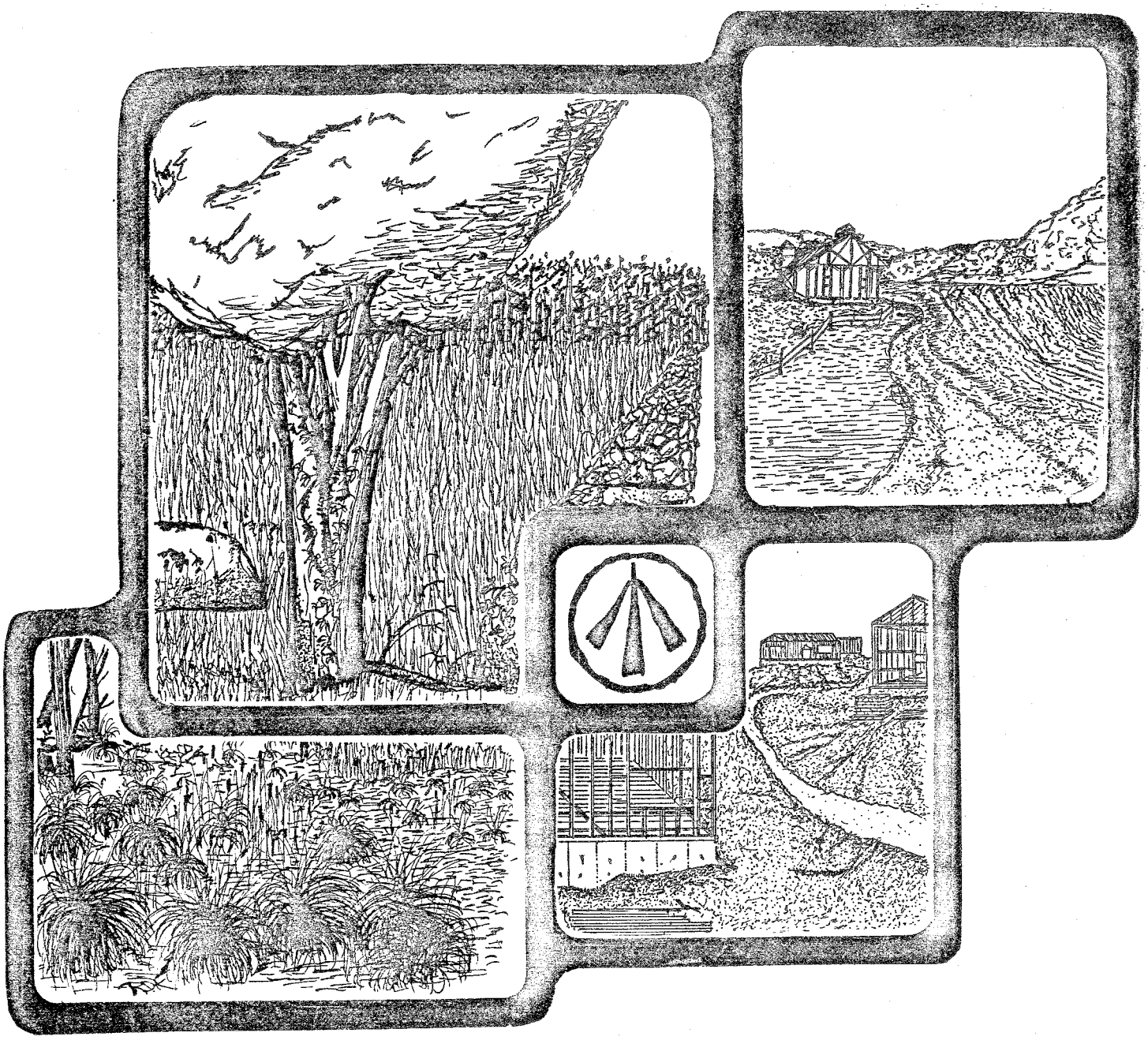
ENVIRONMENTAL REVIEW TEAM REPORT



THE ROSE N. VAN WIE BOTANICAL PRESERVE
BRANFORD, CONNECTICUT

KING'S MARK
RESOURCE CONSERVATION & DEVELOPMENT AREA

KING'S MARK
ENVIRONMENTAL REVIEW TEAM REPORT

