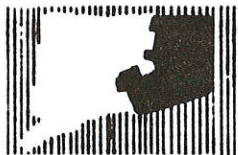
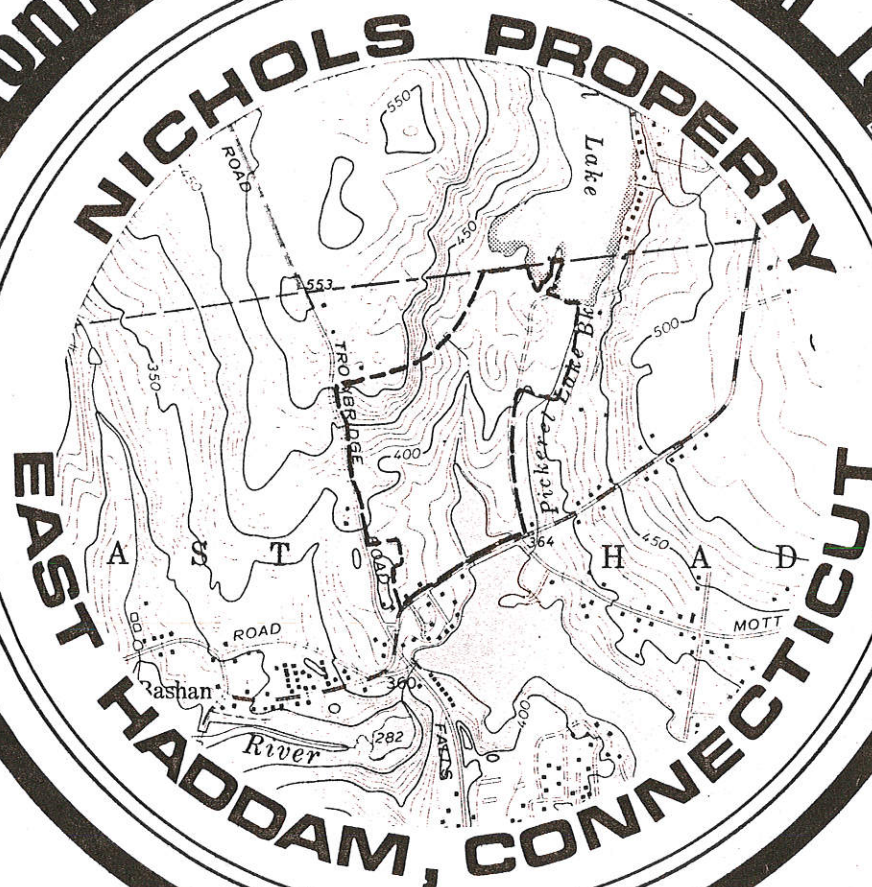


# environmental review team report



**RC & D**

EASTERN CONNECTICUT  
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ASSISTED BY: U.S. DEPARTMENT OF AGRICULTURE,  
SOIL CONSERVATION SERVICE AND COOPERATING AGENCIES

