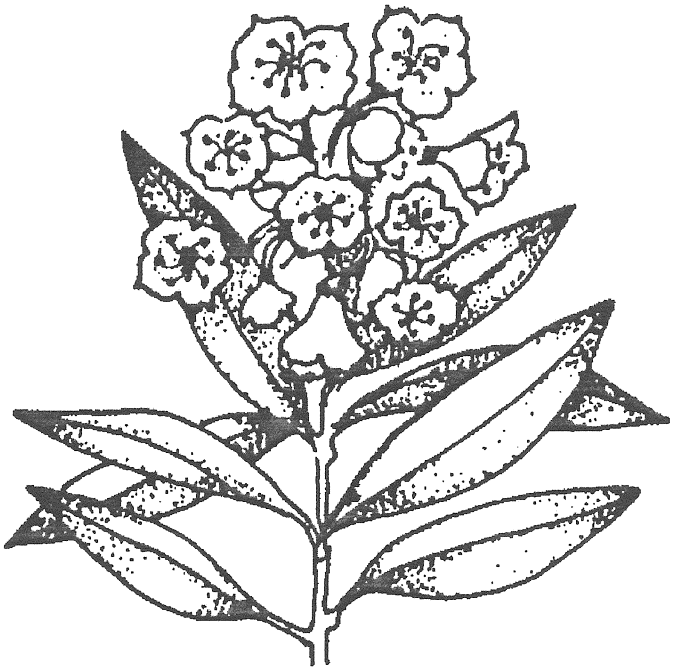
KING'S MARK
ENVIRONMENTAL REVIEW TEAM
REPORT



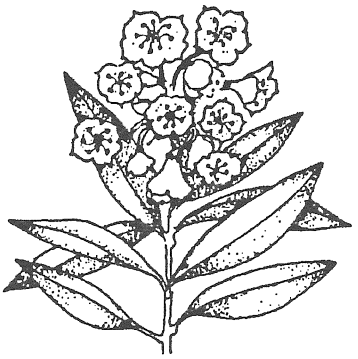
LAUREL WOODS SUBDIVISION

SOUTHBURY, CONNECTICUT

King's Mark Resource Conservation and Development Area, Inc.

LAUREL WOODS SUBDIVISION

Southbury, Connecticut
April 1994



Environmental Review Team Report

Prepared by the King's Mark Environmental Review Team
of the King's Mark Resource Conservation and Development Area, Inc.

Haddam and Wallingford, Connecticut

for the
Southbury Inland Wetlands Agency

This report is not meant to compete with private consultants by supplying site designs or detailed solutions to development problems. This report identifies the existing resource base and evaluates its significance to the proposed development and also suggests considerations that should be of concern to the Commission and the Town. The results of the Team action are oriented toward the development of a better environmental quality and long-term economics of the land use. The opinions contained herein are those of the individual Team members and do not necessarily represent the views of any regulatory agency with which they may be employed.

ACKNOWLEDGEMENTS

The King's Mark 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.

Nicholas Bellantoni	State Archaeologist CT Museum of Natural History University of Connecticut
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Jenny Dickson	Wildlife Biologist DEP-Wildlife Division Sessions Woods Wildlife Management Area
Mildred Powell	Geologist University of Connecticut Department of Geology and Geophysics
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DEP - Natural Resources Center
Natural Diversity Data Base

I would also like to thank Deborah Seavey, the Inland Wetlands Enforcement Officer for the Town, the Inland Wetlands Agency members, Stuart Somers the project engineer and the Laurel Woods developers for their cooperation and assistance during this environmental review.

EXECUTIVE SUMMARY

INTRODUCTION

The environmental review for proposed Laurel Woods Subdivision was requested by the Southbury Inland Wetlands Agency. The overall concern of the Agency is the site suitability for development as planned. Special issues of concern include water quality and management, inland wetland impacts, erosion and sediment control, wildlife corridors, open space and traffic. The field review took place on March 8, 1994.

The proposal consists of 37 building lots with on-site sewage disposal and water supply wells on ±134 acres. A new through road is planned which will connect Georges Hill Road and High Meadow Drive. The road will impact regulated areas in 4 areas. The topography is varied with some very steep cliff and ledge areas, ravines, bedrock outcroppings and wetlands.

The review process consisted of 4 phases:
1) Inventory of the site's natural resources (collection of data);
2) Assessment of these resources (analysis of data);
3) Identification of resource problem areas; and
4) Presentation of planning, management and land use guidelines.

GEOLOGY

The study area is predominantly surficial bedrock or bedrock with a till covering of less than 10 feet. Glacial plucking is the origin of the cliff face on the southeast side of Georges Hill, and indicates that the glaciers were scraping bedrock as they were advancing, leaving very little surficial material on top of the bedrock.

Extra care needs to be taken when siting septic systems because of the thin layer of surficial material. Special attention should be paid to percolation tests and to the depth to bedrock in the areas proposed for the septic systems, especially since the depth to bedrock is highly variable. It is possible for partially treated effluent from the septic fields to percolate through a thin layer of surficial material and move along the bedrock until its hits a fracture. Once it hits a fracture it can travel quickly to wherever the fracture goes. Depending on the fracture pattern the polluted water could seep out on the surface or be intercepted by drinking water wells.

SOILS

The soils are identified in the New Haven County Soil Survey as New England upland glacial till soils that weathered from gneiss and schist. Soils range from poorly drained wetland soils to well drained sandy loams. Several soil complexes include

soils that are close to bedrock or have exposed bedrock.

The slopes range from gently sloping to steep, with very little level land. Developmental challenges include exposed bedrock, vertical cliffs, stones, large boulders, steep intermittent drainageways, and a few, small wet depressions.

The field mapping of the wetlands appears to reasonably correct. A non-technical soil description for each soil type and a soils interpretation report were prepared to illustrate various limitations for development. Many of the soils have SEVERE limitations due to depth to bedrock, slope, wetness, slow percolation rates or frost action. The soil limitations need to be properly addressed so that the possibility of failed or non-functioning septic systems, severe erosion, slope failure or frost heave damage do not occur. Extensive amounts of blasting and site disturbance for roads and basements can be expected because of the amount of bedrock and shallow to bedrock soils.

EROSION AND SEDIMENT CONTROL

Most of the site is covered by soils that have severe limitations for development due to slope and depth to bedrock. The construction of roads, driveways and homes will have a destabilizing effect upon the erodible slopes causing erosion and sedimentation. Sediment will be transported to wetland areas and cause water quality degradation. It is very important to concentrate on controlling and reducing soil erosion and disturbance as a way of reducing sedimentation. Best management practices and a functioning and well maintained sediment control system are required. The following recommendations are given for reducing potential erosion and sedimentation:

1. The presented erosion and sediment control plan does not follow the format given in Chapter 4 of the **Guidelines for Erosion and Sediment Control** (1986) by addressing *all* the items or is vague on several items.

2. The name and telephone number of the individual responsible for the installation and maintenance of the erosion control plan should be stated on the plan and provided to town officials.

3. The town should consider a request for posting a cash bond by the developer for the emergency installation/repair of E&S controls.

4. It is recommended that development take place in phases, and that each phase be substantially completed and stabilized prior to the next phase being started.

5. The significant cuts and fills with slopes of 2:1 need biotechnical slope protection in the form of erosion control blankets or soil retention blankets. Also surface water control is recommended above the larger cuts to exclude runoff from the slopes. All wetland crossings should use some type of slope protection to reduce erosion and control sedimentation.

6. Many of the driveways involve 2:1 cuts or embankments and slopes close to 12%, these will require slope protection and careful planning for erosion and sediment control.

7. It would be beneficial for each building lot to have an individual erosion and sediment control plan.

8. A single continuous sediment barrier will not be effective for the amount of disturbance planned. Smaller, individual E&S controls are better and more effective.

9. The location of septic systems in close proximity to driveway cuts and downhill slopes is of concern and should be looked at closely. An experienced, licensed sanitarian should review all proposed sewage disposal systems.

10. Adverse effects along the downslope drainageways or wetlands need careful review. Additional runoff from the development could accelerate stream channel scour and affect adjacent properties. Reducing runoff or installing stream channel protection measures are alternatives to consider.

Other Issues

1. Wetland mitigation alternatives could be considered to replace wetlands lost to filling.

2. A pre-blast survey should be considered for homes near to where the blasting will take place.

3. Generally, installing walking trails along wildlife corridors is not conducive to attracting wildlife along these corridors. Open space easements need careful planning, management and enforcement to have these areas function as intended.

4. It may be advantageous to explore clustered development alternatives on a section more suitable for this purpose because in general the site presents great difficulty for development due to the soils limitations, slopes and bedrock. Other options and alternatives were not presented that could lessen the overall detrimental effects.

INLAND WETLAND REVIEW

The wetland boundary mapping appears to be accurate, and it is advised that the signature and certifying statement of the soil scientist responsible for the mapping be included on the site plan.

