environmental review team report

RC&D

EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

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

ENVIRONMENTAL REVIEW TEAM REPORT
ON THE
ANGUILLA FARMS AND GREYLOCK TRAIL SUBDIVISIONS
STONINGTON, CONNECTICUT

NOVEMBER, 1975

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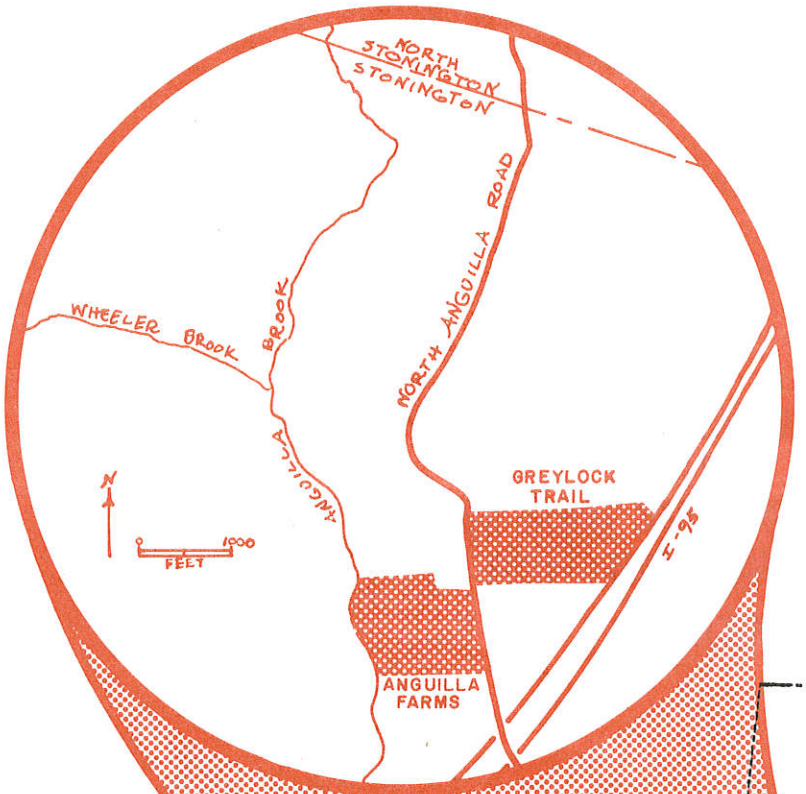
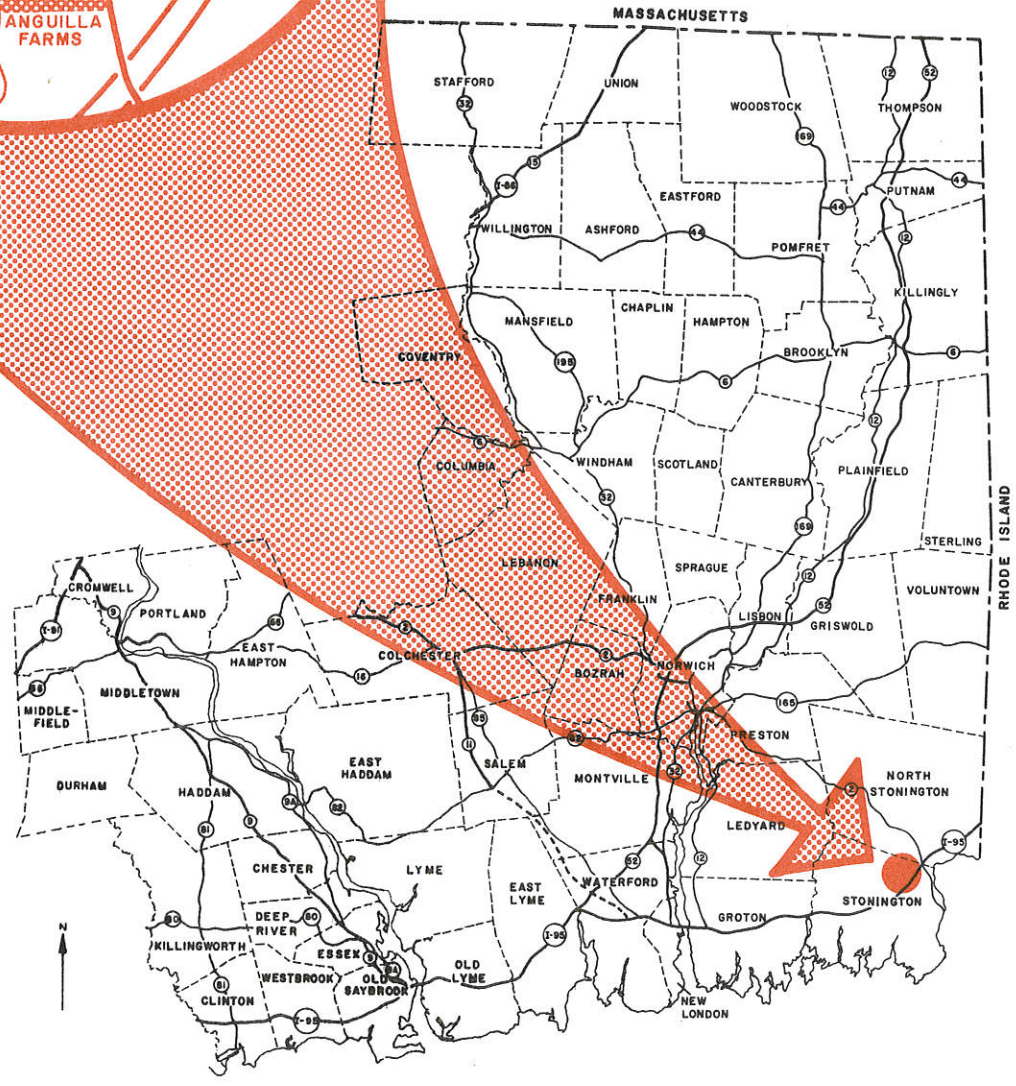
EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT PROJECT
Environmental Review Team
139 Boswell Avenue
Norwich, Connecticut 06360

