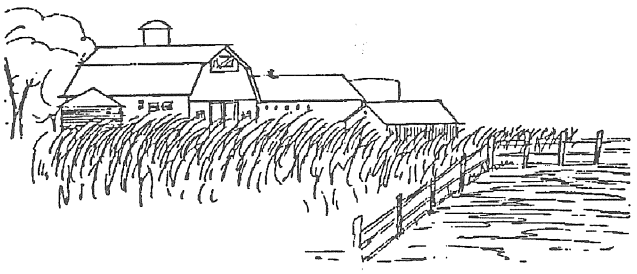
OLSEN FARMS SUBDIVISION

COVENTRY, CONNECTICUT

Eastern Connecticut Environmental Review Team Report

Eastern Connecticut Resource Conservation & Development Area, Inc.



OLSEN FARMS SUBDIVISION

COVENTRY, 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
Planning and Zoning Commission
Coventry, Connecticut

September 1998

CT Environmental Review Teams
1066 Saybrook Road, P.O. Box 70
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Acknowledgments

This report is an outgrowth of a request from the Coventry Planning and Zoning Commission to the Tolland 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 Wednesday, August 26, 1998.

David Askew	District Manager Tolland County Soil & Water Conservation District (860) 875-3881
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I would also like to thank Eric Trott, director of planning and development, Ruth Hanks, planning and zoning commission member, Eric Thomas, conservation commission member, and Donald Holmes, the project engineer, 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 plans and information. 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 town and landowner. This report identifies the existing resource base and evaluates its significance to the proposed development, and also suggests considerations that should be of concern to the town. The results of this Team action are oriented toward the development of better environmental quality and the long term economics of land use.

The Eastern Connecticut RC&D Executive Council hopes you will find this report of value and assistance in reviewing this proposed subdivision.

If you require additionai information please contact:

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Table Of Contents

Introduction

Introduction

The Coventry Planning and Zoning Commission has requested assistance from the Eastern Connecticut Environmental Review Team in conducting a review of a proposed subdivision.

The ±185 acre site is located on Talcott Hill Road, Seagraves Road and Daly Road to the east of Coventry Lake. The subdivision proposed consists of 38 single family house lots with on-site water supply and sewage disposal. The lots are either road frontage lots or rear lots with no new roads proposed. The area is zoned RU-40 (minimum 40,000 square foot lots) with rear lots required to be a minimum of 80,000 square feet. The average lot size is +4 acres with the largest lot being +18 acres. The site has an existing farm and residence on Talcott Hill Road. The property consists of some open hay fields with the remainder of the site being wooded.

Objectives of the ERT Study

The Commission has asked for assistance and guidance in determining the appropriateness of the subdivision design with concerns in the following areas: proximity to Nathan Hale State Forest, Coventry lake and the Skungamaug River, erosion and sediment control with regard to steep slopes, open space design and access, wildlife habitat and impacts, and vegetation impacts.

The ERT Process

Through the efforts of the planning and zoning commission this environmental review and report was prepared for the Town of Coventry.

This report provides an information base and a series of recommendations and guidelines which cover the topics requested by the commission. 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 Wednesday, August 26, 1998 and some Team members made 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.

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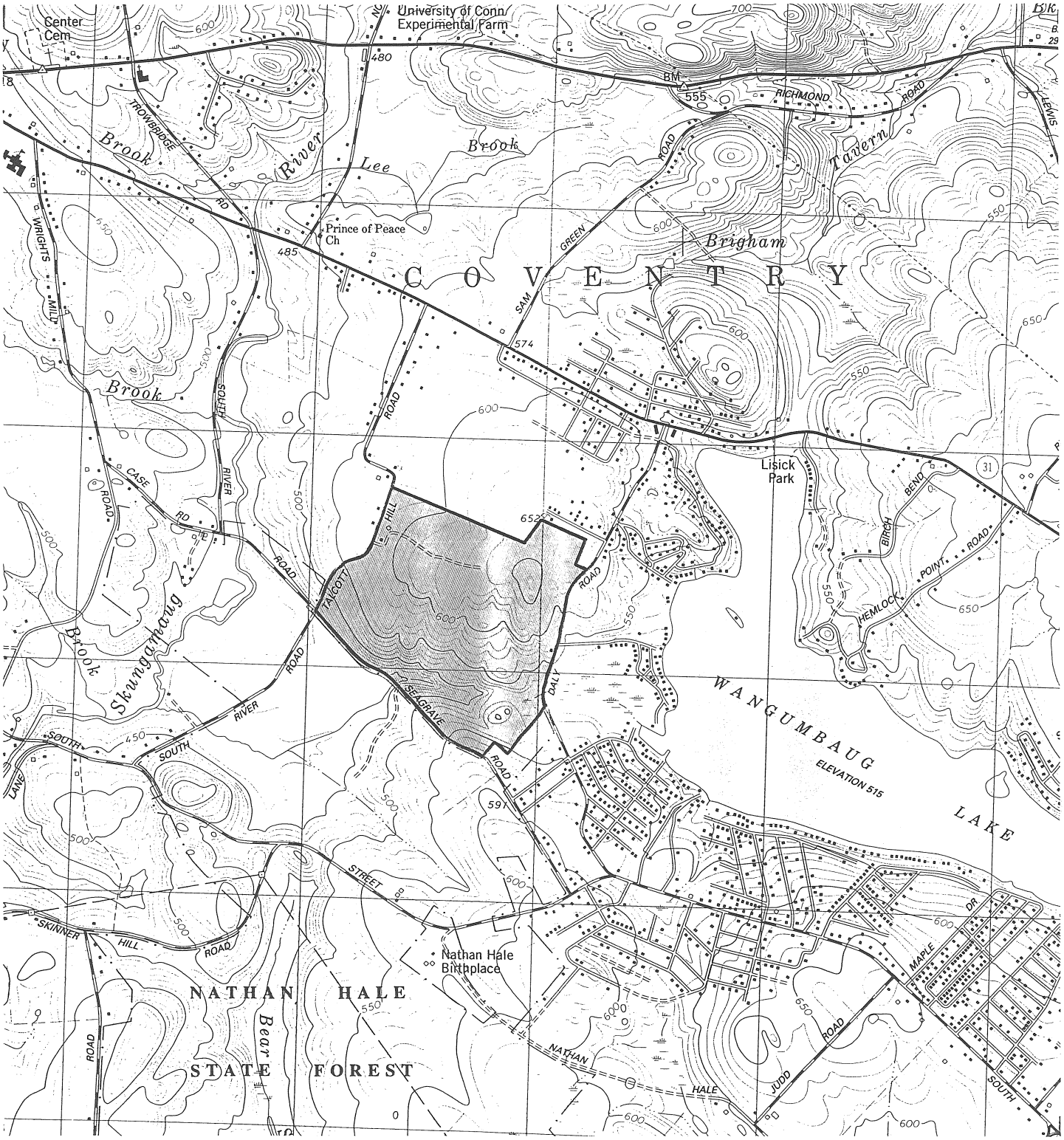
Topographic Map