The majority of the wetlands on the site form narrow, linear corridors which act to convey intermittent flows of stormwater, they function to trap nutrients and sediments (their steepness lessens their ability to trap pollutants), may convey certain amounts of groundwater base-flows during wetter periods, and they have a value as wildlife habitat.

The impacts to these wetlands will be both direct and indirect. Direct impact to the wetlands may be more than that calculated by the project engineer. Direct impact should include the stormwater outlet protection pads and wetland areas that will be disturbed as a result of the movement of construction vehicles around fill piles and stormwater outlets. For activities that result in the loss of more than .5 but less than 1.0 acre of wetlands a "401 Water Quality Certificate" may be required from the DEP-Inland Water Resources Division.

The indirect impacts include increased stormwater runoff, decreased water quality and possible sedimentation of wetlands and watercourses. The following comments address these issues:

1. The graphic representation of the erosion and sediment control plan is severely lacking. All sediment control devices mentioned in the narrative should be shown on the plan. This information is crucial for the Inland Wetlands Agency to be able to judge the overall wetland impacts during construction. If an E&S plan for the entire subdivision is approved by the Inland Wetlands Agency it should be made clear that any significant alterations to the site plan would require additional review by the Agency.

2. If this project is not phased, and construction activities covering 5 acres or more are approved, the applicant is required to apply to CT DEP for a general permit for the discharge of stormwater under the National Pollutant Discharge Elimination System (NPDES) program.

3. The Lakeview Water Company operates a series of wells down gradient of the proposed subdivision. There should be extra concern for properly designing and installing the proposed septic systems and installing adequate sedimentation controls.

4. The conceptual layout entitled "Alternative Plan by the Southbury Land Trust and Conservation Commission" is an alternative that should be judged for its feasibility and prudence since the Inland Wetlands Agency must find that a prudent and feasible alternative does not exist prior to issuing a wetlands permit. The plan does include some ideas of merit.

5. If no feasible alternatives are presented by the applicant, wetlands restoration or creation may be considered by the Agency and the applicant.

6. Additional concerns/recommendations are highlighted in the main body of the report in the Inland Wetland Review section.

THE NATURAL DIVERSITY DATA BASE

The Natural Diversity Data Base records indicate that Bald Eagles (Haliaeetus leucocephalus) uses the Housatonic River in the project area during the winter months and also uses various woodland areas in proximity to the river for perching and roosting.

The topography of the area suggests that the vegetative community should be further examined to determine its suitability for eagle use, especially the southernmost portion of the site and the areas adjacent to Kettletown State Park. The DEP-Wildlife Division has not conducted an on-site survey. Any questions or request for further review concerning eagle use should be directed to the DEP-Wildlife Division.

PLANNING REVIEW

The proposed Laurel Woods Subdivision is in compliance with the State Plan of Conservation and Development. It categorizes this area to remain as rural land. Rural land is characterized by single family housing and on-site sewage disposal systems and water supply wells.

The 1977 Regional Plan of Development shows the site divided into two categories. Areas with soils that are steep, shallow to bedrock and wet are recommended for

densities no greater than one dwelling unit per 16 acres, and the other major area is classified as limited residential development without sewers with a maximum of 1 dwelling unit per 2 acres. The surrounding land uses of open space and residential are compatible with the proposed use.

The low number of single family detached residential units will result in relatively low traffic generation from the site. The additional traffic from the subdivision will have no significant impact on the surrounding road network.

ARCHAEOlOGICAL REVIEW

A review of the State of Connecticut Archaeological Site Files and Maps show no known archeological resources in the project area.

Topographic and environmental features (bedrock outcroppings in proximity to the Housatonic River) suggested use of these features as rockshelter sites for prehistoric hunting and gathering groups. However, a field review demonstrated that the bedrock outcroppings have little potential for rock shelter encampments. The metamorphic rock (Rowe Schist) provides little opportunity for ledge and well drained soil development suitable for encampments.

An intriguing historic feature is the old stagecoach road running along the ravine in the eastern portion of the site. The Officer of State Archaeology does not recommend that old roads be used for modern hiking trails. Increased foot traffic on the old roadbed will lead to its deterioration. A hiking trail adjacent to it would be acceptable. The historic road has very good integrity and its preservation is encouraged. The proposed wetland conservation easement should aid in this preservation effort, however portions of the roadway not included in this easement should also be protected by an easement. The Office of State Archaeology offers to assist the Town and developer with the preservation and conservation of this feature.

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INTRODUCTION

An environmental review was requested for the proposed Laurel Woods Subdivision by the Southbury Inland Wetlands Agency.

The proposal consists of 37 building lots on ±134 acres located off of Georges Hill Road. The homesites will be served by on-site sewage disposal systems and water supply wells. The plans show a new road (Laurelwood Lane), which will connect Georges Hill Road and High Meadow Drive. The proposed road would cross regulated areas in four locations. The wetland disturbance was calculated by the project engineer to be .42 acres. Total wetland acreage on the property is 9.5 acres. The southeastern border of the site is adjacent to Kettletown State Park. Proposed open space will connect to Kettletown State Park. The topography is quite varied ranging from gently sloping to steep rock cliffs and ledges, bedrock outcroppings and wetland areas.

The overall concern of the Inland Wetland Agency is whether or not this site is suitable for the proposed development as planned. due to the steep topography and wetlands. Specific concerns that the Agency wanted addressed relate to water quality and management, erosion and sediment control, wetland impacts, wildlife corridors and open space, and land use suitability and traffic.

THE ENVIRONMENTAL REVIEW TEAM PROCESS

Through the efforts of the Town of Southbury and the King's Mark ERT, this environmental review and report was prepared for the Town. This report primarily provides a description of the on-site natural resources and presents planning, management and land use guidelines. The review process consisted of four phases:

1. Inventory of the site's natural resources (collection of data);
2. Assessment of these resources (analysis of data);
3. Identification of resource problem areas; and
4. Presentation of planning, management and land use guidelines.

The data collection phase involved both field and literature research. The ERT field review took place on March 8, 1994. Mapped data or technical reports were also perused, and specific information concerning the property was collected. Being on-site allowed some Team members to check and confirm mapped information and identify

other resources.

Once Team members had assimilated an adequate data base, they were able to analyze and interpret their findings. Results of this analysis enabled Team members to arrive at an informed assessment of the property's natural resource opportunities and limitations. Individual Team members then prepared and submitted their reports to the ERT coordinator for compilation into the final ERT report.

LOCATION MAP

Scale 1" = 1000'

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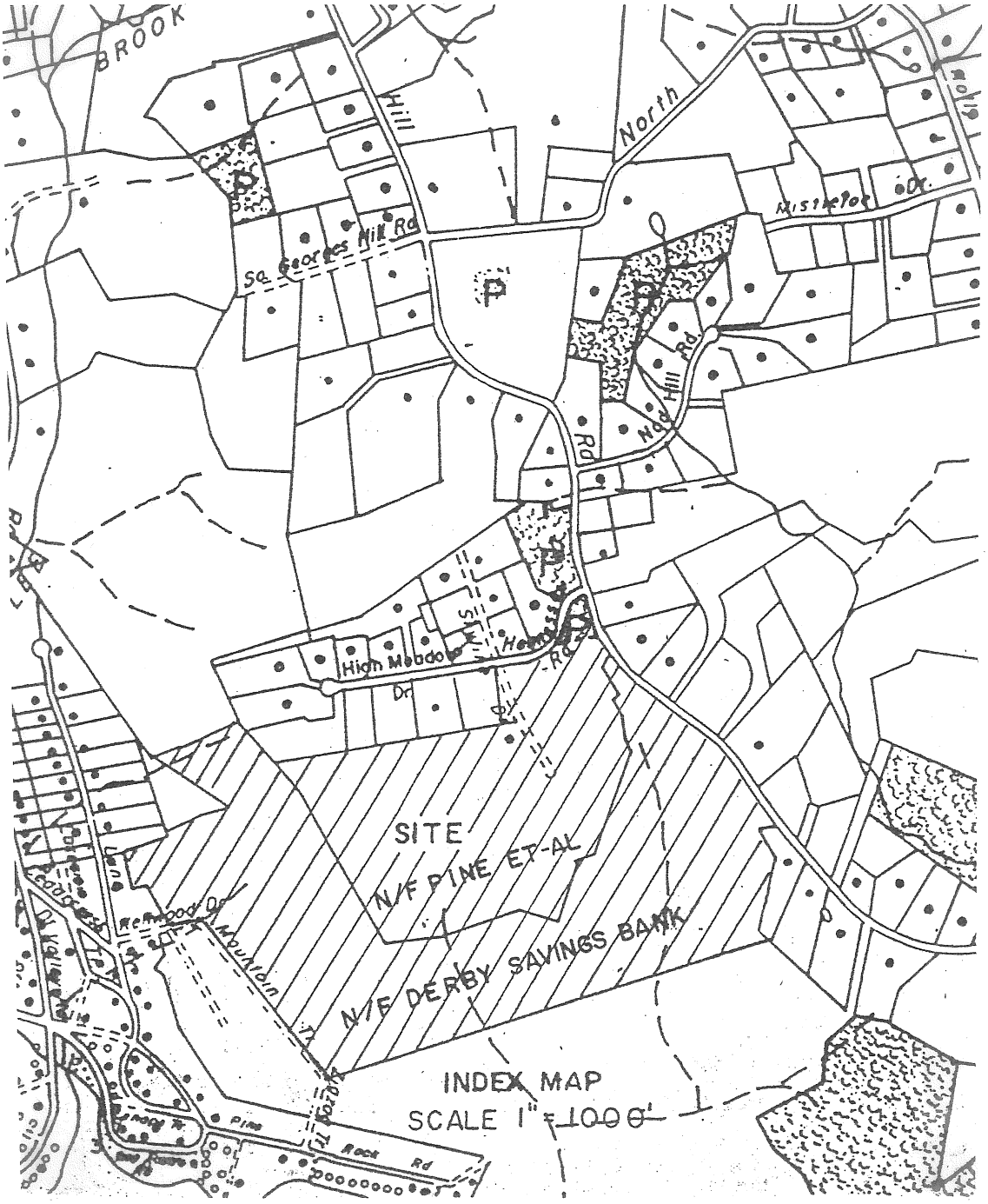