LOCATION OF STUDY SITE

ANGUILLA FARMS AND GREYLOCK TRAIL SUBDIVISIONS

STONINGTON, CONNECTICUT





EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT
ON THE
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STONINGTON, CONNECTICUT

This report is an outgrowth of a request from the Stonington Planning and Zoning Commission, with the approval of the landowner, to the New London County Soil and Water Conservation District (S&WCD). The S&WCD referred this request to the Eastern Connecticut Resource Conservation and Development (RC&D) Project Committee for their consideration and approval as a project measure. The request was approved and the measure reviewed by the Environmental Review Team (ERT).

The soils of the site were mapped by a soil scientist of the United States Department of Agriculture (USDA) Soil Conservation Service (SCS). Reproductions of the soil survey, a table of soils limitations for certain land uses, and a topographic map showing the property boundaries were forwarded to all members of the Team prior to their review of the site.

The Team that field-checked the property consisted of the following personnel: Sherman Chase, District Conservationist, SCS; Robert Miller, Geologist, Connecticut Department of Environmental Protection (DEP); George Cloutier, Forester, DEP; Joseph Piza, Fisheries Biologist, DEP; Donald Capellaro, Sanitarian, Connecticut Department of Health; Thomas Seidel, Regional Planner, Southeastern Connecticut Regional Planning Agency; and Barbara Hermann, ERT Coordinator, Eastern Connecticut RC&D Project.

The Team met and field-reviewed the site on Thursday, June 26, 1975. Reports from each Team member were sent for review and summarization for this final report to Linda Simkanin who replaced Barbara Hermann as the ERT Coordinator.

This report is not meant to compete with private consultants by supplying site designs or detailed solutions to development problems. This report identifies the existing resource base and evaluates its significance to the proposed development and also suggests considerations that should be of concern to the developer and the Town of Stonington. The results of this Team action are oriented toward the development of a better environmental quality and the long-term economics of the land use.

The Eastern Connecticut RC&D Project Committee hopes you will find this report of value and assistance in making your decisions on this particular site.

If you require any additional information, please contact: Miss Linda M. Simkanin, Environmental Review Team Coordinator, Eastern Connecticut RC&D Project, 139 Boswell Avenue, Norwich, Connecticut 06360, 889-2324.

