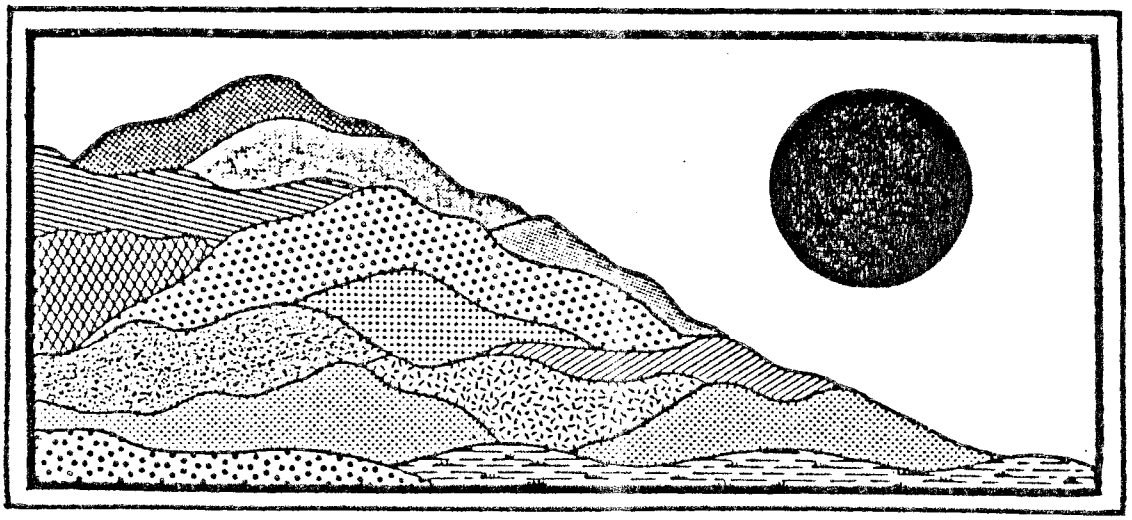
BABCOCK HILL FARMS

Lebanon, Connecticut

October 1988



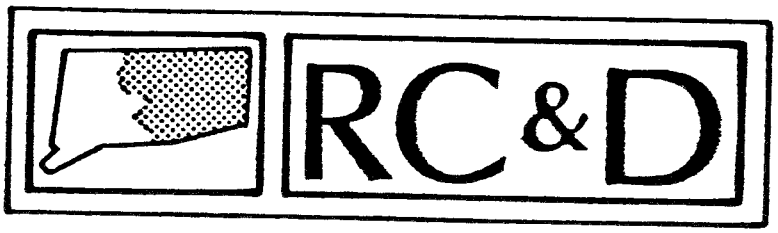
ENVIRONMENTAL REVIEW TEAM REPORT

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

BABCOCK HILL FARMS

Review Date: AUGUST 11, 1988

Report Date: OCTOBER 1988



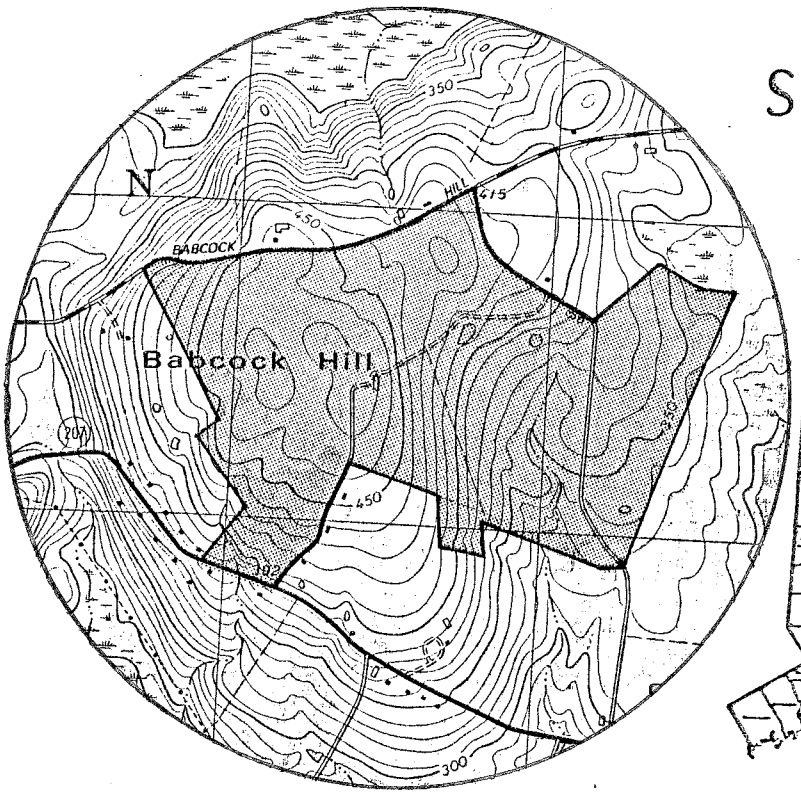
ENVIRONMENTAL REVIEW TEAM

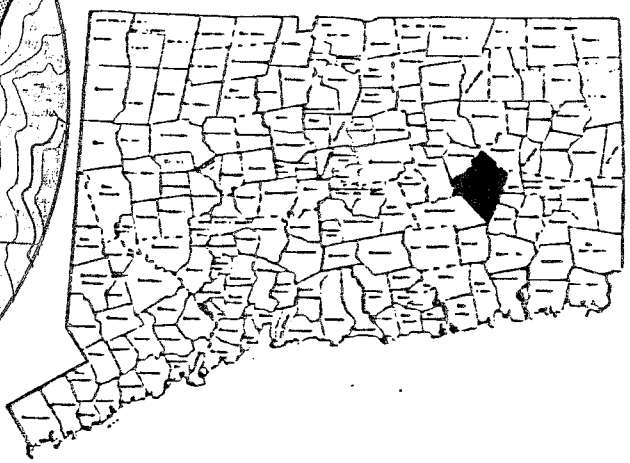
PO BOX 70

HADDAM, CONNECTICUT 06438

Site Location

BABCOCK HILL FARMS SUBDIVISION
LEBANON, CONNECTICUT





EASTERN CONNECTICUT

ESOURCE CONSERVATION

& DEVELOPMENT AREA

ENVIRONMENTAL REVIEW TEAM REPORT
ON
BABCOCK HILL FARMS SUBDIVISION
LEBANON, CONNECTICUT

This report is an outgrowth of a request from the Lebanon Planning and Zoning Commission to the New London Soil and Water Conservation District (S&WCD). The S&WCD referred this request to the Eastern Connecticut Resource Conservation and Development (RC&D) Area Executive Council for their consideration and approval. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The ERT met and field checked the site on Thursday, August 11, 1988. Team members participating on this review included:

Barry Cavanna	*--District Conservationist - U.S.D.A., Soil Conservation Service*
Kevin DesRoberts	*--Wildlife Assistant - DEP, Eastern District*
Steve Hill	*--Wildlife Biologist - DEP, Eastern District*
Nancy Murray	*--Biologist - DEP, Natural Diversity Data Base*
Meg Reich	*--Planning Director - Windham Regional Planning Agency*
Elaine Sych	*--ERT Coordinator - Eastern CT RC&D Area*
Bill Warzecha	*--Geologist - DEP - Natural Resources Center*

Prior to the review day, each Team member received a summary of the proposed project, a list of the Town's concerns, a location map, a topographic map, and a soils map. During the field review the Team members were given plans and other information. The Team met with, and were accompanied by members of the Planning and Zoning Commission the Inland Wetlands Commission, the developers and their engineers and consultants. 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 designs or detailed solutions to development problems. The Team does not recommend what final action should be taken on a proposed project--all final decisions and conclusions 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 developer and 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 Committee hopes you will find this report of value and assistance in making your decisions on this proposed subdivision.

If you require any additional information, please contact:

Elaine A. Sych
ERT Coordinator
Eastern Connecticut RC&D Area
P. O. Box 70
Haddam, CT 06438
(203) 345-3977

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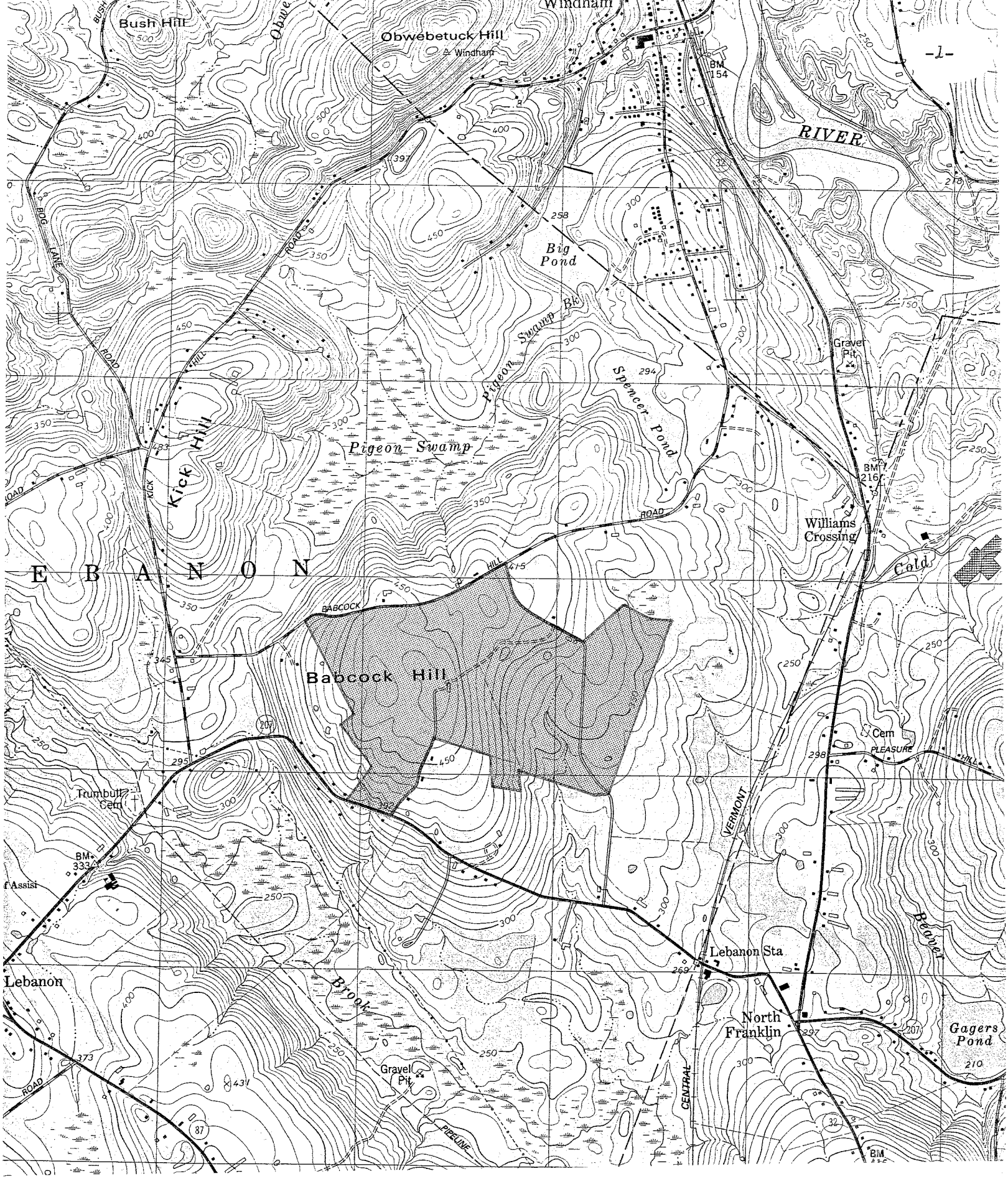