LOT LAYOUT

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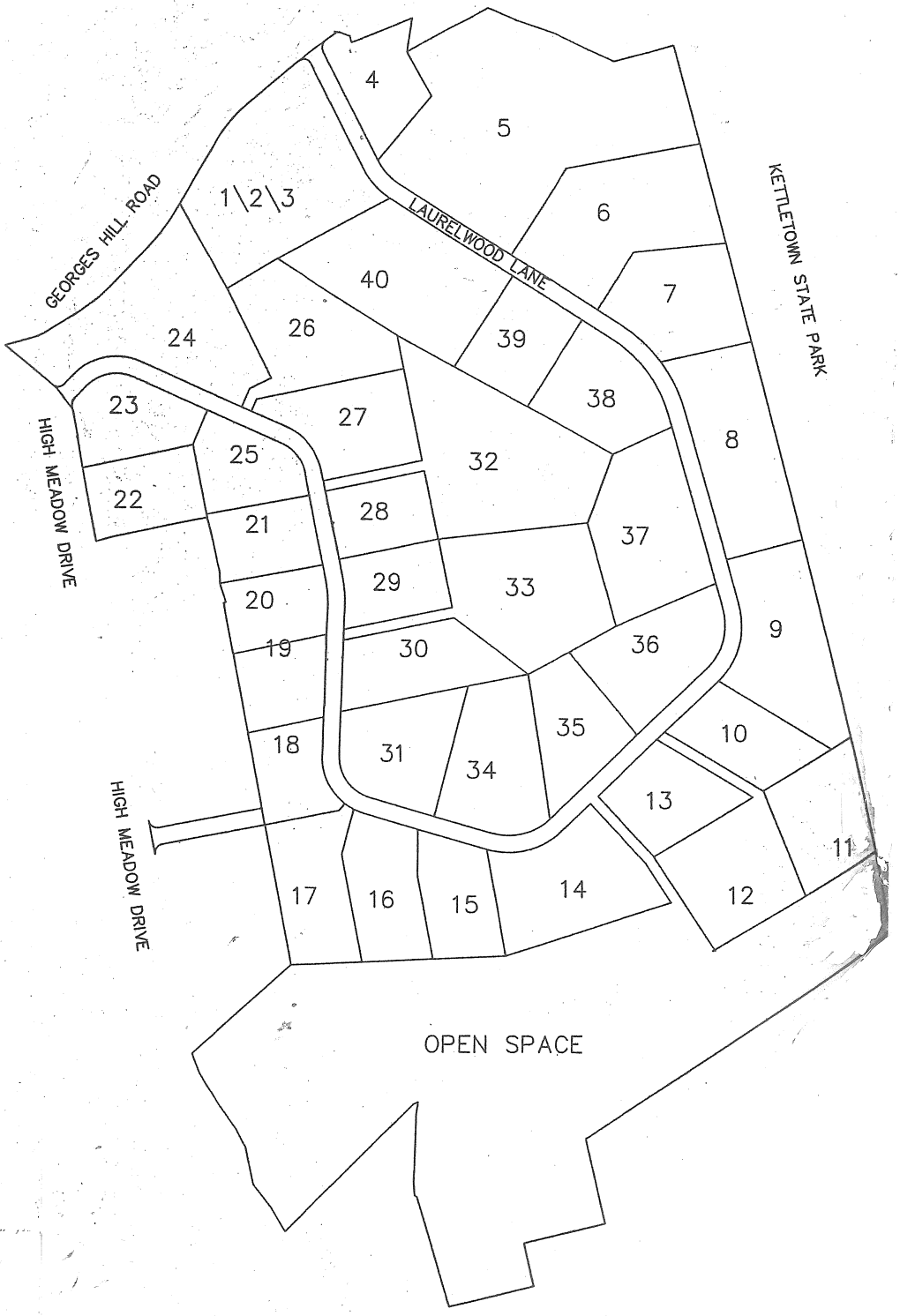

GEOLOGY

Due to snow cover at the time of the field review, most of the geological features described in this section are compiled from the Preliminary Geologic Map of the Southbury Quadrangle, Connecticut, 1966, US Geological Survey Open File Report 75-172 by Fred Pessi, Jr. and the Bedrock Geology of Southbury Quadrangle, Connecticut, 1972, State of Connecticut Geological and Natural History Survey, Department of Environmental Protection, Quadrangle Report #30 by Robert B. Scott and William Raymond.

The study area is predominantly surficial bedrock or bedrock with till covering less than 10 feet. The bedrock consists of crystalline schist and gneiss of Cambro-Ordovician age (approximately 500 million years old) with lenses of amphibolite, and is prominently displayed in the cliff on the southeast slope of Georges Hill. Glacial striations have been reported at the top of Georges Hill that indicate the glacial ice sheet was moving S 36° E during glaciation. This is consistent with glacial plucking as the origin of the cliff face on the southeast side of Georges Hill, and indicates that the glaciers were scraping bedrock when they were advancing, leaving very little surficial material on the top of the crystalline bedrock. In the vicinity of lots 19 and 20, till is reported as being present in thicknesses of up to 10 to 15 feet.

Due to the thin layer of surficial material extra care should be taken when siting septic systems because it is possible for partially treated effluent from the septic fields to percolate through a thin layer of surficial material and move along the surface of the bedrock until it hits a fracture. Once it hits a fracture, it is no longer filtered and can move relatively quickly to wherever the fracture goes. Depending on the fracture pattern in the rocks comprising Georges Hill and the surrounding area, polluted water from an improperly installed septic system could, for instance, seep out from the southeast cliff face of Georges Hill on the surface as springs or be intercepted by residential drinking water wells. Attention should be paid not only to the percolation tests, but to the depth to bedrock in the entire area proposed for septic disposal, since it is likely to be highly variable in the study area. The possibility of variability is supported by the large number of test pits reported to hit ledge or bedrock.

TOPOGRAPHIC MAP

Scale 1" = 2000'

