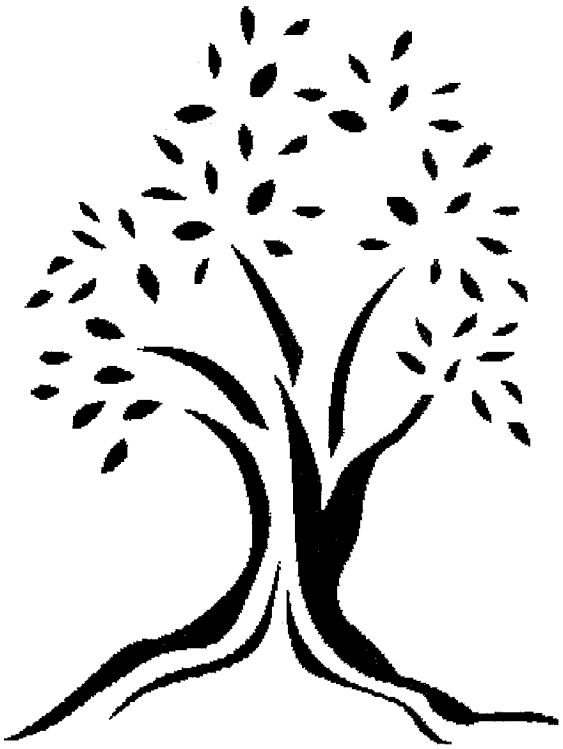
Howard Brigham Field, Jr. Woodland



Durham, Connecticut

Eastern Connecticut Environmental Review Team Report

Eastern Connecticut
Resource Conservation and Development Area, Inc.

Howard Brigham Field, Jr. Woodland

Durham, Connecticut

Environmental Review Team Report

Prepared by the
Eastern Connecticut Environmental Review Team
of the Eastern Connecticut
Resource Conservation and Development Area, Inc.

for the
Connecticut Forest and Park Association
Rockfall, Connecticut
with the support of the
Town of Durham Conservation Commission

February 2003

CT Environmental Review Teams
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Acknowledgments

This report is an outgrowth of a request from the Connecticut Forest and Park Association with the support of the Durham Conservation Commission to the Middlesex County Soil and Water Conservation District (SWCD). The SWCD referred this request to the Eastern Connecticut Resource Conservation and Development Area (RC&D) Executive Council for their consideration and approval. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The Eastern Connecticut Environmental Review Team Coordinator, Elaine Sych, would like to thank and gratefully acknowledge the following Team members whose professionalism and expertise were invaluable to the completion of this report.

The field review took place on Tuesday, October 22, 2002.

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I would also like to thank Adam Moore, executive director, Connecticut Forest and Park Association, Maryann Boord, first selectwoman, Town of Durham, and Laurie Martin, Durham Conservation Commission, for their cooperation and assistance during this environmental review.

Prior to the review day, each Team member received a summary of the proposed project with location and soils maps. During the field review Team members were given additional maps and information. Some Team members made individual or additional visits to the project site. Following the review, reports from each Team member were submitted to the ERT coordinator for compilation and editing into this final report.

This report represents the Team's findings. It is not meant to compete with private consultants by providing site plans or detailed solutions to development problems. The Team does not recommend what final action should be taken on a proposed project - all final decisions rest with the landowners and the town. This report identifies the existing resource base and evaluates its significance to potential and existing development, and also suggests considerations that should be of concern to the landowners. The results of this Team action are oriented toward the development of better environmental quality and the long term economics of land use.

The Eastern Connecticut RC&D Executive Council hopes you will find this report of value and assistance in developing a stewardship plan for the woodland.

If you require additional information please contact:

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Introduction

Introduction

The Connecticut Forest and Park Association with the support of the Durham Conservation Commission has requested assistance from the Eastern Connecticut Environmental Review Team in conducting a natural resource inventory review for the Field Woodland.

The 108 acre property is owned by the Connecticut Forest and Park Association. It was recently left to them by the late Howard Brigham Field, Jr. The parcel is located on Bear Rock and Higganum Roads to the east of Durham Center. It is currently forested, but has a past history of agricultural use. It contains trails, a right-of-way to the town green and hunting is allowed by the heirs of Mr. Field.

The uses of the woodland are to include: hiking, and possibly non-motorized bicycling, horseback riding and cross-country skiing, managing the forest for the production of sawtimber, firewood and non-timber forest products, working with abutting property owners to create a through trail that links to the Mattabesett Trail, and to allow hunting by the heirs of Mr. Field as per the property deed.

Objectives of the ERT Study

The CFPA has requested this natural resource inventory review to incorporate information and recommendations into their stewardship plan for the property. Some goals and information requested include:

- assessment of the existing trails and trail network for hiking with other possible uses;
- information on the soils, hydrology, wetlands and fisheries; and

- information on the archaeological and historical significance of the property;

The ERT Process

Through the efforts of the CFPA this environmental review and report was prepared for the CFPA and the Town of Durham.

This report provides an information base and a series of recommendations and guidelines which cover the topics requested by the CFPA. Team members were able to review maps, plans and supporting documentation provided by the applicant.

The review process consisted of four phases:

1. Inventory of the site's natural resources;
2. Assessment of these resources;
3. Identification of resource areas and review of plans; and
4. Presentation of education, management and land use guidelines.

The data collection phase involved both literature and field research. The field review was conducted on Tuesday, October 22, 2002. Some Team members made individual and/or additional site visits. The emphasis of the field review was on the exchange of ideas, concerns and recommendations. Being on site allowed Team members to verify information and to identify other resources.

Once Team members had assimilated an adequate data base, they were able to analyze and interpret their findings. Individual Team members then prepared and submitted their reports to the ERT coordinator for compilation into this final ERT report.

Figure 1

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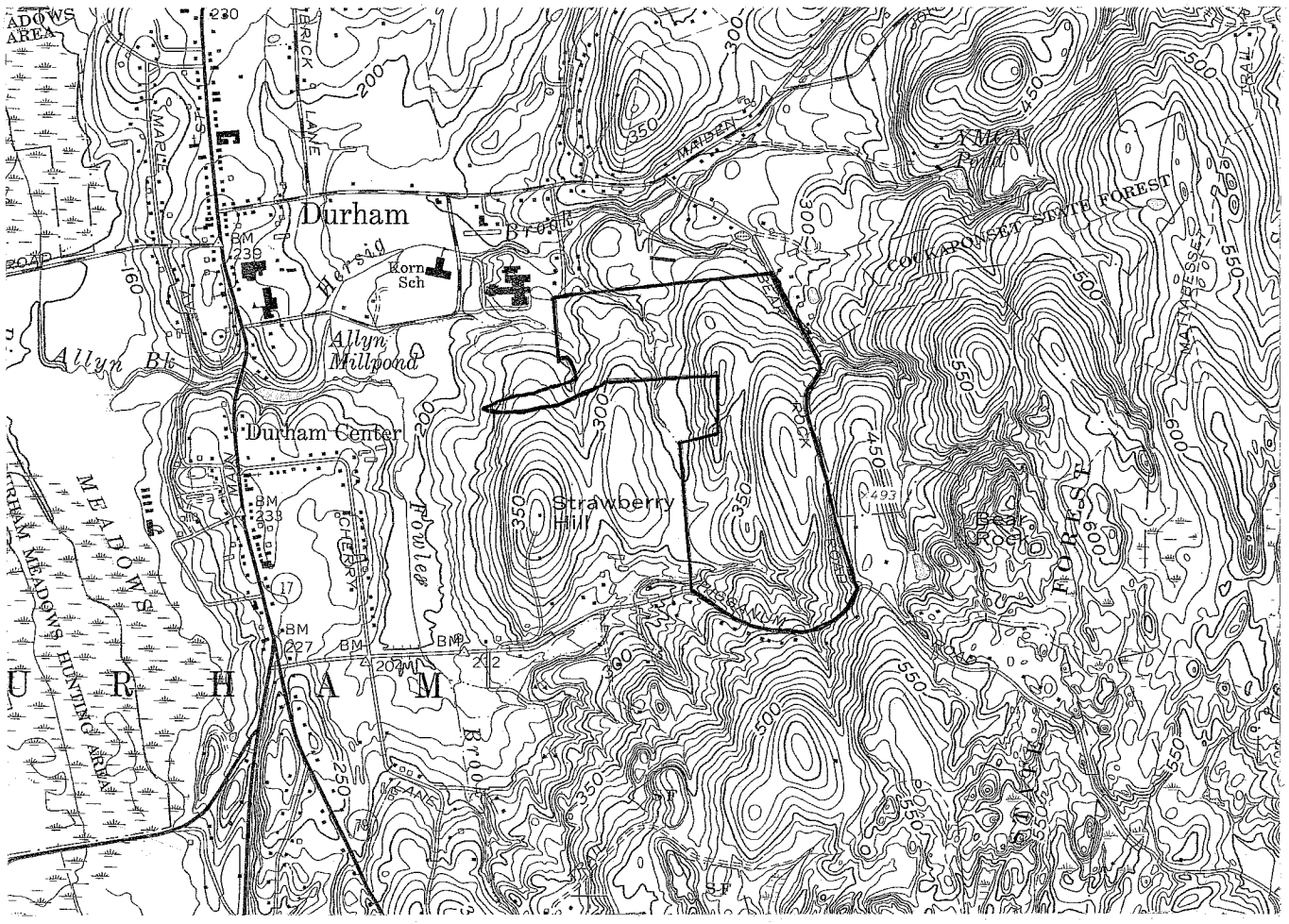
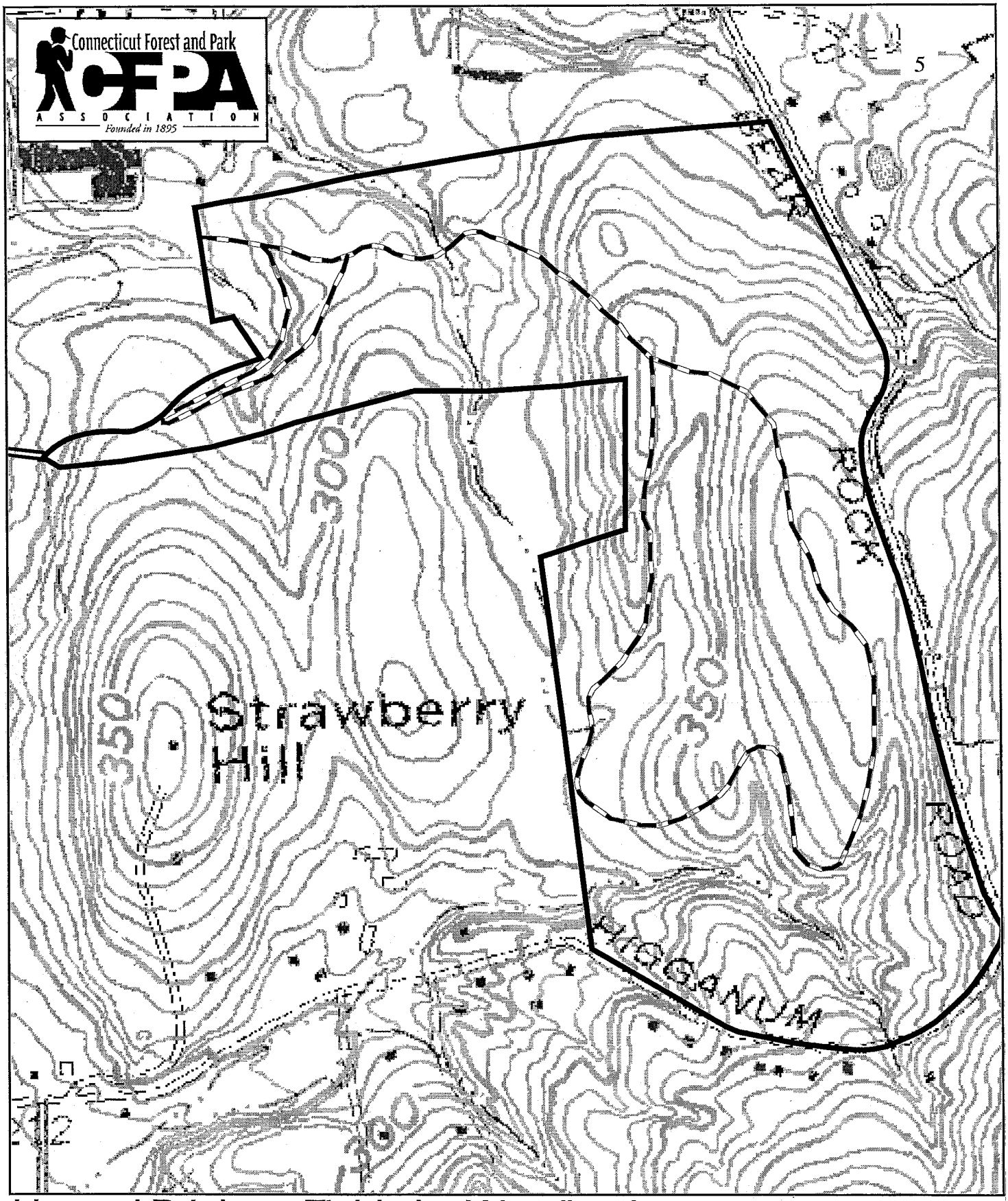
Location Map and Topographic Map

Scale 1" = 2000'



FIELD WOODS
Durham, Connecticut

Figure 2



Howard Brigham Field, Jr., Woodland
Durham, Connecticut

GIS Map prepared by Ann Colson, CFPA. June 2002. Not a survey product.