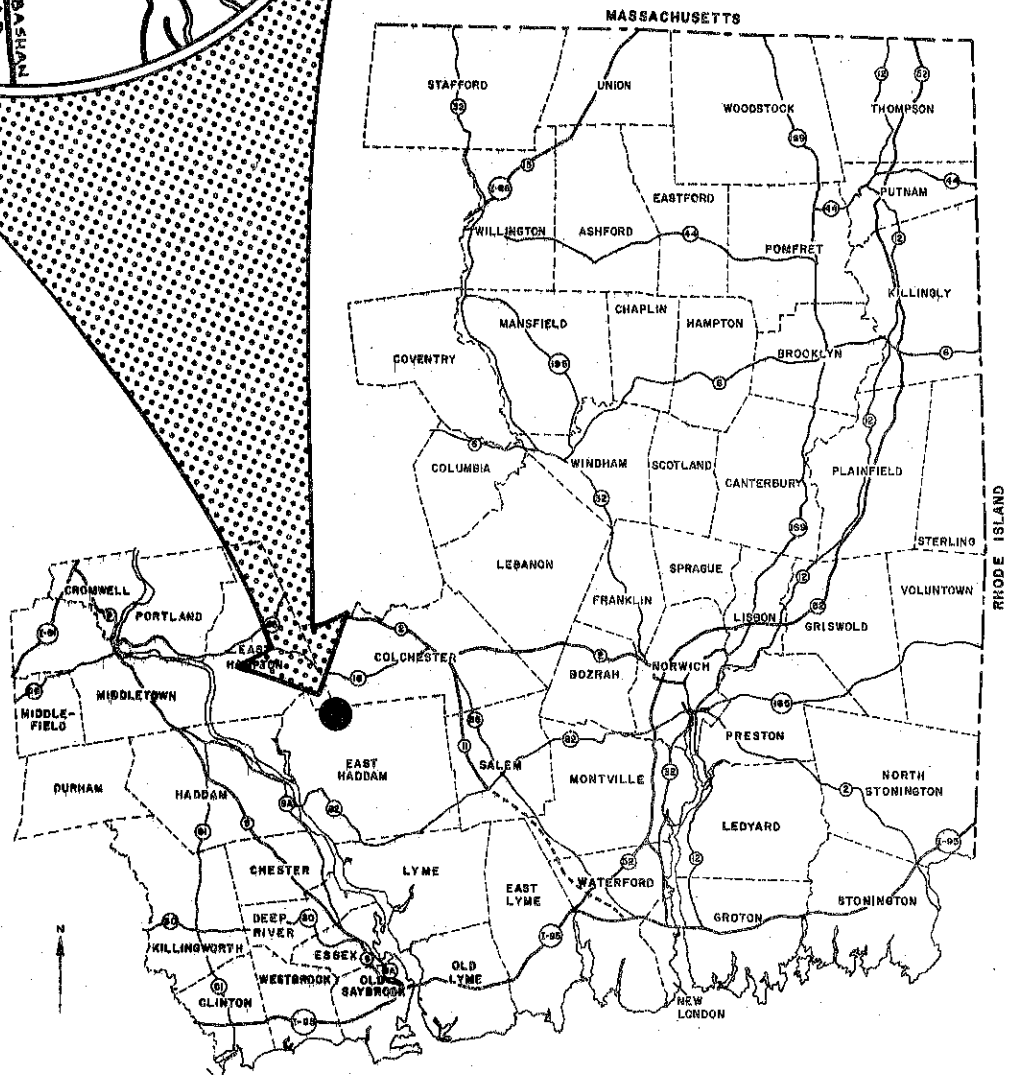
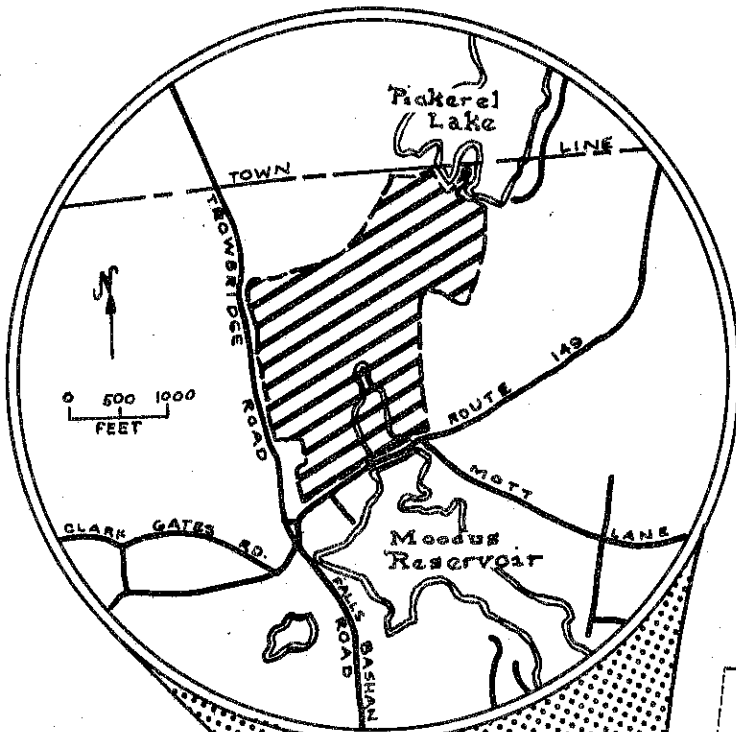
ENVIRONMENTAL REVIEW TEAM REPORT  
ON  
NICHOLS PROPERTY  
EAST HADDAM, CONNECTICUT  
AUGUST, 1976

*The preparation of this report was assisted  
by a grant under Title 1, Section 107(a)4 of  
the Housing and Community Development Act  
of 1974, 24 CFR, Part 570, Section 570.406.*

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT PROJECT  
Environmental Review Team  
139 Boswell Avenue  
Norwich, Connecticut 06360

# LOCATION OF STUDY SITE

**NICHOLS PROPERTY**  
EAST HADDAM, CONNECTICUT



**EASTERN CONNECTICUT**  
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT  
ON  
NICHOLS PROPERTY  
EAST HADDAM, CONNECTICUT

This report is an outgrowth of a request from the East Haddam First Selectman (the Town being the landowner in this instance), to the Middlesex County Soil and Water Conservation District (S&WCD). The S&WCD referred this request to the Eastern Connecticut Resource, Conservation and Development (RC&D) Area Executive Committee for their consideration and approval 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: Barry Cavanna, District Conservationist, SCS; Marc Crouch, Soil Scientist, SCS; Tim Dodge, Wildlife Biologist, SCS; Daniel Meade, Geologist, Connecticut Department of Environmental Protection (DEP); Charles Phillips, Fisheries Biologist, DEP; Stanley House, Forester, DEP; Donald Capellaro, Sanitarian, Connecticut Department of Health; David Miller, Climatologist, University of Connecticut Cooperative Extension Service; Steve Holmes, Regional Planner, Midstate Regional Planning Agency; and Linda Simkanin, ERT Coordinator, Eastern Connecticut RC&D Area.

