road from the access point.

The self-sustaining nature of most camping units lessens the need for commercial and service establishments in the vicinity to serve the seasonal patrons of the campground. Minor supply needs are expected to be provided through a camp store operated by the owner, as permitted by the zoning regulations for campgrounds.

Impacts on the lake and abutting property owners will be confined to the intensity of water use generated by the campers. It is assumed that waste water and sewage will be handled in strict compliance with health regulations and will result in no adverse impacts on lake water quality. Uncontrolled

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* "A Fishery Survey of the Lakes and Ponds of Connecticut," State Board of Fisheries and Game, 1959.

** "1979 Traffic Log," Connecticut Department of Transportation.

boating activities, on the other hand, could become a real nuisance. The campground operator could prohibit the launching of certain motor boats or boats larger than a certain size from the campground itself, but the nearby state boat launch site could be used for such purposes. If the campground is permitted, the Town should consider the regulation of motor sizes and boat speeds on the lake to avoid potential hazards to fishermen and swimmers.

The North Stonington Zoning Regulations allow campgrounds (called "travel parks") in Industrial Zones as Special Exceptions. The procedure for allowing this use requires both a zone change and a special exception. Care must be taken to assure that once the zoning is changed, an undesirable permitted use is not established in the new industrial zone. There are many uses listed in the zoning regulations as permitted in industrial zones that would be totally inappropriate in this area.

RECREATION POTENTIAL

Development of a 200 site campground has been proposed for a $50\pm$ acre tract located on the north shore of Blue Lake. Fifteen of the 50 acres are listed as having moderate restrictions for intensive development with the remaining acreage classified as having severe limitations. The tract is divided diagonally by a wetland which poses a difficulty to combined use of the two usable portions. One of these portions fronts on Blue Lake and the other fronts on Miller Road. In addition to the camping areas, a swimmer's beach, boat launch area (B.L.A.), fishing area(s), and play areas incorporating tennis courts and other outdoor activities are desired.

The shoreline slope is somewhat limiting to beach construction as may be the lake's shallow depth. The lake is 7' deep at its maximum and has an average depth of 4'. In its present state, the lake offers not much more than a wading area. There are good opportunities for installing fishing docks along the shore, but unless this type of facility is requested, it may be aesthetically more pleasing to not have structures jutting from the shoreline. Docks would involve an additional, though admittedly small, maintenance consideration. Shoreline or boat fishing would be the alternative.

The 200 campsite target number seems high and may be more appropriately set at 100-125 sites to provide a higher quality camping experience. The site density (distance between sites) and land limitations will help determine the exact number possible. The northwest section of the tract along Miller Road is the most suitable for campground development and lends itself to establishment of tennis courts and open play areas. There is a relatively open, grassy area located here which could be readily adapted to these play areas and also to establishment of a multi-purpose building combining the features of a concession, flush toilets, and indoor recreation facilities in the one structure. An access road into this portion of the property may best be located west of the culvert under Miller Road. This culvert drains water into the wetland on the property. The wetland would otherwise have to be crossed, at greater expense, to provide access from the shoreside tract to the northwest portion.