Figure 3

Woodland Walk Route

Field Estate.

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300 0 300 600 Feet

Figure 4

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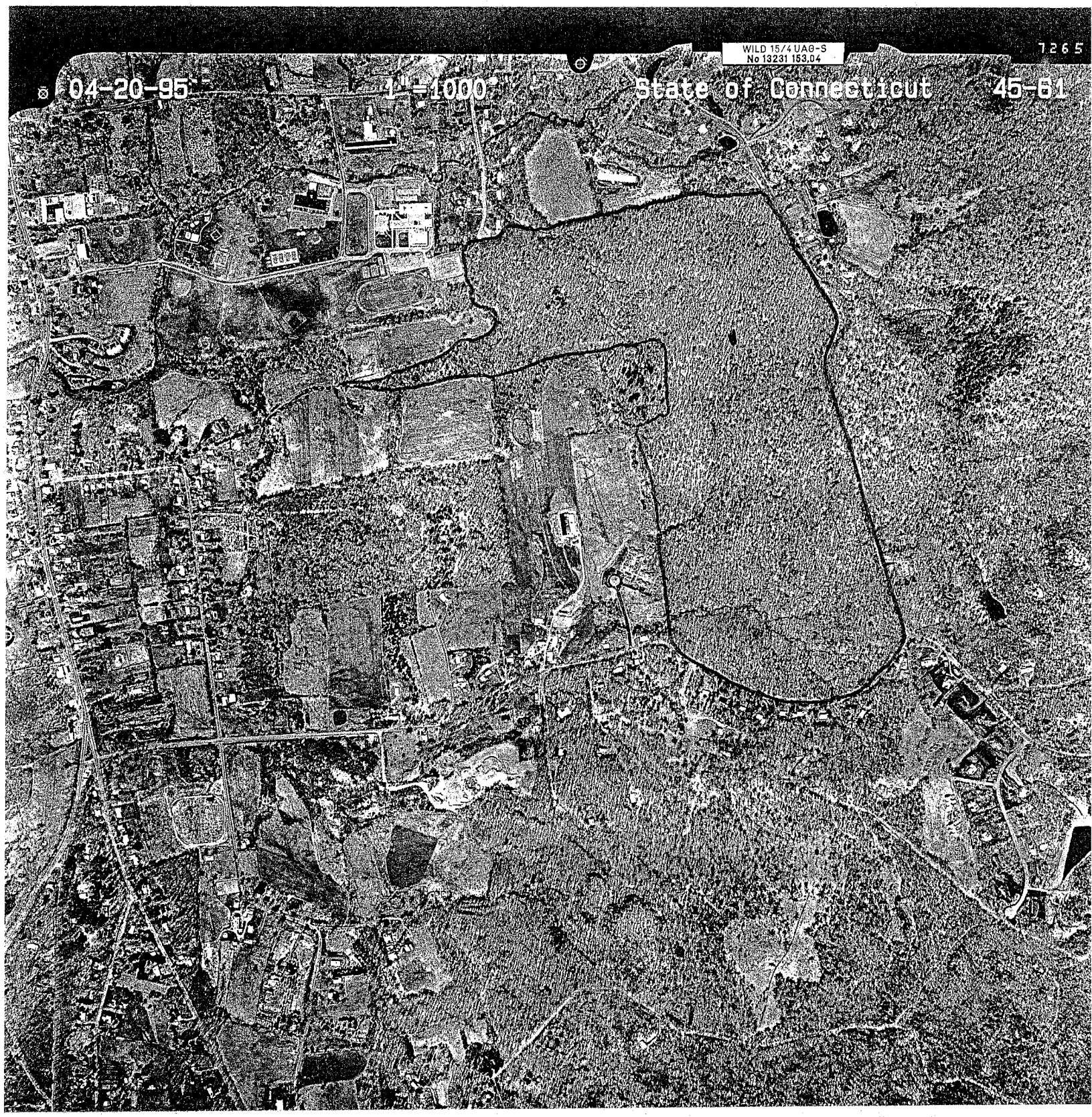
Air Photo



Conservation District Review

The following are general comments and recommendations based on a review of:

- the ERT Request Form dated March 21, 2002;
- site location and topographic maps;
- the Soil Survey of Middlesex County, Connecticut (1979), and
- a site visit conducted on October 22, 2002.

The comments below are *advisory in nature and are intended to assist the Connecticut Forest and Park Association develop a Stewardship Plan for this property.*

Site Description

The 108-acre site is forested woodland habitat located on Bear Rock and Higganum Roads in Durham, CT. The property abuts the Cockaponset State Forest to the east, agricultural fields to the west, the regional high school to the northwest, and residential neighborhoods to the north and south. Some areas of the property have been logged within the last 35 years.

The site has varied topography, with relatively steep sloped ridges interspersed with low lying wetlands and streams. Much of the site appears to drain into a stream that begins in middle of the property, initially heads south, and then hooks around a ridge to head north off the property's western edge. The stream eventually reenters and crosses the northwest section of the property. Wetland soils are associated with this stream corridor and may also be found in low lying

pockets where slopes are fairly shallow. The site's undisturbed upland forest habitat and topographic relief increase the possibility of finding high quality vernal pools on the property.

An established trail provides access to the majority of the property. It was noted that the trail is currently used for hiking, cross country running, horseback riding, and mountain biking.

Soils

Information obtained from the Soil Survey of Middlesex County, Connecticut (1979) indicates that soils are predominately well drained Wethersfield loams with intermingled areas of moderately well drained Ludlow silt loams. The erosion potential of these soils is moderate in areas where slopes are shallower than 8%, but severe in areas steeper than 8%.

Wilbraham silt loam, a poorly drained wetland soil with a seasonally high water table at approximately 8 inches (autumn to midspring), is mapped on the southern part of the property in close proximity to the major drainage stream. Very poorly drained Adrian muck soils can be found within the Walpole silt loam map unit.

Walpole sandy loam, a poorly drained wetland soil with a seasonally high water table at 10 inches (autumn to spring), is mapped on the northern part of the property in close proximity to the downstream portion of the major drainage stream. Poorly drained Raypol silt loams and very poorly drained Scarboro mucky loam fine sand can be found within the Walpole sandy loams map unit.

Select properties of both the predominant and the wetland soils are summarized in Table 1. Soil properties as well as slope steepness should be carefully considered when developing a stewardship plan to manage and enhance

recreation and forestry uses of this property. Further information on soil properties and limitations can be found in the Appendix of this report and the Soil Survey of Middlesex County, Connecticut (1979).

Erosion and Sediment (E&S) Control

The greatest risk of erosion and sedimentation is in areas of well drained soils where slopes exceed 8%. While maintenance of the existing trails should not pose a significant erosion hazard, establishment of new trails may pose a risk especially if clearing is required or if steep slopes are disturbed. There are currently some problem areas on the trail where there is erosion, destabilization, or ponding of water. The trails can be rerouted in these areas, but only if there is a suitable alternative with gentler slopes and appropriate soils.

Forestry management practices that include clearing, grubbing, or grading will pose an erosion risk especially if conducted on steep slopes. Particular care should be taken in upland areas that drain into wetlands or watercourses. Proper project planning, conducting activities when the chance of rainfall is minimal, and installing proper E&S control measures when and where appropriate will minimize the risks of erosion and sedimentation.

The 2002 Connecticut Guidelines for Soil and Erosion Control details how to select, design, and implement E&S control measures for a wide variety of project types and site conditions. Descriptions of the E&S control measures recommended below can be found in the Guidelines.

Recommendations

- Areas of the existing trail that are eroding, unstable, have ponded water due to compaction, or are too wet to cross either seasonally or after rainfall events

should be repaired where possible, or if not possible rerouted, abandoned, and revegetated.

- During new trail establishment or significant trail repair, a sediment impounding measure (hay bale barrier, geotextile silt fence, temporary sediment trap, etc.) should be used to reduce erosion and sedimentation.

- Areas disturbed by new trail establishment, trail abandonment, or forestry management activities should be stabilized immediately. Vegetation, when quickly established, can minimize potential erosion of exposed or disturbed slopes. If a vegetative soil cover is not possible due to weather or seasonal constraints use non-living soil protection (mulch, erosion control blankets, etc.) until such time as vegetation can be established.

- For trails established on steep slopes E&S control measures such as water bars, temporary fill berms, or temporary diversions may be necessary to minimize erosion and sedimentation.

- Land management activities conducted on steep slopes that drain into low lying wetlands or stream channels should be initiated only after appropriate E&S measures are established.

Wetlands

Wetlands in Connecticut are defined by poorly drained and very poorly drained soils. In general, wetlands have a low potential for woodland productivity or recreational management. This is due to a seasonably high water table that restricts the use of heavy equipment and the instability of the soils when steeply excavated. In some wetland soils, water can remain ponded or just below the

surface when the water table is seasonally high (autumn - spring) and during rainfall events.

Wetland soils are mapped on either side of the major drainage stream that runs through the property. This stream begins at about the middle of the property in a wet area, heads south, hooks around a ridge to go north, exits the property along the west edge, and then reenters the property to cross the northwest section. The extent of wetlands on the property is as yet unknown. Wetland soils are associated with the stream, and there may be other pockets of poorly drained or very poorly drained wetland soils scattered throughout the property.

In at least four locations the existing trail crosses a wetland or watercourse. Every effort should be made to enhance the existing crossings in a manner minimizing future impacts. Wetlands and watercourses not already disturbed by foot, hoof, or bike trails should remain undisturbed.

Activities conducted in wetlands are regulated under Connecticut's Inland Wetlands and Watercourse Act by local Inland Wetlands and Watercourse Commissions (IWWC). The Town of Durham has established a Wetlands Zoning Setback of 50 feet and an Upland Review Zone of 100 feet. The Connecticut Forest & Park Association will need to obtain authorization from the Durham IWWC prior to initiating activities within 100 feet of a wetland. Although some forest management and trail maintenance activities are allowed "as of right," the IWWC or its agent need to review the proposed activity and determine if it is a permitted or nonregulated use of the wetland or watercourse.

Recommendations:

- Have a Certified Soil Scientist delineate on-site wetlands and possibly evaluate wetland function (even if it is a preliminary assessment the information would be valuable).

- Develop a planning scale site map (e.g., 1"= 100') showing wetlands and watercourses, foot trails, forestry management areas, vernal pools etc. that can be used to manage and maintain the property.

- Design and install structural crossings (foot bridges, boardwalks, etc.) where trails traverse wetlands or watercourses. Avoid designing crossings that require excessive filling, grading, culverting, or redirecting water flow. Replacement or repair of the large concrete culvert at the north edge of the property may require plans designed by a Professional Engineer.

- Timber harvesting, vegetation clearing, grubbing, and grading activities should not take place within 100 feet of wetlands or watercourses.

- Heavy equipment or vehicles used for forestry management or trail maintenance should not cross wetlands or watercourses during seasonally high water or after rainfall events.

- The stream located in the southeastern corner of the property (south of the existing foot trail and north of Higganum Road) is currently not crossed by the trail system. This stream should remain uncrossed and recreational access to this section of the property limited. Post signs on Higganum Road at potential unauthorized access points to direct recreational users to designated trailheads.