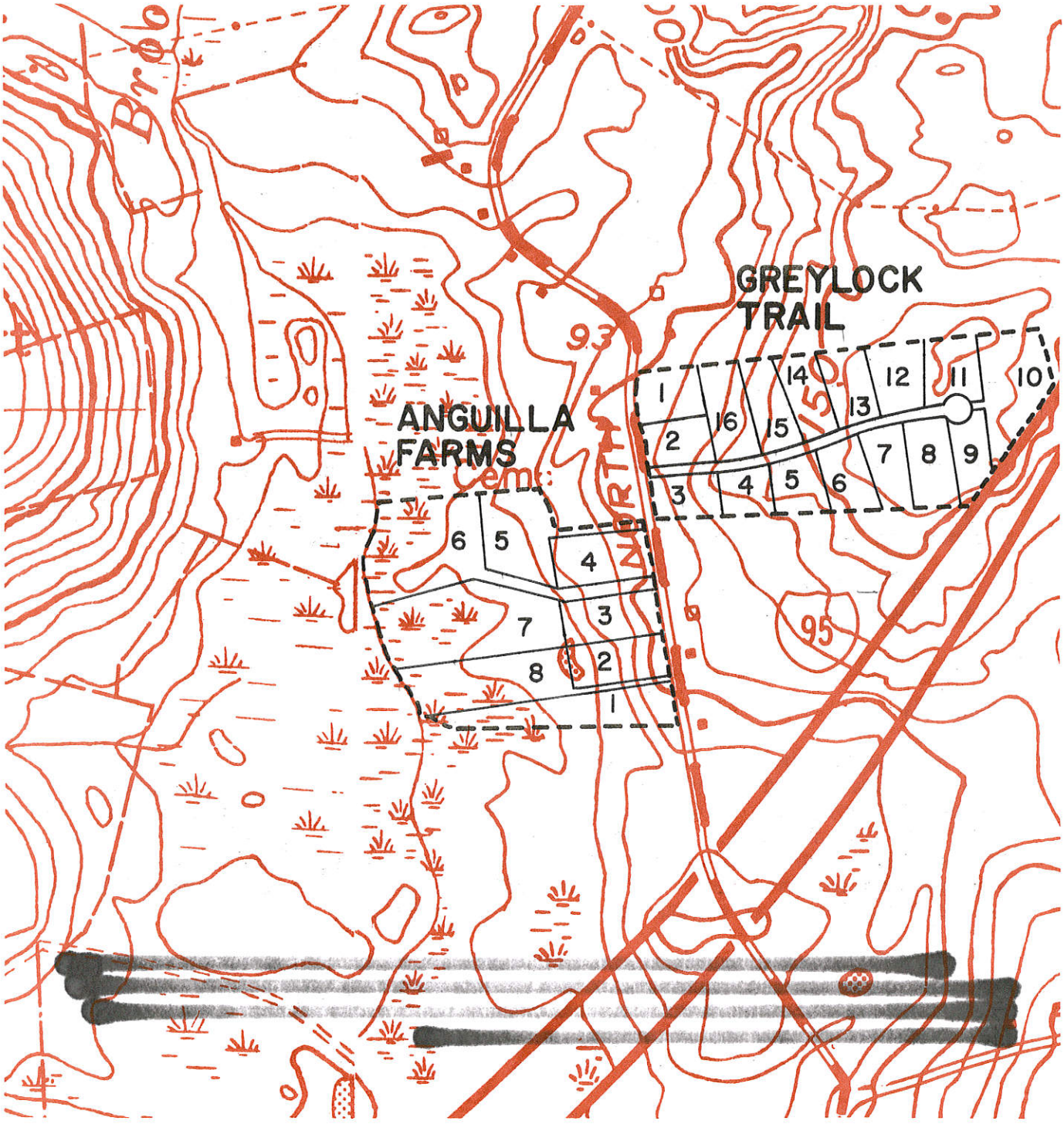
INTRODUCTION

The proposed Anguilla Farms and Greylock Trail subdivisions are located on 29 acre and 30 acre tracts of land, respectively. The properties are located on either side of North Anguilla Road. The Anguilla Farms tract is proposed for 8 lots ranging from 85,000 to 257,260 square feet per lot, and the Greylock Trail tract is proposed for 16 lots ranging from 60,000 to 82,000 square feet per lot, with one lot proposed for 156,000 square feet (refer to the Topography and Site Map on the next page).

Approximately 14.5 acres, or 50%, of the Anguilla Farms land (soils 43M and 291 as shown on the detailed soils map in the Appendix of this report) is classified as inland wetlands under Public Act 155. The use of this land is regulated by special permit by the Stonington Inland Wetlands Commission. The use limitations for the wetlands as well as the other soil areas in the Anguilla Farms tract are summarized in the Limitation's for Certain Land Uses chart in the Appendix of this report. The natural limitations or potential problem areas are not as numerous nor as imposing on the Greylock Trail tract which can probably provide suitable house and septic system locations on each of the proposed lots.