Scale 1″ = 2000′



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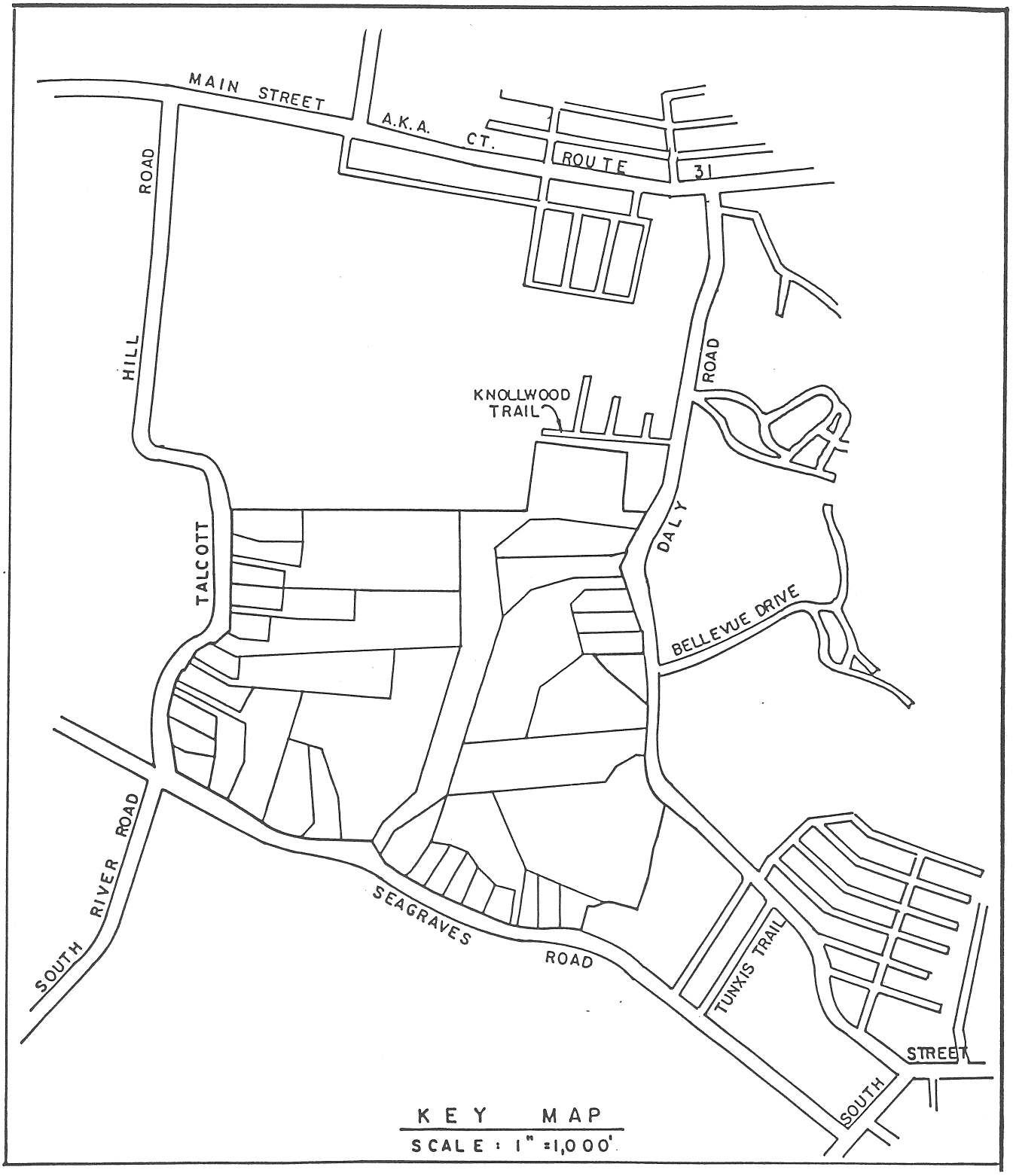
Subdivision layout

Scale 1" = 1000'



Conservation District Review

Subdivision Design

It is the opinion of the District Team member that this is one of the better subdivision layouts to be reviewed in some time. Nearly all houses, driveways, and septic systems have been designed to conform to existing grades, vegetative characteristics, and features such as stone walls. Smaller lots are located along existing roadways, eliminating the need for an internal road. Large lots extend into the parcel and abut the open space corridor. Under prevailing zoning this parcel could be much more densely developed.

Moderate and steep slopes over most of the parcel will present a challenge during lot development. Daily inspection and maintenance of erosion controls will be necessary on many lots to prevent erosion. Existing and proposed drainage patterns and the low density development prevent any cumulative erosion problems. Any erosion that occurs as a result of lot development will be localized and easily corrected.

Soils

Upland soils consist of the following:

- Woodbridge fine sandy loam
- Woodbridge very stony fine sandy loam
- Charlton fine sandy loam
- Hollis very rocky fine sandy loam
- Hollis extremely rocky fine sandy loam
- Gloucester and Charlton very stony soils

- Sutton very stony fine sandy loam

Wetland soils consist of:

- Leicester-Ridgebury-Whitman very stony complex
- Peat and Muck

Individual soil descriptions are found in the Appendix.

The dominant upland soil within the more level, previously farmed sections along Talcott Hill Road, is Woodbridge. Hollis soils are prevalent over most of the remaining parcel. Both these soils have moderate erosion potential. The Hollis soils on the abundant steep slopes could be a problem during construction if erosion controls are not well maintained. The Soil Survey of Tolland County, Connecticut shows slopes only up to 15%. However, the topographic map supplied by the applicant shows slopes closer to 20%, especially along Seagraves Road.

All other upland soils occurring on the parcel have low to moderate erosion potentials. Other limitations of the soils include a seasonally high water table with the Woodbridge soils and shallow bedrock with the Hollis soils.

The Leicester series are the predominant wetland soils. These wetland soils are common within the sloping, wooded drainage-ways typical of the parcel.

Erosion Control

For subdivision purposes, the erosion control plan is sufficient. As already stated, lot design generally conforms to the existing topography. In addition, driveway locations take advantage of existing contours and house locations are situated so that cuts and fills are reduced.

Driveway construction will still be a difficult on a number of lots, including 11, 13, 14, 15, 16, 18, 19, 31, 32, 33, 35, 36, and 37. Some of these are made especially difficult due to their length. Erosion controls on individual lots will have to be monitored carefully. The Town Engineer prior to construction should review the final design of each driveway. During driveway construction temporary diversions (water bars), stone swales, sediment basins, and stone turnouts may all be required to control erosion.

Lot 19 will have a particularly long and steep driveway if the house is moved to the top of the hill.

Drainage from most of the driveways will flow towards town roads. Every attempt should be made to disperse the flow into adjacent lands with turnouts and energy dissipaters. Long swales down the driveways should be discouraged. Driveways should also be crowned to prevent water from concentrating.

Wetlands

Wetlands have been well protected by the proposed subdivision layout. All driveway crossings and proposed activities within regulated areas seem reasonable and well planned.

Stormwater Management

The applicant's engineer submitted a drainage summary report demonstrating that relatively small increases in the peak discharge will be experienced in the five (5) drainage basins of the parcel. On page 2 of the report, the engineer references "the 15% increase that triggers the need for management practices". It is assumed the 15% referenced is from the Coventry subdivision or zoning regulations. Some towns in Connecticut do not allow any increase in the discharge from new development. While

the increases in proposed flows are relatively small, some acceleration of bank erosion could occur in receiving streams.

Since most of the parcel drains towards town roads, the biggest concern is that the drainage systems on the roads can accommodate the increased flows. The Coventry Public Works Department has reviewed the proposal and that the applicant has agreed to certain drainage improvements.

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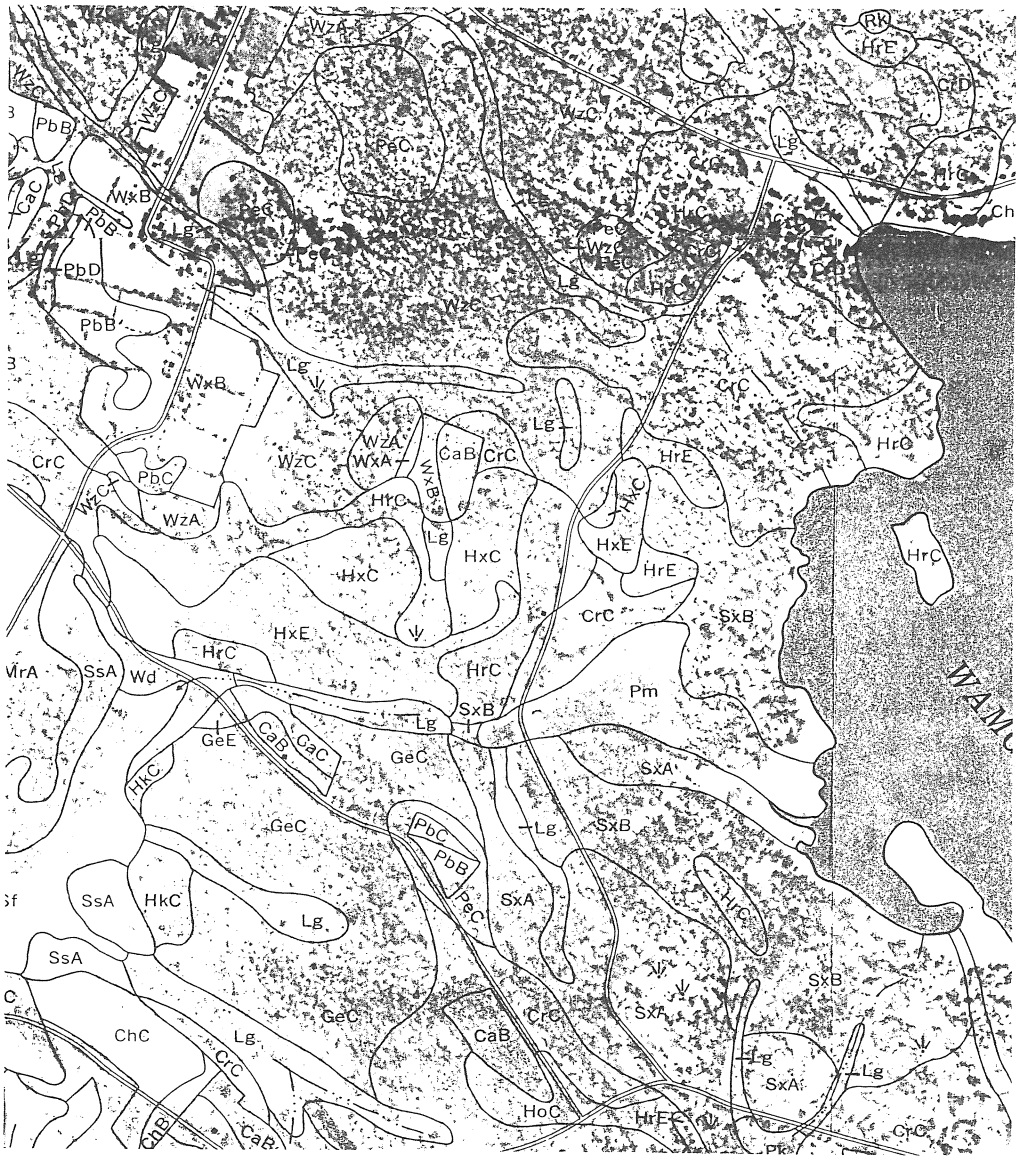
Soils Map