Vernal Pools

Vernal pools are seasonal or permanent water-filled depressions or basins that do not support fish populations. The pools provide amphibians and invertebrates a breeding habitat where mating, egg laying, and juvenile development can occurs in the absence of predatory fish. In Connecticut there are six known obligate and 13 known facultative vernal pools species.

Research suggests that during the spring breeding season amphibians are active both within the pool and in a zone extending 100-feet from the pool edge. After breeding, adults disperse into surrounding upland habitat. Juveniles that have developed in the ponds also disperse into surrounding upland habitat. There is good evidence that individuals migrate 600 feet (and sometimes much farther) from their breeding pool. Site fidelity of vernal pool species is high, and individuals will return to the same pool every year to breed. Because vernal pool species require both the pool and surrounding upland habitat to survive they are highly susceptible to land use change and habitat fragmentation.

Large tracts of undisturbed upland forest provide excellent habitat for adult vernal pool amphibians. The wooded nature and topographic relief of the property suggests that there may be high quality vernal pools on the site, especially in low lying areas where there is a seasonally high water table. Identifying vernal pools can be difficult due to their ephemeral nature and because they are not always associated with poorly drained or very poorly drained wetland soils. Protocols have been developed that use indirect (leaf staining, hydrology, etc.) as well as direct (biological) indicators to identify vernal pools. Due to the variable nature of vernal pools both within and among years, field surveys may need to be conducted multiple times in a given year or over multiple years.

Recommendations

- Develop a survey program that will determine if there are active vernal pools on the property. Conduct field surveys to find and evaluate potential vernal pools using established indirect and direct indicators. When possible, revisit known and potential vernal pool sites multiple times each spring and keep a log of site conditions, species present, and observed breeding activities.

- Map confirmed vernal pools on a planning scale site map (e.g., 1"= 100') that can be used to manage and maintain the property.

- Protect and preserve undisturbed upland habitat to a distance of at least 600 feet from the edge of all confirmed (and possibly potential) vernal pools.

- Establish a 100-foot "no activity" zone around each vernal pool. Relocate trails out of this zone where possible, and if not possible consider allowing only foot traffic through the area.

- Install all sediment impounding E&S control measures (especially geotextile silt fence and hay bales) such that vernal pools remain accessible to migrating amphibians and reptiles. Using short, staggered lengths of silt fence or hay bale barriers with at least 2 foot gaps will protect a vernal pool from sedimentation while allowing species access.

Figure 5

Soils Map

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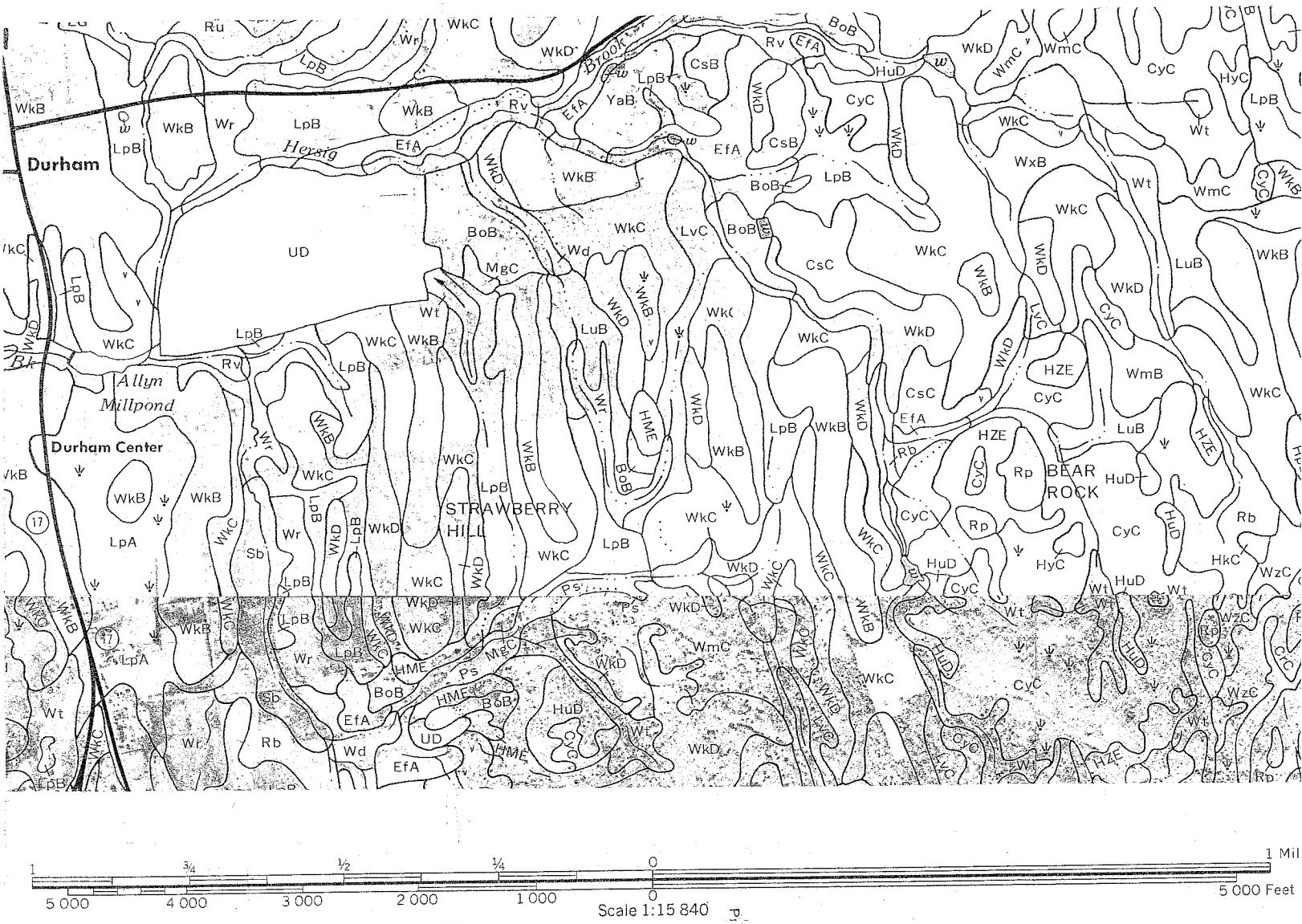


Table 1. Select properties of the predominant and wetlands soils at the Howard Brigham Field, Jr., Woodland.

						Habitat & Wildlife Potential				
Drainage	**Soil Description**		**Slope (%)**	**Erosion Hazard**	**Limitation for Paths & Trails**	Herbaceous Plants	Trees (Conifers or Hardwoods)	Wetlands Plants & Wildlife	Woodland Wildlife	Openland Wildlife
Very Poorly Drained	Aa	Adrian muck	0-2	excavations can be unstable	severe*	VP	P	G	P	VP
	Sc	Scarboro mucky loamy fine sand	0-2	"	severe*	P	P	G	P	P
Poorly Drained	Rb	Raypol silt loam	0-3	"	severe*	F	F	G	F	F
	Wr	Wilbraham silt loam	0-5	"	severe*	F	F	G/F	F	F
	Wd	Walpole sandy loam	0-3	"	severe*	F	F	G/F	F	F
Well Drained	WkB	Wethersfield loam	3-8	moderate	slight	G	G	VP	G	G
	WkC	Wethersfield loam	8-15	severe	slight	G	G	VP	G	G
	WkD	Wethersfield loam	15-35	"	moderate**	G	G	VP	G	F
	BoB	Branford silt loam	3-8	moderate	slight	G	G	VP	G	G
Moderately Well Drained	LpB	Ludlow silt loam	3-8	"	slight	G	G	VP	G	G
	LuB	Ludlow very stony silt loam	3-8	"	moderate***	G	G	VP	P	G
	LvC	Ludlow extremely stony silt loam	3-15	"	severe***	G	G	VP	P	G
Excessively Drained	HME	Hinckley and Manchester soils	15-45	severe	severe**	P	P	VP	P	P
	MgC	Manchester gravelly sandy loam	3-15	moderate	moderate***	F	P	VP	P	P

**wetness, **slope, ***stoniness*

VP=very poor, P=poor, F=fair, G=good

Natural Resource Conservation Service Review

Please find a soils map with overlay (scale 1"=1320'), a topographic map with overlay (scale 1"=1,000'), and descriptions of the various soils on the property and discussion of the limitations of those soils with respect to the proposed uses on the property.

It is the Natural Resource Conservation Service (NRCS) understanding that the intended use for the 108-acre property is primarily hiking, with other possible uses including cross-country skiing, non-motorized biking, and horseback riding. Additional uses may include a source for sawtimber, firewood, and non-timber forest products. Attached are descriptions of the soils in the area with respect to their suitability for the intended uses. (See Appendix)

Provided is the Soil Survey map (scale 1"=1320') of the area showing the trail system, drainages, and wetland soils highlighted in light blue. An overlay shows the locations of stream crossings and eroded areas noted during the site walk. On the April 1995 aerial photograph, two areas appeared to be vernal pools. A topographic map (scale 1"=1000') of the area with an overlay is also provided showing locations of potential vernal pools, wet areas, drainages, and hilltops. During the site walk conducted on October 22, 2002, Areas of Concern noted were the following (see attached map for specific locations, Figure 6):

- Gully erosion in trail on east side of property
- Evidence of erosion in trail
- Three stream crossings (marked A, B, and C on map)

- Wet area in trail

- **Gullies in trail** - Gully erosion was noted along the eastern portion of the trail. Soils along the trail are mapped as Wethersfield B (3-8%) and C (8-15%) slopes, which are classified as "not limited" with respect to use as paths and trails (see Figures 6 & 7). The cause for the erosion is most likely the interplay between overland flow and the trail. Rather than flowing directly downslope, flow is intercepted by the trail concentrating it along the trail and creating gully erosion. Because of the severity of the erosion, NRCS recommends that, if possible, the trail be relocated. Of note, what appears to be a vernal pool on the April 1995 aerial photograph is located in the topographic low immediately west of this trail. This area corresponds to the head of a stream that eventually drains into Herzig Brook.

- **Erosion along trail** - To the northwest of the gully erosion area, another area was noted to be eroded, but less severely than the gully erosion area. Soils in this area are Wethersfield and, again, are not considered limited with respect to paths and trails. Because erosion was not noted to be particularly severe in this area, the problem can most likely be mitigated with placement of water bars across the trail to convey excess runoff from the trail.

- **Three Stream Crossings (A, B, and C)** - Each stream crossing crosses wetland soils. Particulars at each crossing are discussed below.

  Crossing A - A misaligned culvert was noted to underlie this crossing; the culvert appeared to be at high angle to the stream. The top of the culvert was exposed above the ground surface. The trail/culvert crosses over wetland soils. Upstream of the crossing, steep stream banks were noted. Downstream of the culvert, undercutting of the stream banks were noted with some tree roots exposed. This stream conveys water from a fairly

sizable area upslope (see maps). It is recommended that the culvert be adequately designed for the volume of water conveyed in this stream and placed completely underground.

Crossing B - At the time of the site walk, the trail crossing was wet. It is recommended that a foot bridge be placed to protect the wetland from hikers/horses coming into direct contact with the stream.

Crossing C - At the time of the site walk, the trail crossing was wet. It is recommended that a foot bridge be placed to protect the wetland from hikers/horses coming into direct contact with the stream.

- **Wet Area in Trail** - East of stream crossing A, at a topographic low, a significant amount of ponded water was noted in the trail. About 250 feet to the north, a possible wet area and was noted on the aerial photograph, which could be related to why this topographically low area on the train tends to pond water. Because this area tends to pool water, hikers/horses traffic could degrade the trail and mitigating the area should be considered.