The Team met and field-checked the site on Thursday, June 3, 1976. 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 East Haddam. The results of this Team action are oriented toward the development of a better environmental quality and the long-term economics of the land use.

The Eastern Connecticut RC&D Area Committee hopes 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: Miss Linda M. Simkanin, Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, 139 Boswell Avenue, Norwich, Connecticut 06360, 889-2324.

## INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to review approximately 126 acres of Town-owned land known as the Nichols Property. The Nichols site was purchased by the Town of East Haddam in June, 1968, with two alternative uses in mind: (1) recreation, and (2) solid waste landfill. In October of 1969, the town received an engineering study and report from the firm, W.G. Weaver and Associates, Inc. The report indicated the feasibility of using several locations at the site as possible landfill areas, all of which would have met Connecticut State Department of Health regulations. However, for various reasons, the town did not act on this plan and continued to use the dump on Route 149 along the Salmon River. The town has received several orders, from the DEP over the past few years, to close this site. The most recent order gave the town until May 1, 1976, to close the present dump.

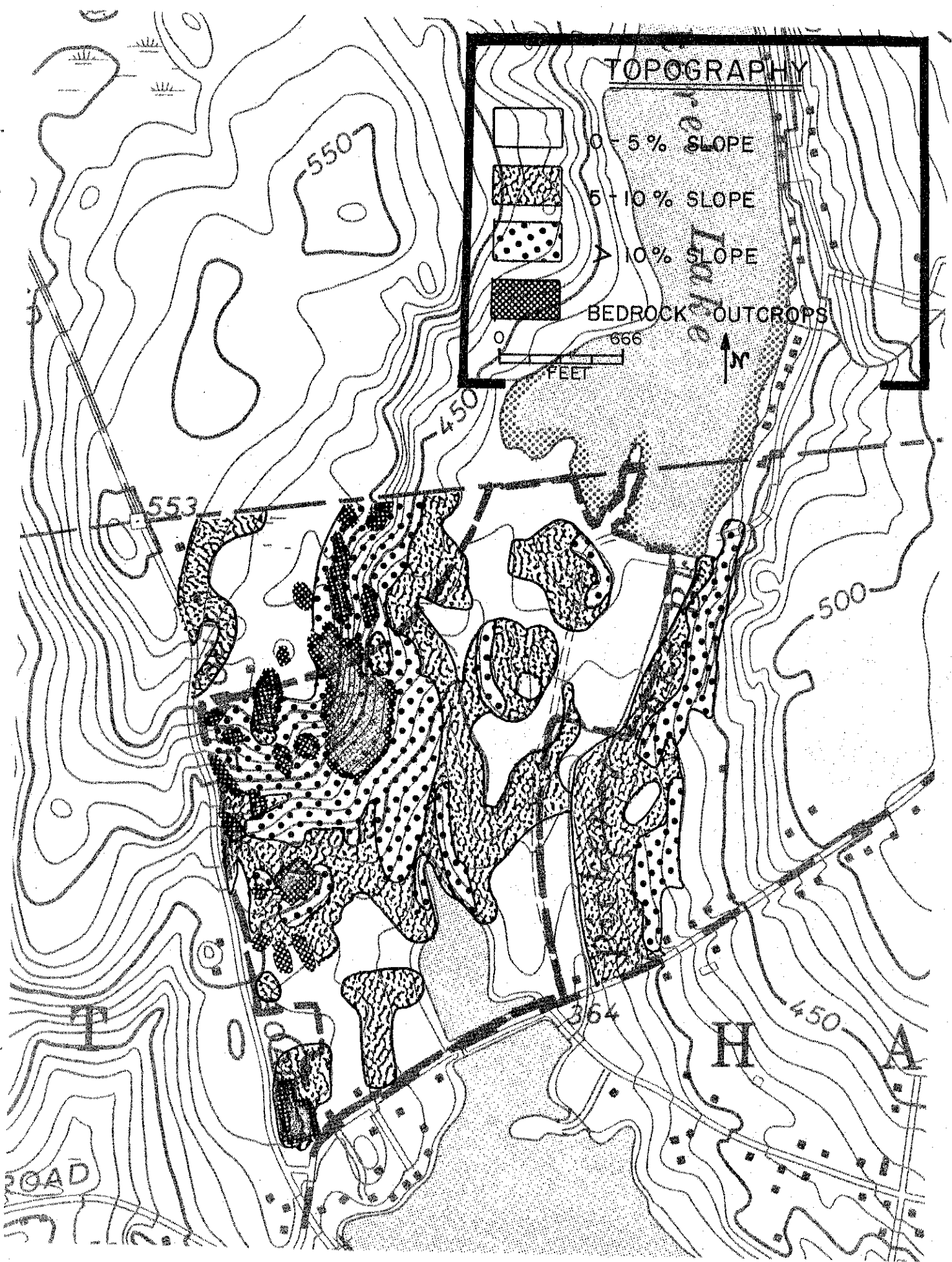
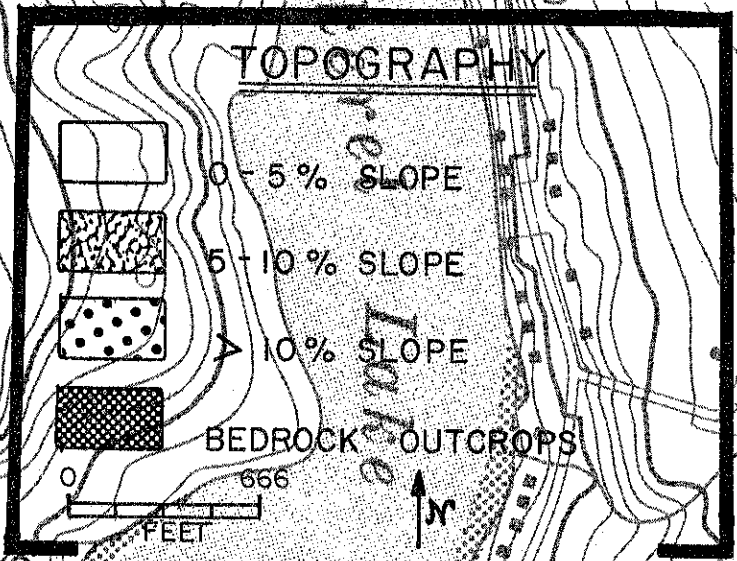
Recognizing the difficulty in finding a landfill site that would be environmentally, politically and socially acceptable, the First Selectman's office, with the assistance of Midstate Regional Planning Agency, began assembling preliminary planning data on the concept of a solid waste transfer station. In July, 1975, the concept of a transfer station for the town, with the possibility of expansion to include the neighboring towns of East Hampton and Haddam, was presented to the residents of East Haddam as well as officials from the two other towns. The concept was well received by those present, and it was decided by the Board of Selectmen to proceed further with this alternative.