This report will present a detailed description of the geology, hydrology, soils, forest cover, and aquatic wildlife characteristics of the properties. Consideration will also be given to the compatibility and suitability of the proposed subdivisions for these sites. A detailed soil map, and a table summarizing the potential development limitations for each soil type is provided in the Appendix of this report.

TOPOGRAPHY AND SITE MAP



APPROXIMATE SITE BOUNDARIES

APPROXIMATE LOT LINES

N

0 666

FEET

EVALUATION

TOPOGRAPHY AND GEOLOGY

The Anguilla Farms and Greylock Trail properties are located on the eastern valley wall of Anguilla Brook, the Anguilla Farms tract being on the valley bottom and the Greylock Trail tract being on the upper valley wall.

The Anguilla Farms tract has the more diverse surficial geology of the two tracts. The property can be essentially divided into three sections. The lower section, that closest to Anguilla Brook, is largely composed of swamp and marsh deposits containing peat, muck, silt, and fine sand. The middle section is characterized by glacial stream deposits which are largely well-sorted sand and gravel areas. The upper 3-15 feet of the deposits are dominantly finer sand and gravel. The third section, that farthest away and uphill from the brook, is composed of till deposits.

Till covers all of the Greylock Trail site. The till is a light gray mixture of material that ranges from clay-size particles to large boulders. In this area it is dominated by sand and silt-size particles.

Both sites are underlain by Potter Hill Granite Gneiss bedrock. This is a fine to medium-grained, orange to pink, granite gneiss. Fresh rock, light gray in color, is very scarce in this area. Most outcrops are weathered, deeply stained and somewhat crumbly. They also tend to be slabby if broken.

The depth of the bedrock from the surface is 0-15 feet for the Greylock Trail tract and 15 feet and greater for the Anguilla Farms tract.

HYDROLOGY

Some major limiting conditions of the Anguilla Farms tract are those of high groundwater and potential flood hazard. The area is very favorable for groundwater wells but is limited in subsurface sewage disposal due to the swamp and till deposits. More than half of the Anguilla Farms tract has properties for a high yielding groundwater aquifer. Coarse gravel to medium sand predominates in this area. Yields of individual, properly-developed wells may exceed 880 gallons per minute (gpm) and average 85 gpm.

Slightly less than half of the Anguilla Farms tract is mapped as a flood hazard area. As mapped, this means that there is at least one chance in 100 each year that the flood waters will inundate the area adjacent to Anguilla Brook indicated by the map on the following page.

SOILS

A detailed soils map of the properties is given in the Appendix to this report. As the map is an enlargement from the original 1320'/inch scale to 660'/inch, the soil boundary lines shown should not be viewed as absolute

boundaries, but rather as guidelines to the distribution of soil types on the property. The soils map, along with the Special Soils Report, Southeastern Connecticut Region (USDA, SCS, 1969), can serve as an educational tool regarding the identification and interpretation of soils. The natural soil group is also given for each soil. The Natural Soil Group Report published by SCS and the New London County Cooperative Extension Service provides a clear explanation of the natural soil groups.

With the examination of the soils map, and the accompanying chart indicating general soils limitations for various land uses (also found in the Appendix), a correlation between the soils and the surficial geology can be seen. Soils in Natural Soil Group A are terrace soils underlain by water deposited beds of sand and gravel (stratified drift). These soils occur above floodplains in river and stream valleys. The 213/BC soil of Natural Soil Group A-16, which comprises roughly 21 acres of the Greylock Trail tract, tends to be excessively well-drained with irregular slopes ranging from a 3-15% grade. Although the permeability of these soils is favorable for the installation and operation of on-site sewage disposal systems, the high percolation rate may allow sewage effluent to pollute the groundwater and adjacent wells as the pollutants may travel laterally. The 214/AB soil in Group A-2, which comprises roughly 5.5 acres of the Anguilla Farms tract, has a seasonably high water table in the low areas. Permeability is moderate to rapid above the water table. The water table limits successful operation of on-site sewage disposal systems unless special measures are used, such as drainage and land fill. House basements may be subject to seepage without such protective measures such as footage drains.