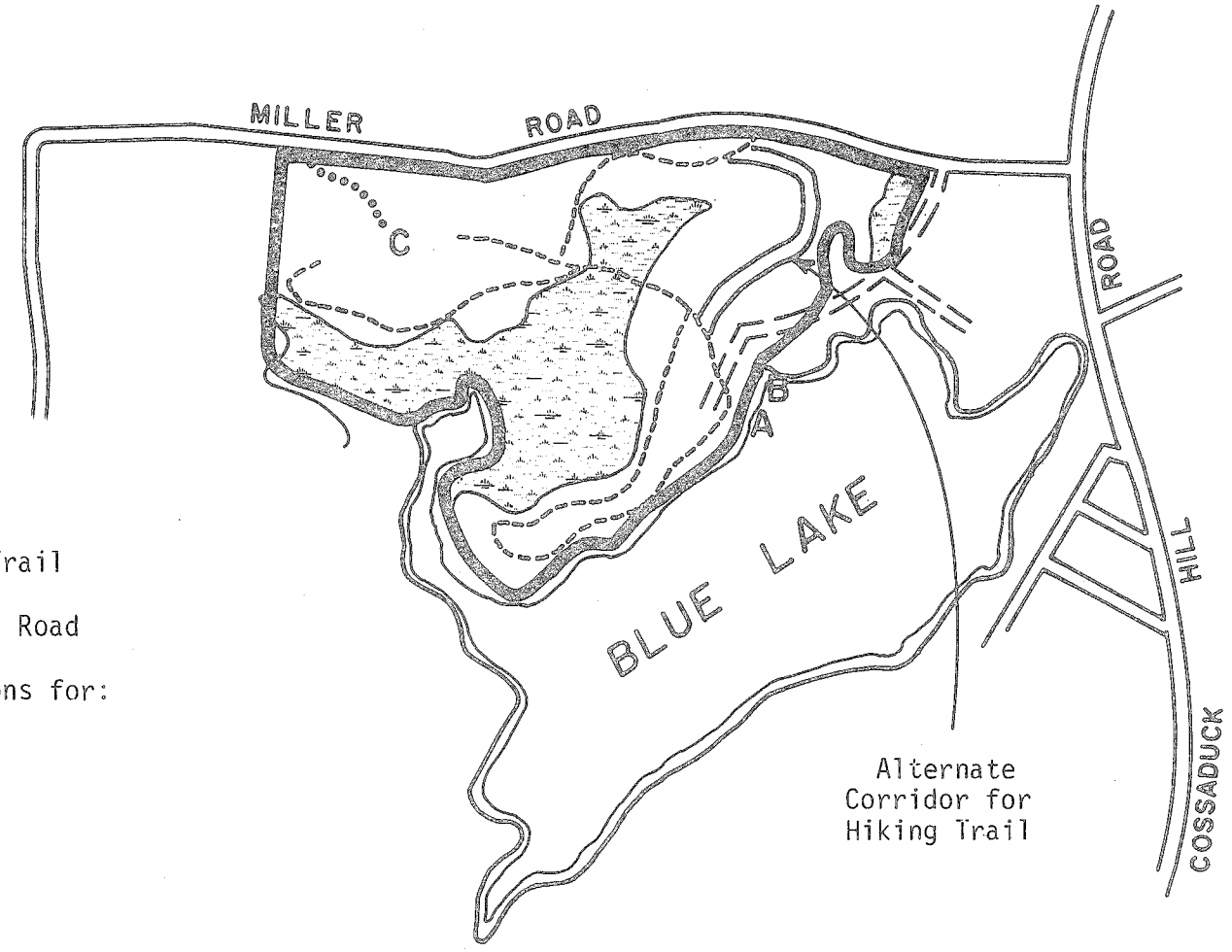
Some limited opportunity for establishing campsites exists on the shoreside portion of the tract. Possibly 15-25 tent or "primitive" type sites might be accommodated in this area. The occupants of these "primitive" sites (without

PROPOSED SITE DESIGN

Site Boundary

0 660' scale

N



Proposed Hiking Trail

Campground Access Road

Tentative Locations for:

A Bathing Area

B B.L.A.

C Camping

hook-ups or sanitary facilities provided) could share a toilet building, with showers and change rooms, with beach and B.L.A. users. The campsites would have to be near the toilet building for camper convenience, but should be away from the beach and shoreline so that an uncluttered appearance would be retained. Some separation of camping and day use areas is desirable and helps to minimize the potential for conflicting activities. Any campsites located here should therefore probably be to the north of the toilet building and on the marshland side of the peninsula proposed for water-related activities. A moderate sized parking area (say 20-30 cars) on a relatively level portion of the tract would provide parking for persons driving to the beach from the camping area along Miller Road and containing maybe 75-100 sites. Carpooling is advisable and should be encouraged when driving to the beach.

It should be recognized that the shoreside upland has more restrictive soils and topography for development than does the northwest portion of the tract. This necessitates trying to integrate a plan of development to accommodate all the facilities sought near the water. The most appropriate locations for specific features may not offer sufficient separation of these component facilities without extensive site modification and may necessitate rethinking the plan. If one feature must be dropped, elimination of waterfront camping would probably offer the greatest flexibility enhancement potential.