Approximate Site

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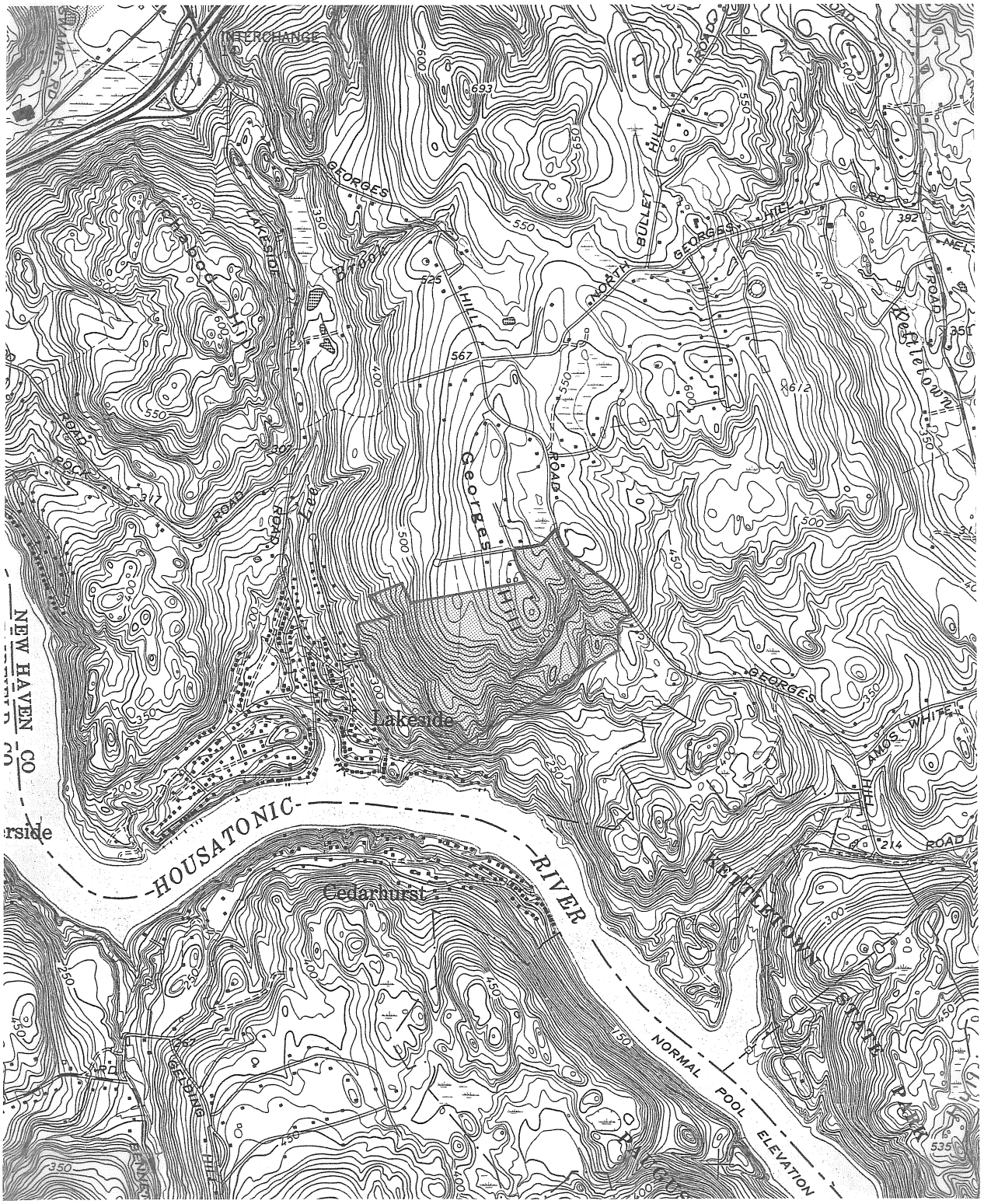


SOILS

The soils on this parcel as identified on sheet 32 of the New Haven County Soil Survey are New England upland glacial till soils that formed mainly in material that weathered from gneiss and schist. Drainage within these soils range from poorly drained Leicester fine sandy loam, a wetland soil, to well drained Charlton fine sandy loam. There are a few soil complexes on this parcel that consist of two or more dominant soil types that are intermixed and make separate delineation impractical on a large scale. Several of these complexes include soils that are close to bedrock or have exposed bedrock.

Several of the soils series such as Paxton or Sutton have a seasonal high water table perched at a depth of about 2 feet for several weeks in the spring. This is due to a compact layer in the substratum commonly referred to as a fragipan. This layer restricts downward drainage of subsurface water thus causing perched water conditions.

The slope ranges of the soils in this parcel are predominantly gently sloping to steep. There is very little flat land on this parcel. The Hollis-Rock outcrop complex presents developmental challenges due to exposed bedrock and vertical slopes. The terrain is very irregular and commonly is found with many stones, large boulders and steep intermittent drainageways with a few small, wet depressions. These are the predominant type of wetlands found on this parcel and will be subject to filling for road crossings. The brief ERT field investigation of this parcel indicates that the field mapping of the wetlands and the soil types indicated in this area on the soil survey sheet are reasonably correct.

A non-technical soils description report which includes the general soil types found on this parcel is included to give a more detailed description for each soil. In addition, a soil interpretation report was prepared to illustrate the limitations of each soil for typical uses associated with developments of this type. The categories chosen include:

- Septic Tank Absorption Fields;
- Dwellings with Basements;
- Local Streets and Roads;
- Lawns, Landscaping, and Golf Fairways; and
- Roadfill.

The interpretation report rates the soil limitations against the intended use for each soil. The potential categories range from GOOD potential to SEVERE limitations. The categories going from best potential to worst are:

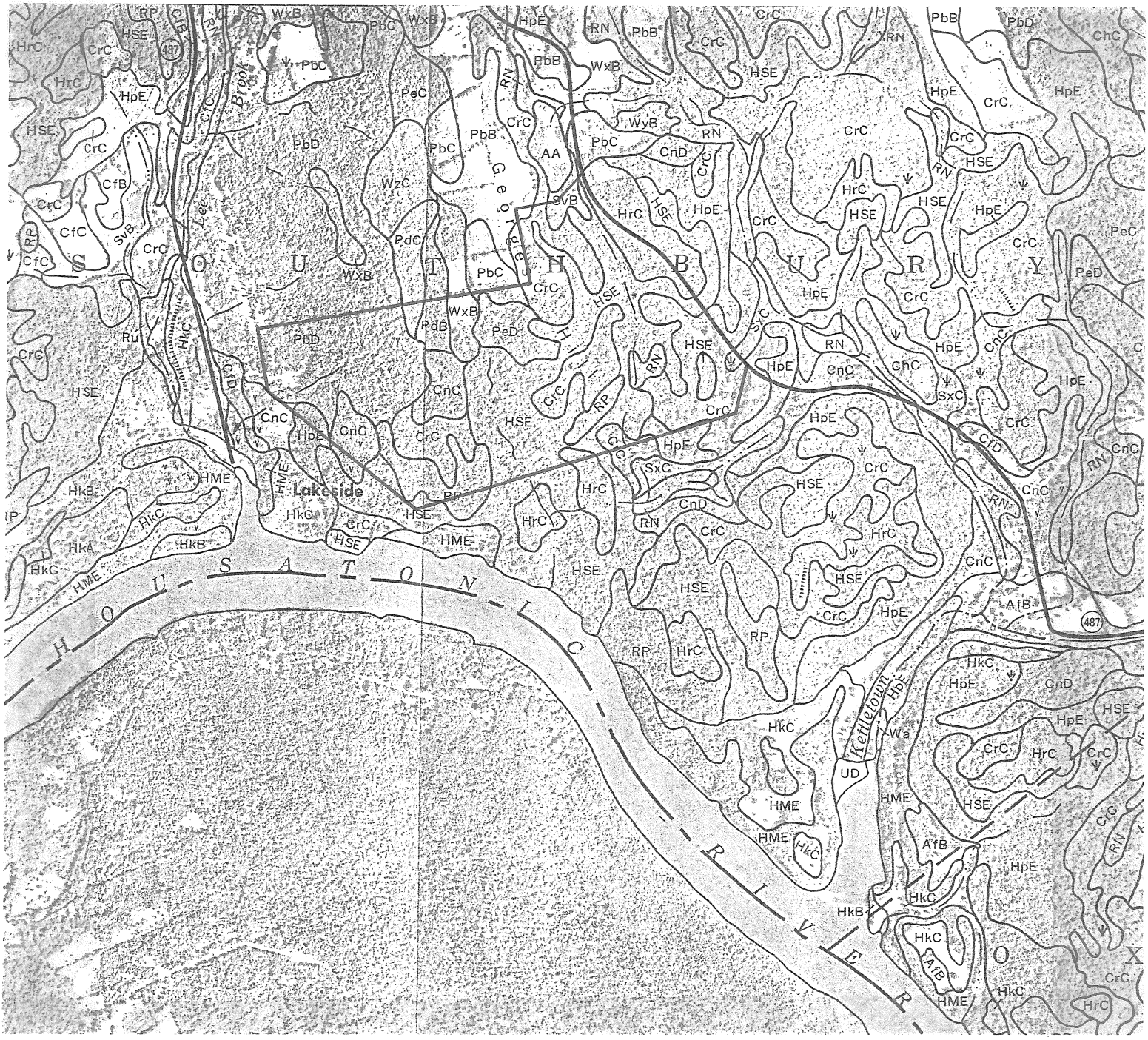
GOOD-FAIR-MODERATE-POOR-SEVERE.

For each category, except for GOOD, the primary limiting factor or factors is given for that intended use.

In reviewing the intended land uses against the Soil Interpretation Report, it is clear that many of the soils have SEVERE limitations due to depth to bedrock, slope, wetness, slow percolation rates or frost action. The soils with the severe limitations are prevalent throughout the entire parcel. If the soil limitations are not properly addressed, the common consequences that will occur are failed or non-functioning septic systems, severe erosion, slope failure, or frost heave damage. In addition, with the extensive amount of bedrock or shallow to bedrock soils coupled with the proposed severe cuts for the roadway and basements, extensive amounts of blasting and site disturbance can be expected.