Figure 6

Howard Brigham Field, Jr. Woodland
Durham, Connecticut
Soils Map

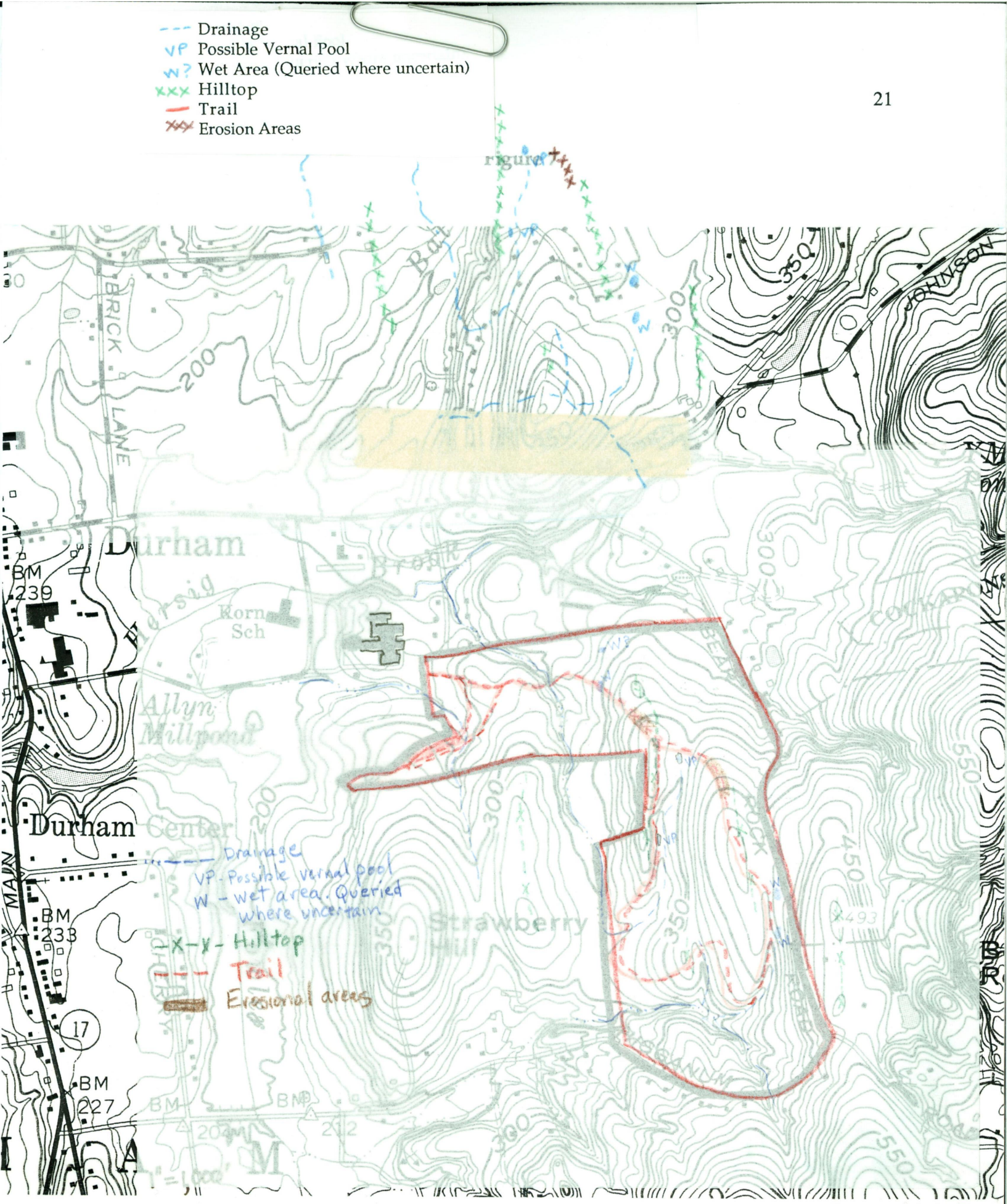
Wetland Soils (light blue)

Wd	Walpole sand loam
Wt	Wilbraham extremely stony silt loam
Wr	Wilbraham silt loam

Non-Wetland Soils

WkB	Wethersfield loam 3-8% slopes
WkC	Wethersfield loam 8-15% slopes
WkD	Wethersfield loam 15-35% slopes
LvC	Ludlow extremely stony silt loam 3-15% slopes
LuB	Ludlow very stony silt loam 3-8% slopes
HME	Hinckley and Manchester soils 15-45% slopes
BoB	Branford silt loam 3-8% slopes
MgC	Manchester gravelly sandy loam 3-15% slopes
LpB	Ludlow silt loam 3-8% slopes
WmC	Wethersfield very stony loam 8-15% slopes

Source: Soil Survey of Middlesex County, 1979


Drainage
VP Possible Vernal Pool
W? Wet Area (Queried where uncertain)
Hilltop
Trail
Erosion Areas
Durham
BRICK LANE
JOHNSON
Korn Sch
Allyn Millpond
Strawberry Hill
BM 239
BM 233
BM 227
17
MAIN
Drainage
VP - Possible vernal pool
W - wet area. Queried where uncertain
Hilltop
Trail
Erosional areas

Fisheries Resources

The Howard Brigham Field, Jr. Property contains two watercourses; an unnamed tributary which is conveyed to Allyn Millpond, and an unnamed tributary to Hersig Brook.

Unnamed Tributary to Allyn Millpond

This watercourse does not appear to support year round fish populations on the property. The headwaters of the stream at one time were impounded creating a small pond. The earthen dam is now breached. The watercourse is of moderate gradient and contains a very heavy sediment load of fine silts due to excessive streambank erosion and sedimentation. This watercourse is a significant source of non-point source pollution in the watershed. Through time, the stream has "down-cut" and incised creating very steep streambanks. The present morphometry of the stream in concert with very erosive soils exacerbates streambank and channel instability.

Surface water quality of the unnamed tributary is classified by the Connecticut Department of Environmental Protection as Class A. Designated uses of Class A waters are as follows: potential drinking water supply, fish and wildlife habitat, recreational use, agricultural and industrial supply and other purposes.

Unnamed Tributary to Hersig Brook

The CTDEP Inland Fisheries Division has not surveyed Hersig Brook or its tributaries; thus, fish community information is not available. Based upon field review, this unnamed tributary may support a blacknose dace

community. Although not observed, it's possible that the stream in the lower reaches may support a native brook trout population based upon instream habitat characteristics. The 36-inch diameter concrete culvert, located on the lower section of the trail is perched several inches above the outlet. This condition creates an upstream barrier to fish movement thereby fragmenting and separating fisheries resources.

This watercourse is of moderate to high gradient. Streambed substrate is dominated by gravels and cobbles. Stream flows in the upper stretches are intermittent. Common to many Connecticut streams, this stream has overwidened due to erosion and is characterized by a high width-depth ratio. The stream channel is very active and exhibits lateral migration into steep side slopes causing some streambank erosion and instability in some places. This condition creates very shallow water habitats during base flow conditions. The lack of deeper water habitats during low flow periods will severely limit the availability of fish habitat. Surface water quality of this unnamed tributary is classified by the Connecticut Department of Environmental Protection as Class A.

Recommendations

1. The perched concrete culvert on the unnamed tributary to Hersig Brook should be removed and replaced with a timber bridge. Culvert removal and replacement with a clear span structure will remove a permanent barrier to upstream fish passage. In addition, a small log lies across the stream some 30 feet downstream from the culvert outlet. This log blocks upstream fish passage and should be removed.
2. Any crossings within wetland or stream habitats on the property as well as through-trail links to nearby trails should be accomplished with raised boardwalk or timber bridge structures to reduce erosion and sedimentation to nearby aquatic resources.

3. Serious erosion and sedimentation problems associates with the unnamed tributary of Allyn Millpond should be addressed. Often times, serious channel incision problems can be mitigated by reconfiguring the stream grade through the installation of a series of log or rock, weir grade control structures. These structures can reduce stream slope; thus helping to dissipate the stream's erosive forces. Soft armourment, soil bioengineering approaches should be utilized to stabilize eroded streambanks. The Connecticut Forest and Park Association should consider applying for a nonpoint source EPA 319 grant to obtain funding to correct onsite stream erosion problems.
4. Illegal ATV use of the trail system is causing serious rutting and erosion problems in several areas of the trail. Locations should be identified where illegal access is occurring. All access points for motorized vehicles should be blocked.

The Natural Diversity Data Base

The Natural Diversity Data Base maps and files have been reviewed regarding the project area. According to our information, there are no known extant populations of Federal or State Endangered, Threatened or Special Concern Species that occur at the site in question.

Natural Diversity Base information includes all information regarding critical biologic resources available to us at the time of the request. This information is a compilation of data collected over the years by the Environmental & Geographic Information Center's Geological and Natural History Survey and cooperating units of DEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with he Data Base should not be substituted for on-site survey surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

Archaeological Review

A review of the State of Connecticut Archaeologist Site files and maps shows one archaeological site in the project area. The site represents a Native American encampment adjacent to the unnamed brook running through the west central portion of the project area. While the files have little information concerning this site, it appears to have been occupied at some unknown prehistoric time period. Historic review, along with topographic and environmental features, of the project area suggests a high sensitivity toward additional undiscovered archaeological resources.

Two areas of highest sensitivity would be well-drained soils adjacent to the wetland features, and, outcroppings of bedrock that could provide a small natural shelter. These topographic and environmental situations provided good campsites for prehistoric hunting-gathering populations utilizing the natural resources on a seasonal basis. Interior, upland areas were often used by Native Americans during the fall and winter seasons to acquire mast products of the forest, hunt and seek shelter in valleys. There is little evidence, archaeologically or historically, for large Indian villages for the project area. These sites would be located along the Coginchaug River.

The Office of State Archaeology recommends an archaeological reconnaissance survey for high sensitivity areas should future management plans require any subsurface disturbances. Open space management of the property should represent no impact to these cultural resources. This survey should be conducted to identify all cultural resources in the areas planned for development and provide recommendations on their significance and preservation. The survey should be conducted in accordance with the Connecticut Historical Commission's *Environmental Review Primer for Connecticut's Archaeological Resources*.

The Office of State Archaeology would look forward to working with the Connecticut Forest and Park Association and the Town of Durham in providing any technical assistance in the conservation and preservation of its cultural resources in the woodland project area.

Appendix

Soils Information

USDA United States Department of Agriculture

Natural Resources Conservation Service

Soils Report

Map Unit Name

Soil Survey: State of Connecticut
Survey Status: Update
Correlation Date:
Distribution Date: 02/27/2002

Map Symbol	Soil Name	Rating
5	WILBRAHAM SILT LOAM	WILBRAHAM SILT LOAM
6	WILBRAHAM AND MENLO SOILS, EXTREMELY STONY	WILBRAHAM AND MENLO SOILS, EXTREMELY STONY
13	WALPOLE SANDY LOAM	WALPOLE SANDY LOAM
30B	BRANFORD SILT LOAM, 3 TO 8 PERCENT SLOPES	BRANFORD SILT LOAM, 3 TO 8 PERCENT SLOPES
37C	MANCHESTER GRAVELLY SANDY LOAM, 3 TO 15 PERCENT SLOPES	MANCHESTER GRAVELLY SANDY LOAM, 3 TO 15 PERCENT SLOPES
37E	MANCHESTER GRAVELLY SANDY LOAM, 15 TO 45 PERCENT SLOPES	MANCHESTER GRAVELLY SANDY LOAM, 15 TO 45 PERCENT SLOPES
40B	LUDLOW SILT LOAM, 3 TO 8 PERCENT SLOPES	LUDLOW SILT LOAM, 3 TO 8 PERCENT SLOPES
41B	LUDLOW SILT LOAM, 2 TO 8 PERCENT SLOPES, VERY STONY	LUDLOW SILT LOAM, 2 TO 8 PERCENT SLOPES, VERY STONY
42C	LUDLOW SILT LOAM, 2 TO 15 PERCENT SLOPES, EXTREMELY STONY	LUDLOW SILT LOAM, 2 TO 15 PERCENT SLOPES, EXTREMELY STONY
87B	WETHERSFIELD LOAM, 3 TO 8 PERCENT SLOPES	WETHERSFIELD LOAM, 3 TO 8 PERCENT SLOPES
87C	WETHERSFIELD LOAM, 8 TO 15 PERCENT SLOPES	WETHERSFIELD LOAM, 8 TO 15 PERCENT SLOPES
87D	WETHERSFIELD LOAM, 15 TO 25 PERCENT SLOPES	WETHERSFIELD LOAM, 15 TO 25 PERCENT SLOPES
88C	WETHERSFIELD LOAM, 8 TO 15 PERCENT SLOPES, VERY STONY	WETHERSFIELD LOAM, 8 TO 15 PERCENT SLOPES, VERY STONY

Soils Report

Drainage Class - Dominant Condition

Drainage class (natural) refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized -- excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