LOCATION

SCALE 1" = 2000'

I. SETTING, LAND-USE AND TOPOGRAPHY

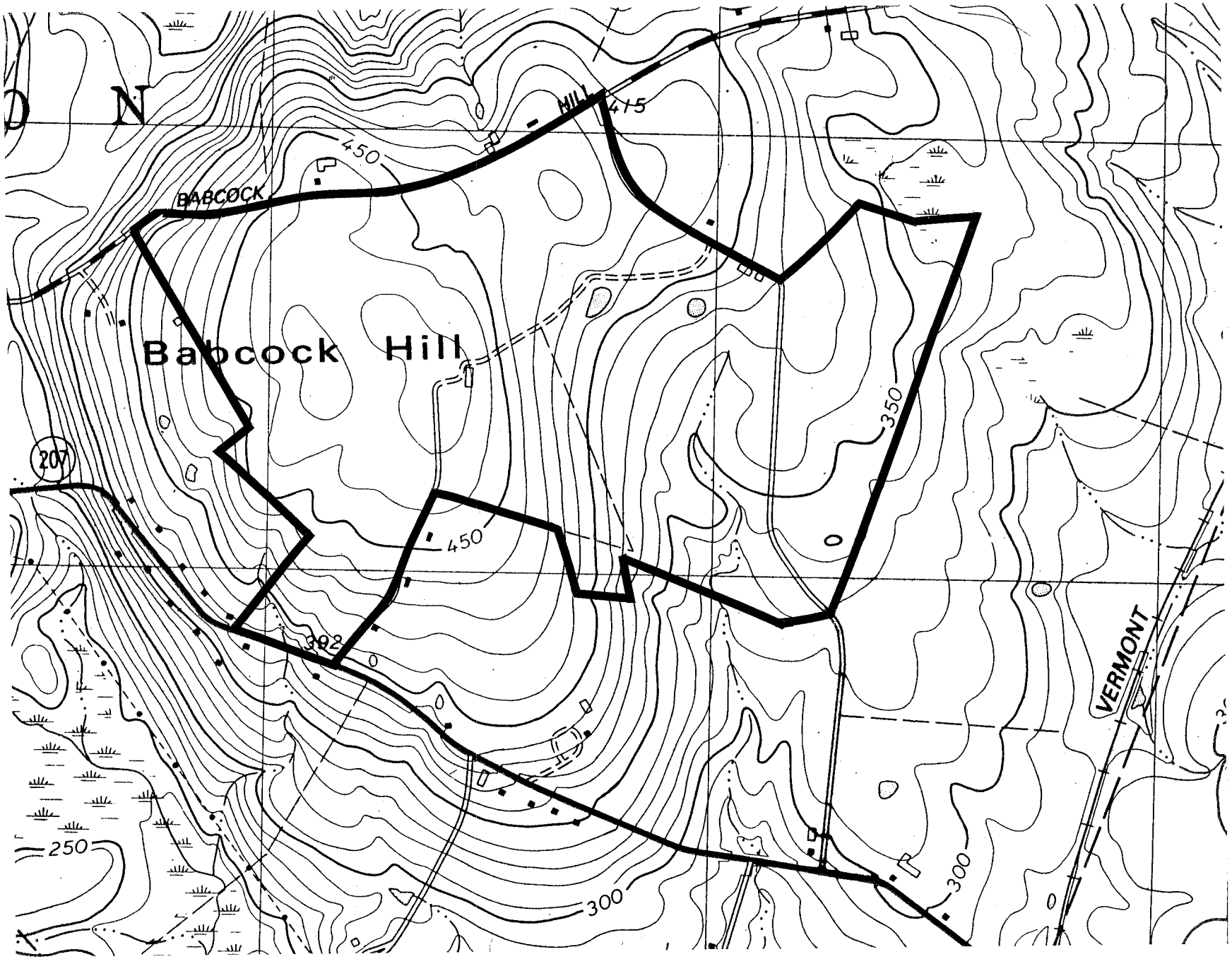
The proposed subdivision site, about 287 acres in size encompasses Babcock Hill in eastern Lebanon. It has frontage on Babcock Hill Road, Route 207, Briggs Road and Hoxie Road #2. The latter two roads traverse the subject parcel. Private, undeveloped land abuts the property on the north, east, south and west.

The site is located in a Rural Agricultural zoning district. Permitted uses on the land would include residential development with minimum lot sizes of 80,000 square feet or about two (2) acres. All lots would be served by individual on-site septic systems and wells.

The subject parcel and vicinity have historically been used for agricultural and residential purposes. A review of air photos of the site dating from 1934 to present, indicates that the land has been used mainly for dairy farming. Except for some woodland areas in the eastern and southern parts, the site is comprised of active cornfields. In general, changes in the region's land-use during the past several years has included a decrease in actively farmed acreage, an increase in residential density and an increase in area covered by paved roads.

As mentioned earlier, the subject site encompasses Babcock Hill. Site elevations range from about 470 feet above mean sea level to 330 feet above mean sea level. Slopes generally range from gentle to moderately steep. The moderately steep slopes traverse the central parts of the site. They also occur at the western and southern limits.

The applicant's certified soil scientist has mapped a large wetland area in the eastern portion. Two man-made farm ponds were constructed at the headwater regions of the wetland. The other wetland areas identified on the site occur along two drainageways at the northwest and southwest corners. The latter wetland areas are long and narrow, while the other two are short and narrow.



TOPOGRAPHY

Approximate Site Boundary

Scale 1" = 1000'

II. GEOLOGY - BEDROCK AND SURFICIAL

The bedrock geology of the site is well described by George L. Snyder in the Bedrock Geology of the Willimantic Quadrangle, 1964. The rock core of Babcock Hill is identified as Scotland Schist and Hebron Formation.

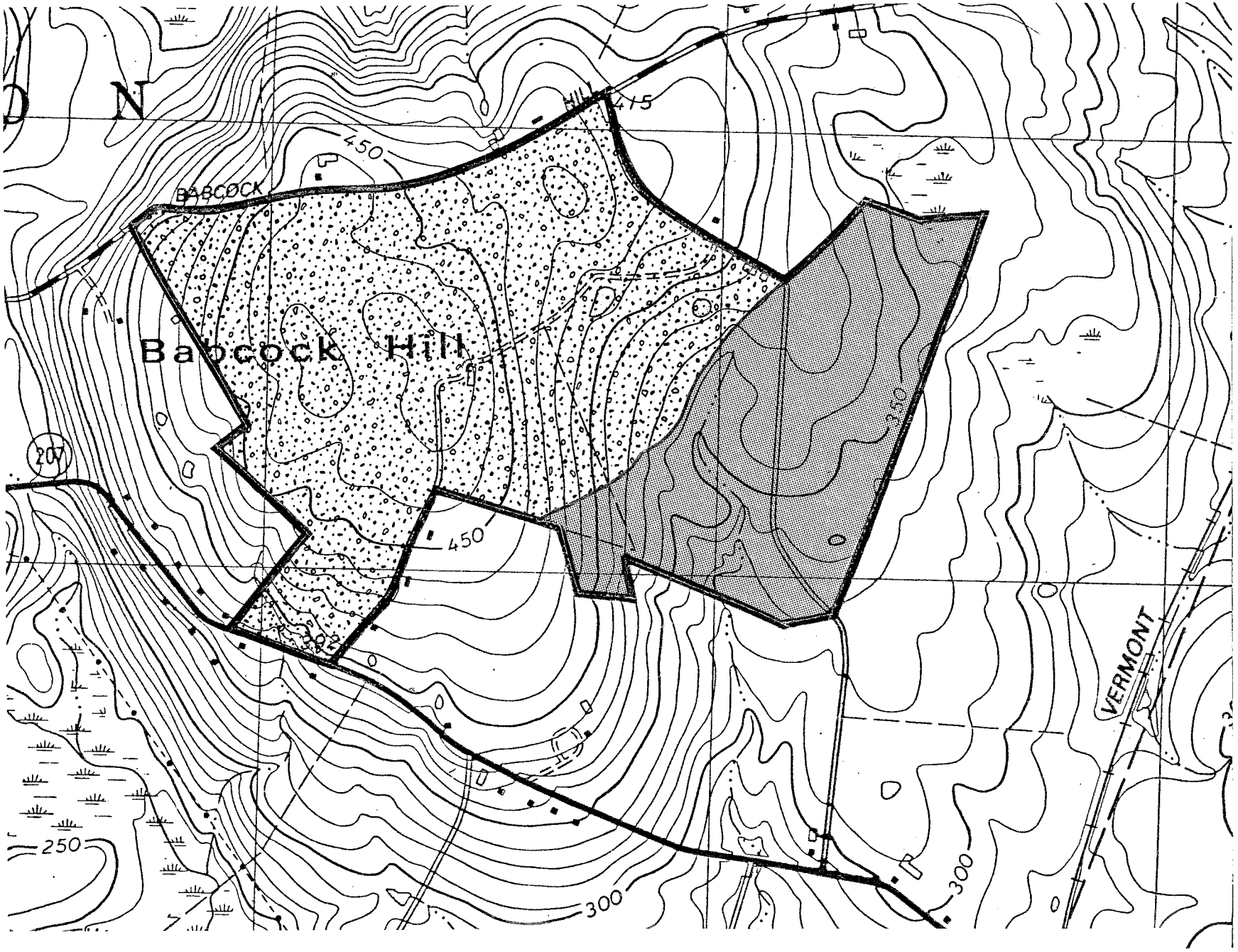
The western and central parts of the parcel comprise Scotland Schist, a dull gray, slabby, granular, biotite schist and minor biotite muscovite schist. The eastern portion is underlain by the Hebron Formation, which, in general consists of interlayered, dark-gray schist and greenish-gray, fine-to medium-grained cal-silicate gneiss.

The term gneiss and schist used above refer to the textural aspects of the rock. "Gneisses" are generally medium to coarse-grained, foliated rocks characterized by alternating bands of light and dark minerals. "Schists" are generally cleavable rocks and have layering defined by parallel arrangement of platy or flaky minerals. Both are metamorphic rocks, which means they have been altered by great heat and pressure within the earth's crust.

The exact depth to bedrock on the site is unknown. Geologic mapping data indicates that outcroppings or exposures of the bedrock is generally lacking over the entire site. Deep test hole data for subsurface sewage exploration indicates that the bedrock surface was encountered in about 15% (19 out of 128) of the deep test holes excavated on the site. In most of these holes depth to the bedrock surface ranged between five and seven feet.

The underlying bedrock is the principal source of water to residences in town and will be the source of domestic water to homes in the proposed subdivision. (See **WATER SUPPLY SECTION**)

Babcock Hill is a geologic feature known as a drumlin; a large, streamlined hill consisting of ground-up rock material (clay, silt, sand and boulders) plastered by moving glacial ice onto a core of crystalline bedrock. These materials, which are non-sorted are known as till. The till was deposited onto the hill of rock by glacial ice as it moved from north to south-southeast as indicated by the main axis of the hill. In place, the till may be 40-80 feet thick on Babcock Hill.