SOILS MAP

Scale 1" = 1320'



Map Symbol	Soil Name	Septic Tank Absorption Fields	Dwellings With Basements	Local Streets & Roads	Lawns, Landscaping & Golf Fairways	Roadfill
CnC	Charlton	Moderate Slope	Moderate Slope	Moderate Slope	Moderate Large Stones Slope	Good
CrC	Charlton	Moderate Slope	Moderate Slope	Moderate Slope	Moderate Large Stones Slope	Good
	Hollis	Severe Depth to Rock	Severe Depth to Rock	Severe Depth to Rock	Severe Depth to Rock	Poor Depth to Rock
HrC	Hollis	Severe Depth to Rock	Severe Depth to Rock	Severe Depth to Rock	Severe Depth to Rock	Poor Depth to Rock
	Rock Outcrop	Severe Depth to Rock	Severe Depth to Rock	Severe Depth to Rock	Severe Depth to Rock	Poor Depth to Rock
HsE	Hollis	Severe Depth to Rock Slope	Severe Depth to Rock Slope	Severe Depth to Rock Slope	Severe Depth to Rock Slope	Poor Depth to Rock Slope
	Rock Outcrop	Severe Depth to Rock	Severe Depth to Rock Slope	Severe Depth to Rock Slope	Severe Depth to Rock	Poor Depth to Rock Slope
Lc	Leicester	Severe Wetness	Severe Wetness	Severe Wetness Frost Action	Severe Wetness	Poor Wetness
PbC	Paxton	Severe Percs Slowly	Moderate Wetness Slope	Moderate Wetness Slope Frost Action	Moderate Slope	Good
PbD	Paxton	Severe Percs Slowly Slope	Severe Slope	Severe Slope	Severe Slope	Fair Slope
PdB	Paxton	Severe Percs Slowly	Moderate Wetness	Moderate Wetness Frost Action	Moderate Large Stones	Good
PdC	Paxton	Severe Percs Slowly	Moderate Wetness Slope	Moderate Wetness Slope Frost Action	Moderate Large Stones Slope	Good
PeD	Paxton	Severe Percs Slowly Slope	Severe Slope	Severe Slope	Severe Slope	Poor Slope
Rd	Ridgebury	Severe Persc Slowly Wetness	Severe Wetness	Severe Wetness Frost Action	Severe Wetness	Poor Wetness
Rn	Ridgebury	Severe Percs Slowly Wetness	Severe Wetness	Severe Wetness Frost Action	Severe Wetness	Poor Wetness
	Leicester	Severe Wetness	Severe Wetness	Severe Wetness Frost Action	Severe Wetness	Poor Wetness
	Whitman	Severe Percs Slowly Ponding	Severe Ponding	Severe Frost Action Ponding	Severe Large Stones Ponding	Poor Wetness
Rp	Rock Outcrop	Severe Depth to Rock	Severe Depth to Rock Slope	Severe Depth to Rock Slope	Severe Depth to Rock	Poor Depth to Rock

NONTECHNICAL SOILS DESCRIPTIONS

Survey Area- NEW HAVEN COUNTY, CONNECTICUT

Map Symbol	Description
CnC	**CHARLTON EXTREMELY STONY FINE SANDY LOAM, 3 TO 15 PERCENT SLOPES.** **THE CHARLTON SERIES CONSISTS OF VERY DEEP, WELL DRAINED SOILS ON UPLANDS. THEY FORMED IN GLACIAL TILL DERIVED MAINLY FROM SCHIST AND GNEISS. TYPICALLY, THESE SOILS HAVE A DARK BROWN VERY STONY OR EXTREMELY STONY FINE SANDY LOAM SURFACE LAYER 6 INCHES THICK. THE SUBSOIL FROM 6 TO 26 INCHES IS YELLOWISH BROWN FINE SANDY LOAM AND LIGHT OLIVE BROWN GRAVELLY FINE SANDY LOAM. THE SUBSTRATUM FROM 26 TO 60 INCHES IS GRAYSIH-BROWN, FRIABLE GRAVELLY FINE SANDY LOAM. SLOPES RANGE FROM 0 TO 45 PERCENT.** This map unit consists of gently sloping to sloping, well drained soils. The Canton soil formed in sandy deposits over friable sandy gravelly till and the Charlton soil formed in friable loamy till. It is on the side slopes of upland hills and ridges. Stones cover 10 to 35 percent of the surface. Bedrock is commonly more than 60 inches below the surface. The water table is commonly below a depth of six feet. The permeability of the Canton soils :s moderately rapid in the surface layer and subsoil, and rapid in the substratum. The permeability of the Charlton soils is moderate or moderately rapid throughout. Surface runoff is medium to rapid, and the available water capacity is moderate.
CrC	**CHARLTON-HOLLIS FINE SANDY LOAMS, 3 TO 15 PERCENT SLOPES** This map unit consists of very deep and shallow gently sloping to sloping, well drained and somewhat excessively drained soils on hills and ridges of glacial till uplands. The areas of this map unit are mostly irregular in shape. Slopes are mostly complex and 100 to 200 feet long. Stones cover 1 to 8 percent of the surface, which is marked by a few narrow, intermittent drainageways and small, wet depressions. This map 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. The water table in this unit 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. Hard unweathered schist bedrock is at a depth of 14 inches in some areas.

HrC **HOLLIS-ROCK OUTCROP COMPLEX, 3 TO 15 PERCENT SLOPES**

This complex consists of gently sloping to sloping, somewhat excessively drained and well drained soils and areas of exposed bedrock. The soils of this complex formed in loamy glacial till. They are in long and narrow or irregularly shaped areas and on hills and ridges of glacial till uplands. Depth to bedrock varies from less than 20 inches to more than 60 inches below the surface. Stones and boulders cover 8 to 25 percent of the surface, which is marked by narrow, intermittent drainageways and a few small, wet depressions. These soils and the exposed rock are in such a complex pattern that it was not practical to map them separately. The water table in this complex is commonly below a depth of 6 feet. Permeability is moderate or moderately rapid in the surface, subsoil and substratum. Surface runoff is medium to rapid and the available water capacity is very low or low in the Hollis soils and moderate in the Charlton soils.

HsE **HOLLIS-ROCK OUTCROP COMPLEX, 15 TO 35 PERCENT SLOPES**

This complex consists of moderately steep.to steep, somewhat excessively drained and well drained soils and areas of exposed bedrock. The soils of this complex formed in loamy glacial till. They are in long and narrow or irregularly shaped areas and on hills and ridges of glacial till uplands. Depth to bedrock varies from less than 20 inches to more than 60 inches below the surface. Stones and boulders cover 8 to 25 percent of the surface, which is marked by narrow, intermittent drainageways and a few small, wet depressions. These soils and the exposed rock are in such a complex pattern that it was not practical to map them separately. The water table in this complex is commonly below a depth of 6 feet. Permeability is moderate or moderately rapid in the surface, subsoil and substratum. Surface runoff is rapid and the available water capacity is very low or low in the Hollis soils and moderate in the Charlton soils.

Lc **LEICESTER FINE SANDY LOAM**

THE LEICESTER SERIES CONSISTS OF VERY DEEP, POORLY DRAINED SOILS ON UPLANDS. THEY FORMED IN GLACIAL TILL DERIVED MAINLY FROM SCHIST AND GNEISS. TYPICALLY, THESE SOILS HAVE A BLACK FINE SANDY LOAM SURFACE LAYER 6 INCHES THICK. THE MOTTLED SUBSOIL FROM 6 TO 23 INCHES IS GRAYISH BROWN, LIGHT BROWNISH GRAY AND PALE BROWN FINE SANDY LOAM. THE MOTTLED SUBSTRATUM FROM 23 TO 60 INCHES IS DARK YELLOWISH BROWN GRAVELLY FINE SANDY LOAM. SLOPES RANGE FROM 0 TO 8 PERCENT.

This nearly level, poorly drained soil formed in loamy glacial till. It is in low-lying positions of till covered uplands. Depth to bedrock is commonly more than 60 inches below the surface. The soil has a seasonal high water table at a depth of about 10 inches from fall to spring. Permeability is moderate or moderately rapid in the surface

layer and subsoil and moderate to rapid in the substratum. Surface runoff is slow and the available water capacity is high.

PbC **PAXTON FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES.**

THE PAXTON SERIES CONSISTS OF VERY DEEP, WELL DRAINED SOILS ON UPLANDS. THEY FORMED IN GLACIAL TILL DERIVED MAINLY FROM SCHIST, GNEISS AND GRANITE. IN TILLED AREAS, THESE SOILS HAVE A DARK BROWN FINE SANDY LOAM SURFACE LAYER 8 INCHES THICK. THE SUBSOIL FROM 8 TO 26 INCHES IS DARK YELLOWISH BROWN AND OLIVE BROWN FINE SANDY LOAM. THE SUBSTRATUM FROM 26 TO 60 INCHES IS OLIVE, VERY FIRM AND BRITTLE GRAVELLY FINE SANDY LOAM. SLOPES RANGE FROM 0 TO 35 PERCENT.