Scale 1″ = 1320′



Water Quality Concerns

The primary lake water quality concern associated with residential development is accelerated eutrophication. Eutrophication occurs when increased nutrient loading of phosphorus and nitrogen or sedimentation escalates plant growth within a lake. Residential developments that increase nutrient loading and sedimentation during and after construction will foster advanced eutrophication. As a lake becomes more eutrophic, water clarity decreases and nuisance rooted plant growth increases, generally diminishing the recreation utility of the lake. Currently eutrophication is not adversely impacting Coventry Lake. However, increased development in the watershed could advance the rate of eutrophication to a level that algae and weed growth negatively impact recreation. Review of the Olsen Farm Subdivision with regards to water quality of Coventry Lake should concentrate on limiting nutrient and sediment losses from the site during and after construction.

The Olsen Farm Subdivision contains nine lots with frontage on Daly Road that are partially or totally within the Coventry Lake watershed. Runoff from these nine lots will reach Coventry Lake via the wetland on the east side of Daly Road that receives stormwater from Daly Road. Although only 9 of the 38 lots are partially or totally in the watershed, activities on theses lots could increase nutrient loading and sedimentation to Coventry Lake.

Nutrient loading and sedimentation can be minimized through planning and enforcement. As with any construction project, measures should be taken to reduce soil erosion. The plans presented to the ERT provide a basic overview of erosion controls. Regular inspections of erosion control measures by town staff during construction will be crucial to protecting Coventry Lake. Inspections should also take place before and after storm events. Sediment released from failed erosion controls could deposit in the wetland receiving runoff from Daly Road, reducing its capability to renovate stormwater before it enters Coventry Lake. Severe erosion may even cause

sedimentation in Coventry Lake, increasing rooted aquatic plant growth and nutrient loading.

Although improved drainage for Daly Road is proposed, detailed information regarding stormwater treatment was not provided in the plans presented to the ERT. Each lot on Daly Road will be serviced by long driveways that will be unpaved during, and probably after construction. These driveways could create sedimentation problems by increasing runoff velocities from paved areas or by washing soil off gravel driveways. Permanent sediment control structures such as rip rapped channels and grassed swales along the side of the driveways may be needed to prevent sediments from reaching Daly Road and wetlands. Consideration should also be given to installing a sediment chamber or basin down gradient from the driveway for lot 30 on Daly Road. If it is determined that this structure will not be included with the current drainage improvements, it may be prudent to provide an area with an easement that would allow the Town of Coventry to install such a structure in the future.

In addition to structural controls for stormwater runoff, limiting land clearing on lots 30 -38 would protect Coventry Lake. Undisturbed areas reduce nutrient loading to water bodies while residential properties with extensive yards usually add nutrients. Restrictions placed on the lots as part of this subdivision would assure that clearing would be limited. The wetlands and watercourses commission could also address land clearing controls as each lot is reviewed for development. However, restrictions placed on the properties as part of the subdivision would assure that future owners are aware of this concern.

To aid land use decision makers, it is recommended that any revised plans for the Olsen Farms Subdivision include drainage basin boundaries and indicate the flow direction of watercourses. The Olsen Farm is within the Coventry Lake and the Skungamaug River watersheds and a number of wetlands, according to the plans, are not associated with any watercourse. Impacts to these resources could be better evaluated with plans that provide these basic hydrologic features.

The Natural Diversity Data Base

The Natural Diversity Data Base maps and files regarding the project site have been reviewed. According to our information, there are no State and Federally Endangered and Threatened species, Connecticut State Special Concern species, or natural communities in the areas listed above.

Natural Diversity Data 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 Natural Resources 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. Consultation with the Data Base should not be substituted for on-site 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.

Vegetation

The ±185 acre parcel proposed for subdivision into 38 single family lots may be divided into several broad vegetation cover types. These include Mixed Hardwoods, Open Field, Old Field and Hardwood Swamp/Wetland. Below are brief descriptions of each of these vegetation types. The location and acreage of each of these types were obtained from 1995 aerial photographs and are only approximate. These are depicted on the Vegetation Cover Type Map. A field reconnaissance of the site was completed on August 26, 1998. A more comprehensive inventory of the herbaceous vegetation which is present in each of these types should be made at different times throughout the year by a botanist.

Most of the forested portions of this tract were harvested approximately 20 years ago. At that time, many of the merchantable sawtimber-sized trees were removed leaving the smaller and less vigorous trees to grow in the residual stand. In addition to the saplings and pole-sized trees are occasional large but poor quality and less valuable, from a timber standpoint, black oak, white oak, hickory and white ash. These trees, if healthy and sound, can be aesthetically pleasing to homeowners and can provide food and cover for wildlife.

The hemlock which are present within the property are lightly infested with the Hemlock Woolly Adelgid. This insect may cause widespread hemlock mortality, significantly altering the species composition in the portions of the forest where it is found.

Mixed Hardwoods: The Mixed Hardwood type covers approximately 147.5 acres of the subject property. This type is dominated by saplings (1" to 4" diameter at breast height (d.b.h.)) and poles (5" to 11 " d.b.h.) which range from approximately 20 to about 60

years of age. Larger and older sawtimber size trees (12" d.b.h. and larger) are present. These sawtimber size trees were left during the previous harvest because they were not large enough and/or valuable enough to be cut and sold as sawtimber. Their numbers and density within the type are dependent upon the severity or intensity of the harvest at that particular site. The overstory in this vegetation type is dominated by red maple, black birch, hickory, white ash, red oak, black oak, scarlet oak, white oak, with a minor component of aspen, cherry, white pine and pitch pine. Red maple, white ash and elm dominate where the Mixed Hardwoods type makes a transition to the Hardwood Swamp/Wetland type and also along the intermittent steams and seeps. The understory vegetation which is present throughout includes black birch, red maple, hornbeam, sugar maple, gray birch, sassafras, hemlock, white pine, highbush blueberry, maple leaved viburnum, spicebush, sweet pepperbush, barberry*, and occasional multiflora rose*. Ground cover vegetation includes hardwood and white pine seedlings, poison ivy, grape, evergreen wood fern, hayscented fern, Christmas fern and various other species of herbaceous plants.

Open Fields: The Open Field type makes up approximately 18 acres of the parcel. These fields were mowed for hay within the past year. The vegetation found is the cultivated grasses and legumes including orchard grass, timothy, redtop, birdsfoot trefoil, and various clovers. The hedgerows and field borders are dominated by pole to sawtimber sized white ash, black ash, cherry, red oak, red maple and aspen with sumac, gray dogwood, autumn olive*, Japanese knotweed*, grape, Japanese bittersweet*, goldenrod, bracken fern, black-eyed Susan, ox-eye daisy, milkweed and Queen Anne's lace.

Old Field: The Old Field vegetation type occupies about 16 acres of this site and includes an additional 1/2 acre pond. The vegetation which is present in these areas is variable. This is primarily due to soil moisture differences, the timing of establishment, and the spread or invasion of hardwood and softwood trees and shrubs. Aspen, gray birch, red maple, black birch, black oak, white oak, white ash and eastern red cedar with autumn olive*, multiflora rose*, blackberry, raspberry, black willow, spicebush, gray dogwood, winged euonymus*, sumac, bayberry, goldenrod, sweet fern, Japanese

bittersweet* and grape. Ground cover vegetation is comprised of grasses, sedges, clovers, poison ivy, Queen Anne's lace, milkweed, spirea, meadowsweet and other wildflowers and weed species. Several acres of this type are former Christmas tree plantations which are variably stocked with 12' - 16' white spruce, white pine, scotch pine and Douglas fir.

Hardwood Swamp/ Wetland: There are approximately 3 acres of the Hardwood Swamp/ Wetland type present in this parcel. The vegetation found is variable with all size classes and age classes represented. The wetlands are dominated by red maple and may include occasional white ash, yellow birch, black gum and American elm. Shrub species present include spicebush, sweet pepperbush, highbush blueberry, swamp azalea, button bush, winterberry, witch-hazel, barberry* and multiflora rose*. Skunk cabbage, tussock sedge, speckled alder, club moss, sphagnum moss, ferns and various wildflowers form the ground cover. The exception is the wetlands off Daly Road where the majority of the trees have been killed due to beaver activity.