Natural Soil Group B soils are upland soils over friable to firm glacial till. The soils in this group are formed in the thicker, unconsolidated deposits of till usually occurring on hillsides. Stones and boulders are common in these glacial deposits and add difficulty when excavating or earth moving operations are needed. In this soil group, the 43M soil comprises roughly 6 acres of the Anguilla Farms tract. It is a very poorly drained, and very stony soil with a high water table during most of the year (usually within 6 inches of the soil surface during the wettest part of the year, and within 3 feet of the surface throughout the rest of the year). Water often ponds on the surface for significant periods in winter and early spring. This soil is a regulated Inland Wetland soil under Public Act 155, and it does impose very severe limitations for most urban uses such as those indicated in the Use Limitations Chart in the Appendix of this report. Costly drainage and land fill measures are usually required to overcome the high water table.

Natural Soil Group C soils are upland soils over compact glacial till (hardpan). These soils occur mostly on the tops and slopes of drumlins - hills that were smoothed and elongated north to south by the movement of glaciers. The underlying hardpan is usually at about 16 to 36 inches below the soil surface. Permiability above the hardpan is moderate but the pan drastically reduces percolation. During the wet season, excess water in the soil moves downslope above the hardpan. These soils commonly contain stones and boulders which add difficulty when excavating or earth moving operations are needed. The 35M/BC soil of this group covers roughly 21 acres of the Anguilla Farms site, and is extremely stony. Costly stone removal is usually required on these soils for the installation of on-site sewage disposal systems and basements. The 31M/BC soil is also a very stony soil, and has a moderately high seasonal water table. This soil comprises roughly 3 acres of the Anguilla Farms site. The design and installation of septage effluent absorption fields that function satisfactorily are very difficult because of the hardpan and seasonal high water table. Installation of the systems are made diffi-

cult due to the stoniness. Slopes above 8% in both the 31M/BC and 35M/BC soils present severe problems in the design and construction of streets, or general landscaping, and in the 35M/BC soil, there is the hazard of frost heaving due to the high water table and the hardpan.

Natural Soil Group D soils are typically found on steep side slopes and narrow ridge tops and are characterized by stoniness and shallow soil depths to bedrock. The "D" group, or ledgy or shallow to bedrock soils areas cover about 9.5 acres of the properties. The bedrock is typically less than two feet below the land surface, with numerous bedrock outcrops (or exposed rock surfaces) evident. Development limitations can vary from very severe to slight depending on the depth to bedrock. Within these soils it should be understood that there can be pockets of deep soil which, if found, can provide acceptable locations for development, or at least individual house sites. These pockets can tend to be difficult and costly to locate, and may be widely spaced. As discussed above, they are unique because of the intricate pattern of rock outcrops and soils shallow to bedrock interspersed with pockets of deeper soils. About one half of these soils are very rocky. Stones and large boulders are common and add further difficulty when excavating, or earth moving is done. The well-drained deeper soils are moderately permeable. The permeability of the deeper soils is favorable for the installation of on-site sewage disposal systems. When extensive stone removal is required, however, the design and site selection for filter fields requires special consideration. In areas of shallow soils, extensive (and costly) amounts of fill may be required in order to provide a sufficient soil depth for successful operation of the on-site sewage disposal system. The 17L/D soil is essentially comparable to the 17L/BC soil, but falls primarily in the 15-35% grade slope regime.

The Natural Soil Group G-3b is a lake terrace soil over strata high in silt and clay. Soil 291, a Public Act 155 inland wetland soil, comprising roughly eight acres of the Anguilla Farms tract, is a peat and muck soil which exhibits a high water table during most of the year (remains within three feet of the soil surface). During the wettest part of the year, and often persisting into late spring or reoccurring after prolonged or heavy summer rains, the water table is often within six inches below the surface, it remains within 3 feet of the surface throughout the rest of the year. Water often ponds on the surface for significant periods during the winter and early spring.

FOREST COVER

There is only a small acreage of woodland involved on the proposed Anguilla Farms tract. Aesthetics and wildlife habitat are the principal values relating to the woodland. The soils are very wet and support mostly moist, wetland species such as red maple, ash, spicebush, black gum, and others. At least four lots encroach on the inland wetland areas considerably. On-site sewage disposal if not properly located, designed, and installed could be a potential threat to a large important wetlands area. This wetland forest habitat is probably the most productive site for birds and animals as well as a protective border for a large upland, and a downstream marine marsh, area. Pollution of this habitat could have serious adverse effects for a great distance downstream to valuable salt marsh estuary in the Barn Island management area.