These sloping well drained soils formed in compact glacial till. They are on the tops and side slopes of drumlins and hills of glacial till uplands. Depth to bedrock is commonly more than 60 inches below the surface. These soils have a seasonal high water table perched at a depth of about 2 feet for several weeks in the spring. Permeability in the Paxton soil is moderate in the surface layer and subsoil and slow to very slow in the substratum. Permeability in the Montauk soil is moderate or moderately rapid in the surface layer and subsoil and moderately slow or slow in the substratum. Surface runoff is rapid and the available water capacity is moderate.

PbD **PAXTON FINE SANDY LOAM, 15 TO 25 PERCENT SLOPES.**

These are moderately steep, well drained soils formed in compact glacial till. They are on the side slopes of drumlins and hills of glacial till uplands. Depth to bedrock is commonly more than 60 inches below the surface. These soils have a seasonal high water table perched at a depth of about 2 feet for several weeks in the spring. Permeability in the Paxton soil is moderate in the surface layer and subsoil and slow to very slow in the substratum. Permeability in the Montauk soil is moderate or moderately rapid in the surface layer and subsoil and moderately slow or slow in the substratum. Surface runoff is rapid and the available water capacity is moderate.

PdB **PAXTON VERY STONY FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES**

These gently sloping, well drained soils formed in compact glacial till. They are on the tops and side slopes of drumlins and hills of glacial till uplands. Stones cover from 1 to 8 percent of the soils surface. Depth to bedrock is commonly more than 60 inches below the surface. These soils have a seasonal high water table perched at a depth of about 2 feet for several weeks in the spring. Permeability in the Paxton soil is moderate in the surface layer and subsoil and slow to very slow in the substratum. Permeability in the Montauk soil is moderate or moderately rapid in the surface layer and subsoil and moderately.slow or slow in the substratum. Surface runoff is medium and the available water capacity is moderate.

PdC **PAXTON VERY STONY FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES.**

These sloping, well drained soils formed in compact glacial till. They are on the tops and side slopes of drumlins and hills of glacial till uplands. Stones cover from 1 to 8 percent of the soils surface. Depth to bedrock is commonly more than 60 inches below the surface. These soils have a seasonal high water table perched at a depth of about 2 feet for several weeks in the spring. Permeability in the Paxton soil is moderate in the surface layer and subsoil and slow to very slow in the substratum. Permeability in the Montauk soil is moderate or moderately rapid in the surface layer and subsoil and moderately slow or slow in the substratum. Surface runoff is rapid and the available water capacity is moderate.

PeD **PAXTON EXTREMELY STONY FINE SANDY LOAM, 15 TO 35 PERCENT SLOPES.**

These moderately to steep, well drained soils formed in compact glacial till. They are on tops and side slopes of drumlins and large hills of glacial tills uplands. Depth to bedrock is commonly more than 60 inches below the surface. Stones and boulders cover 8 to 25 percent of the surface. These soils have a seasonal high water table perched at a depth of about 2 feet for several weeks in the spring. Permeability in the Paxton soil is moderate in the surface layer and subsoil and slow to very slow in the substratum. Permeability in the Montauk soil is moderate or moderately rapid in the surface layer and subsoil and moderately slow or slow in the substratum. Surface runoff is rapid and the available water capacity is moderate.

Rd **RIDGEBURY FINE SANDY LOAM.**

THE RIDGEBURY SERIES CONSISTS OF VERY DEEP, POORLY AND SOMEWHAT POORLY DRAINED SOILS ON UPLANDS. THEY FORMED IN GLACIAL TILL. TYPICALLY THESE SOILS HAVE A BLACK SANDY LOAM SURFACE LAYER 6 INCHES THICK. THE MOTTLED SUBSOIL FROM 6 TO 16 INCHES IS OLIVE GRAY SANDY LOAM. THE MOTTLED SUBSTRATUM FROM 16 TO 60 INCHES IS A VERY FIRM FRAGIPAN THAT IS LIGHT OLIVE BROWN AND OLIVE SANDY LOAM. SLOPES RANGE FROM 0 TO 15 PERCENT.

This nearly level poorly drained soil formed in compact glacial till. It is on concave slopes, in depressions, and in small drainageways of glacial till uplands. Depth to bedrock is commonly more than 60 inches below the surface. The soil has a seasonal high water table at a depth of about 10 inches from fall to spring. Permeability is moderate or moderately rapid in the surface layer and subsoil and slow to very slow in the substratum. Surface runoff is slow and the available water capacity is moderate.

Rn **RIDGEBURY, LEICESTER AND WHITMAN EXTREMELY STONY FINE SANDY LOAMS.**

These nearly level, poorly drained and very poorly drained soils formed in compact and friable loamy glacial till. They are in depressions and drainageways of glacial till uplands. Depth to bedrock is commonly more than 60 inches below the surface. From 8 to 25 percent of the surface of these soils are covered with stones and boulders. The soils were mapped together because they have no significant differences in use and management. These soils have a seasonal high water table at or near the surface from fall through spring. Permeability is moderate or moderately rapid in the surface layer and subsoil of these soils. The permeability is slow to very slow in the substratum of the Ridgebury and Whitman soils and moderately rapid in the substratum of the Leicester soils. Runoff is slow. The available water capacity is moderate in these soils.

SvB **SUTTON FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES.**

THE SUTTON SERIES CONSISTS OF VERY DEEP, MODERATELY WELL DRAINED SOILS ON UPLANDS. THEY FORMED IN GLACIAL TILL DERIVED MAINLY FROM SCHIST AND GNEISS. TYPICALLY, THESE SOILS HAVE A VERY DARK GRAYISH BROWN FINE SANDY LOAM SURFACE LAYER 6 INCHES THICK. THE SUBSOIL FROM 6 TO 28 INCHES IS DARK BROWN AND YELLOWISH BROWN FINE SANDY LOAM WITH MOTTLES BELOW 12 INCHES. THE SUBSTRATUM FROM 28 TO 60 INCHES IS BROWN FIRM GRAVELLY FINE SANDY LOAM AND LIGHT OLIVE BROWN FRIABLE GRAVELLY SANDY LOAM. SLOPES RANGE FROM 0 TO 15 PERCENT.

This gently sloping, moderately well drained soil formed in loamy glacial till. It is near the base of hills and in depressions of glacial till uplands. Depth to bedrock is commonly more than 60 inches below the surface. The soil has a seasonal high water table at a depth of about 20 inches from fall to spring. Permeability is moderate in the surface layer and subsoil and moderately rapid in the substratum. Surface runoff is medium and the available water capacity is moderate.

SxC **SUTTON EXTREMELY STONY FINE SANDY LOAM, 3 TO 15 PERCENT SLOPES.**

This nearly level to sloping, moderately well drained soil formed in loamy glacial till. It is at the base of slopes, in slight depressions and on side slopes in glacial till uplands. Depth to bedrock is commonly more than 60 inches below the surface. From 8 to 25 percent of the soil surface is covered with stones and boulders. The soil has a seasonal high water table at a depth of about 20 inches from fall to spring. Permeability is moderate in the surface layers and subsoil and moderately rapid in the substratum. Surface runoff is medium to rapid and the available water capacity is moderate.

WxB **WOODBRIDGE FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES.**

THE WOODBRIDGE SERIES CONSISTS OF VERY DEEP, MODERATELY WELL DRAINED SOILS ON UPLANDS. THEY FORMED IN GLACIAL TILL. IN TILLED AREAS, THESE SOILS TYPICALLY HAVE A VERY DARK GRAYISH BROWN FINE SANDY LOAM SURFACE LAYER 7 INCHES THICK. THE SUBSOIL FROM 7 TO 30 INCHES IS DARK YELLOWISH BROWN AND LIGHT OLIVE BROWN FINE SANDY LOAM, MOTTLED BELOW 18 INCHES. THE SUBSTRATUM FROM 30 TO 60 INCHES IS LIGHT OLIVE BROWN, VERY FIRM AND BRITTLE GRAVELLY FINE SANDY LOAM. SLOPES RANGE FROM 0 TO 25 PERCENT.

This gently sloping, moderately well drained soil formed in compact glacial till. It is on the top and side slopes of large drumlins and hills on glacial till uplands. Depth to bedrock is commonly more than 60 inches below the surface. The soil has a seasonal high water table at a depth of about 20 inches from fall to spring. Permeability is moderate in the surface layer and subsoil and slow to very slow in the substratum. Surface runoff is medium and the available water capacity is moderate.

EROSION AND SEDIMENT CONTROL

Much of this 134 acre parcel is covered with soils that have severe limitations for development due to slopes and depth to bedrock. Construction of a road, driveways, wetland crossings and 37 houses will have de-stabilizing effects upon the erodible slopes causing erosion and sedimentation. Due to the steep slopes and lack of level areas, it can be expected that the sediment will be transported to the nearby narrow sloping wetlands, which in turn would transport the sediment down hill to flatter wetlands where the large sediment particles would settle out. Finer sediment particles such as silt and clay would remain in suspension to discolor the water. The overall effect would be a degradation of water quality. Thus, it is very important to concentrate on reducing erosion and soil disturbance (both in time and area) as the primary way of reducing sedimentation.