**Invasive exotic vegetation has become established on parts of the review site, especially in open areas or areas open in the more recent past. Of special concern are several invasive plant species which have the potential to become major components of the ecosystem by out competing native species. These include barberry, multiflora rose, Japanese bittersweet, Japanese knotweed, winged euonymus and autumn olive. Although some of these species provide wildlife with food and cover, they are aggressive competitors with native plant species. In some areas, the presence of one or more these species may preclude the establishment of the more desirable native plant species. Mechanical removal and/or chemical control of these plants may be effective but will become more difficult as they become more widespread.*

Limiting Conditions/ Potential Hazards

Hemlock occurs as scattered trees and groups on portions of the parcels. A light infestation of Hemlock Woolly Adelgid in some of the hemlocks was noted during the field reconnaissance. The Hemlock Woolly Adelgid is a small aphid-like insect that feeds on young Eastern hemlock twigs during all seasons of the year with the greatest damage occurring in the spring. The loss of new shoots and needles seriously impairs the hemlock's health and vigor. The Adelgid is dispersed by wind, birds and mammals and is at the present time almost impossible to control in a forested environment. Cultural and chemical control methods have proven to work well in ornamental landscape. Biological control agents such as the Asian ladybird coccinellid beetle show promise, but widespread availability and use is probably years off.

Defoliation and resulting mortality can occur within several years after infestation. Infested hemlock in a given area will die at varying times but will deteriorate quickly after death. Although standing dead hemlock provide excellent foraging and cavity nesting habitat for many species of birds, they do create problems. Dead hemlock trees not only pose a direct threat to the safety of people and property, they may also pose a long term wildfire hazard and are generally not aesthetically pleasing. Hemlock, once dead, has no timber salvage value and therefore the landowner will incur costs if removals are necessary.

Potential hazards throughout the property include dead trees, dead tree parts and those trees whose roots or trunks have a high probability of failing due to excessive decay, lean, severe crowding, or poor form. These trees become hazard trees if there is a high probability of them falling and injuring people or damaging property. All trees with the above mentioned characteristics would be hazardous if located within striking distance of a structure or utility, and/or along areas of high use such as hiking trails, lawns, driveways or roads.

The creation of openings in the forest (from building roadways and clearing houselots) will increase the susceptibility of the trees to windthrow at the leeward edge of the openings. Trees adjacent to or in openings that are created on soils with a high moisture content or on windward slopes will have the greatest risk for windthrow. These newly exposed trees are also susceptible to ice, snow and wind storms which may cause considerable crown breakage.

Construction activities that occur too close to trees that are to be retained will adversely effect their health, vigor and longevity, potentially creating future hazard trees. Trees are very sensitive to the condition of the soil within the entire area of their root systems which extends well beyond the spread of their crowns. Excavation, filling and the general use of heavy machinery will lead to some degree of soil compaction that will adversely affect the soil moisture and aeration balance. This imbalance could lead to a decline in tree health and vigor and may even lead to tree mortality within three to five years. Physical damage to the root system (by excavation) or bark damage may allow the introduction of decay organisms which may result in the decline of a tree's health over time. The older and/or larger a tree is, the more readily it is affected by the negative impact of construction related activities. The delayed effect of construction activities on trees can create future problems that are expensive to rectify once utilities, roads, septic systems and homes are in place.

Aesthetic Considerations

The forested lots and proposed conservation land should provide many of the rural amenities for which many home buyers are looking. The aesthetics of a forest depends upon the numerous characteristics of the individual trees, the forest as a whole and the landscape. Some of these characteristics include: size of the trees, density of the forest, variety of the forest scenes, unique or interesting features, amount of dead or down woody material, depth of view into the forest, and visual attractiveness of the bark texture and leaf and flower color. Generally, forests with large trees and a deep

unobstructed view into the woods are most desirable. Unfortunately on this parcel, the majority of large healthy trees were removed at the time of the last harvest. The larger trees that do remain especially if they are reasonably health and sound should be retained and protected as "standards" for their aesthetic and wildlife value.

Management Considerations

The maintenance and development of healthy, vigorous trees and forests should be considered in the development of this property. In addition to the environmental and aesthetic amenities they provide, the presence of healthy trees increases the value of houselots. A reconnaissance of the trees on the individual lots should be performed in conjunction with laying out the construction site in order to identify the best trees to be retained. The trees to be retained should be healthy, free of decay and preferably a long lived species such as red oak, white oak, hickory, sugar maple and American beech. Other trees are acceptable if they are healthy and not prone to insect infestation or disease. These trees may be retained groups or "islands" to reduce the impact of soil disturbance and mechanical injury.

Both individual trees and "islands" of trees can be designated for retention with vinyl flagging or fencing prior to construction so that tree injury may be avoided. No excavation, filling or driving of heavy equipment should be permitted within 25-50 feet (depending on tree diameter - the larger the tree to be retained, the greater the area of no disturbance needed) of single trees or groups of trees. Another general rule is no excavation, filling or heavy equipment should be permitted within two times the radial spread distance of the retained tree's crown. Finally, trees left on site around houses should be away from the house at least for a distance equal to the height of the tree.

The negative effects of construction on trees is not usually visible at the time the work is done. Soil compaction root injury and scraped bark are stressors that weaken the tree allowing secondary attacks by insects and diseases long after machinery has left the site.

This creates hazards and problems for homeowners as the trees die several years after construction. These problems can be minimized or eliminated when proper care is taken with the vegetation during development.

When making grade cuts, trees should be removed back from the cut for at least a distance of two feet for every one foot depth of cut, e.g. 20 feet back for a 10 foot cut. Where feasible roads, driveways, houses and septic systems should be relocated slightly in the field to protect healthy, highly aesthetic trees that are to be retained.

Tree and vegetation clearing and removal will take place on a portion of the parcel. The sawtimber size (11 " diameter at breast height (d.b.h.) and larger) trees even though they are generally of low value and the pole size (6"- 10.9" d.b.h.) trees that are going to be removed should be utilized as sawlogs and fuelwood rather than chipped and removed at a cost to the developer.

Water Quality and Forest Management

Healthy woodlands provide a protective influence on water quality. They stabilize soils, reduce the impact of precipitation and runoff, and moderate the effects of adverse weather conditions. By so doing, woodlands help to reduce erosion, sedimentation, siltation and flooding. Research has shown that soil protected by the cover of leaf litter and humus associated with woodland areas contributes little or no sediment to streams.

Improper and careless harvesting of timber for development or commercial purposes may, however, lower water quality in several ways: 1) Erosion, siltation and sedimentation caused by improperly located and improperly constructed access roads, skid trails, yarding areas and stream crossings; 2) Siltation and sedimentation caused by logging debris left in streams, interfering with natural flows; and 3) Thermal pollution

resulting from complete or partial harvesting of streambank vegetation, eliminating shade.

In 1979, a field study and analysis of timber harvesting operations in Connecticut revealed no significant contribution to the degradation of water quality. However, this study did identify sedimentation resulting from erosion as a principal potential problem. Felling trees does not generally cause erosion. Approximately 90% of sedimentation from harvesting operations originates from exposed soil on logging roads, skid trails and yarding areas. Most erosion and sedimentation associated with woodland harvesting activities occurs during and immediately after harvesting. The basic principles of erosion control needed to reduce or avoid damage to the environment include:

- Disturb as little land as possible.
- Use erosion control measures to protect disturbed areas.
- Reduce the speed and volume of runoff.
- Divert runoff from disturbed areas.
- Install perimeter controls around disturbed areas.
- Conduct conscientious maintenance of erosion controls.
- Assign someone the direct responsibility of implementing and maintaining erosion control measures.