Regarding beach access, an alternative to driving might be the walking path proposal discussed during the field check of the property. By constructing an elevated walkway across the marsh, the Miller Road camping area (NW portion) could be thereby connected to the beach, reducing the need for parking area and offering jogging, bird watching, and nature study opportunities. Such a walkway could be rather expensive to install but would be an asset from the fuel saving standpoint and from that of the previously stated opportunities offered. An elevated walkway would be much less disruptive to the ecology of the marsh than would a landfill roadway forming a partial dam across the marsh. If affordable, it could be a desirable feature to incorporate. If the walkway (probably a luxury component) is incorporated, proper construction guidelines should be followed to reduce the possibility for ice damage.

Portions of the hiking/nature trail proposed would be ideally located as far from the more intensively developed portions of the property as practical while providing access to them. A central "wilderness belt" using the marshland as its core could fulfill that function by enabling the trail routing in a manner which takes it through a variety of landforms and capitalizes on the scenic and nature education potential of the property. The trail could pass by the rock outcrop on the west end of the property, then traverse the wetland perimeter and, if possible, cross the marsh (via the boardwalk) to link up with the peninsula and beach area. If maximum length is sought, side trails or loops might be possible, although the area to work with is quite small, so side trails may prove impractical. Steep, erodable slopes or otherwise sensitive areas should be avoided in trail layout.

It should be noted that the trail layout proposed along the peninsula is routed over the hill near the end of the peninsula and contradicts the suggestion to not use steep slopes. The high ground offers a good vantage point on the lake and marsh and would naturally attract people. Recognizing this, the trail has been so routed. Properly constructed with a suitable trail base and providing for the diversion of runoff water off the trail rather than down it, will minimize the erosion potential. Should erosion occur, the option exists to relocate the trail to more gradually follow the hillside contours instead of routing it straight over the top.

A rather small (100'-200' wide) section of shoreline may lend itself to the establishment of a beach. This part of the shore has the gentlest slope to the lake and would require less earthmoving and site disturbance to effect beach construction. The lake's shallowness does not, as previously stated, make it ideally suited to establishing a swimming facility. Depth checks near the shoreline at the proposed beach location would indicate whether there is adequate depth or whether lake bottom excavation is necessary to provide additional depth needed for swimming. Determination of the flow and dilution rates along with water quality sampling would help to determine the lake's ability to support swimming and to what degree. One advantageous feature is the shoreline's south facing aspect which is desirable for the beach.

In laying out a development plan for the tract and providing for access to the facilities, it appears that a single entry point, which is intended to service both of the upland areas adjacent to the marsh, might be more costly and potentially disruptive to the marsh because of the necessity to span that wetland with a connector road. If maximum preservation of wildlife habitat is a strong consideration, non-use of the entire wetland or minimal modification of it would help maintain that habitat and provide the "wilderness belt" through the center of the tract. It would be a relatively simple matter from a construction standpoint to install a road from Miller Road directly into the northwest portion of the property proposed for camping and associated activities. An existing cart path on the property intersects with Miller Road at the extreme northwest corner of the tract. It need not be the access point to the campground, but would probably minimize the tree cutting necessary if it were utilized for this or as a portion of the internal campground road with campsite "spurs" along it.

Since the primary camping area is proposed for the northwest section, it would appear logical that the camp manager's residence, camp office, camp store, and game room be located in this area. The logistics of winter table storage would be minimized by locating the game room in proximity to the bulk of the campsites. Sites designated for long term camping may also be more appropriately located here. The shoreside campsites (if installed) should probably not be designated for long term use because of the lack of hookups, their anticipated popularity (because of proximity to a beach area) which should result in maximal use, and the enhanced opportunity that rapid turnover would provide more people to use this area.

The boat launching area (B.L.A.) should be sited taking the following factors into consideration:

1. Where minimum site modification is necessary and where the maintenance factor should be low;
2. Where lake depth and underwater slope provides effective launch capability;
3. Away from potentially conflicting activities (such as a bathing area);
4. Where the distance to supportive parking is minimized.

In general, it is anticipated that facility development for intensive use would be less difficult and costly and with a reduced maintenance factor in the northwest portion of the tract than it would in the shoreside portion, due to the less restrictive soils.

AESTHETIC CONSIDERATIONS

Some of the trees present in vegetation Type B (Mixed Hardwoods) are suitable for retention as shade and specimen trees. If any of this area is proposed for development, these trees should be identified and utilized in the total design scheme.