Secondly, best management practices and a functional and well maintained sediment control system must be implemented to exclude sediment from the wetlands or intermittent drainage systems. Because of the sloping nature of this parcel and the water quality effects both on and off site, several recommendations are given for reducing potential erosion and sedimentation.

1. An erosion and sediment control plan should be developed along the suggested format presented in Chapter 4 of the revised edition (1986) of the GUIDELINES FOR EROSION AND SEDIMENT CONTROL handbook for Connecticut. The presented plan does not follow the format by addressing ALL the items or it is vague on several items. As an example, temporary seeding and mulching for winter protection or temporary protection of stockpiled soil needs to be addressed.

2. The name and telephone number of the person assigned the responsibility for the installation and maintenance of the erosion controls and for implementing the erosion control plan should be provided to the proper town officials and clearly stated on the plan.

3. The town should consider a request for the posting of a readily assessable cash bond by the developer for emergency installation/repair of erosion and sediment controls should conditions warrant it.

4. Considerable site disturbance can be expected during road construction and lot development. To limit the amount of disturbed area, it is recommended that development take place in phases and that each phase be substantially completed and stabilized prior to clearing and stripping of the next phase.

5. There are several significant cuts and fills with slopes of 2:1 which are at the maximum steepness allowed for vegetated slopes. These slopes need biotechnical slope protection using soil retention blankets or erosion control blankets that are installed according to manufacturer's recommendations. In addition, surface water control above the larger cuts is recommended to exclude runoff from the slope. All wetland crossings should use some sort of slope protection to reduce erosion and sedimentation.

6. Many of the proposed driveways are designed for the maximum 12% slope and they involve 2:1 cuts or embankments. This situation is conducive to concentrating water flow and accelerating erosion and sedimentation. This problem needs to be addressed. Again, the steep slopes will need slope protection. The driveways to interior lots 11 and 12 and lot 32 are examples that present concern.

7. It would be beneficial for each lot to have an individual erosion and sediment control plan. It can be anticipated that significant disturbance will occur as the result of installing the driveways, foundations, septic systems and the temporary stockpiling of excavated material. Blasting activities will also contribute to the overall disturbance of each lot, as well as during road construction.

8. For the amount of proposed site disturbance that will result during road construction, it can be expected that the erosion control plan using a single continuous sediment barrier will not be effective. Smaller individual erosion control barriers that are properly located, installed and maintained are more effective that a single barrier. These barriers are most effective when placed on the contour with ends directed upslope, they do not receive concentrated flows and they receive drainage from 1 acre or less.

9. The location of the primary septic system for lot 27 is within 20 feet of a proposed 2:1 downhill slope leading to the driveway of lot 26. The possibility of the septic system contributing to slope failure and pollution is a concern that should be mentioned. This area includes steep slopes, close to bedrock soils or soils with perched water tables as indicated by mottling within 18" of the surface.

10. Adverse effects along the downslope drainageways or wetlands need careful review. As indicated in the site review by John Gilmore of Milone & Macbroom, Inc., additional runoff from development can accelerate stream channel scour and affect adjacent properties. Reducing runoff or installing stream channel protection measures are alternatives to consider. It has been estimated that between 5 to 6 acres of impervious surface with nearly 100% runoff will contribute to the runoff once all the roads, driveways and houses have been installed. This runoff peaks faster and at higher volumes than runoff from the presently forested condition.

OTHER ISSUES

1. The town could consider wetland mitigation alternatives to replace lost wetlands due to filling. Mitigation areas should occur adjacent to existing wetlands in flatter areas. Upland soils could be excavated to a lower elevation and replaced with wetland soil removed from the fill sites.

2. An experienced licensed sanitarian should carefully review, for the town, all proposed septic systems. Many of the proposed locations include soils with severe limitations due to slope, bedrock and slower drainage through the lower soil profile.

3. Considerable blasting for roadway and basements is anticipated throughout the site. In addition to site disturbance, consideration should be given to conducting a pre-blast inventory for nearby houses where blasting is to occur.

4. The ownership and extent of open space was mentioned during the review. Generally, installing walking trails along narrow "wildlife corridors" is not conducive to attracting wildlife along these corridors. Additionally, open space easements are generally ignored by adjoining landowners and they commonly become dumping areas for leaves, brush and other yard wastes. Careful planning and responsible management and enforcement is needed for these areas to function as intended.

Evidence of deer and wild turkey were observed during the field review. It can be expected that if this site is changed to houses, that the habitat will no longer be attractive to wild turkey and deer could become a nuisance.

5. In general, this site presents great difficulty for development due to the numerous soil limitations, slopes and bedrock. It may be advantageous to.explore clustered development alternatives on a section more suitable for this purpose. This option or other alternative layouts which could lessen the overall detrimental results of what is presently proposed were not presented.

INLAND WETLAND REVIEW

In this section are observations of the wetland resources, the impacts that the proposed subdivision will have on those resources and recommendations to alleviate those impacts at the above referenced location.

Due to significant snow cover during the site walk on March 8, 1994, a more extensive wetlands survey was not possible. However, judging from the wetland areas traversed as the Environmental Review Team traced the path of the proposed road, and inspection of aerial photographs of the area, the wetlands boundary as indicated on the site plan included for review appeared to be accurate. It is advised that the signature and certifying statement of the soil scientist responsible for mapping the inland wetlands on this parcel be included on the site plan.

The majority of the wetlands on this site form narrow, linear corridors which act to convey intermittent flows of stormwater from some developed, but mostly wooded areas, down steep slopes toward Kettletown State Park, the Housatonic River and the residential area of Lakeside. Directly related to the stormwater management function of a wetland is its ability to trap nutrients and sediments from water as it travels down gradient through the wetland. These nutrients and sediments commonly come from surface runoff in the form of road sands, salts and engine oil as well as from groundwater in the form of household septic system effluent. The rather steep gradient of most of the wetlands on this parcel reduces its ability to trap pollutants. These wetland corridors may also convey certain amounts of sustained groundwater base-flows during wetter periods. Besides this stormwater management functional value, another critical functional value of these wetlands is wildlife habitat. Existing on the boundaries of Kettletown State Park, this undeveloped parcel currently serves as an extension of the wildlife habitats existing within the park.

The impacts to the wetland areas on this parcel will be both direct and indirect. The project engineer measured direct impacts to the wetlands to be .42 acres, primarily for road construction. It appears as though this figure may not include the stormwater outlet protection pads proposed for the four wetland crossings. In addition, direct wetland impact should account for the wetland areas disturbed as a result of the movement of construction vehicles around fill piles and stormwater outlets. For activities which result in the loss of more than .5 acres, but less than 1.0 acre of wetlands, a "401 Water Quality Certificate" may be required from

the DEP-Inland Water Resources Division. For further information on this certification program, contact Sally Snyder (DEP-Inland Water Resources) at 566-7280.

The site engineer has made an effort to reduce direct wetland impact by locating wetland crossings at the narrower wetland areas, reducing road shoulder width and using an arch culvert at the most hydrologically active of the four wetland crossings. At the other wetland crossings, he has maintained the hydrologic connection from one side of the road to the other by using standard piping as well as a road base of crushed rock. Any further reduction of direct impact, given the proposed road configuration is unlikely.

The primary, indirect impacts to the wetlands of this parcel are just as, if not more critical, than the direct impacts. These indirect impacts include increased storm water runoff as a result of increase in impervious land cover, decreased water quality resulting from unbuffered stormwater outlets, and possible sedimentation of wetlands and watercourses as a result of erosion during the construction period. These impacts and how to reduce them have been addressed elsewhere in this report (Refer to EROSION AND SEDIMENT CONTROL section). The following items will add or re-enforce comments of other ERT members.

- The written erosion and sedimentation control narrative included on the plan is extensive and basically complete, however, the graphic representation of the narrative on the site plan is severely lacking. The sediment control devices mentioned in the narrative (i.e. silt fence, haybale, sediment basins, diversion swales, tracking pads, soil stockpiles) should be specifically located on the site plan for reference in the field. This information is critical for the Southbury Inland Wetland Agency (IWA) to judge overall wetland impact during the construction of the wetlands crossings. If an erosion and sedimentation control plan for the entire subdivision is approved by the Southbury IWA, it should be made clear that any significant alterations to the site plan would require additional review by the agency.

- No outlet protection is indicated for the stormwater outlet located on Lot 24 off of Catch Basin #53.

- Surface or subsurface drainage with the appropriate erosion controls may be needed at the base of the bedrock cuts needed to construct the road.

- The existing and planned surface drainage patterns should be included on the plan.

- Stormwater collected in the catchbasins at wetland crossings 1, 3 and 4 should not be allowed to flow directly into the wetlands. This stormwater should be diverted a sufficient distance away from the wetland boundary to allow for some water quality attenuation.