For more in-depth information, please see "TIMBER HARVESTING AND WATER QUALITY IN CONNECTICUT; A Practical Guide for Protecting Water Quality While Harvesting Forest Products." Prepared by: (the) Connecticut RC&D Forestry Committee, 1990 (soon to be reprinted). This publication and additional technical advice and information on best management practices, forest products harvesting or other aspects of forest management may be obtained from:

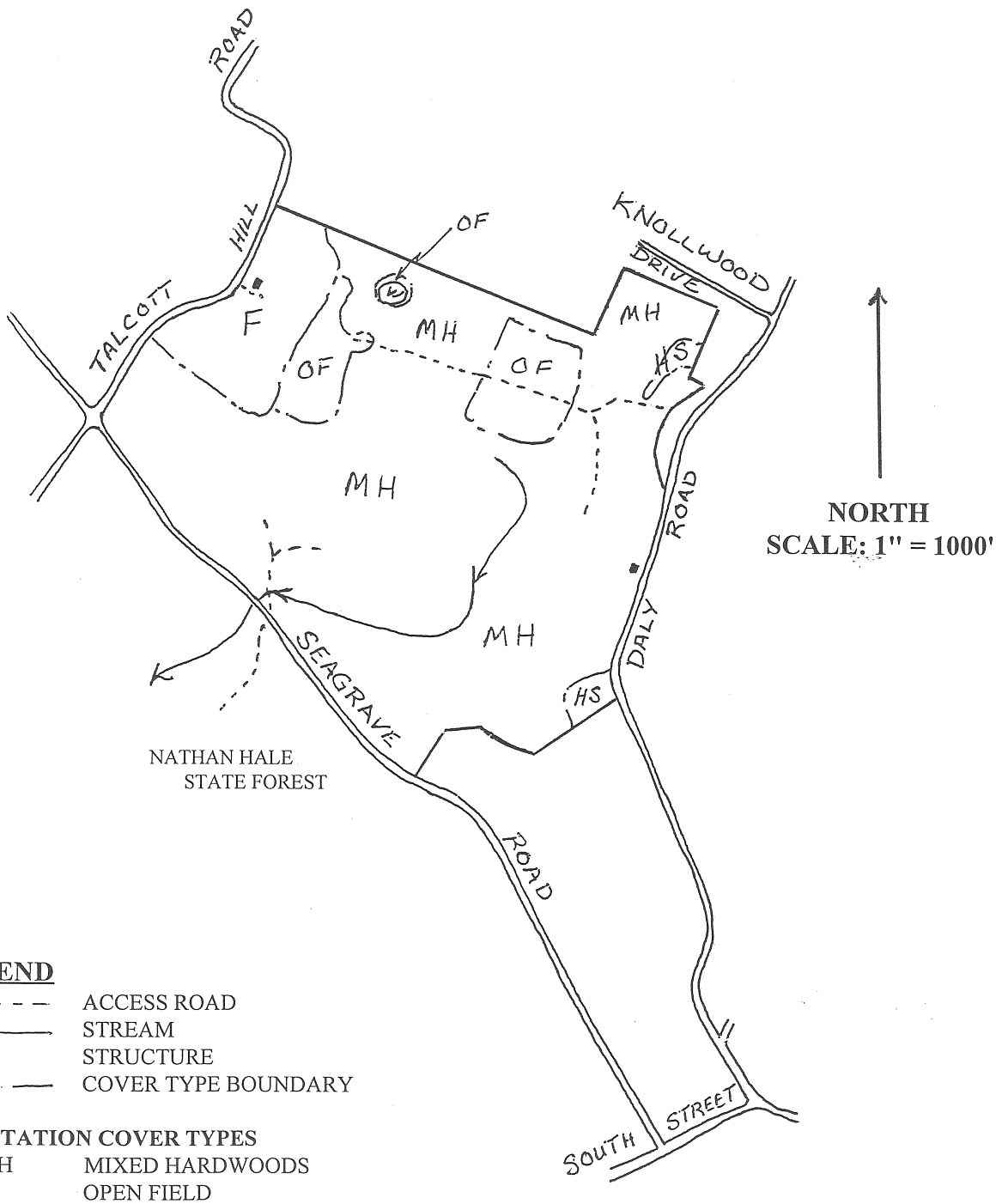
Department of Environmental Protection
Division of Forestry
79 Elm Street
Hartford, CT 06106-5127

Telephone: (860)424-3630

Conclusion

Trees and forests have value in reducing climatic extremes, controlling runoff, filtering out pollutants from the air and water, reducing noise, providing aesthetic enjoyment, creating wildlife habitat, recharging aquifers, supplying wood fiber and functioning as a carbon sink. Healthy forests provide these long term amenities. Therefore, a good relationship between development and the retention of forested open space is essential if generations to come are to enjoy a high quality of life. Trees around homes can be healthy, long lived and valuable if treated properly during the conversion from forest to residential subdivision.

Vegetation Cover Type Map



LEGEND

- ACCESS ROAD
- STREAM
- STRUCTURE
- COVER TYPE BOUNDARY

VEGETATION COVER TYPES

MH	MIXED HARDWOODS
F	OPEN FIELD
OF	OLD FIELD
HS	HARDWOOD SWAMP/WETLAND
W	WATER (POND)

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Date: October 20, 1998

To: Elaine Sych, ERT Coordinator
P.O. Box 70, 1066 Saybrook Road
Haddam, CT 06438

From: Ann Kilpatrick, Wildlife Biologist
CT DEP Wildlife Division
209 Hebron Road
Marlborough, CT 06447

Subject: Environmental Review - Olsen Farm Subdivision, Coventry, CT

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WILDLIFE RESOURCES

The following comments are provided based on a site walk conducted with the Environmental Review Team on August 26, 1998, a review of the site plan drawings and wetland report submitted to the Town by Holmes and Henry Associates, and review of the minutes of the July 15, 1998 Conservation Commission meeting.

A diverse assemblage of wildlife species can be expected to occupy the Olsen Farm given the mosaic of habitats contained on the property (old fields, hayfield, mixed-aged forest, forested wetlands/beaver impoundment) and surrounding lands (e.g., Nathan Hale State Forest and town-owned open space). As with any development project, wildlife species abundance likely will decrease due to direct loss of habitat. However, it appears that a concerted effort has been made to design the subdivision to minimize resource impacts. Positioning the houses near the periphery of the property lends itself well to establishing an effective travel corridor for wildlife by minimizing habitat fragmentation and direct impacts on the wetlands and watercourses. However, I agree with the Conservation Commission that the corridor width be increased. Certainly, the larger the protected area the better. While there are no hard and fast rules for determining the optimum width of travel corridors for wildlife, those that buffer and connect wetlands and watercourses and link different habitats (e.g., old field and forest) are most effective. These connections are most important to animals that have large home ranges (e.g., bobcat, white-tailed deer, fisher and eastern wild turkeys) and to amphibian populations. Maintaining connections between wetlands and upland habitat is of particular importance to amphibians because they have small home ranges, relatively limited dispersal capabilities and high site fidelity. Studies have shown that salamanders will move an average distance of 500 feet (200-800 feet) from their breeding pools into adjoining upland forests to forage.

During the Conservation Commission meeting, concern was raised about hunting within 500 feet of Talcott Hill and Seagraves Roads. Nathan Hale State Forest is open for small game, waterfowl, deer and turkey hunting. According to State regulation (Section 26-66-1d), it is prohibited to hunt, shoot or carry a loaded firearm within 500 feet of any building occupied by people or domestic animals, or used for the storage of flammable of combustible materials. In addition, no hunting weapon may be discharged toward any person, building or domestic animal when the same is within range or from or across the traveled portion of any public roadway (Section 26-66-1e). This should have no impact on how or where development is allowed to occur on the Olsen Farm property. It is the responsibility of the hunter to abide by these regulations.

Some concern was raised about the possibility of bald or golden eagles nesting on the property. This is not likely given the lack of suitable habitat and current distribution and abundance of these species in the state. Over the years, the DEP has received reports of individual eagles in the vicinity of Coventry Lake, however, these sightings have been rare (about one every eight years). These likely are transient birds that may have briefly visited Coventry Lake during migration. The only confirmed nesting by bald eagles in the state has occurred in northwest Connecticut. Nesting bald eagles require large tracts of primarily mature forest habitat located along large bodies of open water (e.g., major rivers, lakes and coastal waters) where human disturbance is minimal. Golden eagles are rare visitors to Southern New England during all seasons. During some years, only one or two birds are reported throughout the entire state during the winter months.

Another specific concern raised was the impact of the development on ruffed grouse. Ruffed grouse prefer forests that are heavily interspersed with young woodlands, brushy lowlands, grassy openings, recently logged areas, overgrown pastures and abandoned orchards. The Olsen property provides many of these habitats. Although the ruffed grouse is primarily a forest-dwelling species, it can survive in relatively small woodlots if a suitable mix of habitats is present within a 10-15 acre area. The development as proposed, with the open space and easements established, should have minimal effect on grouse that use the Olsen Farm and surrounding area.

Recommendations

Providing connections between the wetlands and watercourses and linking the different habitats on the property will allow a diverse assemblage of wildlife species to continue to benefit from the Olsen Farm and surrounding properties. The recommendation that easements be placed on Lots 26, 30, 31, and 36 is logical in that it will increase the protective buffer around the beaver impoundment and link the open space to Nathan Hale State Forest. Given the relative large sizes and locations of Lots 3, 8, and 19, consideration should be given to placing easements on at least a portion of these lots to further buffer the open space. The easements should prohibit further development, the creation of manicured lawns and the use of chemical applications to reduce the amount of "lost habitat" and the potential for wetland contamination. The easements should not prohibit accepted conservation practices, such as timber stand improvement, wildlife habitat

management and agriculture, from being conducted. The restrictions and uses for the open space and easements should be clearly defined and incorporated into the deed of record and the boundaries marked in the field.