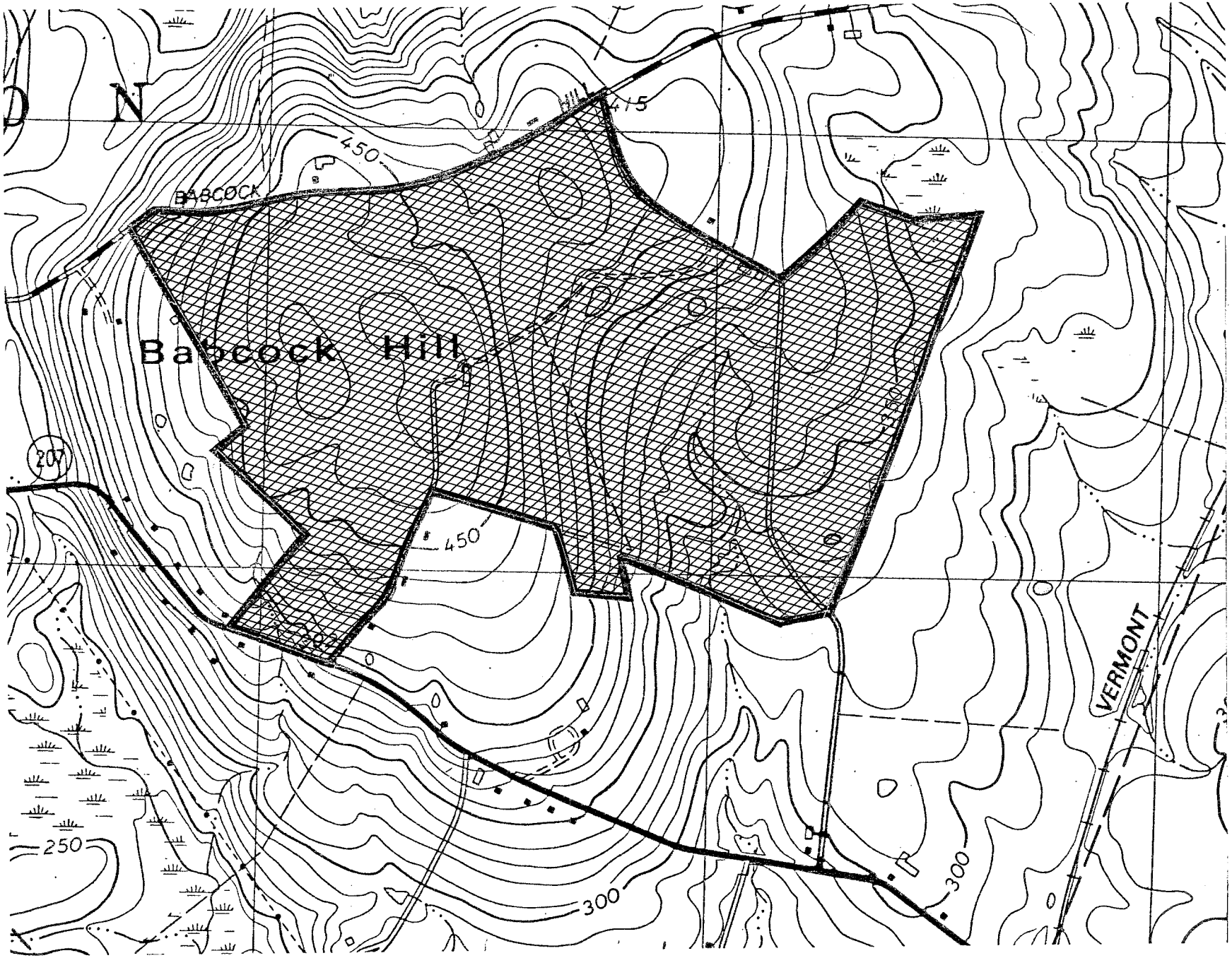


BEDROCK GEOLOGY

Scotland Schist

Hebron Formation

Scale 1"=1000'



SURFICIAL GEOLOGY

Till

Scale 1" = 1000'

Due to the mode of deposition, a relatively shallow "hardpan" or compact soil zone formed below the weathered and rooted zone. Because of the low permeability of the hardpan layer, a seasonally high water level (perched above the "hardpan") commonly develops once the upper soil zones, which are more permeable become saturated. The presence of a seasonally high water table will be the major constraint in terms of developing the site for residential purposes. (See ***GEOLOGIC DEVELOPMENT CONCERNS****)*

III. HYDROLOGY

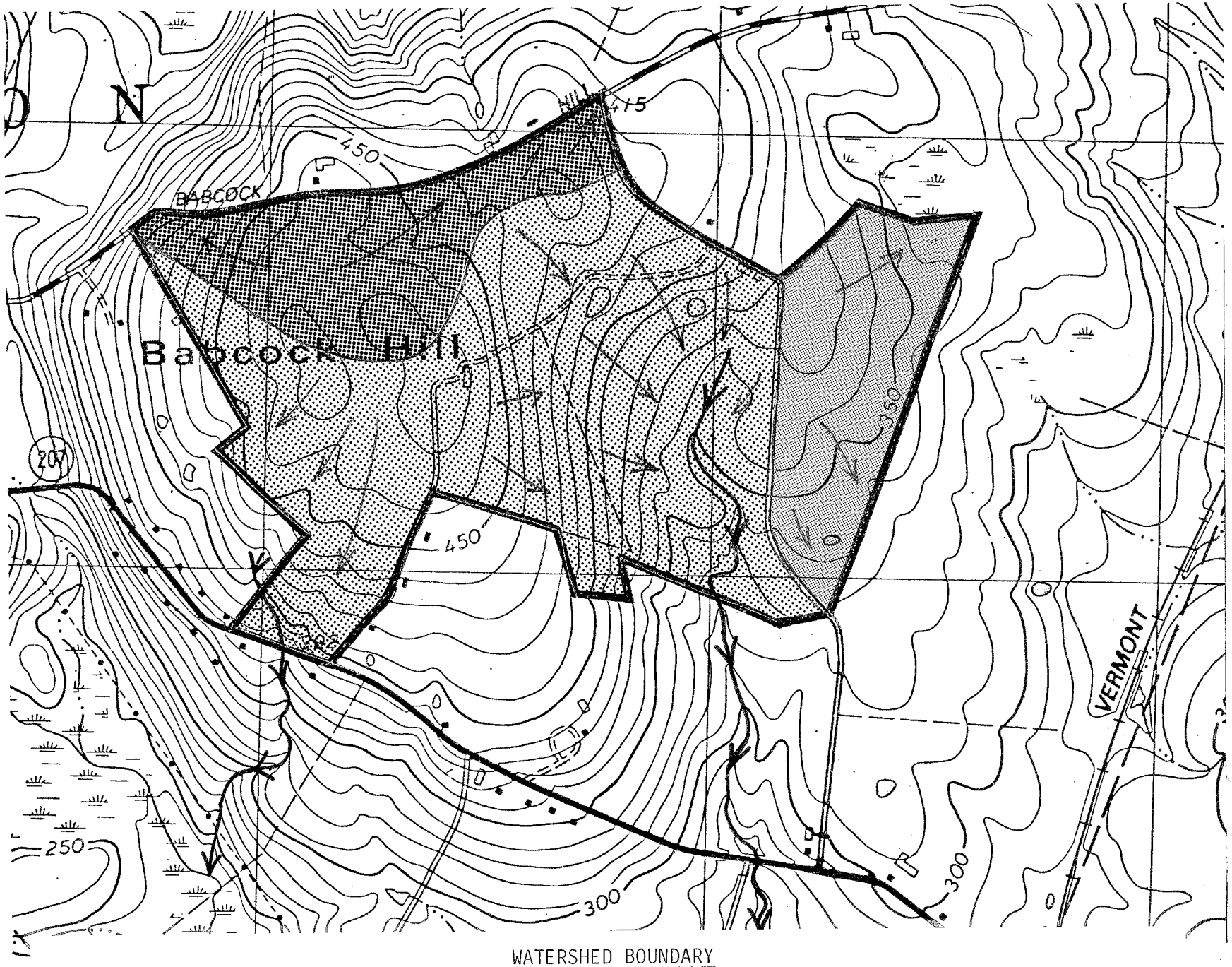
The proposed subdivision site can be divided roughly into three (3) drainage areas. Most of the interior and southern sections of the site lie within the drainage area of Susquetonscut Brook. The areas east of Briggs Road lie within the drainage area of Cold Brook, a Shetucket River tributary. Finally, the northern sections of the parcel drain northward under Babcock Hill Road to Pigeon Swamp. The outlet for Pigeon Swamp is Pigeon Swamp Brook. It empties into Big Pond.

Surface and groundwater on the site flows downslope toward local discharge points, which include seasonal watercourses and wetland areas.

Following development of an 80 lot subdivision, one would expect that the amount of runoff shed from each subdrainage area during periods of rainfall would increase. These increases would arise mainly from soil compaction, removal of vegetation and placement of impervious surfaces (roof tops, driveways, etc.). However, most of the subject parcel consists of active cornfield (bare soils), which would tend to have a higher rate of runoff than a residential subdivision once lawns have been established. For example, according to Urban Hydrology for Small Watersheds (TR-55) a Soil Conservation Service method for estimating runoff conditions, cornfields are ascribed a curve number of 85 based on the soil types present within the site. On the other hand, a residential subdivision (two (2) acres in size) on the same land would be ascribed a curve number of about 75. Curve numbers relate to the amount of precipitation that falls on a given area to the amount of surface runoff that is produced. A higher curve number indicates that a greater volume runoff would occur following a given amount of runoff.

In addition, wetland areas on and off the site and the man-made ponds on the site will help to lessen the affects of post-development runoff.

According to present plans, the project engineer is proposing a detention basin at the northwest corner of the site. The purpose of the detention basin is to handle post-development flows so that Babcock Hill Road is not overtopped by stormwater. The stormwater detention basin must meet all design criteria and standards found in the Connecticut Guideline for Soil Erosion and Sediment Control (1985).



WATERSHED BOUNDARY

Portion of site that drains to Cold Brook
Portion of site that drains to Pigeon Swamp (Pigeon Swamp Brook)
Portion of site that drains to Susquetonscut Brook
Watercourses showing direction of flow
Direction of surface flow
Scale 1" = 1000'

Finally, it would be helpful if the project engineer prepared a written report for the stormwater management plan that includes the following **(1)** initial conditions and storm frequencies to be analyzed; **(2)** summary table showing the pre-development, post-development and designed system peak discharges for all frequencies; and **(3)** sketch of the structures outlet system with elevations and dimensions.

The protection of watercourses on and off site from silt and road sand is a major concern. In this regard, a comprehensive erosion and sediment control plan would be essential to the assessment of the development, particularly in view of the moderately steep slopes in places, silty, bare soils, and seasonal seeps that characterize the site. It seems likely that the retention basin could be combined to serve a sediment-retention function. Provisions for maintenance and access to the basin will need to be considered. Maintenance of the sediment/retention basin on a regular basis is most important. If sediment/road sand accumulates in the basin, it could seriously deplete the runoff storage capacity of the basin.

IV. SOILS AND RELATED CONCERNS

Due to the presence of hardpan, the houses will need footing drains, and the septic systems will probably need curtain drains. The road system will also need drains. There are no plans for these drains on the plans. Additionally the stormwater retention calculations have not taken this water into account.