At the same time, Resource Planning Associates, Inc. (RPA) was in the process of preparing the Twenty-year Solid Waste Management Plan for Southeastern Connecticut. The towns of East Haddam, Haddam and East Hampton were included in this study. The RPA consultants also recognized the need for a transfer station, and recommended that Haddam and East Hampton be invited into East Haddam's system at some point.

In April, 1976, the Board of Selectmen appointed a Solid Waste Advisory Committee, who on June 10, 1976, recommended that the town proceed with a transfer station at the Nichols site with disposal in Bozrah, at a regional landfill site. The town meeting approved the plan, and thus paved the way for the ultimate solution of East Haddam's long-standing solid waste problem.

The Team reviewed the Nichols Property relative to the ideas of establishing a solid waste transfer station on the property, and to developing various recreational uses. The tract is presently undeveloped, although a small area is presently in use as a brush and stump landfill which is scheduled to be discontinued shortly.

The report will also describe the natural characteristics of the site including topography, geology, soils, forest cover, and wildlife habitat. Consideration will be given to the compatibility and suitability of the proposals relative to the natural resource base. Comments or recommendations made within the report are presented for consideration by the town in the preparation and review of the development plans, and should not be construed as mandatory or regulatory in nature.



## TOPOGRAPHY AND GEOLOGY

The site under review in East Haddam is located, physiographically, in the eastern uplands section of Connecticut. It is underlain by crystalline bedrock of Paleozoic Age which is discontinuously covered by Pleistocene sediments. Topography of the area is typical of the uplands in that it reflects the glacial processes acting on bedrock which weathers differentially as a function of lithology. Hydrology is controlled dominantly by the nature of the overburden and the type and structure of the bedrock.

The western portion of the site is characterized by rugged terrain with slopes exceeding 10% in many areas. (See Topography Map). Many outcrops are visible and the unconsolidated materials are generally less than 10 feet in thickness. This part of the site is relatively dry probably reflecting the shallowness of the highly fractured gneisses and schists. Land use here is probably limited to open space and passive recreation. The southern end of this strip has much less topography and with some minor grading may permit more active forms of recreation as proposed.

The central and eastern parts of the site are lower in elevation, flatter and much wetter. Slopes are generally less than 10% with significant areas less than 5%. Much of the area is wet as a high water table is supported in the thicker, low permeability tills. Flooding is a definite potential, although the stages will be low because of the breadth of the valley and small drainage area involved. Again open space and passive recreation are the most favorable land uses. Higher elevation areas in the central and eastern sections may be used for small scale activities such as picnicking, camping, etc., with no geologic or hydrologic hazards apparent.