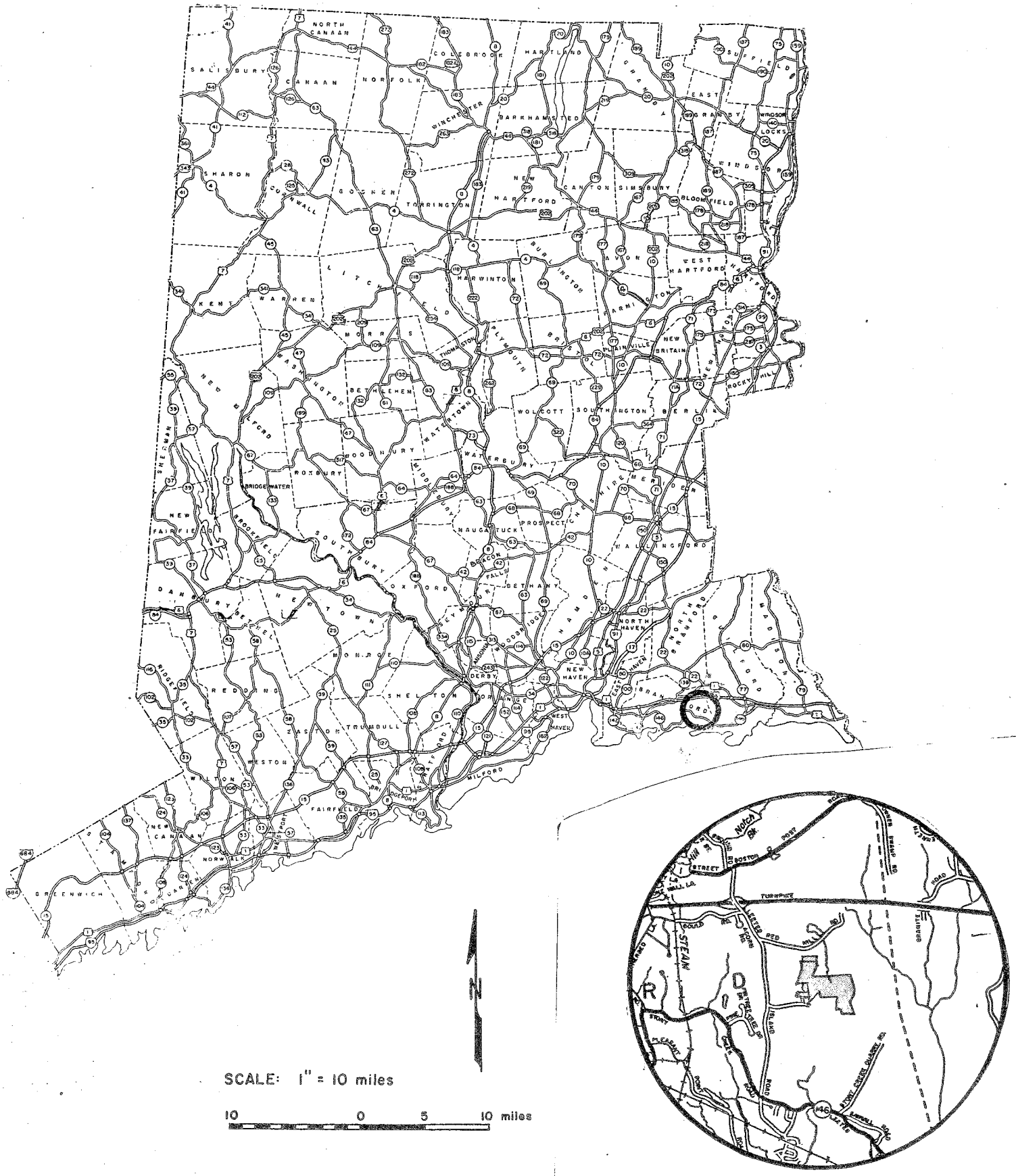
THE ROSE N. VAN WIE BOTANICAL PRESERVE BRANFORD, CONNECTICUT

AUGUST 1981

King's Mark Resource Conservation and Development Area
Environmental Review Team
Sackett Hill Road
Warren, Connecticut 06754