The proposal to pipe the existing road ditches should include provisions for drainage. The existing ditches, as well as carrying runoff, provide drainage to the roads. Eliminating the ditches, eliminates the drainage.

The sediment and erosion control plan construction sequence needs to be improved. There are steps in the construction process that should be more detailed. Also the narrative section has blanks in it.

The proposed basin has a 6" drain which should be enough to keep the basin dry and allow it to function as planned.

Except for the above mentioned concerns and comments the District Conservationist has no other concerns about the ability of this site to support the proposed subdivision.

United States Department of Agriculture

Soil Conservation Service

New London County USDA-SCS
562 New London Turnpike
Norwich, CT 06360
887-4163

Scale 1" = 1320' Roads Approximate Site

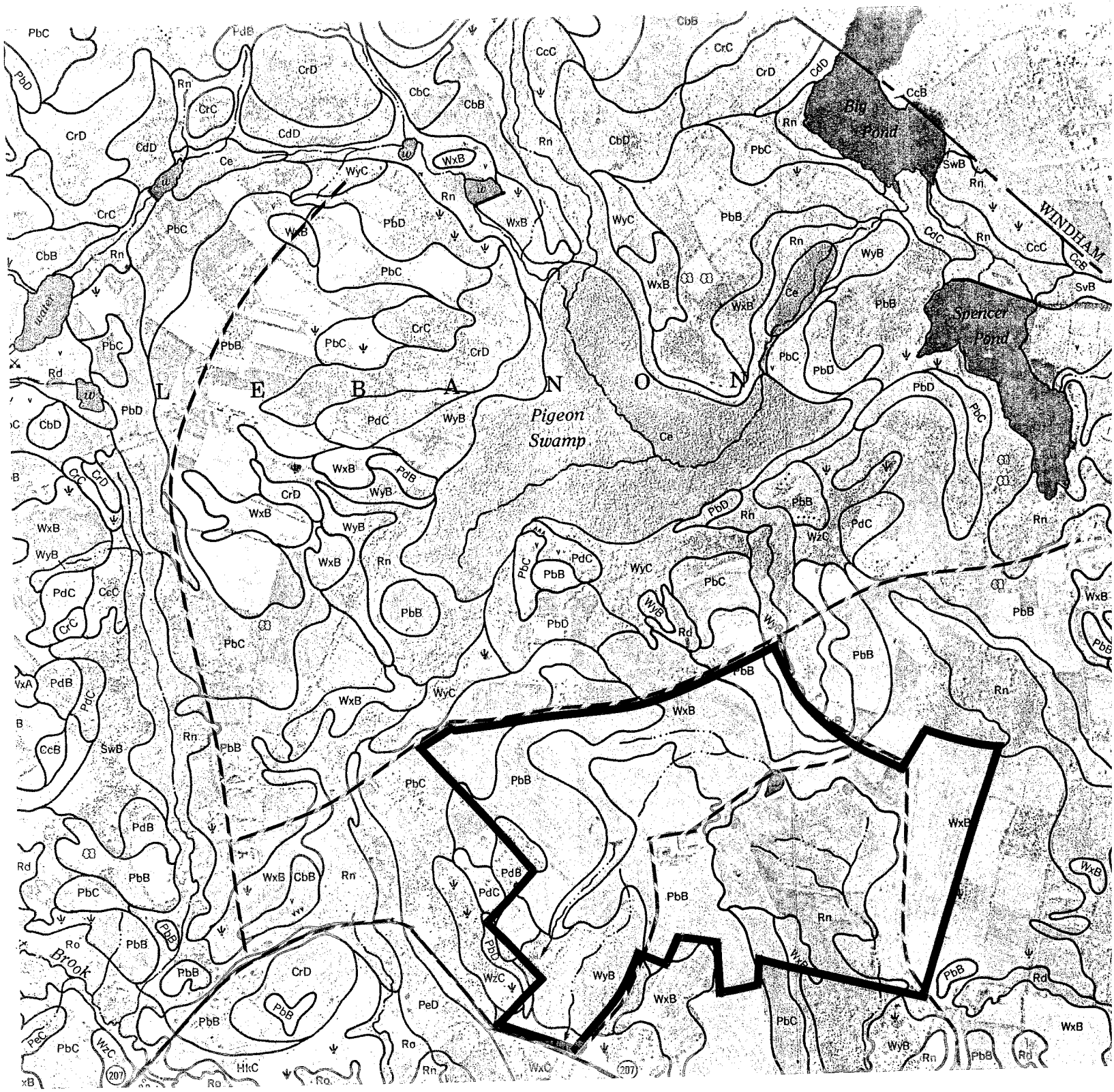


TABLE 1

SOIL POTENTIAL RATINGS FOR SEPTIC TANK ABSORPTION FIELDS BY MAP UNIT
NEW LONDON COUNTY, CONNECTICUT

PbB - Paxton and Montauk fine sandy loams, 3-8% slopes PbC - Paxton and Montauk fine sandy loams, 8-15% slopes	MEDIUM	Slow perc rate, depth to water table. +	Fill and/or curtain drain and drainage swale. Design absorption field to distribute effluent over a larger area.	Access to drainage outlet.	1; possibly 2 depending on perc rate measured on site.
Rd - Ridgebury fine sandy loam Rn - Ridgebury, Leicester, and extremely stony fine sandy loams	VERY LOW**	Depth to water table.	Curtain drain and fill.	Access to drainage outlet.	2,3,4
WxA - Woodbridge fine sandy loam, 0-3% slopes WxB - Woodbridge fine sandy loam, 3-8% slopes WxC - Woodbridge fine sandy loam, 8-15% slopes WyB - Woodbridge very stony fine sandy loam, 0-8% slopes WyC - Woodbridge very stony fine sandy loam, 8-15% slopes WzA - Woodbridge and Rainbow extremely stony soils 0-3% slopes WzC - Woodbridge and Rainbow extremely stony soils, 3-15% slopes	LOW	Slow perc rate, depth to water table.	Fill, curtain drain and drainage swale. Design absorption field to distribute effluent over a larger area.	Access to drainage outlet.	1; possibly 2 depending on perc rate measured on-site.

**The rating assumes that the water table is the naturally occurring soil can be drained to a depth of 18 inches or more.

1 Identified as an area of special concern by state regulations - engineer's design required.
2 Identified as unsuitable in its natural condition by state regulations - an engineer's evaluation is needed to determine whether an absorption field can be built.
3 Identified as inland wetlands or tidal wetlands by state regulations. Local, state, and/or federal wetland permits may be required.
4 A permit to install an absorption field cannot be issued if the site cannot be drained. A permit cannot be issued if the groundwater level is less than 18 inches below the soil surface for one month or longer.

RATING CLASSES

The rating class definitions refer to a septic tank absorption field installation which will meet state health code regulations. An engineer's design of the septic system is required by state health code regulations for soils in each class except where otherwise noted.

Soils with very high potential have characteristics that meet the performance standard. A "base" system (defined in the Performance Standard Section on page 2) can be readily installed in these soils at an index cost of x. The cost x represents the going rate for installing a septic tank absorption field in a soil that has soil characteristics within the performance standard and does not require an engineered design. The cost of installing a septic tank absorption field in a soil that has soil characteristics outside of the performance standard are higher. The higher total cost reflects the cost of additional time, materials, and in the case of engineered systems, engineering services. The more difficult the soil limitations are to overcome, the higher the cost. The cost of installing absorption fields is expressed as a multiple of x and is called the cost factor. They are index values and vary with the amount of effort (cost) required to overcome limiting soil characteristics. A cost factor of 3.0x to 3.5x means that the estimated cost of overcoming adverse soil properties is 3.0 to 3.5 times more than a field installed in a soil with very high potential. These cost factors provide relative estimates of overcoming adverse soil properties.

> The cost factors are only a guide. Actual expenditures for a septic system at a home site will vary both above and below the index ranges given. Actual costs for a septic system are influenced by on-site features, landowner preferences, and other conditions and variables not dependent on the soil. Appendix 7 on page 24 lists some site conditions and design considerations not represented in the ratings.

For example: a corrective measure may be gravel fill to overcome a soil limitation. The amount of gravel, cubic yards needed, and its cost at the gravel pit is figured into the cost factor. The trucking cost of the gravel from the pit to the septic system site is not included in the cost factor. Transportation costs are reflective of distance from the gravel source. While the trucking cost is a real expense to the landowner, it is variable and not figured in the index cost factor.

The soil potential ratings and associated cost factors are defined as follows:

Very high potential. These soils have the best combination of characteristics for septic tank absorption fields. An engineer's design is not required. The cost factor is 1X.

High potential. These soils have limitations which can be easily overcome using standard installation practices. An engineer's design is required in most cases. The cost factor ranges from 1.25X to 2.0X.

Medium potential. These soils have significant limitations that are generally overcome using commonly applied designs. The cost factor ranges from 2.0X to 2.5X.

Low potential. These soils have limitations which require extensive design and site preparation to overcome. These soils are commonly used for septic tank absorption fields in this area. The cost factor ranges from 2.5X to 3.5X.

Very low potential. These soils have severe soil limitations which require extensive design and site preparation to overcome. These soils are rarely used for septic tank absorption fields in this area. The cost factor ranges from 3.5X to 6.0X.

Extremely low potential. These soils have severe limitations which are extremely difficult to overcome. A permit for absorption field installation cannot be issued unless the naturally occurring soils meet the minimal requirements outlined in the state health code. It is unlikely that these soils can be improved sufficiently to meet state health code regulations.

Not rated. Areas labelled "NOT RATED" have characteristics that show extreme variability from one location to another. The work needed to overcome adverse soil properties cannot be estimated without on-site investigation.

Figure 1 on page 17 is a graphic representation of the relationship of potential rating to cost.

V. GEOLOGIC DEVELOPMENT CONCERNS

The principal hydrogeologic concern on the site is the widespread presence of (till) "hardpan" soils, which commonly result in seasonally high water tables and slow percolation rates. As mentioned earlier, this is a result of a compact soil zone or "hardpan" layer which has developed about 1.5' or 2.0' below ground level. Deep test hole information for the site confirms the presence of seasonally high water tables based on soil mottling, which was commonly noted mostly within the hardpan zone. It was also noted in the overlying weathered unit in some holes. Mottling, a zone of spots or blotches stained orange-brown (oxidized) by groundwater is used as an indicator for a seasonal high water table. Because water tables in till soils (especially "hardpan") may vary greatly from season to season, it may not be possible to determine the maximum groundwater levels accurately unless the investigation is made during the season when the groundwater is highest.

The Public Health Code gives the director of health the authority to require that the maximum groundwater levels in "areas of special concern" be determined by investigations made between February 1st and May 31st. It should be pointed out that testing during this period may be unnecessary in some cases. There may be sites where the maximum groundwater levels can be determined quite accurately by other methods; such as soil mottling. If there is general agreement between the engineer and the local sanitarian as to the maximum groundwater level and the design of the sewage disposal system, additional groundwater investigation during the wet season may not be required.