Soil Survey: State of Connecticut
Survey Status: Update
Correlation Date:
Distribution Date: 02/27/2002

Map Symbol	Soil Name	Rating
5	WILBRAHAM SILT LOAM	Poorly drained
6	WILBRAHAM AND MENLO SOILS, EXTREMELY STONY	Poorly drained
13	WALPOLE SANDY LOAM	Poorly drained
30B	BRANFORD SILT LOAM, 3 TO 8 PERCENT SLOPES	Well drained
37C	MANCHESTER GRAVELLY SANDY LOAM, 3 TO 15 PERCENT SLOPES	Excessively drained
37E	MANCHESTER GRAVELLY SANDY LOAM, 15 TO 45 PERCENT SLOPES	Excessively drained
40B	LUDLOW SILT LOAM, 3 TO 8 PERCENT SLOPES	Moderately well drained
41B	LUDLOW SILT LOAM, 2 TO 8 PERCENT SLOPES, VERY STONY	Moderately well drained
42C	LUDLOW SILT LOAM, 2 TO 15 PERCENT SLOPES, EXTREMELY STONY	Moderately well drained
87B	WETHERSFIELD LOAM, 3 TO 8 PERCENT SLOPES	Well drained
87C	WETHERSFIELD LOAM, 8 TO 15 PERCENT SLOPES	Well drained
87D	WETHERSFIELD LOAM, 15 TO 25	Well drained

	PERCENT SLOPES	
88C	WETHERSFIELD LOAM, 8 TO 15 PERCENT SLOPES, VERY STONY	Well drained

Non-Technical Descriptions

Soil Survey Area: State of Connecticut
Survey Status: Update
Correlation Date:
Distribution Date: 02/27/2002

Map Unit: 5 WILBRAHAM SILT LOAM
Description Category: SOI
Wilbraham Silt Loam
This map unit is in the Connecticut Valley Major Land Resource Area. The mean annual precipitation is 40 to 50 inches (1016 to 1270 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 80 percent Wilbraham soils. 20 percent minor components.

Wilbraham soils
This component occurs on depression, drainageway, upland, valley landforms. The parent material consists of basal till derived from sandstone, shale, and basalt. The slope ranges from 0 to 3 percent and the runoff class is low. The depth to a restrictive feature is 20 to 36 inches to densic material. The drainage class is poorly drained. The slowest permeability within 60 inches is about 0.00 in/hr (very slow), with about 3.4 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is about 9 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 4w
Typical Profile:
0 to 4 inches; silt loam
4 to 8 inches; silt loam
8 to 20 inches; silt loam
20 to 65 inches; gravelly loam

Map Unit: 6 WILBRAHAM AND MENLO SOILS, EXTREMELY STONY
Description Category: SOI
Wilbraham And Menlo Soils, Extremely Stony
This map unit is in the Connecticut Valley Major Land Resource Area. The mean annual precipitation is 40 to 50 inches (1016 to 1270 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 60 percent Wilbraham soils, 25 percent Menlo soils. 15 percent minor components.

Wilbraham soils
This component occurs on depression, drainageway, upland, valley landforms. The parent material consists of basal till derived from sandstone, shale, and basalt. The slope ranges from 0 to 3 percent and the runoff class is low. The depth to a restrictive feature is 20 to 36 inches to densic material. The drainage class is poorly drained. The slowest permeability within 60 inches is about 0.00 in/hr (very slow), with about 3.4 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is about 9 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 7s

Typical Profile:
0 to 4 inches; silt loam
4 to 8 inches; silt loam
8 to 20 inches; silt loam
20 to 65 inches; gravelly loam

Menlo soils
This component occurs on upland, valley, depression, drainageway landforms. The parent material consists of till derived from sandstone and shale. The slope ranges from 0 to 3 percent and the runoff class is low. The depth to a restrictive feature is 18 to 36 inches to densic material. The drainage class is very poorly drained. The slowest permeability within 60 inches is about 0.00 in/hr (very slow), with about 5.1 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is frequent. The minimum depth to a seasonal water table, when present, is about 9 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 7s
Typical Profile:
0 to 5 inches; muck
5 to 16 inches; mucky silt loam
16 to 22 inches; flaggy very fine sandy loam
22 to 27 inches; flaggy fine sandy loam
27 to 40 inches; fine sandy loam
40 to 60 inches; fine sandy loam

Map Unit: 13 WALPOLE SANDY LOAM
Description Category: SOI
Walpole Sandy Loam
This map unit is in the Connecticut Valley Major Land Resource Area. The mean annual precipitation is 37 to 50 inches (940 to 1270 millimeters) and the average annual air temperature is 45 to 54 degrees F. (7 to 12 degrees C.) This map unit is 80 percent Walpole soils. 20 percent minor components.

Walpole soils
This component occurs on drainageway, depression, outwash plain, valley, terrace landforms. The parent material consists of sandy outwash. The slope ranges from 0 to 3 percent and the runoff class is very low. The depth to a restrictive feature is greater than 60 inches. The drainage class is poorly drained. The slowest permeability within 60 inches is about 2.0 in/hr (moderately rapid), with about 5.0 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is about 6 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 4w
Typical Profile:
0 to 1 inches; moderately decomposed plant material
1 to 7 inches; sandy loam
7 to 21 inches; sandy loam
21 to 25 inches; gravelly sandy loam
25 to 41 inches; stratified very gravelly coarse sand to loamy fine sand
41 to 65 inches; stratified very gravelly coarse sand to loamy fine sand

Map Unit: 30B BRANFORD SILT LOAM, 3 TO 8 PERCENT SLOPES
Description Category: SOI
Branford Silt Loam, 3 To 8 Percent Slopes
This map unit is in the Connecticut Valley Major Land Resource Area. The mean annual precipitation is 38 to 50 inches (965 to 1270 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 80 percent Branford soils. 20 percent minor components.

Branford soils
This component occurs on valley, outwash plain, terrace landforms. The parent material consists of eolian deposits over glaciofluvial deposits derived from sandstone and basalt. The slope ranges from 3 to 8 percent and the runoff class is low. The depth to a restrictive feature is greater than 60 inches. The drainage class is well drained. The slowest permeability within 60 inches is about 0.57 in/hr (moderate), with about 6.3 inches (high) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 2e
Typical Profile:
0 to 8 inches; silt loam
8 to 18 inches; loam
18 to 24 inches; gravelly loam
24 to 65 inches; stratified very gravelly coarse sand to loamy fine sand

Map Unit: 37C MANCHESTER GRAVELLY SANDY LOAM, 3 TO 15 PERCENT SLOPES
Description Category: SOI
Manchester Gravelly Sandy Loam, 3 To 15 Percent Slopes
This map unit is in the Connecticut Valley Major Land Resource Area. The mean annual precipitation is 38 to 50 inches (965 to 1270 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 80 percent Manchester soils. 20 percent minor components.

Manchester soils
This component occurs on valley, terrace, outwash plain landforms. The parent material consists of sandy and gravelly glaciofluvial deposits. The slope ranges from 3 to 15 percent and the runoff class is low. The depth to a restrictive feature is greater than 60 inches. The drainage class is excessively drained. The slowest permeability within 60 inches is about 5.95 in/hr (rapid), with about 2.4 inches (very low) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 4e
Typical Profile:
0 to 9 inches; gravelly sandy loam
9 to 18 inches; gravelly loamy sand
18 to 65 inches; stratified extremely gravelly coarse sand to very gravelly loamy sand

Map Unit: 37E MANCHESTER GRAVELLY SANDY LOAM, 15 TO 45 PERCENT SLOPES
Description Category: SOI

Manchester Gravelly Sandy Loam, 15 To 45 Percent Slopes
This map unit is in the Connecticut Valley Major Land Resource Area. The mean annual precipitation is 38 to 50 inches (965 to 1270 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 80 percent Manchester soils. 20 percent minor components.

Manchester soils
This component occurs on valley, kame, esker landforms. The parent material consists of sandy and gravelly glaciofluvial deposits. The slope ranges from 15 to 45 percent and the runoff class is high. The depth to a restrictive feature is greater than 60 inches. The drainage class is excessively drained. The slowest permeability within 60 inches is about 5.95 in/hr (rapid), with about 2.4 inches (very low) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 7e
Typical Profile:
0 to 9 inches; gravelly sandy loam
9 to 18 inches; gravelly loamy sand
18 to 65 inches; stratified extremely gravelly coarse sand to very gravelly loamy sand

Map Unit: 40B LUDLOW SILT LOAM, 3 TO 8 PERCENT SLOPES
Description Category: SOI
Ludlow Silt Loam, 3 To 8 Percent Slopes
This map unit is in the Connecticut Valley Major Land Resource Area. The mean annual precipitation is 40 to 50 inches (1016 to 1270 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 80 percent Ludlow soils. 20 percent minor components.

Ludlow soils
This component occurs on drumlin, upland, valley landforms. The parent material consists of basal till derived from sandstone, shale, and basalt. The slope ranges from 3 to 8 percent and the runoff class is medium. The depth to a restrictive feature is 20 to 40 inches to densic material. The drainage class is moderately well drained. The slowest permeability within 60 inches is about 0.00 in/hr (very slow), with about 4.8 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is about 24 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 2e
Typical Profile:
0 to 8 inches; silt loam
8 to 20 inches; silt loam
20 to 26 inches; silt loam
26 to 65 inches; gravelly loam

Map Unit: 41B LUDLOW SILT LOAM, 2 TO 8 PERCENT SLOPES, VERY STONY
Description Category: SOI
Ludlow Silt Loam, 2 To 8 Percent Slopes, Very Stony

This map unit is in the Connecticut Valley Major Land Resource Area. The mean annual precipitation is 40 to 50 inches (1016 to 1270 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 80 percent Ludlow soils. 20 percent minor components.

Ludlow soils
This component occurs on drumlin, upland, valley landforms. The parent material consists of basal till derived from sandstone, shale, and basalt. The slope ranges from 2 to 8 percent and the runoff class is low. The depth to a restrictive feature is 20 to 40 inches to densic material. The drainage class is moderately well drained. The slowest permeability within 60 inches is about 0.00 in/hr (very slow), with about 4.8 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is about 24 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 6s
Typical Profile:
0 to 8 inches; silt loam
8 to 20 inches; silt loam
20 to 26 inches; silt loam
26 to 65 inches; gravelly loam

Map Unit: 42C LUDLOW SILT LOAM, 2 TO 15 PERCENT SLOPES, EXTREMELY STONY
Description Category: SOI
Ludlow Silt Loam, 2 To 15 Percent Slopes, Extremely Stony
This map unit is in the Connecticut Valley Major Land Resource Area. The mean annual precipitation is 40 to 50 inches (1016 to 1270 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 80 percent Ludlow soils. 20 percent minor components.

Ludlow soils
This component occurs on drumlin, upland, valley landforms. The parent material consists of basal till derived from sandstone, shale, and basalt. The slope ranges from 2 to 15 percent and the runoff class is medium. The depth to a restrictive feature is 20 to 40 inches to densic material. The drainage class is moderately well drained. The slowest permeability within 60 inches is about 0.00 in/hr (very slow), with about 4.8 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is about 24 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 7s
Typical Profile:
0 to 8 inches; silt loam
8 to 20 inches; silt loam
20 to 26 inches; silt loam
26 to 65 inches; gravelly loam

Map Unit: 87B WETHERSFIELD LOAM, 3 TO 8 PERCENT SLOPES
Description Category: SOI
Wethersfield Loam, 3 To 8 Percent Slopes

This map unit is in the Connecticut Valley Major Land Resource Area. The mean annual precipitation is 40 to 50 inches (1016 to 1270 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 80 percent Wethersfield soils. 20 percent minor components.

Wethersfield soils
This component occurs on till plain, drumlin, upland, valley landforms. The parent material consists of basal till derived from basalt, sandstone, and shale. The slope ranges from 3 to 8 percent and the runoff class is medium. The depth to a restrictive feature is 20 to 40 inches to densic material. The drainage class is well drained. The slowest permeability within 60 inches is about 0.00 in/hr (very slow), with about 4.3 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is about 24 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 2e
Typical Profile:
0 to 3 inches; loam
3 to 13 inches; loam
13 to 27 inches; gravelly loam
27 to 65 inches; gravelly loam

Map Unit: 87C WETHERSFIELD LOAM, 8 TO 15 PERCENT SLOPES
Description Category: SOI
Wethersfield Loam, 8 To 15 Percent Slopes
This map unit is in the Connecticut Valley Major Land Resource Area. The mean annual precipitation is 40 to 50 inches (1016 to 1270 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 80 percent Wethersfield soils. 20 percent minor components.