LOCATION OF STUDY SITE

THE ROSE N. VAN WIE BOTANICAL PRESERVE
BRANFORD, CONNECTICUT



ENVIRONMENTAL REVIEW TEAM REPORT
ON
ROSE N. VAN WIE BOTANICAL PRESERVE
BRANFORD, CT

I. INTRODUCTION

The Branford Land Trust recently accepted, by donation, a 47 acre parcel of land known as the "Rose N. Van Wie Botanical Preserve". The Van Wie Preserve is located near the eastern border of town off Flat Rock Road. Land use surrounding the property is predominantly large lot residential, agricultural, and undeveloped. The Stony Creek Quarry Preserve, a 310 acre town-owned natural area, abuts the eastern border of the Van Wie property.

As shown in Figure 1, the Van Wie property is characterized by a diverse landscape. The eastern and western portions of the property consist of nearly level wetlands. The central portion of the property is characterized by moderate to steep relief and is mostly wooded. Approximately 5 acres in the central portion of the property is being utilized as cornland.

The ERT was requested by both the Branford Land Trust and Branford Park and Open Space Authority to prepare a natural resource inventory and analysis of the Preserve, together with an inventory and analysis of three smaller adjacent open space parcels. Two of these adjacent parcels are projected donations to the trust and one is a town-owned open space parcel (see Figure 1). Of specific and important interest to the trust are:

"a) Which assets of this land should be preserved? Is the botanical diversity of sufficient interest to warrant formal care and display?

b) Is the current agricultural use detrimental? We are concerned about erosion of topsoil from slopes up to 18%. Should farming be continued, and if so, with what modification?

c) Hiking trails, ski trails and bridle paths have been suggested. Are these desirable, and if so, how can they best connect with and complement the Stony Creek Quarry Preserve?

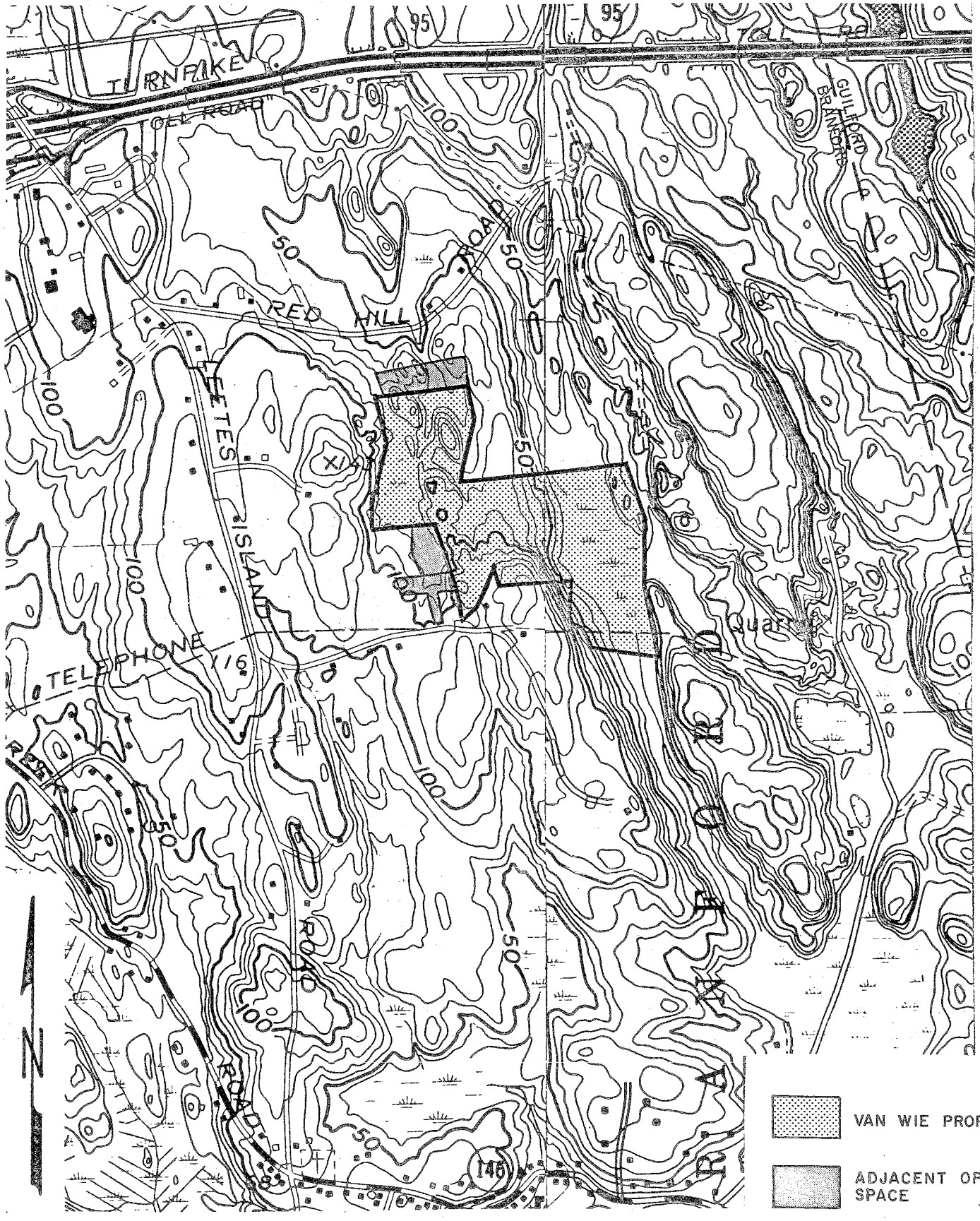
d) Should forest management for timber and/or cordwood harvesting be pursued?