Although the bedrock surface was encountered in some holes (19), its depth, which ranged between 5 and 7 feet should not be a major problem in terms of the development. The Public Health Code requires the bottom of leaching system be kept a minimum of four (4) feet above ledge rock. As long as 4 to 5 feet of soil is above ledge rock, the bottom of the leaching trenches would essentially be constructed in existing soil. Installation of septic systems in areas where there is less than four (4) feet of existing soil above ledge rock would be most critical. In areas where bedrock conditions are shallow, (4 to 5 feet) it would be wise to excavate several deep test holes in order to get a good profile of the bedrock surface.

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*According to the Public Health Code, an "area of special concern" would include areas where the maximum groundwater is less than three (3) feet below ground surface.

As mentioned above, these limitations (high groundwater and shallow bedrock) will weigh heaviest on the ability to provide adequate subsurface sewage disposal systems serving homes constructed in the subdivision. Based on deep test hole information, most lots would fall into the category of "area of special concern" by the Public Health Code relative to the installation of subsurface sewage disposal systems. As such, the design engineer will need to demonstrate that each proposed lot meets the minimum soil standard set forth in Section 19-13-B102e(a)(3) of the Public Health Code and be able to hydraulically disperse the expected discharge from the home's sewage disposal system into the site's natural soil layers per Section 19-12-B103e(a)(4) of the Code.

This process needs to be a coordinated effort between the design engineer and the town sanitarian. Because most of the lots will be deemed of "special concern" by the State Public Health Code, plans for the design of the subsurface sewage disposal facilities (along with the placement of each on-site well water supply) must be prepared by a professional engineer and submitted to the town sanitarian for review and approval.

Septic system design for lots prone to high water tables includes the placement of proper fill material and/or the installation of curtain drains. The leaching trenches need to be kept shallow and spread out. In addition, properly installed curtain drains can effectively intercept the seasonal water so that it does not rise up into the leaching system and impair hydraulic capacity.

Since many lots may require curtain drains, the separation distances between the sewage disposal systems on adjacent properties becomes critical. Upgrade lots may have to be widened so that their sewage disposal systems are at least 50 feet away from any downgrade curtain drains. Also, the engineer should address where each of these curtain drains will be located and where they will be discharged prior to subdivision approval.

Because of the potential for wet soil conditions (at least, seasonally) on the site, it is strongly recommended that building footing drains be installed around foundations. This will help to prevent wet basements. Building footing drains, which may be installed in connection with curtain drains will need to be outletted at points which will not present problems in terms of septic systems and on-site wells. Ideally, they should be outleted into the road drainage system.

Based on the subdivision plan submitted to Team members, the present interior road system will cross wetland areas at one location.

Wetland crossings are generally feasible provided they are properly designed (e.g. culverts are properly sized and installed and permeable road base fill material is used). The roads should be constructed at least 1.5 feet and preferably 2 feet above the surface elevation of the wetlands. This will allow better drainage of the roads and decrease the frost heaving potential of the road. The best time for road construction through wetland areas is during the dry time of the year with adequate provisions for effective erosion and sediment control. Detailed plans for all road and driveway crossing through wetlands should be shown on the subdivision plan and carefully reviewed by town officials.

Because the soils in the preceding paragraphs are classified as inland-wetland soils in Connecticut, they are regulated under Chapter 440 of the General Statutes. Any activity which involves modification, filling, removal of soils, etc., will require a permit and ultimate approval by the Town's Inland Wetland Commission. In reviewing a proposal, the Commission needs to determine the impact that the proposed activity will have on the wetlands. If the Commission determines that the wetland is serving an important hydrological or ecological function and that the impact that the proposed activity will be significant, they may deny the activity altogether or, at least, require measures that would minimize the impact.

Every effort should be made to provide homeowners with usable dry land on each building lot. Experience has shown that when a lot contains a high percentage of wetlands, the homeowner commonly fills these areas to make dry land. Small wetland fillings are difficult for any town official to enforce. The cumulative impact of small wetland fillings can lead to drainage problems on the lot or on neighboring lots.

VI. WATER SUPPLY

Each lot in the proposed subdivision would be served by an individual on-site well. It appears that wells will need to tap the underlying bedrock aquifer. Wells drilled in bedrock generally supply small but reliable yields of groundwater. However, since the yield of a given well depends upon the number and size of water bearing fractures that it intersects and since the distribution of fractures in bedrock are irregular, there is no practical way, outside of expensive geophysical testing, of predicting the yield of a well drilled in a specific location. Because fractures in the rock generally occur within the first 100 to 150 feet below the surface, it has been shown that the probability of increasing the yield of a well decreases with depth below this level. In some places, well or wells may need to penetrate 40 to 80 feet of till before reaching the bedrock surface.

Ideally, each well should be located on a relatively high portion of the lot, properly separated from the sewage disposal system and any other potential pollutant (e.g., fuel oil storage tanks, etc.) and in a direction opposite the expected direction of groundwater movement. They should all be cased with steel pipe into the underlying bedrock. In order to provide adequate protection of the quality of the bedrock water, all wells will need to be properly installed in accordance with applicable State Public Health Code and Connecticut Well Drilling Board regulations. In addition, the Town Sanitarian for the Town will need to inspect and approve well locations.

According to Water Resources Bulletin #15, (Lower Thames and Southeastern Coastal River Basins) which encompasses the site, 9 out of 10 bedrock wells yield at least 3 gallons per minute. In general, a yield at 3 gallons per minute is desired for domestic rises. The applicant's hydrogeologist submitted water well data for nearby homes to Team members which indicated yields ranging from 2 to 100 gallons per minute at depths of 160 feet to 590 feet.

The Team's geologist made a comparison of proposed water demand and groundwater recharge for the proposed subdivision. Based on conservative estimates, it is expected that groundwater recharge (about 8 inches/year) will be about 7 times the gross water demand of the proposed subdivision. It should be noted that this does not account for septic tank recharge, which no matter how distasteful it may sound, plays a very important role in the groundwater budget.

The natural quality of groundwater should be satisfactory. The schists and gneisses beneath the site may have elevated amounts of iron and/or manganese minerals which would lower the overall

quality. Of particular concern, is the Scotland Schist. If elevated iron and/or manganese levels are present in the water, it may be necessary to provide suitable treatment filters.

Because of the sites' agricultural history and agricultural operations on adjoining properties, there is a chance that nitrate levels in the groundwater may be elevated. Connecticut drinking water standards allow no more than 10 milligrams per liter of nitrates in public water supplies. Nitrates in concentrations greater than 10 milligrams per liter can be a health threat, especially to infants and pregnant women. High nitrate levels have been known to cause methemoglobinemia or "blue-baby" syndrome. Potential sources of nitrates include heavily fertilized farm fields, animal wastes, malfunctioning septic systems and animal feed lots. All wells should be located as far away as possible and uphill from areas of these types. Before a Certificate of Occupancy is issued for homes in the subdivision by the Town Building Official, a water analysis for each well, which analyzes bacteriological, physical and chemical quality must be reviewed and approved by the Town sanitarian. The Town Sanitarian should also check new well completion reports to assure that all wells have adequate yields.

According to the Water Quality Classification Map of Connecticut (Murphy, 1987), groundwater in the area of the site is classified as GA, which means that it is suitable for drinking water supplies without need for treatment.

VII. WILDLIFE HABITAT

Habitat Descriptions

The area of the proposed subdivision is composed primarily of three habitat types; agricultural fields, wetland areas, and mixed hardwoods.

The majority of the area is agricultural fields with about half presently being used for silage corn. The remaining area is comprised of weed fields. These areas currently offer little wildlife habitat due to a monoculture type vegetative structure. A pair of coopers hawks and tree swallows were observed utilizing these areas as foraging sites.

Wetland areas on the site consist of three small ponds and a red maple swamp. The largest pond east of the farm is surrounded by cat-tails and has little aquatic vegetation growth. Due to its small size and present location in the middle of corn fields it offers limited use to wildlife. Farther eastward is another small pond surrounded predominately by willow with small areas of cat-tails, jewel weed, and miltiflora rose. Catbirds, sparrows, and warblers were observed utilizing this area as a foraging site. There was also evidence of muskrat and raccon use. This pond lies at the north end of a red maple swamp which extends southward into adjacent land. The overstory consists predominately of red maple with some cedar in outlying areas. The swamp is surrounded by a dense vegetation consisting of jewel weed, green briar, and multiflora rose. The swamp has been used in the past as pasture and currently offers little understory corridors for deer, raccoon, and other small mammals. Since the use of the swamp as pasture will be terminated in the future, it will become more valuable to wildlife. The wetland area in the south eastern corner of the property consists of a small shallow pond and brook. This area is dominated by cat-tails, multiflora rose, jewel weed, and golden rod. This area has some use by wildlife including deer, muskrat, raccoon, and cottontails. The brook runs into a red maple swamp on adjacent property. The adjacent property is currently used as pasture for horses and cows. It presently offers little diversity of wildlife habitat due to a lack of understory cover. If future use as pasture was discontinued this area will be utilized to a greater extent by wildlife.

The wet area on top of Babcock Hill has been used for agricultural purposes and currently provides little wildlife habitat. Since this area has been designated as open space and will be surrounded by building lots there will be limited use by wildlife in the future if it is left in its present condition. Planting trees

and shrubs that are beneficial to wildlife would increase wildlife use of the area. (Enclosed is a pamphlet containing information regarding wildlife habitat plantings.)

Area of Concern

The major area of concern on the property is the wooded section in the south western corner. This area currently offers a high diversity of wildlife habitat for a number of wildlife species and is the most utilized area of the property. The mixed hardwood overstory combined with wetland vegetation provides an unique area for wildlife. The overstory is dominated by red oak, white oak, ash shagbark hickory, and red maple. The understory consists of viburnam, spice bush, multiflora rose, grape and a variety of wetland vegetation. Jewel weed, white snake root, horse-balm, green briar, and a variety of ferns dominate the area at ground level.

Blue jays, white breasted nuthatches, black capped chickadees, warblers, woodthrushes, oven birds, downy woodpeckers, hairy woodpeckers, and flycatchers were observed inhabiting this area.

Unfortunately this area has been subdivided into twelve lots (lots #1-#12). It would be beneficial to wildlife if as much of this area as possible was designated as open space. This could be substituted by a reduction in the size of the areas presently designated as open space. The areas currently designated as open space offer little diversity of wildlife habitat. Decreasing their size would not have adverse affects on wildlife.

Mitigation of Impacts of Development on Wildlife

The wetland areas on the property currently function as important areas for absorbtion of runoff. Care should be taken to minimize siltation of these areas during and after development. Owners of lots adjacent to or containing wetlands should be discouraged from any removal of vegetation within 75 feet of the wetland. Owners of lots #58 and #60 should be discouraged from removal of vegetation surrounding ponds. Measures should also be taken to limit siltation of ponds due to developmental activities. For the wetland in the southeast corner a permanent 100 foot buffer should be established to limit siltation and disturbance to the wetland and adjacent property. This could be achieved by a reduction in the size of lot #67.