The nature of the proposed usage of this parcel of land, mainly recreation and open space, with a solid waste transfer station occupying but a small area should be most influenced by slope and drainage. The compaction-transfer station proposed for the eastern segment should present no geologic or hydrologic problems as long as both solid, and especially liquid materials are contained.

## SOILS

A detailed soil map of the site is given in the Appendix of this report. As the soil map is an enlargement from the original 1,320'/inch to 660'/inch scale, the soil boundary lines shown should not be viewed as absolute boundaries but rather as guidelines to the distribution of soil types of the property. The soils map, along with the SPECIAL SOILS REPORT, Middlesex County (USDA, SCS, 1975) can serve as an educational tool regarding the identification and interpretation of soils.

The soils limitations chart for certain land uses which is found in the Appendix of this report, provides useful information concerning each soil type found on the Nichols site. An explanation of the numbered ratings for particular land uses is provided on the last page of the Appendix.

Approximately 57 acres of the Nichols property is composed of soils which are stony, feature a shallow depth to bedrock, outcrops, or are located on steep slopes. These are Rock Outcrop/Hollis complex (08R), Canton and Charlton (6MD),

Charlton (6XB) and (6XC), and the Hollis/Charlton complexes (17LC) and (17LD). As indicated in the soil chart, these soils (with the exception of the Charlton (6XB) and (6XC), all impose severe limitations for the urban uses listed in the chart. The bedrock is typically less than two feet below the surface, with numerous bedrock outcrops (exposed rock surfaces) as were observed during the field inspection.

Woodbridge soils (31XA) and (31XB) account for approximately 37 acres. These are moderately well drained upland soils with a slowly permeable fragipan at about 2 feet in depth. Above the pan the soil is very stony fine sandy loam. Below the pan the lower subsoil is mottled, indicating a waterlogged condition from late fall until spring, and after periods of heavy rain in summer. The 31XA soil exhibits a 0-3% slope, while 31XB exhibits a 3-8% slope.

Roughly 18 acres are Paxton soils 35XB (3-8% slopes) and 35XC (8-15% slopes). Both soil types are well drained very stony fine sandy loams with a slowly to very slowly permeable fragipan at about two feet in depth. A temporary perched water table may form above the fragipan in wet seasons and after heavy rains.

The site has excellent potential for a wide variety of uses. The town has proposed a transfer station, and plans for recreational development along Route 149 were reviewed. Regarding the proposed recreational development along Route 149, it is essential that a sediment and erosion control plan be developed. Provisions should also be made to prevent sand, oil, etc., from entering the upper part of the reservoir, and implement a mosquito control program for the upper part of the reservoir.

The remainder of the area's best potential would be for wildlife, recreation, and forestry. A comprehensive plan should be developed to merge all three uses in such manner that the three uses will complement each other. Nature trails, wildlife food plots and cutback borders, as well as tree planting and timber stand improvement could be integrated and accomplish these purposes. The local Soil and Water Conservation District can provide assistance in developing the sediment and erosion control plan.

## FOREST COVER

The 126 acre site is primarily wooded with mixed deciduous hardwoods providing woodland and habitat for wildlife. In the southwest portion there is a 3-4 acre old field area which compliments the woodland habitat. There is a narrow band of wooded wetland adjacent to the stream which extends from the northern site boundary south to Moodus Reservoir. In addition, Pickerel Lake brook forms the approximate eastern boundary of the property. The site presently is not managed for wildlife, but provides good quality habitat.

In addition to the planned uses for the property, the bulk of the land also constitutes excellent town forest. It is presently an area of mixed hardwood, with some white pine reproduction occurring in some areas where sunlight is not heavily blocked by the existing hardwoods tree canopy.

The majority of the land appears to be a medium to good tree growing site, with the exception being the high ground in the northwest corner on Trowbridge Road. If the land were to be managed as forestland, the following should be con-

sidered: an inventory should be made to determine the variety and quantity of forest products that might be of value to the town at present or in the future; a cutting plan should be prepared; a planting plan should be prepared; a decision should be made as to public access for the cutting of firewood and where to cut. These land-clearing techniques can serve to aid in the preparation of land for the recreational uses planned, while managing forest growth too. The town work crews, Boy Scouts, firemen, etc., should not be overlooked when undertaking any of the above.

## WILDLIFE HABITAT

The area provides habitat to woodland wildlife species such as the ruffed grouse, songbirds, whitetailed deer, gray squirrel, and raccoon. Woodland vegetation includes trees, shrubs, and vines such as shagbark hickory, red oak, red maple, American beech, red cedar, white pine, birches, white ash, and blueberry. Woodland edges include grapevine, multiflora rose, and mapleleaf viburnum. Vegetation on the wetter areas includes witch hazel, alder, sweet pepperbush, spicebush, swamp azalia, fern, and other lowland plants. Much of the understory plants are composed of young hardwood sprouts. Scattered conifers provide additional cover to wildlife.