A majority of the larger trees which would have been suitable for shade and specimen trees were removed from the property during the recent timber harvest. The aesthetic quality of the harvested area could be improved by removal of the damaged and extremely poor quality trees which were left after the harvest. Removal of these trees would also reduce the potential hazard which exists with their presence.

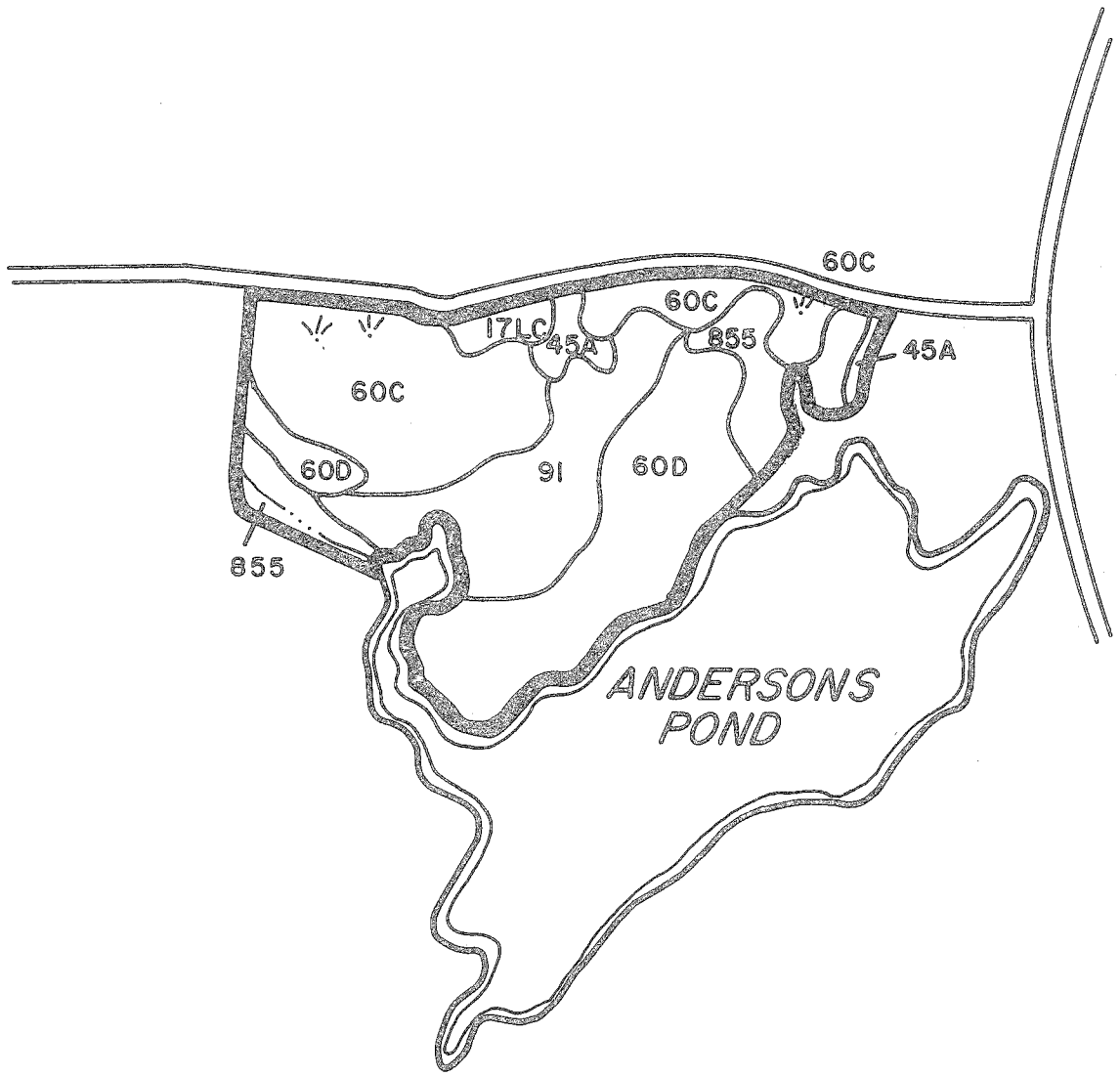
Any trees which are healthy and of high quality (large crowns, good form, no damage) throughout the property should be considered for retention. In terms of aesthetic quality and value, these trees have the highest potential.