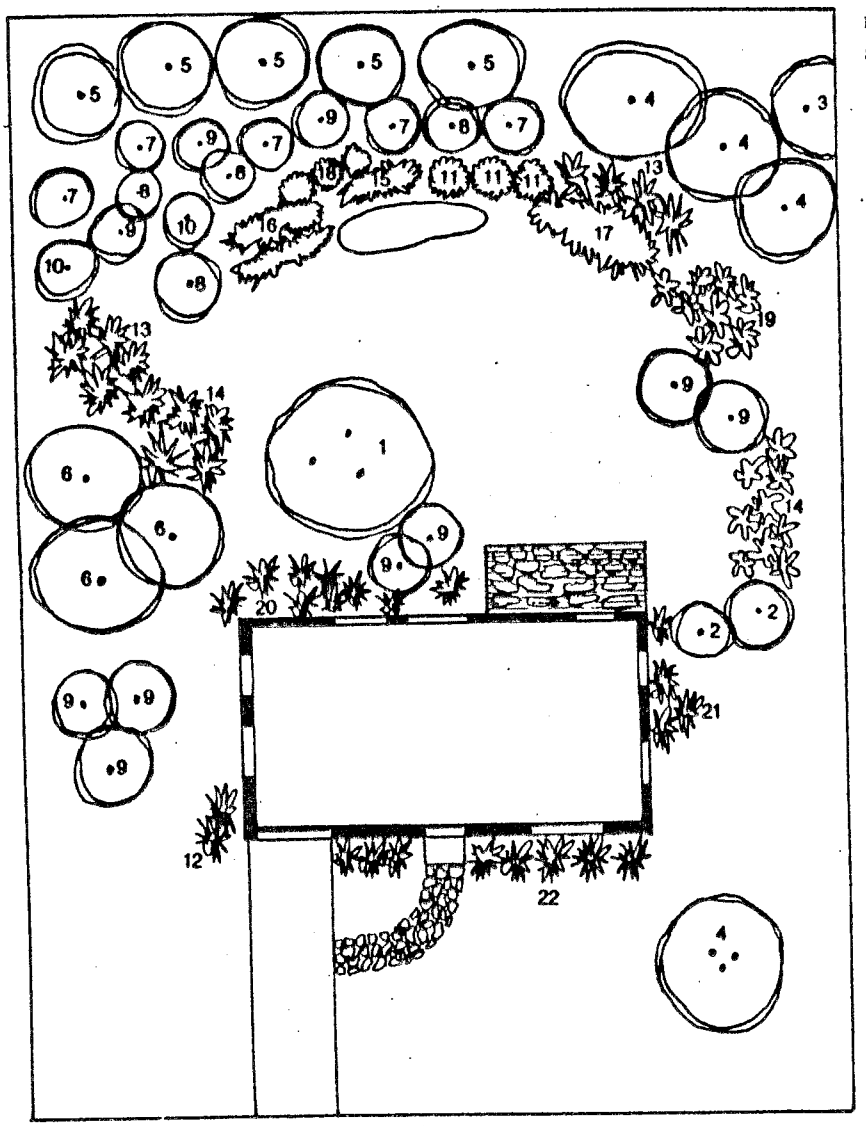
by Chad P. Dawson and
Daniel J. Decker

Planting for Wildlife

YOUR interest in seeing wildlife may vary from casual observation to avid birdwatching or nature study. Obviously your opportunities depend on the availability of wildlife habitat. This is no problem for rural residents, but for people living in urban or suburban areas, these opportunities may be restricted to vacation time or weekend outings. This doesn't have to be the case. If you can't easily get to areas of existing wildlife habitat, you can create habitat around your home and attract desirable wildlife to you.

Songbirds and small mammals can be encouraged to visit and live in your backyard, or in nearby areas of open spaces, if you erect structures such as birdfeeders or birdbaths or, plant vegetation that provides the basic requirements of wildlife habitat.

Before starting a habitat improvement project, it is helpful to inventory and diagram the area, showing the location of existing plants, structures, and available space for additional plantings. By studying the list of plants recommended in the accompanying chart you can determine those which meet your objectives for both pleasant landscaping (e.g. windbreak, shade trees, hedge for privacy) and wildlife habitat. These plants are not only attractive to both people and wildlife, but also thrive in urban and suburban environments. A few plantings of these trees, shrubs and vines will meet the



Backyard Wildlife Habitat Planting Plan

Large Trees—*(1) beech; (2) holly; (3) white oak; (4) red maple; (5) white pine; (6) white spruce; (7) hemlock.*

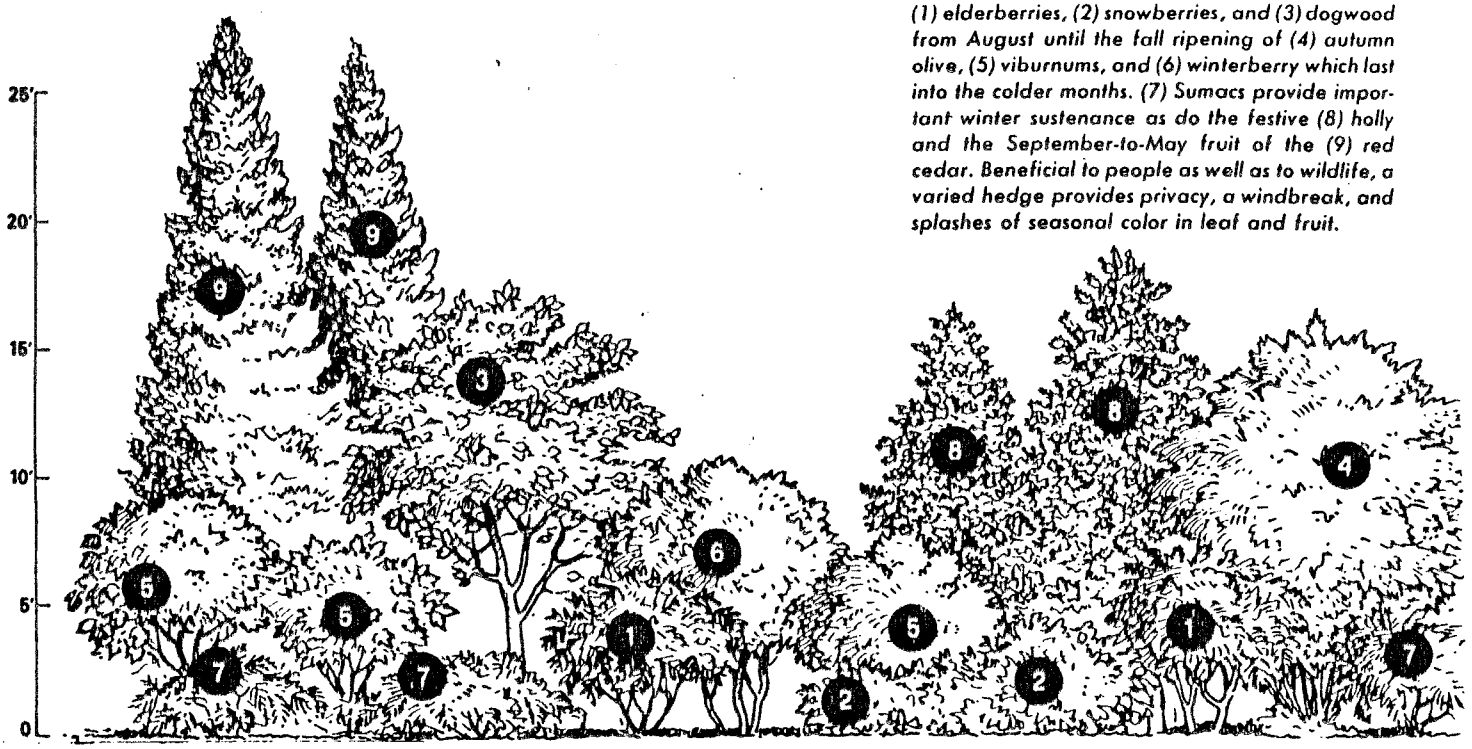
Small Trees—*(8) mountain ash; (9) flowering dogwood; (10) crabapple.*

Large Shrubs—*(11) winterberry; (12) downy serviceberry; (13) autumn olive; (14) viburnum; (15) elderberry.*

Small Shrubs—*(16) blackberry; (17) silky dogwood; (18) red osier dogwood; (19) Tartarian honeysuckle; (20) snowberry; (21) Japanese barberry; (22) rhododendron or other ornamental suitable to site.*

Flowers *for planters and scattered beds—asters, daisies, marigolds, petunias, black-eyed Susans, sunflowers.*

Reprinted from **The Conservationist**, July-August, 1970.



A year-round bird buffet, the hedge below serves (1) elderberries, (2) snowberries, and (3) dogwood from August until the fall ripening of (4) autumn olive, (5) viburnums, and (6) winterberry which last into the colder months. (7) Sumacs provide important winter sustenance as do the festive (8) holly and the September-to-May fruit of the (9) red cedar. Beneficial to people as well as to wildlife, a varied hedge provides privacy, a windbreak, and splashes of seasonal color in leaf and fruit.

Diagrams from "Gardening With Wildlife"
Published by National Wildlife Federation

Selected Plants for Wildlife Habitat Enhancement

Common Name	Scientific Name	Soil Moisture Range (wet-well drained-dry)	Light Tolerance (sun-light shade-shade)	Flowering Dates	Dates Fruit Available	Ornamental Value
TALL TREES						
Red Maple	*Acer rubrum*	w/wd	sun/shd	—	May-July	++++
Black Cherry	*Prunus serotina*	w/d	sun	—	Aug-Oct	+++
White Oak	*Quercus alba*	w/d	sun/lt shd	—	Sept-Nov	++++
Red Oak	*Quercus rubra*	w/wd	sun/lt shd	—	Sept-Oct	++++
Spruce	*Picea* spp.	w/wd	sun/lt shd	—	Aug-Sept	+++
Birch	*Betula* spp.	w/d	sun/lt shd	—	Aug-Oct	+++
Red Pine	*Pinus resinosa*	wd/d	sun	—	Aug-Sept	+++
E. White Pine	*Pinus strobus*	w/d	sun	—	Aug-Sept	++++
N. White Cedar or Arbor Vitae	*Thuja occidentalis*	w/d	sun/shd	—	Sept-Nov	++++
E. Red Cedar	*Juniperus virginiana*	w/d	sun	—	Sept-May	++++
MEDIUM TO SMALL TREES						
Flowering Dogwood	*Cornus florida*	wd/d	sun	May-June	Aug-Dec	++++
White or Red Mulberry	*Morus* spp.	w/wd	sun	May-June	June-July	+++
American or European Mountain-Ash	*Sorbus spp.*	w/d	sun/lt shd	May-June	Aug-Mar	++++
Crabapple	*Malus* spp.	w/d	sun	May	Sept-Mar	+++
Hawthorne	*Crataegus* spp.	w/d	sun	May-June	Sept-Mar	++++
Serviceberry or Juneberry	*Amelanchier* spp.	w/d	sun/lt shd	May-June	June-Aug	+++
Chokecherry	*Prunus virginiana*	w/d	sun/lt shd	May-June	July-Sept	++
Fire or Pin Cherry	*Prunus pensylvanica*	w/d	sun/lt shd	May-July	July-Oct	++
Common or American Hackberry	*Celtis occidentalis*	d	sun	May	Sept-Nov	+++
American Holly	*Ilex opaca*	w/d	sun/shd	May-June	Aug-Mar	++++