Forest cover is considerably different and varied on the Greylock Trail site. Natural succession species in the old field consisting of apple trees, viburnums, red cedars, and blueberry shrubs, can provide desirable existing landscaping for a residential development such as is proposed. Careful site planning - vegetative removal and placement of houses, can take advantage of desirable existing forest cover. Also, additional tree planting to screen nearby Interstate 95 will have a beneficial physiological as well as psychological effect upon the residents. The tree buffer can provide a noise pollution - reducing service as well as a vegetative air pollution filter from passing traffic. Sugar maple, dogwood, hemlock, white pine, and spruce are some shallow-rooted species suitable for such landscaping and buffer-zone on this shallow to bedrock site.

FISH AND WILDLIFE

The proposed Anguilla Farms subdivision borders Anguilla Brook. This stream is stocked with trout by the State of Connecticut. The cool water and steady flow of water from the natural surrounding wetlands is important for the ecological balance of Wequetequock Cove, a tidal inlet downstream. Destroying drainage areas along the brook and adding silt will eventually affect Wequetequock Cove and associated marine life there.

The entire Anguilla Brook valley and hillsides contains diverse bird and wildlife populations. It is the recommendation of the fisheries biologist of the Environmental Review Team that this unique wildlife area be considered as a future open space parcel in the Town of Stonington in order to preserve this wildlife habitat, maintain a local, natural flood control area, and acknowledge the role of the entire Anguilla Brook valley in maintaining a delicate ecological balance for important fresh and tidal wetland habitats further downstream. The proposed Greylock Trail subdivision located on the east side of Anguilla Road does not present any serious problems as far as preserving Anguilla Brook Valley is concerned.

WATER SUPPLY

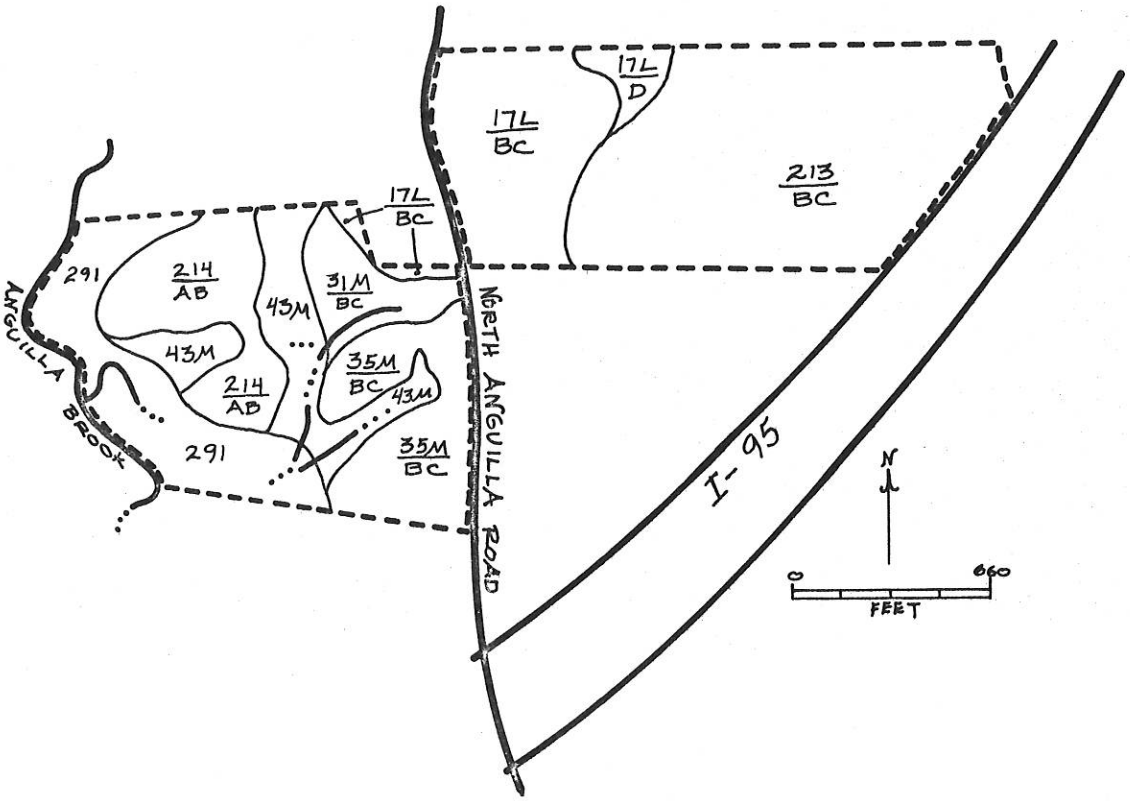
It was indicated by the developer that water supply would be developed from on-site individual wells, or from a central water system. In the proposed Anguilla Farms subdivision, it appears that the development of the latter would appear more suitable judging from the rich groundwater conditions of that site. The installation of a gravel well should produce more than an adequate yield to meet the needs of the development. A system of this type would be classified as a public water supply and would require State Health Department approval. In the location of a possible well site consideration needs to be given to the separating distance from possible sources of contamination, and to provide for adequate control of the land surrounding the site. In lieu of a central water source, individual wells could be installed. The lot sizes should be sufficiently large to permit well locations which would be afforded adequate protection. Drilled wells would be preferred as they generally provide for greater protection of the supply and have fewer natural site limitations.