The followering shrubs such as the flowering dogwood and high bush blueberry which are present in the mixed hardwood stands have high aesthetic value and could be favored. Increasing the direct sunlight which reaches these shrubs by removing some of the overstory trees which block sunlight will stimulate their production of flowers.

The additional planting of flowering shrubs including mountain laurel, crab apple and autumn olive would help provide a screen between campsites. These plantings could also be supplemented with evergreen species including eastern white pine and eastern hemlock. Any of these plantings will improve the habitat value for songbirds and small mammals.

Appendix

Soils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ANDERSONS
POND

PRESTONWOLD CAMPGROUND
NORTH STONINGTON, CONNECTICUT

PROPORTIONAL EXTENT OF SOILS AND THEIR LIMITATIONS FOR CERTAIN LAND USES

Soil Series	Soil Symbol	Approx. Acres	Percent of Acres	Principal Limiting Factor	Urban Use Limitations*			
					On-Site Sewage	Buildings with Basements	Streets & Parking	Land-Scaping
Adrian-Palms	91	9	18%	Wetness,flooding	3	3	3	3
Charlton-Hollis	17LC	1	2%	Slope,depth to bedrock,stoniness				
Charlton Part					2	2	2	2
Hollis Part					3	3	3	3
Hinckley	60C	14	29%	Slope,droughty	2	2	2	2
Hinckley	60D	16	33%	Slope,depth to bedrock	3	3	3	3
Rumney	855	7	14%	Wetness,floods	3	3	3	3
Tisbury	45A	2	4%	Wetness,frost action	3	3	3	1
		49	100					

* LIMITATIONS: 1 = slight, 2 = moderate, 3 = severe
** Regulated Wetland Soil Under Public Act 155.

SOIL INTERPRETATIONS FOR URBAN USES

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

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

Slight Limitations

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

Moderate Limitations

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

Severe Limitations

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

Appendix B

PRESTONWOLD, INC.
NORTH STONINGTON, CONNECTICUT
(203) 887-5084

LAKESIDE AVENUE
LBOROUGH, MASS. 01752
) 481-2922

63 WESTBRIDGE DRIVE
HOLBROOK, N.Y. 11741
(516) 589-4279

December 11, 1980

Planning and Zoning Commission

North Stonington, Connecticut

Gentlemen:

As requested by the Commission at the Planning and Zoning Commission Workshop on Thursday, December 4, 1980, I am submitting an outline of a proposed plan for the development of a seasonal Family Campground at Blue Lake under existing Town and State regulations.

"Family Campground" meaning a parcel of land used by the public for the establishment of overnight living quarters consisting of tents and camping vehicles occupied by persons engaged in travel, recreation, or vacation.

The area of development will be on an approximate fifty acre parcel of land between Blue Lake and Miller Road.

The development of the Campground will be a five year growth plan.

1. Seasonal Campground to be operating between May 15 to October 1st.
2. Occupancy on a campsite not longer than 30 days except for a few seasonal sites available from July 1 to Labor Day. I believe that it is essential in this plan to provide a percentage of the camp sites for seasonal occupancy because of the high price of fuel.
3. A gradual expansion to two hundred sites. A variety of sites all having tables and fireplaces.

4. Hook-ups for water or electric will meet all town and state codes.

5. All health facilities will conform to town and state codes.

6. Supporting facilities will include buildings with showers, wash basins, and toilets separated for men and women with coin-operated laundry facilities in between.

7. A building that will include an office, camp store, and residence for camp manager.

8. Game room for bad weather days which will be used for storage of boats, tables, etc. in the Closed period.

9. Recreational areas will be provided for swimming, boating, fishing and outdoor games.

10. Traffic flow one way or two way as determined by topography of land.

After the information is received from the Environmental Review Team, a site plan will be engineered and submitted to the Commission.

I look forward to developing a recreational area which I know will be an asset to North Stonington and its residents.

Sincerely,

Prestonwold, Incorporated

Madeline Morrow,

Secretary-Treasurer

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.