Common Name	Scientific Name	Soil Moisture Range (wet-well drained-dry)	Light Tolerance (sun-light shade-shade)	Flowering Dates	Dates Fruit Available	Ornamental Value
TALL SHRUBS						
Autumn Olive	*Elaeagnus umbellata*	w/d	sun/lt shd	May-July	Aug-Jan	+++
Russian Olive	*Elaeagnus angustifolia*	w/d	sun	June-July	Sept-Feb	++
Highbush Blueberry	*Vaccinium corymbosum*	w/d	sun	May-July	July-Sept	++
Gray Dogwood	*Cornus racemosa*	wd/d	sun	June-July	Aug-Oct	+++
Silky Dogwood	*Cornus amomum*	w/d	sun/lt shd	May-July	Aug-Oct	++
Red-osier Dogwood	*Cornus stolonifera*	w/wd	sun	May-June	July-Sept	+++
Tartarian Honeysuckle	*Lonicera tatarica*	wd/d	sun/shd	May-June	June-Aug	++
Amur Honeysuckle	*Lonicera maacki*	wd/d	sun/shd	May-July	Sept-Mar	++
Winterberry	*Ilex verticillata*	w/d	sun/shd	May-June	Aug-Mar	+++
Elderberry	*Sambucus* spp.	w/wd	sun/lt shd	June-July	Aug-Sept	+
Highbush Cranberry	*Viburnum trilobum*	w/wd	sun/lt shd	May-June	Sept-May	+++
Northern Arrowwood	*Viburnum recognitum*	w/d	sun/lt shd	May-July	July-Sept	+++
MEDIUM TO LOW SHRUBS						
Japanese Barberry	*Berberis thunbergii*	w/d	sun/lt shd	May	Sept-May	++++
Blackberry	*Rubus allegheniensis*	w/d	sun/lt shd	May-July	July-Sept	+
Raspberry	*Rubus* spp.	w/d	sun/lt shd	May-June	July-Aug	+
Blueberry	*Vaccinium* spp.	w/d	sun/lt shd	May-July	July-Sept	++
Huckleberry	*Gaylussacia* spp.	w/d	sun/lt shd	May-June	June-Sept	++
VINES						
Virginia Creeper	*Parthenocissus quinquefolia*	w/wd	sun/shd	June-Aug	Sept-Jan	++++
Bittersweet	*Celastrus scandens*	wd/d	sun/lt shd	May-June	Sept-Dec	++++

year-round requirements of several wildlife species. A word of warning: some plants that are highly touted for their beauty do not bear fruits palatable to birds or other wildlife and may have very few other features valuable for wildlife. On the other hand, it is possible to select certain plants which will attract a species you particularly want—for example, honeysuckle to attract hummingbirds.

In planning your wildlife habitat improvement project you can be as economical or as extravagant as you choose. Keep in mind that as the seedlings grow and fill out they will naturally take up more space. Therefore, try to envision what you want your wildlife habitat to look like in 5 or 10 years, and plan accordingly. If space is a problem shrubs are more desirable than trees since they provide habitat more quickly and at less cost. Often the cooperative efforts of several neighbors with adjoining properties will create a wildlife habitat larger than any single homeowner could provide, thereby multiplying the efforts of each for the benefit of all.

Be sure to consider factors such as soil fertility and moisture, slope of the land, the present amount of sunlight, and the amount of all these that will be available when trees and shrubs reach maturity. Other important considerations are your family's needs for lawn and garden space, shade, and areas to view the wildlife you attract. Often it is best to keep the taller trees and shrubs to the back and sides of the area where they can act as a visual screen for privacy and background for smaller trees, shrubs and lawn.

Since it will take some time for the plants to become established and provide adequate food and cover for wildlife, you shouldn't expect too much at first. Shrubs and other dense cover plants will be the first to provide useful wildlife habitat. After 5 to 10 years, tree seedlings will start to become attractive to wildlife. Remember too that the less pruning, thinning, and general manicuring you do, the better it will be for wildlife. Allow branches to grow down to the ground and allow some corners to go "wild" to native plants. If this makes lawn mowing difficult, plant ground cover under trees and shrubs to eliminate the need for mowing under them. Adapt a landscape maintenance program that will be a compromise between your taste for a well-groomed yard and the needs of wildlife. Avoid using herbicides and pesticides, and allow the natural system to maintain itself as much as possible.

Remember, whether you have a small urban or surburban backyard or a several-acre rural lot, the same principles for enhancing wildlife apply. The greater your efforts to encourage wildlife, the greater your rewards will be in wildlife numbers and diversity.

Chad P. Dawson and **Daniel J. Decker** are research support specialists in Cornell University's Department of Natural Resources. Their research has focused on socioeconomic dimensions of wildlife management, outdoor recreation, and tourism. Mr. Decker also holds extension appointments at Cornell.

LF-P150 (1/80)

VIII. NATURAL DIVERSITY DATA BASE

The Data Base maps and files regarding this site have been reviewed. According to our information there are no Federally listed Endangered or Threatened Species known to occur at or adjacent to the area in question.

Our records do indicate that two significant areas occur in the general vicinity of the are in question:

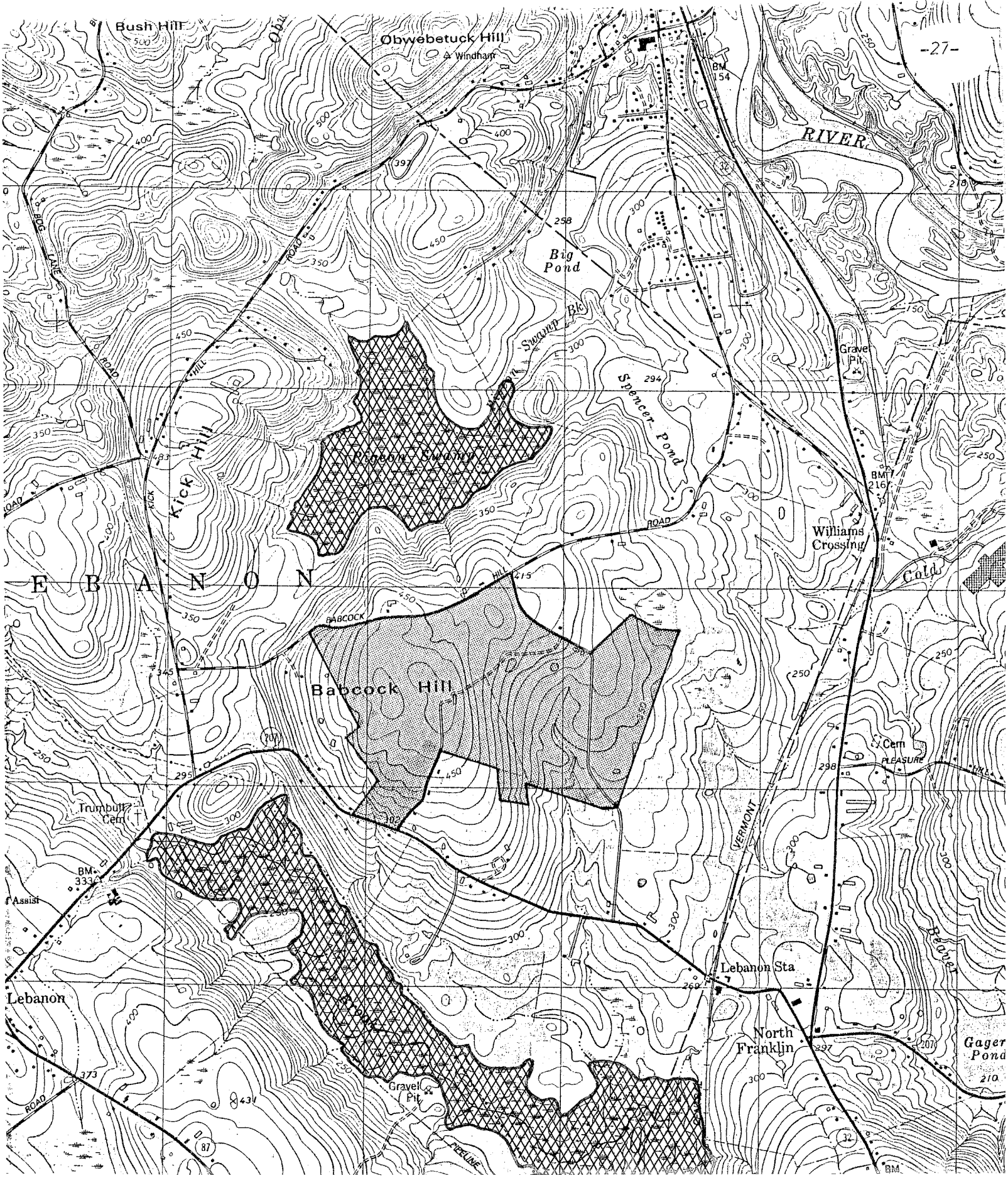
1) Pigeon Swamp Natural Area Inventory site - In 1972 the Connecticut Forest and Park Association, Inc. prepared a Natural Area Inventory which included 459 sites. These were nominated as significant sites for one or more of the following attributes: geologic, hydrologic, biologic, archaeologic, cultural aesthetic, research/educational. Being listed as a NAI site does not impart any restrictions or provide legal protection; it identifies areas that should receive consideration before any proposed development is approved.

According to a 1982 field check, this site is a typical red maple swamp that has been affected by cow pasturing.

2) Subsquetanscut Brook Wetlands - The area is significant for recreational finfish habitat and important for low flow and flood stability.

Please see maps for locational information.

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.



NATURAL DIVERSITY DATA BASE

Significant Areas Project Site

Scale 1" = 2000'

IX. OPEN SPACE

The applicants have reserved open space land in three areas of the subdivision; (1) a 3.16 acre parcel at the northwest corner (proposed detention pond site); (2) an 11.50 acre parcel in the interior section and (3) a ± 40 acre parcel in the eastern part. All three contain regulated wetland soils. The largest open space parcel contains about 25 acres or 63% regulated wetland soils.

The town asked Team members to comment on the usability of the open space land for passive and active recreational purposes.

The smallest (3.16 acre) open space parcel in the northwest corner of the site will probably have little potential for recreational purposes. The presence of wetland soils, moderate slopes and a detention basin will limit the site for active recreational uses. Also, access to the site will be limited to Babcock Hill Road. If the pond fills with water during the winter months it may be used for ice skating. Otherwise, this site would probably be restricted to picknicking or walking by residents of the subdivision or town people.

The 11.5 acre site is located in the central part and as such will be readily accessible to residents of the subdivision. The site is characterized by flat slopes and a small wetland pocket. The latter area may be suitable during the winter for ice skating. The flat slopes and openness of the site would probably be appropriate for playing fields and/or playground. As mentioned earlier in the report, the major limitation will be the presence of seasonally high water tables that characterize the "hardpan" soils. As such, the usefulness of the area for active recreational uses, i.e., playing fields would be limited during the wet time of the year, unless the area was properly drained.

The largest open space parcel is located in the eastern part. Access to the parcel is available off Hoxie Road #2 (extension) and Briggs Road. The Hoxie Road #2 access does not require the crossing of wetland soils. In order to gain access to the upland section of the open space land from Briggs Road, significant wetlands would need to be traversed. This would undoubtedly be a major restriction during most of the year. To the extent that the upland parts of the site can be used for walking, the site provides an opportunity for a relatively long, peaceful walk through a gently sloping forested area. Also, the man-made farm pond on the site, would probably be suitable for ice skating.

X. PLANNING REVIEW

General

The proposed 80 lot , 290 ± acre Babcock Hill Farms subdivision is of particular interest in that it is the first farm in active agricultural use within the town of Lebanon to be proposed for a large housing development, in many years. While Lebanon has been experiencing growth & development, as have many towns in eastern Connecticut,other large residential projects have taken place on forested land or on former farms which had not been actively operated as farms in recent years.