Wethersfield soils
This component occurs on till plain, drumlin, upland, valley landforms. The parent material consists of basal till derived from basalt, sandstone, and shale. The slope ranges from 8 to 15 percent and the runoff class is medium. The depth to a restrictive feature is 20 to 40 inches to densic material. The drainage class is well drained. The slowest permeability within 60 inches is about 0.00 in/hr (very slow), with about 4.3 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is about 24 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 3e
Typical Profile:
0 to 3 inches; loam
3 to 13 inches; loam
13 to 27 inches; gravelly loam
27 to 65 inches; gravelly loam

Map Unit: 87D WETHERSFIELD LOAM, 15 TO 25 PERCENT SLOPES
Description Category: SOI
Wethersfield Loam, 15 To 25 Percent Slopes

This map unit is in the Connecticut Valley Major Land Resource Area. The mean annual precipitation is 40 to 50 inches (1016 to 1270 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 80 percent Wethersfield soils. 20 percent minor components.

Wethersfield soils
This component occurs on till plain, drumlin, upland, valley, hill landforms. The parent material consists of basal till derived from basalt, sandstone, and shale. The slope ranges from 15 to 25 percent and the runoff class is medium. The depth to a restrictive feature is 20 to 40 inches to densic material. The drainage class is well drained. The slowest permeability within 60 inches is about 0.00 in/hr (very slow), with about 4.3 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is about 24 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 4e
Typical Profile:
0 to 3 inches; loam
3 to 13 inches; loam
13 to 27 inches; gravelly loam
27 to 65 inches; gravelly loam

Map Unit: 88C WETHERSFIELD LOAM, 8 TO 15 PERCENT SLOPES, VERY STONY
Description Category: SOI
Wethersfield Loam, 8 To 15 Percent Slopes, Very Stony
This map unit is in the Connecticut Valley Major Land Resource Area. The mean annual precipitation is 40 to 50 inches (1016 to 1270 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 80 percent Wethersfield soils. 20 percent minor components.

Wethersfield soils
This component occurs on till plain, drumlin, upland, valley landforms. The parent material consists of basal till derived from basalt, sandstone, and shale. The slope ranges from 8 to 15 percent and the runoff class is medium. The depth to a restrictive feature is 20 to 40 inches to densic material. The drainage class is well drained. The slowest permeability within 60 inches is about 0.00 in/hr (very slow), with about 4.2 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is about 24 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 6s
Typical Profile:
0 to 1 inches; moderately decomposed plant material
1 to 3 inches; loam
3 to 13 inches; loam
13 to 27 inches; gravelly loam
27 to 65 inches; gravelly loam

Map Unit Symbol	Map Unit Name
2	Ridgebury fine sandy loam
3	Ridgebury, leicester and whitman soils, extremely stony
4	Leicester fine sandy loam
5	Wilbraham silt loam
6	Wilbraham and menlo soils, extremely stony
7	Mudgepond silt loam
8	Mudgepond and alden soils, extremely stony
9	Scitico, shaker, and maybid soils
10	Raynham silt loam
12	Raypol silt loam
13	Walpole sandy loam
14	Fredon silt loam
15	Scarboro muck
16	Halsey silt loam
17	Timakwa and natchaug soils
18	Catden and freetown soils
20A	Ellington silt loam, 0 to 5 percent slopes
21A	Ninigret and tisbury soils, 0 to 5 percent slopes
22A	Hero gravelly loam, 0 to 3 percent slopes
22B	Hero gravelly loam, 3 to 8 percent slopes
23A	Sudbury sandy loam, 0 to 5 percent slopes
24A	Deerfield loamy fine sand, 0 to 3 percent slopes
25A	Brancroft silt loam, 0 to 3 percent slopes
25B	Brancroft silt loam, 3 to 8 percent slopes
25C	Brancroft silt loam, 8 to 15 percent slopes
26A	Berlin silt loam, 0 to 3 percent slopes
26B	Berlin silt loam, 3 to 8 percent slopes
27A	Belgrade silt loam, 0 to 5 percent slopes
28A	Elmridge fine sandy loam, 0 to 3 percent slopes
28B	Elmridge fine sandy loam, 3 to 8 percent slopes
29A	Agawam fine sandy loam, 0 to 3 percent slopes
29B	Agawam fine sandy loam, 3 to 8 percent slopes
29C	Agawam fine sandy loam, 8 to 15 percent slopes
30A	Branford silt loam, 0 to 3 percent slopes
30B	Branford silt loam, 3 to 8 percent slopes
30C	Branford silt loam, 8 to 15 percent slopes
31A	Copake fine sandy loam, 0 to 3 percent slopes
31B	Copake fine sandy loam, 3 to 8 percent slopes
31C	Copake gravelly loam, 8 to 15 percent slopes
32A	Haven and enfield soils, 0 to 3 percent slopes
32B	Haven and enfield soils, 3 to 8 percent slopes
32C	Haven and enfield soils, 8 to 15 percent slopes
33A	Hartford sandy loam, 0 to 3 percent slopes
33B	Hartford sandy loam, 3 to 8 percent slopes
34A	Merrimac sandy loam, 0 to 3 percent slopes
34B	Merrimac sandy loam, 3 to 8 percent slopes
34C	Merrimac sandy loam, 8 to 15 percent slopes
35A	Penwood loamy sand, 0 to 3 percent slopes
35B	Penwood loamy sand, 3 to 8 percent slopes
36A	Windsor loamy sand, 0 to 3 percent slopes
36B	Windsor loamy sand, 3 to 8 percent slopes
36C	Windsor loamy sand, 8 to 15 percent slopes
37A	Manchester gravelly sandy loam, 0 to 3 percent slopes

Map Unit Symbol	Map Unit Name
37C	Manchester gravelly sandy loam, 3 to 15 percent slopes
37E	Manchester gravelly sandy loam, 15 to 45 percent slopes
38A	Hinckley gravelly sandy loam, 0 to 3 percent slopes
38C	Hinckley gravelly sandy loam, 3 to 15 percent slopes
38E	Hinckley gravelly sandy loam, 15 to 45 percent slopes
39A	Groton gravelly sandy loam, 0 to 3 percent slopes
39C	Groton gravelly sandy loam, 3 to 15 percent slopes
39E	Groton gravelly sandy loam, 15 to 45 percent slopes
40A	Ludlow silt loam, 0 to 3 percent slopes
40B	Ludlow silt loam, 3 to 8 percent slopes
41B	Ludlow silt loam, 2 to 8 percent slopes, very stony
42C	Ludlow silt loam, 2 to 15 percent slopes, extremely stony
43A	Rainbow silt loam, 0 to 3 percent slopes
43B	Rainbow silt loam, 3 to 8 percent slopes
44B	Rainbow silt loam, 2 to 8 percent slopes, very stony
45A	Woodbridge fine sandy loam, 0 to 3 percent slopes
45B	Woodbridge fine sandy loam, 3 to 8 percent slopes
45C	Woodbridge fine sandy loam, 8 to 15 percent slopes
46B	Woodbridge fine sandy loam, 2 to 8 percent slopes, very stony
46C	Woodbridge fine sandy loam, 8 to 15 percent slopes, very stony
47C	Woodbridge fine sandy loam, 2 to 15 percent slopes, extremely stony
48B	Georgia and amenia silt loams, 2 to 8 percent slopes
48C	Georgia and amenia silt loams, 8 to 15 percent slopes
49B	Georgia and amenia silt loams, 3 to 8 percent slopes, very stony
49C	Georgia and amenia silt loams, 8 to 15 percent slopes, very stony
50A	Sutton fine sandy loam, 0 to 3 percent slopes
50B	Sutton fine sandy loam, 3 to 8 percent slopes
51B	Sutton fine sandy loam, 2 to 8 percent slopes, very stony
52C	Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony
53A	Wapping very fine sandy loam, 0 to 3 percent slopes
53B	Wapping very fine sandy loam, 3 to 8 percent slopes
54B	Wapping very fine sandy loam, 2 to 8 percent slopes, very stony
55A	Watchaug fine sandy loam, 0 to 3 percent slopes
55B	Watchaug fine sandy loam, 3 to 8 percent slopes
56B	Watchaug fine sandy loam, 2 to 8 percent slopes, very stony
57B	Gloucester gravelly sandy loam, 3 to 8 percent slopes
57C	Gloucester gravelly sandy loam, 8 to 15 percent slopes
57D	Gloucester gravelly sandy loam, 15 to 25 percent slopes
58B	Gloucester gravelly sandy loam, 3 to 8 percent slopes, very stony
58C	Gloucester gravelly sandy loam, 8 to 15 percent slopes, very stony
59C	Gloucester gravelly sandy loam, 3 to 15 percent slopes, extremely stony
59D	Gloucester gravelly sandy loam, 15 to 35 percent slopes, extremely stony
60B	Canton and charlton soils, 3 to 8 percent slopes
60C	Canton and charlton soils, 8 to 15 percent slopes
60D	Canton and charlton soils, 15 to 25 percent slopes
61B	Canton and charlton soils, 3 to 8 percent slopes, very stony
61C	Canton and charlton soils, 8 to 15 percent slopes, very stony
62C	Canton and charlton soils, 3 to 15 percent slopes, extremely stony
62D	Canton and charlton soils, 15 to 35 percent slopes, extremely stony
63B	Cheshire fine sandy loam, 3 to 8 percent slopes
63C	Cheshire fine sandy loam, 8 to 15 percent slopes
63D	Cheshire fine sandy loam, 15 to 25 percent slopes
64B	Cheshire fine sandy loam, 3 to 8 percent slopes, very stony
64C	Cheshire fine sandy loam, 8 to 15 percent slopes, very stony

Map Unit Symbol	Map Unit Name
65C	Cheshire fine sandy loam, 3 to 15 percent slopes, extremely stony
65D	Cheshire fine sandy loam, 15 to 35 percent slopes, extremely stony
66B	Narragansett silt loam, 2 to 8 percent slopes
66C	Narragansett silt loam, 8 to 15 percent slopes
67B	Narragansett silt loam, 3 to 8 percent slopes, very stony
67C	Narragansett silt loam, 8 to 15 percent slopes, very stony
68C	Narragansett silt loam, 3 to 15 percent slopes, extremely stony
68D	Narragansett silt loam, 15 to 25 percent slopes, extremely stony
69B	Yalesville fine sandy loam, 3 to 8 percent slopes
69C	Yalesville fine sandy loam, 8 to 15 percent slopes
70C	Branford-holyoke complex, 3 to 15 percent slopes, very rocky
71C	Brookfield-brimfield-rock outcrop complex, 3 to 15 percent slopes
71E	Brookfield-brimfield-rock outcrop complex, 15 to 45 percent slopes
72C	Brimfield-brookfield-rock outcrop complex, 3 to 15 percent slopes
72E	Brimfield-brookfield-rock outcrop complex, 15 to 45 percent slopes
73C	Charlton-chatfield complex, 3 to 15 percent slopes, very rocky
73E	Charlton-chatfield complex, 15 to 45 percent slopes, very rocky
74C	Narragansett-hollis complex, 3 to 15 percent slopes, very rocky
75C	Hollis-chatfield-rock outcrop complex, 3 to 15 percent slopes
75E	Hollis-chatfield-rock outcrop complex, 15 to 45 percent slopes
76E	Rock outcrop-hollis complex, 3 to 45 percent slopes
76F	Rock outcrop-hollis complex, 45 to 60 percent slopes
77C	Cheshire-holyoke complex, 3 to 15 percent slopes, very rocky
77D	Cheshire-holyoke complex, 15 to 35 percent slopes, very rocky
78C	Holyoke-rock outcrop complex, 3 to 15 percent slopes
78E	Holyoke-rock outcrop complex, 15 to 45 percent slopes
79E	Rock outcrop-holyoke complex, 3 to 45 percent slopes
80B	Bernardston silt loam, 3 to 8 percent slopes
80C	Bernardston silt loam, 8 to 15 percent slopes
81C	Bernardston silt loam, 3 to 15 percent slopes, extremely stony
81D	Bernardston silt loam, 15 to 25 percent slopes, extremely stony
82B	Broadbrook silt loam, 3 to 8 percent slopes
82C	Broadbrook silt loam, 8 to 15 percent slopes
82D	Broadbrook silt loam, 15 to 25 percent slopes
83B	Broadbrook silt loam, 3 to 8 percent slopes, very stony
83C	Broadbrook silt loam, 8 to 15 percent slopes, very stony
84B	Paxton and montauk fine sandy loams, 3 to 8 percent slopes
84C	Paxton and montauk fine sandy loams, 8 to 15 percent slopes
84D	Paxton and montauk fine sandy loams, 15 to 25 percent slopes
85B	Paxton and montauk fine sandy loams, 3 to 8 percent slopes, very stony
85C	Paxton and montauk fine sandy loams, 8 to 15 percent slopes, very stony
86C	Paxton and montauk fine sandy loams, 3 to 15 percent slopes, extremely stony
86D	Paxton and montauk fine sandy loams, 15 to 35 percent slopes, extremely stony
87B	Wethersfield loam, 3 to 8 percent slopes
87C	Wethersfield loam, 8 to 15 percent slopes
87D	Wethersfield loam, 15 to 25 percent slopes
88B	Wethersfield loam, 3 to 8 percent slopes, very stony
88C	Wethersfield loam, 8 to 15 percent slopes, very stony
89C	Wethersfield loam, 3 to 15 percent slopes, extremely stony
89D	Wethersfield loam, 15 to 35 percent slopes, extremely stony
90B	Stockbridge loam, 3 to 8 percent slopes
90C	Stockbridge loam, 8 to 15 percent slopes
90D	Stockbridge loam, 15 to 25 percent slopes
91B	Stockbridge loam, 3 to 8 percent slopes, very stony