To further minimize the effects of the development on wildlife in the area, landowners should be encouraged to use natural landscaping techniques. The Commission should consider initiating a community outreach program which would inform landowners about water quality protection, the effects of habitat fragmentation, and the importance of forest and wildlife stewardship. Written materials on these topics have been developed through The University of Connecticut Cooperative Extension System's *Nonpoint Education for Municipal Officials* (NEMO) Project and Forest Stewardship Program. Information may be obtained by contacting the Haddam Extension Office at (860) 345-4511.

With respect to the establishment of a right-of-way which would allow public access to the open space from Talcott Hill Road, increasing the width of the access to 50 feet and maintaining a vegetative buffer along it is recommended to discourage trespass onto private property. A narrow, passive-use recreation trail, one that would require minimal vegetation removal, maintain forest canopy closure and prohibit the use of motorized vehicles, would least impact wildlife within the corridor. Traversing wetlands and steep slopes should be avoided whenever possible to minimize erosion and sedimentation problems.

Archaeological Review

A review of the state of Connecticut Archaeological Site Files and Maps shows two (2) archaeological sites on the project area and four (4) additional sites to the west across Talcott Hill Road. All six archaeological sites represent prehistoric native American encampments. The two sites within the project area boundaries include, the Talcott Hill Site (CT - 32-008) which dates to 7-8,000 years ago, it was originally identified by Al Olsen who collected Indian artifacts and was tested by the University of Connecticut in 1979, and the Charles Lyons Rockshelter Site (CT 32-009) which dates to 4,000 years ago. This site was partially excavated by Charlie Lyons in the early 1960's. The integrity of both native American settlements should be evaluated by additional archaeological excavations and preservation plans implemented.

In addition, the project area contains stone ruins of foundations and other historic structures relating to the Euroamerican farming activities. These stone structures should also be evaluated for their historic significance.

The Office of State Archaeology and the Connecticut Historical Commission strongly recommend an archaeological survey for the project area to evaluate the integrity and significance of the reported prehistoric archaeological sites and the historic ruins. They are prepared to offer any technical assistance in conducting this survey and to develop a preservation plan for any cultural resource which might exist there. All archaeological studies should be conducted in accordance with the Connecticut Historical Commission's ***Environmental Review Primer for Connecticut's Archaeological Resources.***

Planning Comments

Description

A thirty-eight (38) lot subdivision is proposed for a 185+ acre site located on Talcott Hill Road, Seagraves Road, and Daly Road.

Compliance with State, Regional, and Local Plans

State Plan of Conservation and Development

1. The State's *Conservation and Development Policies Plan for Connecticut, 1998-2003*, recommends the area covered by most of the proposed site for "Rural Land" uses. According to the State Plan, "Rural lands are those areas falling outside any other Guide Map category." Guidelines for such land include, among others:

> *"encouraging rural communities to ensure that their Plans of Conservation and Development and land regulations promote development patterns that reflect the historical development and character of the communities, and to protect environmental resources by using creative development planning techniques based on up-to-date natural resource information...* and
>
> *"encouraging development...to be limited to those uses and densities that ensure indefinite functioning of on-lot or small community water supply and waste disposal systems and that are consistent with a generally open, rural environment."*

The proposed plan appears to be consistent with these general recommendations.

2. There are two areas of the parcel proposed for development which are not categorized as Rural Land in the State Plan:

a. "Conservation Area": The Conservation Area includes most of the frontage along Talcott Hill Rd. It extends eastward into the parcel to include all of the smaller lots fronting on Talcott Hill Rd. (with the possible exception of the two lots at the southern end - #15 & #16 on the 6/12/98 plans) as well as substantial portions of the rear lots off of that road. This is considered a conservation area because it is prime agricultural land, defined in the State Plan as "active agricultural lands or prime soils of 25 or more acres of contiguous land," and it is part of a larger area of prime agricultural soils which lies largely to the west of Talcott Hill Road.

The State Plan notes that state actions in Conservation Areas should be designed to undertake or support only those uses that are compatible with the resource ... of concern, consistent with evaluations of both direct and secondary impacts." Actions taken by the state should be "consistent with maintaining prime agricultural lands for food production to the maximum extend feasible."

The proposed subdivision plan would include development in this conservation area of prime agricultural soils.

b. "Preservation area": The State Plan includes a Preservation Area - wetlands - in the southeast corner, extending from the southern end of the subdivision plan's open space corridor easterly to Daly Road. The State Plan guidelines include the recommendation that projects in such areas *"incorporate site planning, architectural or design restrictions and the use of development restrictions, buffers or fencing appropriate to protect and manage the area and to prevent subsequent pressure for additional development or uncontrolled access."*

The proposed subdivision plan has been designed to avoid construction in this preservation area and would therefore be consistent with the State Plan in this regard.

Regional Plan

The *Regional Growth and Preservation Guide Plan for the Windham Region, 1981,* categorizes this parcel as "Low Density Rural" from Talcott Hill Road easterly to the north-south ridgeline. From the ridgeline to Daly Road, it is categorized as part of a "Lake Watershed Preservation District".

1. In Low-Density Rural areas, the Regional Plan policies include the following:

- encourage minimizing the development of existing road frontages;
- encourage residential development on internal parcels rather than on existing road frontages;
- encourage preservation of agricultural lands and operations;
- encourage two-acre (minimum) building lots;
- discourage large residential development projects.

The proposed subdivision plan is, overall, not inconsistent with these policies, particularly with respect to its use of large lots and rear lots. While eight of the thirty-eight proposed lots are greater than five acres in size, however, it should be noted that twenty-three of the lots are less than two acres and four are less than one acre.

2. In Lake Watershed Preservation Districts, the Regional Plan policies focus on protection of the water quality of the lake. It is our understanding from conversations during the ERT site review that structures built on lots with frontage on Daly Road will be located on the west (non-lake watershed) side of the ridgeline.

Town Plan

The April 1997 *Plan of Conservation and Development* for the Town of Coventry includes this parcel in its Residential/Agriculture category, which is intended to

serve the residential and low intensity use needs of the community and agriculturally related activities. The proposed subdivision plan appears to be consistent with this Plan.

Open Space

Approximately 21.5 acres of open space are proposed, providing a corridor extending from Seagraves Road at the south end, approximately opposite the entrance to the Nathan Hale State Forest, to the Knollwood Trail area at the north end. The plans include access from Seagraves Road and Daly Road. Windham Region Council of Governments staff recommend that consideration be given to providing additional access off of Talcott Hill Road, if feasible.

Appendix

WxA

45A

WxA - Woodbridge fine sandy loam, 0 to 3 percent slopes

This soil is nearly level and moderately well drained. It is on the top and lower side slopes of large drumlins and hills on glacial till uplands. The areas are mostly oval or irregular in shape.

Typically, the surface layer is very dark grayish brown fine sandy loam 8 inches thick. The subsoil is mottled, dark yellowish brown and yellowish brown fine sandy loam 22 inches thick. The substratum is firm and very firm, olive gray fine sandy loam and gravelly fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Paxton soils, moderately well drained Sutton soils, and poorly drained Leicester and Ridgebury soils. A few small areas have stones on the surface, and a few large areas have a surface layer and subsoil of silt loam. Included areas make up about 10 percent of the unit.

This Woodbridge soil has a seasonal high water table at a depth of about 20 inches from fall to spring. It has moderate available water capacity. This soil has moderate permeability in the surface layer and subsoil and slow to very slow permeability in the substratum. Runoff is medium.

This soil is well suited to woodland and cultivated crops. The main limitation for crops is the seasonal high water table, which causes the soil to dry slowly in the spring. Providing drainage helps to dry this soil earlier in the spring, but even drained areas remain wet for several days after heavy rains.

The water table and slow or very slow permeability in the substratum are the main limitations of this soil for community development, especially for on-site septic systems. Lawns on this soil are soggy in the autumn and spring and after heavy rains.

WxB

45B

WxB - Woodbridge fine sandy loam, 3 to 8 percent slopes

This soil is gently sloping and moderately well drained. It is on the tops and lower side slopes of large drumlins and hills on glacial till uplands. The areas are mostly long and narrow.

Typically, the surface layer is very dark grayish brown fine sandy loam 8 inches thick. The subsoil is mottled, dark yellowish brown, and yellowish brown fine sandy loam 22 inches thick. The substratum is firm to very firm, olive gray fine sandy loam and gravelly fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Paxton soils, moderately well drained Sutton soils, and poorly drained Leicester and Ridgebury soils. A few small areas have stones on the surface, and a few large areas have a surface layer and subsoil of silt loam. Included areas make up about 15 percent of the unit.

This Woodbridge soil has a seasonal high water table at a depth of about 20 inches from fall to spring. It has moderate available water capacity. The soil has moderate permeability in the surface layer and subsoil and slow to very slow permeability in the substratum. Runoff is medium.

This soil is well suited to woodland and cultivated crops. The main limitation for crops is the seasonal high water table, which causes the soil to dry slowly in the spring. Providing drainage helps to dry the soil earlier in the spring, but even drained areas remain wet for several days after heavy rains.