### Management Suggestions

If management for wildlife is to be a major consideration, maintaining all areas that are presently open in openland is important. Invasion by woody plants will occur if the area is not managed. Maintaining brushy vegetation along the edges of the access roads, field borders, and small clearings (the one used by the scouts) is important.

The area set aside for nature study and outdoor activities could be expanded to include the wetland areas on both sides of the intermittent stream. This would maintain a linear corridor for wildlife, nature study, and water quality protection. The northwest portion of the site contains fairly steep areas with exposed bedrock outcroppings and shallow soils. If this area were set aside from development and linked to the natural area, wildlife habitat values would benefit and the nature area would contain greater diversity of vegetation and topography.

## FISH HABITAT

The Nichols Property is well suited for forest and wildlife management. The proposed recreation and transfer station uses have few inherent hazards to fishery resources in the area. The prime concern is to prevent an even greater acceleration in the rate of eutrophication in the Moodus Reservoir. Increased runoff carrying lime and fertilizer into the Reservoir from the Little League fields is a potential hazard.

Leakage of liquid wastes from the proposed transfer station constitutes another potential hazard. Improperly contained liquid waste storage containers would allow leaching of contaminants into the soils and the intermittent stream feeding the northern cove of the Reservoir. On the day of the field review, the Team was informed that all liquid wastes would be contained in a storage tank at the transfer station. This facility should be regularly checked to guard against leakage.

## CLIMATOLOGY

The area is on the edge of the Connecticut coastal region therefore, the climate is basically mild and humid in all seasons. When low pressure weather systems bring southerly air flow from the south the area experiences humid maritime conditions especially in the winter and spring seasons. When high pressure systems prevail the area experiences relatively cool dry weather which are the prevailing summer and fall season conditions.

The following data was taken from the CLIMATE OF CONNECTICUT, Bulletin of the Connecticut Geological and Natural History Survey.

Annual Mean Temperatures	50°F
Probability of Winter Temperatures getting below 0°F	2 in 5
Probability of Summer Temperatures getting above 90°F	2 in 5
Annual Heating Degree Days	5800
Precipitation (mean annual)(relatively evenly distributed by month)	50 inches
Snow Depth (mean annual)	35 inches

The surrounding topography is gentle and therefore does not influence the local climate in any limiting manner. Since East Haddam is currently below the state limits for various air pollutants, the ambient air quality should not change with regard for the uses planned for this site.

### Air Quality and Ambient Noise Level

Use of the property as an intensive or extensive recreation area should not have a significant effect on air quality levels in the area. Intensive recreation is sure to increase the ambient noise levels significantly with resulting effects on nearby residences. This effect will be most severe in the 6 warm months. Extensive recreation activities such as nature trails, hiking, picnicking etc. will not have a major noise impact except in the case of off road vehicles. The area may not be suitable to snowmobile usage because the area only averages 30-60 days of snow cover a year and then the snow is shallow. Snowmobiles operating without adequate snow cover cause considerable erosion and vegetation destruction. The excess of rain fall will require good drainage designs on playing field and careful designs of parking and paved area to control storm runoff. This can be addressed in the Sediment and Erosion Control Plan prepared for the property.

## HAZARDS

The upper section of Moodus Reservoir, north of Route 149, appears to be an ideal mosquito breeding area. Consequently activities should not be planned near it that would be bothered by insects. For example, nature study activities would probably be compatible, but organized sports such as softball might be severely hampered by mosquitoes.

## WASTE DISPOSAL

The intended uses of the property are recreational purposes and open space with a limited area of about five acres utilized for a solid waste transfer and recovery station. Of the approximate 126 acres on the north side of Route 149

from Moodus Reservoir to the dam end of Pickerel Lake and extending westerly to Trowbridge Road, the land was found to be mostly wooded and has several water-courses which flow into Moodus Reservoir, the main one being the stream emitting from Pickerel Lake. The area along Trowbridge Road, which rises in elevation towards the northern end, is underlain with shallow ledge rock. The center portion (N to S) is bisected by wetlands and a defined stream which flow into the tip of Moodus Reservoir. There is a dirt roadway which runs through the property from Route 149 to the dam at the lake.

At the present time a limited amount of acreage around the dam end of the lake is used for recreation. A nature trail is being developed around the Moodus Reservoir projection.

With the possible development of a formal recreational complex having ball fields, tennis courts, picnic-camping areas, and a beach for swimming purposes, there will be a definite need to include adequate provisions for restroom facilities. Such facilities should have water flush toilets and sinks for hand-washing. At the bathing area, bathhouses also having shower rooms would be desirable. The disposal of sanitary wastes will require the installation of on-site subsurface sewage disposal systems. There appears to be sufficient suitable ground east of the dirt roadway, which is relatively close to Pickerel Lake, that could be utilized. At the other end of the property (corner of Trowbridge Road and Route 149) where the town is tentatively thinking of locating ball fields, tennis courts, etc., the general topography and the area available for sewage disposal also appears to be adequate. However, soil mapping data indicates soil conditions to be more restrictive with a seasonal high ground water table and hardpan (slow seepage) to contend with. Detailed on-site testing in the area that might be used would be needed in order to design and/or evaluate properly this area for the installation on sewage disposal systems.