Map Unit Symbol	Map Unit Name
91C	Stockbridge loam, 8 to 15 percent slopes, very stony
91D	Stockbridge loam, 15 to 35 percent slopes, very stony
92B	Nellis fine sandy loam, 3 to 8 percent slopes
92C	Nellis fine sandy loam, 8 to 15 percent slopes
92D	Nellis fine sandy loam, 15 to 25 percent slopes
93C	Nellis fine sandy loam, 3 to 15 percent slopes, very stony
94C	Farmington-nellis complex, 3 to 15 percent slopes, very rocky
94E	Farmington-nellis complex, 15 to 35 percent slopes, very rocky
95C	Farmington-rock outcrop complex, 3 to 15 percent slopes
95E	Farmington-rock outcrop complex, 15 to 45 percent slopes
96	Ipswich mucky peat
97	Pawcatuck mucky peat
98	Westbrook mucky peat
99	Westbrook mucky peat, low salt
100	Suncook loamy fine sand
101	Occum fine sandy loam
102	Pootatuck fine sandy loam
103	Rippowam fine sandy loam
104	Bash silt loam
105	Hadley silt loam
106	Winooski silt loam
107	Limerick and lim soils
108	Saco silt loam
109	Fluvaquents-udifluvents complex, frequently flooded
221A	Ninigret-urban land complex, 0 to 5 percent slopes
224A	Deerfield-urban land complex, 0 to 3 percent slopes
225B	Brancroft-urban land complex, 0 to 8 percent slopes
226B	Berlin-urban land complex, 0 to 8 percent slopes
228B	Elmridge-urban land complex, 0 to 8 percent slopes
229B	Agawam-urban land complex, 0 to 8 percent slopes
229C	Agawam-urban land complex, 8 to 15 percent slopes
230B	Branford-urban land complex, 0 to 8 percent slopes
230C	Branford-urban land complex, 8 to 15 percent slopes
232B	Haven-urban land complex, 0 to 8 percent slopes
234B	Merrimac-urban land complex, 0 to 8 percent slopes
235B	Penwood-urban land complex, 0 to 8 percent slopes
236B	Windsor-urban land complex, 0 to 8 percent slopes
237A	Manchester-urban land complex, 0 to 3 percent slopes
237C	Manchester-urban land complex, 3 to 15 percent slopes
238A	Hinckley-urban land complex, 0 to 3 percent slopes
238C	Hinckley-urban land complex, 3 to 15 percent slopes
240B	Ludlow-urban land complex, 0 to 8 percent slopes
243B	Rainbow-urban land complex, 0 to 8 percent slopes
245B	Woodbridge-urban land complex, 0 to 8 percent slopes
245C	Woodbridge-urban land complex, 8 to 15 percent slopes
248B	Georgia-urban land complex, 2 to 8 percent slopes
248C	Georgia-urban land complex, 8 to 15 percent slopes
250B	Sutton-urban land complex, 0 to 8 percent slopes
253B	Wapping-urban land complex, 0 to 8 percent slopes
255B	Watchaug-urban land complex, 0 to 8 percent slopes
260B	Charlton-urban land complex, 3 to 8 percent slopes
260C	Charlton-urban land complex, 8 to 15 percent slopes
260D	Charlton-urban land complex, 15 to 25 percent slopes
263B	Cheshire-urban land complex, 3 to 8 percent slopes

Map Unit Symbol	Map Unit Name
263C	Cheshire-urban land complex, 8 to 15 percent slopes
266B	Narragansett-urban land complex, 3 to 8 percent slopes
269B	Yalesville-urban land complex, 3 to 8 percent slopes
269C	Yalesville-urban land complex, 8 to 15 percent slopes
273C	Urban land-charlton-chatfield complex, rocky, 3 to 15 percent slopes
273E	Urban land-charlton-chatfield complex, rocky, 15 to 45 percent slopes
275C	Urban land-chatfield complex, rocky, 3 to 15 percent slopes
275E	Urban land-chatfield-rock outcrop complex, 15 to 45 percent slopes
282B	Broadbrook-urban land complex, 3 to 8 percent slopes
284B	Paxton-urban land complex, 3 to 8 percent slopes
284C	Paxton-urban land complex, 8 to 15 percent slopes
284D	Paxton-urban land complex, 15 to 25 percent slopes
287B	Wethersfield-urban land complex, 3 to 8 percent slopes
287C	Wethersfield-urban land complex, 8 to 15 percent slopes
287D	Wethersfield-urban land complex, 15 to 25 percent slopes
290B	Stockbridge-urban land complex, 3 to 8 percent slopes
290C	Stockbridge-urban land complex, 8 to 15 percent slopes
290D	Stockbridge-urban land complex, 15 to 25 percent slopes
301	Beaches-udipsamments complex, coastal
302	Dumps
303	Pits, quarries
304	Udorthents, loamy, very steep
305	Udorthents-pits complex, gravelly
306	Udorthents-urban land complex
307	Urban land
308	Udorthents, smoothed
309	Udorthents, flood control
310	Udorthents, periodically flooded
401C	Macomber-taconic complex, 3 to 15 percent slopes, very rocky
402D	Taconic-macomber-rock outcrop complex, 15 to 25 percent slopes
403C	Taconic-rock outcrop complex, 3 to 15 percent slopes
403E	Taconic-rock outcrop complex, 15 to 45 percent slopes
403F	Taconic-rock outcrop complex, 45 to 70 percent slopes
405C	Dummerston gravelly loam, 3 to 15 percent slopes, very stony
405E	Dummerston gravelly loam, 15 to 45 percent slopes, very stony
407C	Lanesboro loam, 3 to 15 percent slopes, very stony
407E	Lanesboro loam, 15 to 45 percent slopes, very stony
408C	Fullam silt loam, 3 to 15 percent slopes, very stony
409B	Brayton mucky silt loam, 0 to 8 percent slopes, very stony
413C	Bice-millsite complex, 3 to 15 percent slopes, very rocky
413E	Bice-millsite complex, 15 to 45 percent slopes, very rocky
415C	Westminster-millsite-rock outcrop complex, 3 to 15 percent slopes
415E	Westminster-millsite-rock outcrop complex, 15 to 45 percent slopes
416E	Rock outcrop-westminster complex, 8 to 45 percent slopes
416F	Rock outcrop-westminster complex, 45 to 70 percent slopes
417B	Bice fine sandy loam, 3 to 8 percent slopes, very stony
417C	Bice fine sandy loam, 8 to 15 percent slopes, very stony
417D	Bice fine sandy loam, 15 to 25 percent slopes, very stony
418C	Schroon fine sandy loam, 3 to 15 percent slopes, very stony
419	Loonmeadow mucky fine sandy loam, extremely stony
425B	Shelburne fine sandy loam, 3 to 8 percent slopes, very stony
425C	Shelburne fine sandy loam, 8 to 15 percent slopes, very stony
426D	Shelburne fine sandy loam, 15 to 35 percent slopes, extremely stony
427B	Ashfield fine sandy loam, 2 to 8 percent slopes, very stony

Map Unit Symbol	Map Unit Name
427C	Ashfield fine sandy loam, 8 to 15 percent slopes, very stony
437	Wonsqueak peat
438	Bucksport muck
W	Water

Soils Report

Paths and Trails - Dominant Condition

Paths and trails are used for walking, horseback riding, and similar uses and require little or no cutting or filling. The soils are rated based on the properties and qualities that influence trafficability and erodibility.

Soil Survey: State of Connecticut
Survey Status: Update
Correlation Date:
Distribution Date: 02/27/2002

Map Symbol	Soil Name	Rating	Dominant Component(s) and Reason(s)
5	WILBRAHAM SILT LOAM	Very limited	Component - WILBRAHAM (80%) • Depth to saturated zone
6	WILBRAHAM AND MENLO SOILS, EXTREMELY STONY	Very limited	Component - WILBRAHAM (60%) • Too Stony • Depth to saturated zone Component - MENLO (25%) • Depth to saturated zone • Ponding • Too Stony
13	WALPOLE SANDY LOAM	Very limited	Component - WALPOLE (80%) • Depth to saturated zone
30B	BRANFORD SILT LOAM, 3 TO 8 PERCENT SLOPES	Not limited	
37C	MANCHESTER GRAVELLY SANDY LOAM, 3 TO 15 PERCENT SLOPES	Not limited	
37E	MANCHESTER GRAVELLY SANDY LOAM, 15 TO 45 PERCENT SLOPES	Very limited	Component - MANCHESTER (80%) • Slope
40B	LUDLOW SILT LOAM, 3 TO 8 PERCENT SLOPES	Not limited	
41B	LUDLOW SILT LOAM, 2 TO 8 PERCENT SLOPES, VERY STONY	Somewhat limited	Component - LUDLOW (80%) • Too Stony
42C	LUDLOW SILT LOAM, 2 TO 15 PERCENT SLOPES, EXTREMELY STONY	Very limited	Component - LUDLOW (80%) • Too Stony
87B	WETHERSFIELD LOAM, 3 TO 8 PERCENT SLOPES	Not limited	
87C	WETHERSFIELD LOAM, 8 TO 15 PERCENT SLOPES	Not limited	
87D	WETHERSFIELD	Somewhat limited	Component - WETHERSFIELD (80%)

	LOAM, 15 TO 25 PERCENT SLOPES		• Slope
88C	WETHERSFIELD LOAM, 8 TO 15 PERCENT SLOPES, VERY STONY	Somewhat limited	Component - WETHERSFIELD (80%) • Too Stony

Soils Report

Soil Rutting Hazard - Dominant Condition

Ratings indicate the hazard or risk of ruts in the uppermost soil surface layers by operation of forest equipment. Soil displacement and puddling (soil deformation and compaction) may occur simultaneously with rutting. Ratings assess: The operation of equipment on forest sites (3-10 passes) when the soil moisture is near field capacity.