- The anticipated on and off-site effects of the stated increased stormwater flows, as well as, how the impacts of these increased flows will be reduced needs to be addressed.

- The existing contours on sheet "WC2" of the site-plan need to be labeled.

- If this project is not phased, and construction activities covering five acres or more are approved, the applicant is required to apply to the CT-DEP for a general permit for the discharge of stormwater under the National Pollutant Discharge Elimination System (NPDES) program. There are reportedly five to six acres of proposed impervious surface for this project and this does not include other disturbed or graded areas. For further information on this permit program contact Christopher Stone of the DEP Permitting Enforcement and Remediation Division at 566-5903.

- The map entitled "Community Water Systems in Connecticut" indicates that the Lakeview Water Company operates a series of wells down gradient from portions of the proposed subdivision. This should create a heightened concern for properly designing the proposed septic systems and installing adequate sedimentation controls on the subject parcel.

When evaluating proposed impacts to wetlands and watercourses, Section 22a-41(b) of the Connecticut General Statutes requires that in the case of an application which receives a public hearing, the inland wetlands agency must find that a feasible and prudent alternative to the proposed wetland alteration does not exist prior to issuing a wetlands permit. The conceptual layout entitled "Alternative Plan by Southbury Land Trust and Conservation Commission" is an alternative that should be judged for its feasibility and prudence. It is understood that there may be possible planning and traffic conflicts with the Land Trust/Conservation Commission plan.

The merits of the plan include:

- Relocating the road to the northern end of the long ravine in the eastern section of the parcel and outletting any collected stormwater to another watershed to the north. With a wooden bridge spanning the ravine at this location, wetland impact would be significantly reduced compared to the currently proposed wetland crossing #4. Additionally, a significant wildlife corridor would be preserved from Kettletown State Park through the proposed subdivision to existing town-owned open space.

- Realigning that section of open space that abuts lots 12 and 13 to include the wetland area downstream of wetland crossing #1.

If no feasible alternatives are presented by the applicant, wetlands restoration and/or creation which would act to replace the functional values lost from impacted, on-site wetlands may be considered by the agency and the applicant.

THE NATURAL DIVERSITY DATA BASE

The Natural Diversity Data Base maps and files regarding the Laurel Woods Subdivision have been reviewed. According to their information, there may be extant populations of Federal or State Endangered Species in the vicinity of this project. Our records indicate that Bald Eagles use the Housatonic River during the winter months in this area. The bald eagle (Haliaeetus leucocephalus) uses the Housatonic River extensively throughout the winter months and also utilizes various woodland areas in proximity to the river for perching and roosting.

The topography of the project area suggests that the vegetative community should be further examined to determine its suitability for eagle use. The southernmost portion of the project area and the areas bordering Kettletown State Park both warrant closer examination.

The wildlife Division has not conducted an on-site survey of the project area. Consultation with the Wildlife Division should not be substituted for on-site surveys required for environmental assessments. Please feel free to contact Jenny Dickson (DEP-Wildlife Division) at 584-9830 if you have additional questions relating to this species. She is available to review additional information or project details relating to bald eagle use of the area.

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. Consultations 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.

Please be advised that this is a preliminary review and not a final determination. A more detailed review may be conducted as part of any subsequent environmental permit applications submitted to DEP for the site.

PLANNING REVIEW

The Council of Governments of the Central Naugatuck Valley (COGCNV) staff have reviewed the site of the proposed Laurel Woods 134 acre subdivision off Georges Hill Road in Southbury. This section will comment on land use and compatibility with the Regional Plan and State Plan of Conservation and Development and traffic.

The proposed 37 lot subdivision is in conformance with the State Plan of Conservation and Development. That Plan calls for this area to remain as rural land, which means it is remote from an urban area and lacks, and will continue to lack, public water and sewer service. It is also away from residential, industrial and commercial concentrations. Rural land is characterized by single family housing and on-site water and sewer systems.

The parcel is shown on the 1977 Regional Plan of Development in two designated areas. The first natural area contains soils considered unsuitable for development by the COGCNV as outlined in the soil report submitted by Environmental Resource Associates. These soils are steep, shallow to bedrock or too wet for the installation of septic systems and were recommended by the COG for densities no greater than one dwelling unit per 16 acres. The areas at the south, southeast and southwest portion of this parcel fall in that category and appear to represent the majority of the property. A portion of this area is included in the proposed open space. A second significant portion is classified in the Regional Plan as suitable for limited residential development, without sewers. The recommended density of the development in this area is a maximum of 1 dwelling unit per 2 acres. The area recommended at this density is found predominantly in the north and central portions of the parcel. As with the State Plan, no public sewer and water services are recommended for this area.

The surrounding land uses of residential and open space are compatible with the proposal as presented.

Regarding traffic, the low number of single family detached residential units in the proposed development will result in relatively low traffic generation from the site. According to the Institute of Traffic Engineers Trip Generation Manual (5th Edition) a subdivision of this nature will generate approximately 28 trips during the morning peak

hour (7 entering and 21 exiting) and 38 trips during the evening peak hour (25 entering and 13 exiting). This additional traffic will have no significant impact on the surrounding roadway network.

ARCHAEOLOGICAL REVIEW

A review of the State of Connecticut Archaeological Site Files and Maps show no known archaeological resources in the project area. Nonetheless, topographic and environmental features suggested a moderate-to-high sensitivity for archaeological remains. Outcroppings of bedrock in close proximity to the Housatonic River suggests the use of these geological features as rockshelter sites for prehistoric hunting and gathering groups. Native American sites have often been located under rockledges along this river drainage. These ledges would provide a natural area of protection from climatic elements and were utilized by small groups hunting wild game and gathering wild plants in the area. Field review, however, demonstrated that the bedrock outcroppings in the project area have little potential for rock shelter encampments. Scarred by glacial movements, the bedrock consists of Rowe schist. This metamorphic rock provides little opportunity for ledge and well drained soil development suitable for encampments.

The most intriguing historical feature in the project area is the old stagecoach road running along the ravine in the eastern portion of the site. This historic road has very good integrity and can offer information on early road construction activities. The Office of State Archaeology encourages the maintenance of the roadway as a historic artifact of the early history of Southbury. Running parallel with the ravine, the road is part of the proposed wetlands easement established for environmental protection. This easement should also serve for the historic preservation of the roadway. In addition, the Office of State Archaeology does not recommend that old roads be used for modern hiking trails. Though the ravine provides an attractive environmental feature, increased foot traffic on the old roadbed will lead to its deterioration. A hiking trail adjacent to the road is acceptable, however, the old road should be respected for its historic integrity.

In summary, the Office of State Archaeology estimates that the proposed subdivision should have no effect on the state's cultural resources. Field review demonstrates that the observed rockledges did not contain the potential for rockshelter sites anticipated in the map review. As a result, the most interesting historic aspect of the property is the old roadway in the eastern ravine. This historic road has very good integrity and its preservation is encouraged. The proposed wetland easement associated with the ravine includes the historic road and should serve this preservation effort. However, portions of this roadway not included in the wetlands easement should be protected by extension of the easement.

The Office of State Archaeology looks forward to working with the Town of Southbury in the preservation and conservation of the cultural resources in the project area. The State Archaeologist may be contacted should you require any further technical assistance.

ABOUT THE TEAM

The King's Mark Environmental Review Team (ERT) is a group of environmental professionals drawn together from a variety of federal, state and regional agencies. Specialists on the Team include geologists, biologists, soil scientists, foresters, climatologists and landscape architects, recreational specialists, engineers and planners. The ERT operates with state funding under the aegis of the King's Mark Resource Conservation and Development (RC&D) Area - an 83 town area serving western Connecticut.

As a public service activity, the Team is available to serve towns within the King's Mark RC&D Area - **free of charge**.

Purpose of the Environmental Review Team

The Environmental Review Team is available to assist towns in the review of sites proposed for major land use activities or natural resource inventories for critical areas. For example, the ERT has been involved in the review of a wide range of significant land use activities including subdivisions, sanitary landfills, commercial and industrial developments and recreation/open space projects.

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 site and highlighting opportunities and limitations for the proposed land use.

Requesting an Environmental Review

Environmental reviews may be requested by the chief elected official of a municipality or the chairman of an administrative agency such as planning and zoning, conservation or inland wetlands. Environmental Review Request Forms are available at your local Soil and Water Conservation District and through the King's Mark ERT Coordinator. This request form must include a summary of the proposed project, a location map of the project site, written permission from the landowner/developer allowing the Team to enter the property for the purposes of a review and a statement identifying the specific areas of concern the Team members should investigate. When this request is reviewed by the local Soil and Water Conservation District and approved by the King's Mark RC&D Executive Council, the Team will undertake the review. At present, the ERT can undertake approximately two reviews per month depending on scheduling and Team member availability.

For additional information regarding the Environmental Review Team, please contact the King's Mark ERT Coordinator, Connecticut Environmental Review Team, P.O. Box 70, Haddam, CT 06438. The telephone number is 203-345-3977.