#### GARBAGE AND REFUSE

In a recreational complex, there will be a need to provide sufficient means for the fly-tight storage of garbage, rubbish and other material that may be generated. Containers should be conveniently located and be of durable construction. Such facilities are to be maintained in a sanitary condition. Final disposal is to be in a satisfactory method at a suitable location.

#### Solid Waste Transfer Station

It would seem that the utilization of some five acres of the site for a transfer station would generally be compatible with recreational uses as the town originally purchased the site with the intent of using a limited portion for a refuse disposal site. A transfer station should present less of an environmental impact on the terrain than an actual final disposal site. It is understood that leachate from the compacting operation would be handled by storing in a holding tank for disposal at a different location or possibly by a system installed at the site. This aspect would be carefully evaluated by the Department of Environmental Protection. The area where the station would be placed (about 700' in from Route 149) seems to be remote from any neighboring properties so as not to be offensive or a nuisance. A primary concern or need would be for having a proper access road, not only to get to this facility but to reach the upper recreational area at Pickerel Lake.

## WATER SUPPLY

In conjunction with the installation of water flush fixtures and the need for having water available for drinking purposes, a potable water supply would have to be developed. An adequate, as well as a safe supply, would be necessary to meet the various intended needs of the project. With the total amount of land area available, there should be no particular problem in locating a well site(s) properly, as provided for in the Public Health Code, from potential sources of pollution. In general, particularly for a public facility, a drilled well is preferred and is the type that should be considered.

## ROADS AND UTILITIES

The access road to the site empties directly onto State Route 149, a two-lane highway with an average daily traffic count of 2,000. The posted speed limits in the area are 35 miles per hour when traveling in an easterly direction and 30 miles per hour when traveling in a westerly direction. Many vehicles exceed the posted speed limits especially when descending the 3/4 mile long grade which levels off just east of the access road. However, even considering these adverse factors, the sight distances of 475 feet from the east and 750 feet from the west both exceed the desirable minimum design stopping sight distance at 50 miles per hour.

In August of 1975 the town conducted a weighing program at the landfill to determine solid waste tonnages. As part of this program a count of vehicular traffic was taken. Because it was taken during the time of year when East Haddam's population is highest, the vehicle count gives the peak or worst possible traffic situation.

The tabulated data shows the average hourly traffic entering the site on weekends to be 24 vehicles and on weekdays only 10 per hour. This relatively small traffic volume will not significantly impact either the capacity of Route 149 or the road networks in the surrounding residential areas.

Truck traffic entering and leaving the site will be minimal. It is anticipated that packer truck trips and transfer trailer truck trips combined will not exceed 15 per week.

## COMPATIBILITY OF SURROUNDING LAND USES

The Nichols property is located in an R-1 District (residential-one acre minimum lot area). Included among the uses permitted in the R-1 zone are public facilities and services (Section 9.2.13). However, these types of uses are subject to the approval of the Planning and Zoning Commission as special exceptions. The southern boundary of the property, Route 149, abuts the LR District (Lake and Riverfront) in which any uses permitted in residential districts are allowed. The northern edge of the property partially borders on the RA zone (residence-agriculture-one acre minimum lot area) of the Town of Colchester.

Existing land use in the immediate area of the site is predominantly low-density residential. Slightly higher density clusters of cottages and lakefront homes are located approximately a quarter of a mile to the west and half a mile to the south.