e) Wildlife management is of concern. Deer migrate from the Quarry-Van Wie area to salt marshes on the shore for winter forage. Which privately owned lands are important to our future acquisition policy to maintain migration corridors and wildlife habitats?"

The King's Mark Executive Committee considered the town's request, and approved the project for review by the Team.

FIGURE I.

TOPOGRAPHIC MAP



SCALE: 1" = 1000'

The ERT met and field reviewed the site on May 27, 1981. Team members participating on this review included:

Tim Dodge	Wildlife Biologist	U.S.D.A. Soil Conservation Service
Kathy Hanford	Soil Conservationist	U.S.D.A. Soil Conservation Service
Erin O'Hare	Regional Planner	Southcentral Connecticut Regional Planning Agency
Andy Petracco	Recreation Specialist	Connecticut Department of Environmental Protection
Mike Pochan	Forester	Connecticut Department of Environmental Protection
Mike Zizka	Geohydrologist	Connecticut Department of Environmental Protection

Prior to the review day, each team member was provided with a summary of the proposed study, a checklist of concerns to address, a soils map, a topographic map, and a soils limitation chart. The day of the field review, team members met with representatives from the Land Trust and walked the properties. Following the field review, individual reports were prepared by each team member and forwarded to the ERT Coordinator for compilation and editing into this final report.

This report presents the team's findings. The report identifies the natural resource base of the properties and discusses opportunities and limitations for land management. All conclusions and final decisions with regards to future land use rest with the Branford Land Trust and Town of Branford. It is hoped the information contained in this report will assist both parties in making environmentally sound decisions. If any additional information is required, please contact Richard Lynn (868-7342), Environmental Review Team Coordinator, King's Mark RC&D Area, Sackett Hill Road, Warren, Connecticut 06754.

* * * * *

II. SUMMARY

1) Bedrock crops out in most areas of the site. Some of the rock exposures are massive, forming distinct knolls and ridges. Other rock surfaces are exposed in patches under a discontinuous veneer of soil. These bedrock outcrops are largely granitic and represent one of the sites most notable natural features.

2) The wetlands on this property may serve several hydrologic functions including floodwater storage, erosion control, and water quality improvement. The wetlands also represent valuable wildlife habitat and have a rich diversity of plant growth.

3) The property probably does not contain any substantial groundwater resources with potential for large-scale public use. If on-site potable water is desired, a bedrock well could be drilled. A bedrock well would likely provide enough water to meet passive recreational needs.