This water table and the slow or very slow permeability in the substratum are the main limitations of this soil for community development, especially for on-site septic systems. Lawns on this soil are soggy in the autumn and spring and after heavy rains.

WzA

47C

WzA - Woodbridge fine sandy loam, 3 to 15 percent slopes, extremely stony

This soil is gently sloping to sloping and moderately well drained. It is on the tops of large drumlins and hills on glacial till uplands. The areas are mostly oval or irregular in shape. Stones cover 8 to 25 percent of the surface.

Typically, the surface layer is very dark grayish brown fine sandy loam 8 inches thick. The subsoil is mottled, dark yellowish brown and yellowish brown fine sandy loam 22 inches thick. The substratum is firm to very firm, olive gray fine sandy loam and gravelly fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Paxton soils, moderately well drained Sutton soils, and poorly drained Ridgebury soils. Included areas make up about 15 percent of the unit.

This woodbridge soil has a seasonal high water table at a depth of about 20 inches from fall to spring. It has moderate available water capacity. The soil has moderate permeability in the surface layer and subsoil and slow to very slow permeability in the substratum. Runoff is rapid.

This soil is mostly in woodland. A few areas are in pasture, and a few are in community development.

This soil generally is too stony for cultivation but is well suited to woodland. Stone removal makes the soil well suited to crops but is difficult. Seasonal wetness in fall and spring is an additional limitation for crops.

The water table and the slow or very slow permeability in the substratum are the main limitations of this soil for community development, especially for on-site septic systems. Lawns on this soil are soggy in the autumn and spring and after heavy rains.

WzC

47C

WzC - Woodbridge fine sandy loam, 3 to 15 percent slopes, extremely stony

This soil is gently sloping to sloping and moderately well drained. It is on the tops of large drumlins and hills on glacial till uplands. The areas are mostly oval or irregular in shape. Stones cover 8 to 25 percent of the surface.

Typically, the surface layer is very dark grayish brown fine sandy loam 8 inches thick. The subsoil is mottled, dark yellowish brown and yellowish brown fine sandy loam 22 inches thick. The substratum is firm to very firm, olive gray fine sandy loam and gravelly fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Paxton soils, moderately well drained Sutton soils, and poorly drained Ridgebury soils. Included areas make up about 15 percent of the unit.

This woodbridge soil has a seasonal high water table at a depth of about 20 inches from fall to spring. It has moderate available water capacity. The soil has moderate permeability in the surface layer and subsoil and slow to very slow permeability in the substratum. Runoff is rapid.

This soil is mostly in woodland. A few areas are in pasture, and a few are in community development.

This soil generally is too stony for cultivation but is well suited to woodland. Stone removal makes the soil well suited to crops but is difficult. Seasonal wetness in fall and spring is an additional limitation for crops.

The water table and the slow or very slow permeability in the substratum are the main limitations of this soil for community development, especially for on-site septic systems. Lawns on this soil are soggy in the autumn and spring and after heavy rains.

SxB

52C

SxB - Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony

This nearly level to gently sloping, moderately well drained soil is on upland glacial till plains, hills, and ridges. Stones and boulders cover 8 to 25 percent of the surface. Areas are dominantly irregular in shape.

Typically, this Sutton soil has a very dark grayish brown, fine sandy loam surface layer 4 inches thick. The subsoil is yellowish brown, dark yellowish brown, and dark brown, mottled fine sandy loam and sandy loam 29 inches thick. The substratum is olive brown, mottled sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Canton and Charlton soils; moderately well drained Woodbridge soils; and poorly drained Leicester soils. Indluded areas make up about 10 percent of this map unit.

The Sutton soil has a seasonal high water table at a depth of about 18 inches. Permeability is moderate or moderately rapid. The available water capacity is moderate. Runoff is slow or medium. Sutton soil warms up and dries out slowly in the spring.

The major limiting factor for community development is the seasonal high water table. Onsite septic systems need special design and installation to prevent effluent from seeping to the surface. Foundation drains help to prevent wet basements. Stones and boulders need to be removed for landscaping. Quickly establishing a plant cover and using mulch, temporary diversions, and sediment basins help to control erosion during construction.

CaB

60B

CaB - Canton and Charlton soils, 3 to 8 percent slopes

This unit consists of gently sloping, deep well drained soils on ridges, hills, and side slopes of glacial till uplands. The areas are mostly rectangular or irregular in shape. Slopes are generally smooth and convex and 200 to 400 feet long. About 45 percent of this unit is Canton soils, 40 percent is Charlton soils, and 15 percent is other soils. Some areas of this unit consist almost entirely of Canton soils, some almost entirely of Charlton soils, and some of both. The soils were mapped together because they have no significant differences in use and management.

Typically, the Canton soils have a surface layer of very dark grayish brown fine sandy loam 2 inches thick. The subsoil is yellowish brown fine sandy loam, gravelly fine sandy loam, and gravelly loamy sand to a depth of 60 inches or more.

Typically, the Charlton soils have a surface layer of dark yellowish brown fine sandy loam 5 inches thick. The subsoil is yellowish brown fine sandy loam and sandy loam 20 inches thick. The substratum is light yellowish brown and light brownish gray sandy loam to a depth of 60 inches or more.

Included with these soils in mapping are small areas of somewhat excessively drained Gloucester and Hollis soils, well drained Paxton soils, and moderately well drained Sutton soils. Also included are a few large, nearly level areas and a few areas that have a compact substratum at a depth of 40 to 50 inches.

The water table in these Canton and Charlton soils is commonly at a depth of more than 6 feet. The permeability of the Canton soils is moderately rapid in the surface layer and subsoil and rapid in the substratum. The permeability of the Charlton soils is moderately rapid. Both soils have medium to rapid runoff, have moderate available water capacity.

Instability of some excavations in the Canton soils is the main limitation of these soils for community development.

CaC

60C

CaC - Canton and Charlton soils, 8 to 15 percent slopes

This mapping unit consists of sloping, deep well drained soils on ridges, hills, and side slopes of glacial till uplands. Slopes are mainly smooth and convex and less than 200 feet long. The soils of this unit are the same as those described for the Canton and Charlton soils, 3 to 8 percent slopes except for slope gradient. Included with these soils in mapping are a few areas with slopes greater than 15 percent.

Slope is the main limitation of these soils for community development, especially for onsite septic systems. Excavations in these soils are unstable.

CrC

62C

CrC - Canton and Charlton soils, 3 to 15 percent slopes, extremely stony

This mapping unit consists of gently sloping to sloping, well drained soils on ridges, hills, and side slopes of glacial till uplands. The areas are oval or irregular in shape. Slopes are mostly smooth and convex and are 100 to 600 feet long. Stones cover 8 to 25 percent of the surface. About 45 percent of this unit is Canton soils, 40 percent is Charlton soils, and 15 percent is other soils. Some areas of this unit consist almost entirely of Canton soils, some almost entirely of Charlton soils, and some of both. The soils were mapped together because they have no significant differences in use and management.

Typically, the Canton soils have a surface layer of very dark grayish brown fine sandy loam 2 inches thick. The subsoil is yellowish brown fine sandy loam, gravelly fine sandy loam, and gravelly sandy loam 21 inches thick. The substratum is pale brown gravelly loamy sand to a depth of 60 inches or more.

Typically, the Charlton soils have a surface layer of dark yellowish brown fine sandy loam 5 inches thick. The subsoil is yellowish brown fine sandy loam and sandy loam 20 inches thick. The substratum is light yellowish brown and light brownish gray sandy loam to a depth of 60 inches or more.

Included with these soils in mapping are small areas of somewhat excessively drained Gloucester and Hollis soils, well drained Paxton soils, and moderately well drained Sutton soils. Also included are a few nearly level areas and a few areas that have a compact substratum at a depth of 40 to 50 inches.

The water table in these Canton and Charlton soils is commonly at a depth of more than 6 feet. The permeability of the Canton soils is moderately rapid in the surface layer and subsoil and rapid in the substratum. The permeability of the Charlton soils is moderately rapid. Both soils have moderate available water capacity and medium to rapid runoff.

Slope is the main limitation of these soils for community development, especially for onsite septic systems. Slopes of excavations in these soils are unstable. The stones on the surface hinder landscaping.

GeC

62C

GeC - Canton and Charlton soils, 3 to 15 percent slopes, extremely stony

This mapping unit consists of gently sloping to sloping, well drained soils on ridges, hills, and side slopes of glacial till uplands. The areas are oval or irregular in shape. Slopes are mostly smooth and convex and are 100 to 600 feet long. Stones cover 8 to 25 percent of the surface. About 45 percent of this unit is Canton soils, 40 percent is Charlton soils, and 15 percent is other soils. Some areas of this unit consist almost entirely of Canton soils, some almost entirely of Charlton soils, and some of both. The soils were mapped together because they have no significant differences in use and management.