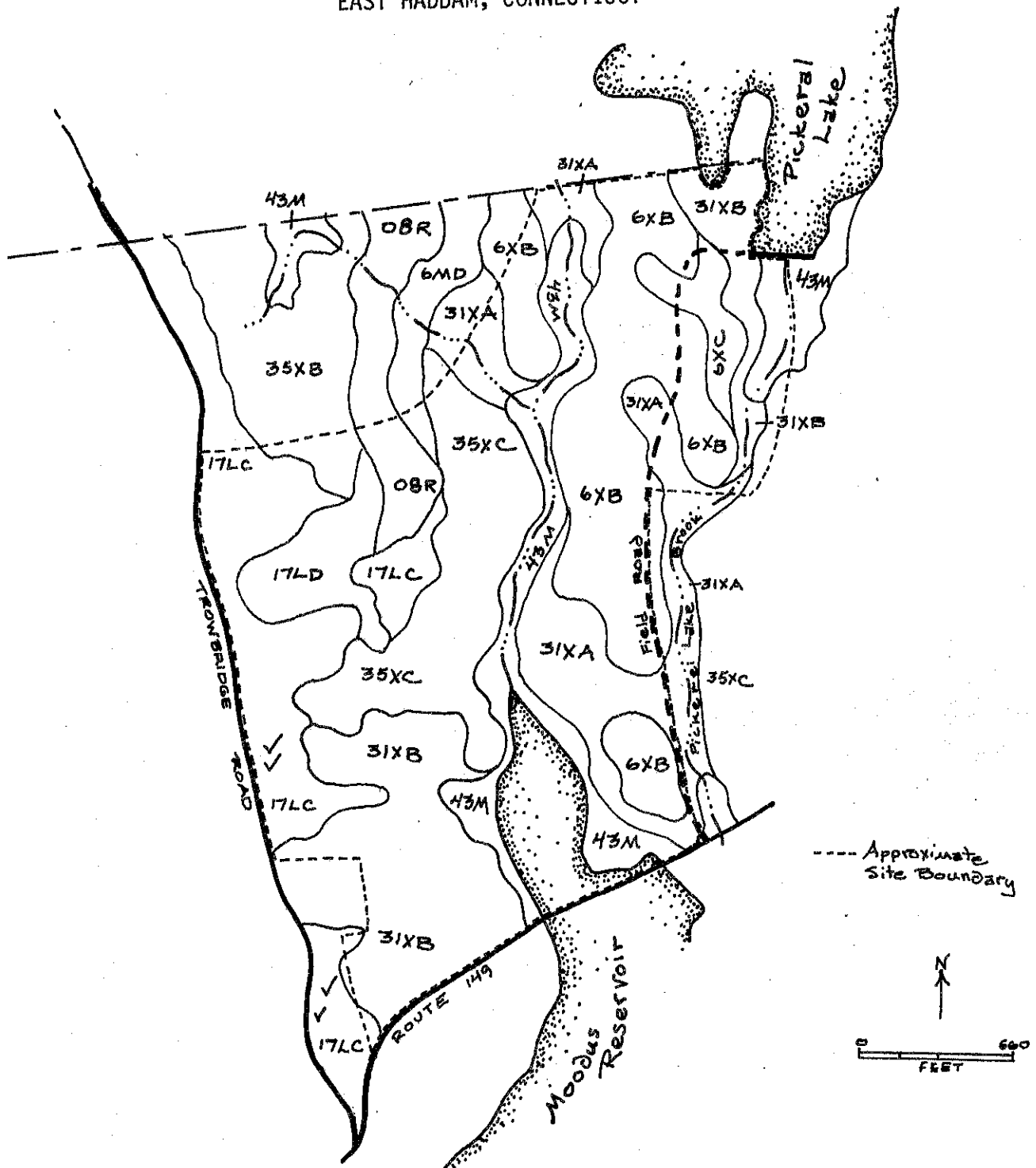
Little or no adverse impact on surrounding areas can be foreseen. The transfer station itself will be located several hundred yards from Route 149 and will be screened from the road by trees. Furthermore, the visual impact of a small (50 ton per day) transfer station is minimal. A good example is the Killingworth transfer station which is located right in the middle of the town, near the Town Hall and Little League field.

#### ALTERNATIVE LAND USES

Other than leaving the land in its natural forested state, the site appears best suited for the recreation and open space uses anticipated. As mentioned above, it is felt by the Team that the location of the solid waste transfer station on the site will not have an adverse impact on the environment as long as the facility is regularly inspected and the wastes, both solid and liquid, are properly contained.

## APPENDIX

SOIL MAP  
NICHOLS PROPERTY  
EAST HADDAM, CONNECTICUT



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

Prepared by: UNITED STATES DEPARTMENT OF AGRICULTURE, Soil Conservation Service.

Advance Copy, Subject To Change.

August, 1976

EAST HADDAM NICHOLS PROPERTY

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 Athletic Fields
Rock outcrop/Hollis Complex	08R	3.0	2.4	Slope, outcrops	3	3	3	3
Canton & Charlton	6MD	0.5	.4	Slope, stony	3	3	3	3
Charlton	6XB	25.8	20.5	Stony	2	2	1	2
Charlton	6XC	3.7	2.9	Stony	2	2	2	3
Hollis/Charlton	17LC	17.3	13.7	Slope, stony	3	3	3	3
Hollis/Charlton	17LD	7.0	5.6	Slope, shallow	3	3	3	3
Woodbridge	31XA	13.2	10.5	Wet	3	3	3	2
Woodbridge	31XB	24.3	19.3	Wet	3	3	3	2
Paxton	35XB	1.9	1.5	Stony	3	2	2	2
Paxton	35XC	15.8	12.5	Slope, stony	3	2	2	3
Ridgebury & Whitman	43M	13.5	10.7	Wet, stony	3	3	3	3
TOTAL		126	100%					

\* Urban Use Limitations: 1 = slight; 2 = moderate; 3 = severe (see back of this page for a further explanation of limitation classifications).

## 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.