Soil Survey: State of Connecticut
Survey Status: Update
Correlation Date:
Distribution Date: 02/27/2002

Map Symbol	Soil Name	Rating	Dominant Component(s) and Reason(s)
5	WILBRAHAM SILT LOAM	Severe	Component - WILBRAHAM (80%) • Strength
6	WILBRAHAM AND MENLO SOILS, EXTREMELY STONY	Severe	Component - WILBRAHAM (60%) • Strength Component - MENLO (25%) • Strength • Wetness
13	WALPOLE SANDY LOAM	Moderate	Component - WALPOLE (80%) • Strength
30B	BRANFORD SILT LOAM, 3 TO 8 PERCENT SLOPES	Severe	Component - BRANFORD (80%) • Strength
37C	MANCHESTER GRAVELLY SANDY LOAM, 3 TO 15 PERCENT SLOPES	Moderate	Component - MANCHESTER (80%) • Strength
37E	MANCHESTER GRAVELLY SANDY LOAM, 15 TO 45 PERCENT SLOPES	Moderate	Component - MANCHESTER (80%) • Strength
40B	LUDLOW SILT LOAM, 3 TO 8 PERCENT SLOPES	Severe	Component - LUDLOW (80%) • Strength
41B	LUDLOW SILT LOAM, 2 TO 8 PERCENT SLOPES, VERY STONY	Severe	Component - LUDLOW (80%) • Strength
42C	LUDLOW SILT LOAM, 2 TO 15 PERCENT SLOPES, EXTREMELY STONY	Severe	Component - LUDLOW (80%) • Strength
87B	WETHERSFIELD LOAM, 3 TO 8 PERCENT SLOPES	Severe	Component - WETHERSFIELD (80%) • Strength
87C	WETHERSFIELD LOAM, 8 TO 15 PERCENT SLOPES	Severe	Component - WETHERSFIELD (80%) • Strength
87D	WETHERSFIELD LOAM, 15 TO 25	Severe	Component - WETHERSFIELD (80%) • Strength

	PERCENT SLOPES		
88C	WETHERSFIELD LOAM, 8 TO 15 PERCENT SLOPES, VERY STONY	Severe	Component - WETHERSFIELD (80%) • Strength

Soils Report

Harvest Equipment Operability - Dominant Condition

The suitability for operating harvesting equipment. Ratings assess: The off-road transport or harvest of logs and/or wood products by ground-based wheeled or tracked equipment. The use of standard rubber-tire skidders and bulldozers used for ground-based harvesting and transport.

Soil Survey: State of Connecticut
Survey Status: Update
Correlation Date:
Distribution Date: 02/27/2002

Map Symbol	Soil Name	Rating	Dominant Component(s) and Reason(s)
5	WILBRAHAM SILT LOAM	Moderately suited	Component - WILBRAHAM (80%) • Strength
6	WILBRAHAM AND MENLO SOILS, EXTREMELY STONY	Moderately suited	Component - WILBRAHAM (60%) • Strength • Rock fragments
13	WALPOLE SANDY LOAM	Well suited	
30B	BRANFORD SILT LOAM, 3 TO 8 PERCENT SLOPES	Moderately suited	Component - BRANFORD (80%) • Strength
37C	MANCHESTER GRAVELLY SANDY LOAM, 3 TO 15 PERCENT SLOPES	Well suited	
37E	MANCHESTER GRAVELLY SANDY LOAM, 15 TO 45 PERCENT SLOPES	Moderately suited	Component - MANCHESTER (80%) • Slope
40B	LUDLOW SILT LOAM, 3 TO 8 PERCENT SLOPES	Moderately suited	Component - LUDLOW (80%) • Strength
41B	LUDLOW SILT LOAM, 2 TO 8 PERCENT SLOPES, VERY STONY	Moderately suited	Component - LUDLOW (80%) • Strength
42C	LUDLOW SILT LOAM, 2 TO 15 PERCENT SLOPES, EXTREMELY STONY	Moderately suited	Component - LUDLOW (80%) • Rock fragments • Strength
87B	WETHERSFIELD LOAM, 3 TO 8 PERCENT SLOPES	Moderately suited	Component - WETHERSFIELD (80%) • Strength
87C	WETHERSFIELD LOAM, 8 TO 15 PERCENT SLOPES	Moderately suited	Component - WETHERSFIELD (80%) • Strength
87D	WETHERSFIELD LOAM, 15 TO 25 PERCENT SLOPES	Moderately suited	Component - WETHERSFIELD (80%) • Strength • Slope
88C	WETHERSFIELD LOAM, 8 TO 15	Moderately suited	Component - WETHERSFIELD (80%) • Strength

	PERCENT SLOPES, VERY STONY		

USDA United States Department of Agriculture

Natural Resources Conservation Service

Soils Report

Log Landing Suitability - Dominant Condition

The suitability of the soil at the forest site to serve as a log landing. Ratings assess: Efficient and effective use of equipment for the temporary storage and handling of logs. The use of grappel hooks, skidders, trucks, loaders, cable yarders and other similar equipment.

Soil Survey: State of Connecticut
Survey Status: Update
Correlation Date:
Distribution Date: 02/27/2002

Map Symbol	Soil Name	Rating	Dominant Component(s) and Reason(s)
5	WILBRAHAM SILT LOAM	Poorly suited	Component - WILBRAHAM (80%) • Wetness • Strength
6	WILBRAHAM AND MENLO SOILS, EXTREMELY STONY	Poorly suited	Component - WILBRAHAM (60%) • Wetness • Rock fragments • Strength Component - MENLO (25%) • Rock fragments • Wetness • Ponding
13	WALPOLE SANDY LOAM	Poorly suited	Component - WALPOLE (80%) • Wetness
30B	BRANFORD SILT LOAM, 3 TO 8 PERCENT SLOPES	Moderately suited	Component - BRANFORD (80%) • Strength • Slope
37C	MANCHESTER GRAVELLY SANDY LOAM, 3 TO 15 PERCENT SLOPES	Moderately suited	Component - MANCHESTER (80%) • Slope
37E	MANCHESTER GRAVELLY SANDY LOAM, 15 TO 45 PERCENT SLOPES	Poorly suited	Component - MANCHESTER (80%) • Slope
40B	LUDLOW SILT LOAM, 3 TO 8 PERCENT SLOPES	Moderately suited	Component - LUDLOW (80%) • Strength • Slope
41B	LUDLOW SILT LOAM, 2 TO 8 PERCENT SLOPES, VERY STONY	Moderately suited	Component - LUDLOW (80%) • Strength
42C	LUDLOW SILT LOAM, 2 TO 15 PERCENT SLOPES, EXTREMELY STONY	Moderately suited	Component - LUDLOW (80%) • Strength • Slope • Rock fragments
87B	WETHERSFIELD LOAM, 3 TO 8 PERCENT SLOPES	Moderately suited	Component - WETHERSFIELD (80%) • Slope • Strength
87C	WETHERSFIELD	Moderately suited	Component - WETHERSFIELD (80%)

	LOAM, 8 TO 15 PERCENT SLOPES		• Strength • Slope
87D	WETHERSFIELD LOAM, 15 TO 25 PERCENT SLOPES	Poorly suited	Component - WETHERSFIELD (80%) • Slope • Strength
88C	WETHERSFIELD LOAM, 8 TO 15 PERCENT SLOPES, VERY STONY	Moderately suited	Component - WETHERSFIELD (80%) • Strength • Wetness • Slope

USDA United States Department of Agriculture

Natural Resources Conservation Service

Soils Report

Construction Limitations for Haul Roads/Log Landings - Dominant Condition

Ratings reflect limitations for constructing haul roads and log landings. Rating assess: Earth moving activities to meet standards and specifications for haul roads and log landings. Excavating, removal and shaping of native soil materials to develop haul roads and log landings for forest harvesting and other management activities.

Soil Survey: State of Connecticut
Survey Status: Update
Correlation Date:
Distribution Date: 02/27/2002

Map Symbol	Soil Name	Rating	Dominant Component(s) and Reason(s)
5	WILBRAHAM SILT LOAM	Slight	
6	WILBRAHAM AND MENLO SOILS, EXTREMELY STONY	Moderate	Component - WILBRAHAM (60%) • Stoniness
13	WALPOLE SANDY LOAM	Slight	
30B	BRANFORD SILT LOAM, 3 TO 8 PERCENT SLOPES	Moderate	Component - BRANFORD (80%) • Strength
37C	MANCHESTER GRAVELLY SANDY LOAM, 3 TO 15 PERCENT SLOPES	Slight	
37E	MANCHESTER GRAVELLY SANDY LOAM, 15 TO 45 PERCENT SLOPES	Moderate	Component - MANCHESTER (80%) • Sandiness • Slope
40B	LUDLOW SILT LOAM, 3 TO 8 PERCENT SLOPES	Moderate	Component - LUDLOW (80%) • Strength
41B	LUDLOW SILT LOAM, 2 TO 8 PERCENT SLOPES, VERY STONY	Moderate	Component - LUDLOW (80%) • Strength
42C	LUDLOW SILT LOAM, 2 TO 15 PERCENT SLOPES, EXTREMELY STONY	Moderate	Component - LUDLOW (80%) • Stoniness • Strength
87B	WETHERSFIELD LOAM, 3 TO 8 PERCENT SLOPES	Moderate	Component - WETHERSFIELD (80%) • Strength
87C	WETHERSFIELD LOAM, 8 TO 15 PERCENT SLOPES	Moderate	Component - WETHERSFIELD (80%) • Strength
87D	WETHERSFIELD LOAM, 15 TO 25 PERCENT SLOPES	Moderate	Component - WETHERSFIELD (80%) • Slope • Strength
88C	WETHERSFIELD	Moderate	Component - WETHERSFIELD (80%)

	LOAM, 8 TO 15 PERCENT SLOPES, VERY STONY		• Strength

Soils Report

Road Suitability (Natural Surface) - Dominant Condition

Suitability for using the natural surface of the soil component for roads by trucks for the transport of logs and other wood products from the site. Ratings assess: The efficient and safe transport of forest products from the site.

Soil Survey: State of Connecticut
Survey Status: Update
Correlation Date:
Distribution Date: 02/27/2002

Map Symbol	Soil Name	Rating	Dominant Component(s) and Reason(s)
5	WILBRAHAM SILT LOAM	Poorly suited	Component - WILBRAHAM (80%) • Wetness • Strength
6	WILBRAHAM AND MENLO SOILS, EXTREMELY STONY	Poorly suited	Component - WILBRAHAM (60%) • Wetness • Rock fragments • Strength Component - MENLO (25%) • Rock fragments • Wetness • Ponding
13	WALPOLE SANDY LOAM	Poorly suited	Component - WALPOLE (80%) • Wetness
30B	BRANFORD SILT LOAM, 3 TO 8 PERCENT SLOPES	Moderately suited	Component - BRANFORD (80%) • Strength • Slope
37C	MANCHESTER GRAVELLY SANDY LOAM, 3 TO 15 PERCENT SLOPES	Moderately suited	Component - MANCHESTER (80%) • Slope
37E	MANCHESTER GRAVELLY SANDY LOAM, 15 TO 45 PERCENT SLOPES	Poorly suited	Component - MANCHESTER (80%) • Slope
40B	LUDLOW SILT LOAM, 3 TO 8 PERCENT SLOPES	Moderately suited	Component - LUDLOW (80%) • Strength • Slope
41B	LUDLOW SILT LOAM, 2 TO 8 PERCENT SLOPES, VERY STONY	Moderately suited	Component - LUDLOW (80%) • Strength
42C	LUDLOW SILT LOAM, 2 TO 15 PERCENT SLOPES, EXTREMELY STONY	Moderately suited	Component - LUDLOW (80%) • Strength • Slope • Rock fragments
87B	WETHERSFIELD LOAM, 3 TO 8 PERCENT SLOPES	Moderately suited	Component - WETHERSFIELD (80%) • Slope • Strength
87C	WETHERSFIELD	Moderately suited	Component - WETHERSFIELD (80%)

	LOAM, 8 TO 15 PERCENT SLOPES		• Strength • Slope
87D	WETHERSFIELD LOAM, 15 TO 25 PERCENT SLOPES	Poorly suited	Component - WETHERSFIELD (80%) • Slope • Strength
88C	WETHERSFIELD LOAM, 8 TO 15 PERCENT SLOPES, VERY STONY	Moderately suited	Component - WETHERSFIELD (80%) • Strength • Wetness • Slope

ABOUT THE TEAM

The Eastern Connecticut Environmental Review Team (ERT) is a group of professionals in environmental fields drawn together from a varety of federal, state and regional agencies. Specialists on the Team include geologists, biologists, foresters, soil specialists, engineers and planners. The ERT operates with state funding under the supervision of the Eastern Connecticut Resource Conservation and Development (RC&D) Area — an 86 town region.

The services of the Team are 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, landfills, commercial and industrial developments, sand and gravel excavations, 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 official 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 and the ERT Coordinator. A request form should be completely filled out and should include the required materials. 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 and request forms regarding the Environmental Review Team please contact the ERT Coordinator: 860-345-3977, Eastern Connecticut RC&D Area, P.O. Box 70, Haddam, Connecticut 06438.