Due to the rather uniform terrain and large lot sizes of the proposed Greylock Trail subdivision, there should be no particular problem in locating

SOIL MAP

ANGUILLA FARMS AND GREYLOCK TRAIL SUBDIVISIONS

STONINGTON, CONNECTICUT



The map is an enlargement from the original 1320'/inch scale to 660'/inch.

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

ADVANCE COPY, SUBJECT TO CHANGE. *NOVEMBER, 1975*

PROPORTIONAL EXTENT OF SOILS AND THEIR LIMITATIONS FOR CERTAIN LAND USES

Soil Series	Natural Soil Group	Soil Symbol	Approx. Acres	Percent of Acres	Principal Limiting Factor	Urban Use Limitations*			
						On-Site Sewage	Buildings with Basements	Streets & Parking	Land Scaping
ANGUILLA FARMS									
Belgrade/Enfield	A-2	214/AB	5.5	19.6	seasonal high water table	2	2	2	2
Leicester/ Ridgebury/ Whitman	B-3b	43M**	6	21	high water table, stoniness	4	4	4	4
Paxton/Broadbrook	C-1c	35M/BC	6	21	stoniness	3, also fragipan	3	3	3, also slope
Woodbridge/ Rainbow	C-2b	31M/BC	3	10.3	seasonal high water table, stoniness	3, also fragipan	3	3	3, also slope
Hollis	D-1	17L/BC	.5	.1	shallow to bedrock	3	3	3	3
Unnamed	G-3b	291**	8	28	high water table, organic material	4	4	4	4
TOTAL			29	100					
GREYLOCK TRAIL									
Hickley-Enfield Complex	A-16	213/BC	21	70.0	droughtiness	1-2	1	2	2
Hollis	D-1	17L/BC	8	26.7	shallow to bedrock	3	3	3	3
Hollis	D-2	17L/D	1	3.3	shallow to bedrock, slope greater than 15%	3	3	3	3
TOTAL			30	100.0					

* 1 = slight; 2 = moderate; 3 = severe; 4 = very severe. (See back of this page for further explanation of Limitations.)

** Public Act 155 Inland Wetland Soils.

SOIL INTERPRETATIONS FOR URBAN USES*

The ratings of the soils for elements of urban uses consist of four degrees of "limitations;" slight or no limitations, moderate limitations, severe limitations, and very severe limitations. In the interpretive scheme various physical properties are weighed before judging their relative severity of limitations.

Slight Limitations. Areas rated as slight have relatively few limitations in terms of soil suitability for a particular use. The degree of suitability is such that a minimum of time or cost would be needed to overcome relatively minor soil limitations.

Moderate Limitations. In areas rated moderate, it is relatively more difficult and more costly to correct the natural limitations of the soil for certain uses than for soils rated as having higher than average outlay when such areas are compared with areas rated as having slight limitations.

Severe Limitations. Areas designated as having severe limitations would require more extensive and more costly measures that soils rated with moderate limitations in order to overcome natural soil limitations. The soil may have more than one limiting characteristic causing it to be rated severe.

Very Severe Limitations. Areas rated as having very severe limitations are generally not feasible for the specific use or the limitations would require extreme and costly measures to correct.

* Source: Special Soils Report, Southeastern Connecticut Region, USDA, SCS, 1969.