Lebanon has been recognized as an agricultural community since before the Revolutionary War. Indeed, during the war when Connecticut was the leading source of provisions for the American forces, Lebanon was the location of the commissary department of the Army.(Source: Town Plan 7/65)
The town's population during this period peaked at 4,200 persons.
The industrial revolution and nationwide emigration trend from rural farms to cities affected Lebanon, such that by 1920 the population was at a low point of only 1343 residents. The town grew little through 1950 when there were still only 1654 residents. Yet the town continued to be a successful dairying center.

The three decades since then have brought significant growth to the town. The population in 1960 was 2,434 (47% increase from 1950); in 1970,3,804 (56% increase from 1960); and in 1980 with a population of 4,762 (25% increase from 1970) for the first time saw more people living in town than since the era of the War for Independence.

Lebanon is still an agricultural community, but changes in the nation's economy have now place chicken production ahead of dairying. Current estimates put the town's population at 5500 persons. (Local pranksters estimate the foul number over 4 million!). The proposed subdivision with 80 new homes can be expected to house 250 to275 new residents if past trends hold (3.09 persons per household; 3.45 persons per family for Lebanon according to the 1980 U.S.Census). This new development alone will increase the town's population by 4.5%.

This subdivision proposal, the recent Bascom Road and adjacent subdivisions and the potential development of the 600± acre Savin Farm , among others, can be expected to significantly affect the town with new homes, residents, and need for additional services.

The very reason that has made people want to reside in Lebanon, it's rural, small town, historic, agricultural, indeed bucolic, nature , is being eroded by such new developments which are replacing rows of corn with rows of houses. Land use conflicts which arise between residential and agricultural land uses have been experienced throughout the state, and have resulted in the "Right to Farm" Act which declares that tilling soil and raising livestock are absolute necessities and cannot be assumed to be nuisances.

This issue has been a problem in Lebanon in recent years. Fly infestation problems have been recurrent with the large volumes of animal waste generated by cattle & poultry. Land application of manure is an appropriate disposal method, but the odors associated with this practice, none-the-less, cause conflicts between farmers and other residents both nearby and far afield.

If the Bass Farm becomes the Babcock Hill Farms subdivision, it will no longer be primarily corn fields, so it will no longer be an odor source, itself. The subdivision, however, is adjacent to the Lebanon Industrial Park, which has been developed in agriculturally oriented industries. The first tenant in the park was Bi-Agri, which processed chicken manure into fertilizer & animal feed supplement. The park is currently occupied primarily by Earth-Gro, a firm which composts spent growing medium from the nearby Franklin Mushroom Farm (horse manure) along with other manures and organic materials, then bags & ships the material as soil conditioners / fertilizers. These agri-businesses have not only provided a means to manage & put to good use the waste by-products of the agricultural community, but have also provided a source of employment in the area. Yet such established farms & businesses will undoubtedly conflict with the residents who purchase homes nearby. Landscaping will help to visually separate the uses, but the odors of agriculture permeate the air throughout the town.

Prime agricultural land will be removed from use and homes will be constructed on that space. The standard subdivision layout with two acre (minimum) size lots proposed in this project, in compliance with the town's zoning regulations, provides little opportunity for a sense of community for the 80 new homes and their residents. Moreover, on this particular site, rows of houses will indeed replace rows of corn. What are now panoramic views of the Bass Farm house and barns surrounded by fields of corn visible from three towns, Windham , Franklin, and Lebanon, will instead become a field of rooflines. A development of this type in a forested area would have far less visual impact. Even with extensive plantings and landscaping, it will be many years before the visual & aesthetic impact is softened by the growth of trees.

While the overall density of development on the parcel will be low at one dwelling per 3.6 acres (288acres/80 lots) the effect will not seem rural in character because the development is so visible from afar. A clustered type of plan which tucked the majority of dwellings into the woods lines and hidden behind ridge lines, grouped in village like settings could minimize the visual impact, preserve more open space and agricultural land for communal use, as well as provide a sense of community for the residents while still allowing an economic use of the property.

The town's regulations do not currently provide for such a development alternative. This proposal is a prime example of why such an alternative should be available. The town's Planning & Zoning Commission, however, did discuss the concept of a cluster design with the developer and encouraged that such a proposal be submitted; meanwhile the Commission has been actively considering adding cluster provisions to town regulations. The developers, however, have not submitted a cluster design plan, but the standard large lot plan with 51 acres (18% of total parcel) of open space, of which approximately 25 acres or half of the open space is wetlands.

What alternate uses are suitable for this property. Remaining as a farm is one obvious choice. For this to happen, however, some organization or individual would have to come forward and offer to purchase the property, or at least its development rights (as in the state's purchase of development rights program). "Zoning by owning", as the phrase goes, is the preferred method of controlling a parcel's land use.

If the property is to be sold and developed, commercial and industrial land uses would be inappropriate for most of the parcel, except,perhaps that portion of the property along the east side of Briggs Road which abuts the industrial/agribusiness use. Provision of a transitional zoning district and/or land use between the industrial park and nearby agricultural and residential uses would be appropriate.

If the property is to be developed in a residential land use, a low density of development is necessary to not only ensure adequate on-site water supply and waste disposal, on each lot, but to maintain a rural character. While the proposed density <u>is</u> low at one dwelling per 3.6 acres,as has been noted previously, this density does not seem particularly rural due to the exposure and openness of this site. A cluster type of development would be preferable to minimize the environmental & visual impacts and to provide a more coherent sense of community, as noted previously.

The town has no cluster regulations, the developer has not proposed such an alternative, and the project, from an overall point of view is generally in compliance with the town's existing regulations.

Specific details may need to be negotiated, such as what,if any, improvements should be made to the open space to provide recreational space for the subdivision's residents, the need for off-site road improvements leading to the development, fine-tuning individual lot lines or driveway locations, and so on, in order to meet the technical requirements of Lebanon's regulations.

COMPLIANCE WITH STATE,REGIONAL & LOCAL PLANS

State Policies Plan for the Conservation & Development of Connecticut 1987-92

This state plan recommends thsi site for 'rural' and 'conservation' uses. The conservation areas include those portions of the parcel in active agricultural use and inland wetlands. Agricultural lands are recommended to be maintained for food production to the maximum extent feasible. Wetland areas are recommended to be incorporated into undeveloped open space or passive recreation areas. The remainder of the parcel not in agricultural soils or use or wetlands is recommended to be developed only at an intensity which can be permanently supported by on-site carrying capacity for water supply & sewage disposal.

State Master Transportaion Plan 1988

The only state funded project scheduled in the vicinity of this subdivision is the restoration of the existing bridge on Rt 207 over the Susquetonscut River, east of the site. This improvement is planned for 1989.

Environment 2000 9/87

Connecticut's Environmental plan calls for the conservation of Connecticut's farmland & lists strategies to accomplish this goal.

Regional Transportation Plan Draft Summer 1988 WRPA

This plan, updated annually, and endorsed in its draft form by Lebanon's First Selectman, recommends drainage, alignment & widening improvements to route 207 in the vicinity of this development. Drainage improvements are needed between Hoxie Rd #2 and Briggs Rd. Route 207 from Kick Hill Road to Hoxie Road is characterized by a series of hazardous curves and knolls. In the long term, the plan notes improvements will be necessary in order to prevent the segment from becoming a serious safety hazard as traffic volumes increase.

Regional Growth & Preservation Guide Plan WRPA 1981

The region's land use plan recommends the area within the proposed subdivision as a'low density rural district'.Policies for this area are shown on the next page. The plan also specifically recommends that compact, efficient, less visible forms of development be encouraged in these areas of the region; techniques such as planned unit developments, transfer of development rights, and cluster designs are listed.

5. Low-Density Rural District

The low-density rural district contributes the bulk of the aesthetic appeal of the region and offers most of the low density recreational opportunities. Emphasis in planning and land regulation should be on minimizing the development of existing road frontages. People living in this district must be automobile oriented and, due to the high utility and energy costs associated with low-density development, they must be willing to pay significantly more to maintain this way of life.

(Policy for Low-Density Rural District)

. Development incentives should be provided to encourage residential development on internal parcels of land rather than along existing road frontages. Not only will the rural appearance of the region be maintained but traffic flow will be enhanced and traffic accidents reduced through having two or more residences on a single driveway instead of each individual residence having a driveway entering a state highway or town road.

. Preservation of agricultural lands and operations should be encouraged.

. Two-acre building lots should be the minimum and the prevailing lot size.

. Public services such as sewer, water and trash collection should not be available in the district.

. Large residential development projects should be discouraged in the low-density rural district. However, if such development occurs, subdivision standards for such developments should be designed to place all possible burdens for serving the residents of the proposed development on the developer (e.g., roads which at least meet town road specifications, drainage, dedication of land for recreation and perhaps additional school facilities or payment in lieu of dedication, etc.). Provision should be made for allowing small developments (e.g., through zoning incentives) to encourage the development of interior parcels.

. Where opportunities to develop recreational facilities or nature preserves of regional or statewide significance exist they should be exploited.

. Very light density development and open space preservation techniques should be used to protect areas along streams, watersheds which drain to public water supply sources and scenic and historic areas.

. The development of limited access highway interchanges should be discouraged.

Comprehensive Plan of Development for the Town of Lebanon,CT 7/65

Lebanon's 23 year old plan includes the proposed subdivision primarily within its 'rural residence' proposed land use district, which at the time called for one acre lots. Town zoning now requires two acres and a minimum buildable area of 60,000 square feet free of wetlands and steep slopes on each lot.

A'potential open space' corridor is shown along the west side of Briggs Rd, seemingly including the wetland and surrounding area in this proposed development. The plan advocates the aquisition of open space to provide for the recreation needs of the residents and to maintain the rural character of the community.

Regarding streets, the plan specifically recommends elimination of duplicate names, noting the example of Hoxie Road #1 and #2.

OTHER ISSUES

Traffic Concerns

The traffic impact study prepared for the subdividers adequately represents the expected impact of this development on the surrounding roads, noting that the 80 new homes can be expected to generate about 800 additional vehicle trips on adjacent roads each day. While it does note improvements needed to existing town roads along the parcel frontage and for one off-site intersection, Babcock Hill Rd at Kick Hill Rd, it is silent on two issues which may concern the town. Briggs Rd is proposed to be paved from Babcock Hill Rd to the end of the proposed subdivision frontage, with a turn around provided at that point. More than 25 lots are proposed on Briggs Road, and the most direct access to those lots would be from Rt 207 along the 2,000 foot unpaved portion of Briggs Rd. Plans for paving or maintaining this road by the town, the developer , or a combination should be considered.

Accident data reported for Babcock Hill Road indicates four accidents on dry days where vehicles were on the wrong side of the road or went off the road. These types of accidents , while few in reported number, are indicative of a pavement too narrow or curving to accomodate two vehicles. Consideration should be given to widening and straightening parts of Babcock Hill Road, so that as traffic voulumes increase, accidents do not rise in the same or larger proportions.

About The Team

The Eastern Connecticut Environmental Review Team (ERT) is a group of professionals in environmental fields drawn together from a variety of federal, state and regional agencies. Specialists on the Team include geologists, biologists, foresters, soil specialsits, 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: 203-345-3977, Eastern Connecticut RC&D Area, P.O. Box 70, Haddam, Connecticut 06438.