Typically, the Canton soils have a surface layer of very dark grayish brown fine sandy loam 2 inches thick. The subsoil is yellowish brown fine sandy loam, gravelly fine sandy loam, and gravelly sandy loam 21 inches thick. The substratum is pale brown gravelly loamy sand to a depth of 60 inches or more.

Typically, the Charlton soils have a surface layer of dark yellowish brown fine sandy loam 5 inches thick. The subsoil is yellowish brown fine sandy loam and sandy loam 20 inches thick. The substratum is light yellowish brown and light brownish gray sandy loam to a depth of 60 inches or more.

Included with these soils in mapping are small areas of somewhat excessively drained Gloucester and Hollis soils, well drained Paxton soils, and moderately well drained Sutton soils. Also included are a few nearly level areas and a few areas that have a compact substratum at a depth of 40 to 50 inches.

The water table in these Canton and Charlton soils is commonly at a depth of more than 6 feet. The permeability of the Canton soils is moderately rapid in the surface layer and subsoil and rapid in the substratum. The permeability of the Charlton soils is moderately rapid. Both soils have moderate available water capacity and medium to rapid runoff.

Slope is the main limitation of these soils for community development, especially for onsite septic systems. Slopes of excavations in these soils are unstable. The stones on the surface hinder landscaping.

HrC

73C

HrC - Charlton-Hollis complex, 3 to 15 percent slopes, very rocky

This complex consists of gently sloping to sloping, somewhat excessively drained and well drained soils on hills and ridges of glacial till uplands. The areas of this unit are mostly irregular in shape. Slopes are mostly complex and are 100 to 200 feet long. Stones cover 1 to 8 percent of the surface.

This unit is about 55 percent Charlton soils, 20 percent Hollis soils, 15 percent other soils, and 10 percent exposed bedrock. The Charlton and Hollis soils are in such a complex pattern that it was not practical to map them separately.

Typically, the Charlton soils have a thick, fine sandy loam topsoil and subsoil over a sandy loam substratum. The soils are commonly deeper than 60 inches.

The Hollis soils have fine sandy loam topsoil and subsoil from 10 to 20 inches thick over hard, unweathered schist bedrock.

Included with these soils in mapping are small areas of well drained Canton and Paxton soils; moderately well drained Sutton and Woodbridge soils; and poorly drained Leicester soils. Also included are small areas with bedrock at a depth of 20 to 40 inches.

The water table of these soils is commonly at a depth of more than 6 feet. The available water capacity is moderate in the Charlton soils and very low or low in the Hollis soils. Both soils have moderate or moderately rapid permeability and medium to rapid runoff.

The areas of exposed rock and the depth to bedrock in the Hollis soils limit the use of these areas for community development, especially as a building site or as a site for onsite septic systems. The stones on the surface restrict landscaping.

HxC

75C

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

This unit consists of gently sloping to sloping, somewhat excessively drained and well drained soils and areas of exposed bedrock. The unit is on hills and ridges of glacial till uplands in long and narrow or irregularly shaped areas. Slopes are mostly convex and 100 to 200 feet long. Stones cover 8 to 25 percent of the surface, which is marked by narrow, intermittent drainageways and a few small, wet depressions. The unit is about 35 percent Hollis soils, 30 percent Charlton soils, 15 percent exposed bedrock, and 20 percent other soils. The Hollis and Charlton soils and exposed rock are in such a complex pattern that it was not practical to map them separately.

Typically, the Hollis soils have a surface layer of dark grayish brown fine sandy loam 2 inches thick. The subsoil is yellowish brown gravelly fine sandy loam 12 inches thick. Hard, unweathered schist bedrock is at a depth of 14 inches.

Typically, the Charlton soils have a surface layer of dark yellowish brown fine sandy loam 5 inches thick. The subsoil is yellowish brown fine sandy loam and sandy loam 20 inches thick. The substratum is light yellowish brown and light brownish gray sandy loam to a depth of 60 inches or more.

Included with this unit in mapping are small areas of somewhat excessively drained Gloucester soils, well drained Canton and Charlton soils, moderately well drained Sutton soils, and poorly drained Leicester soils.

The water table in this unit is commonly below a depth of six feet. The available water capacity is very low or low in the Hollis soils, and moderate in the Charlton soils. Both soils have moderate or moderately rapid permeability and medium to rapid runoff.

Most areas of this unit are in woodland. A few small areas are in pasture.

This unit is too stony for cultivation. The stones on the surface, the areas of exposed rock, and the depth to bedrock in the Hollis soils make the unit poorly suited to woodland and are the major limitations for community development. Droughtiness in the Hollis soils causes a high rate of seedling mortality, and trees on the Hollis soils are subject to uprooting because of the depth to bedrock.

HxE

75C

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

This unit consists of gently sloping to sloping, somewhat excessively drained and well drained soils and areas of exposed bedrock. The unit is on hills and ridges of glacial till uplands in long and narrow or irregularly shaped areas. Slopes are mostly convex and 100 to 200 feet long. Stones cover 8 to 25 percent of the surface, which is marked by narrow, intermittent drainageways and a few small, wet depressions. The unit is about 35 percent Hollis soils, 30 percent Charlton soils, 15 percent exposed bedrock, and 20 percent other soils. The Hollis and Charlton soils and exposed rock are in such a complex pattern that it was not practical to map them separately.

Typically, the Hollis soils have a surface layer of dark grayish brown fine sandy loam 2 inches thick. The subsoil is yellowish brown gravelly fine sandy loam 12 inches thick. Hard, unweathered schist bedrock is at a depth of 14 inches.

Typically, the Charlton soils have a surface layer of dark yellowish brown fine sandy loam 5 inches thick. The subsoil is yellowish brown fine sandy loam and sandy loam 20 inches thick. The substratum is light yellowish brown and light brownish gray sandy loam to a depth of 60 inches or more.

Included with this unit in mapping are small areas of somewhat excessively drained Gloucester soils, well drained Canton and Charlton soils, moderately well drained Sutton soils, and poorly drained Leicester soils.

The water table in this unit is commonly below a depth of six feet. The available water capacity is very low or low in the Hollis soils, and moderate in the Charlton soils. Both soils have moderate or moderately rapid permeability and medium to rapid runoff.

Most areas of this unit are in woodland. A few small areas are in pasture.

This unit is too stony for cultivation. The stones on the surface, the areas of exposed rock, and the depth to bedrock in the Hollis soils make the unit poorly suited to woodland and are the major limitations for community development. Droughtiness in the Hollis soils causes a high rate of seedling mortality, and trees on the Hollis soils are subject to uprooting because of the depth to bedrock.

Lg

3

Lg - Ridgebury, Leicester and Whitman soils, extremely stony

This mapping unit consists of nearly level, poorly drained and very poorly drained soils in depressions and drainageways of glacial till uplands. The areas are mostly long and narrow or irregular in shape. Slopes range from 0 to 3 percent and are mainly 100 to 300 feet long. Stones cover 8 to 25 percent of the surface. About 40 percent of this unit are Ridgebury soils, 25 percent are Leicester soils, 15 percent are Whitman soils and 10 percent are other soils. Some areas of this unit will consist of one these soils and other areas will consist of two or three. The soils of this unit were mapped together because they have no significant differences in use or management.

The Ridgebury soils have a seasonal high water table at a depth of about 10 inches from fall through spring. The permeability of the soils is moderate to moderately rapid in the surface layer and the subsoil and slow to very slow in the substratum. Runoff is slow. The Ridgebury soils have a moderate available water capacity.

The Leicester soils have a seasonal high water table at a depth of about 10 inches from fall through spring. The permeability of the soils is moderate or moderately rapid throughout. Runoff is slow. The Leicester soils have a moderate available water capacity.

The Whitman soils have a seasonal high water table at or near the surface from fall through spring. The permeability of the soils is moderate or moderately rapid in the surface layer and subsoil and very slow in the substratum. Runoff is slow. The Whitman soils have a moderate available water capacity.

The high water table and slow to very slow permeability are major limitations of the soils of these areas for community development. Steep slopes of excavations in these soils slump when saturated. The stones on the surface restrict landscaping and lawn areas are soggy most of the year.

Pm

17

Pm - Adrian and Palms mucks

This mapping unit consists of very poorly drained soils with an organic layer at least 16 inches thick, but not more than 51 inches thick over sandy and loamy mineral soil materials. These soils are on the landscape commonly in low depressions and along drainageways of outwash plains and glacial till uplands. Slopes are commonly less than one percent.

Adrian and Palms soils have a high water table at or near the surface for most of the year. Permeability is moderately rapid in the organic layers and moderately slow to rapid in the underlying mineral materials. Included in these soils in mapping are small areas of soils with organic material less than 16 inches thick and small areas with organic materials greater than 51 inches thick. These soils are generally not suited to agricultural use or building site development without major reclamation.

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.