4) The eastern and western borders of this property are underlain by wetland soils. The central portion is underlain primarly by well-drained and stony upland soils. Soil erosion from the cornland on this property is significant. It appears the most practicable way to reduce soil loss to an acceptable level while still producing as much corn as possible is to use a contour strip cropping system on the western half of the field and continuous hay on the steeply sloping eastern half of the field.

5) The Van Wie property may be divided into four major vegetation types. These include mixed hardwoods (± 27 acres), hardwood swamp (± 19 acres), old field (± 5 acres) and open field/agricultural land (± 7 acres). Efforts should be taken to maintain the existing agricultural land and old fields on this property. Forest management via a thinning harvest is recommened in the mixed hardwood stand. The hardwood swamp on this property is worthy of observation, study, and preservation.

6) If the forests of the Van Wie property are to be managed, a forest road system should be developed and connected to the main town roads. These forest roads should be designed to double as recreational trails.

7) Three major wildlife habitats are present on the property. These include: woodland, wetland, and openland. Habitat quality is generally good and this land can be expected to provide a home for many species of wildlife. Game trails and droppings show the area to be used quite extensively by white-tailed deer. Management opportunities exist to improve the quality and quantity of browse and forage grasses for deer and other wildlife species. Cut-back borders around the cornfield, hemlock plantings to improve thicket cover, and release cuttings for high value plant species are all recommended. If future acquisitions are being considered by the Branford Land Trust, the land immediately north of the cornfield would be highly desirable.

8) The Van Wie tract can be viewed as an extension of the Stony Creek Quarry Preserve which connects to the Westwoods Trail System and Guilford Land Trust parcel to the east. The diversity of the landscape on the Van Wie property makes this land an exceptionally fine addition to this larger open space system. Efforts should be made to coordinate the use of these adjacent open space parcels through connecting trails, etc.

9) *Vehicular access to the Van Wie tract could be improved by the creation of a small parking lot off Flat Rock Road.*

10) *The Van Wie tract has excellent potential for the creation of an interesting trail network for hiking, jogging, nature study, and snowshoeing. Most of the tract does not lend itself to cross-country skiing but it could become a component of a trail system if an adequately long network is provided by tie-in to the quarry site and other lands to the east.*

11) *Participation by local schools (through educational programs) in the management of this property can help reduce the financial and/or manpower commitment of the Branford Land Trust and is an opportunity that should probably be further investigated.*

III. GEOLOGY

The Van Wie Preserve is located in an area encompassed by the Branford and Guilford topographic quadrangles. Surficial geologic maps of both quadrangles have been published by the Connecticut Geological and Natural History Survey (Quadrangle Reports Nos. 14 and 28, respectively). Bedrock maps have not yet been published, however partial bedrock geologic information for the quadrangles is available for examination at the Department of Environmental Protection's Natural Resources Center in Hartford.

Bedrock crops out in most areas of the site. Some of the rock exposures are massive, forming distinct knolls and ridges. Other rock surfaces are exposed in patches under a discontinuous veneer of soil. The latter type of exposure is prominent near the Van Wie homestead; this explains the origin of Flat Rock Road's name. Apart from the wetland areas, the bedrock outcrops are undoubtedly one of the Preserve's most notable natural features. The composition of the bedrock is largely granitic. This rock type evidently was intruded as a very hot liquid into fractures in the preexisting metamorphic rocks. The intrusion literally overwhelmed the older rocks, to the extent that the latter are found primarily as isolated blocks and chunks within the coarse-grained pink granites. The metamorphic rocks on the site consist of gneisses and schists and may be recognized by their generally distinct lineation and grayish color.

The unconsolidated materials overlying bedrock on the site are so thin in most places that they scarcely deserve mention as a geologic unit. Till, a nonsorted, nonstratified glacial sediment that was deposited from an ice sheet, forms the scanty surficial cover in the upland areas. The only portion of the site in which the till thickness is likely to exceed five feet is the cornfield. In the wetland areas, the surficial geologic cover is a mixture of silt, sand, clay, and much decayed plant material. These deposits may exceed five feet in thickness in both the large wetland in the eastern portion of the site and the smaller wetland in the western portion. The surficial geology of the site is shown in Figure 2.

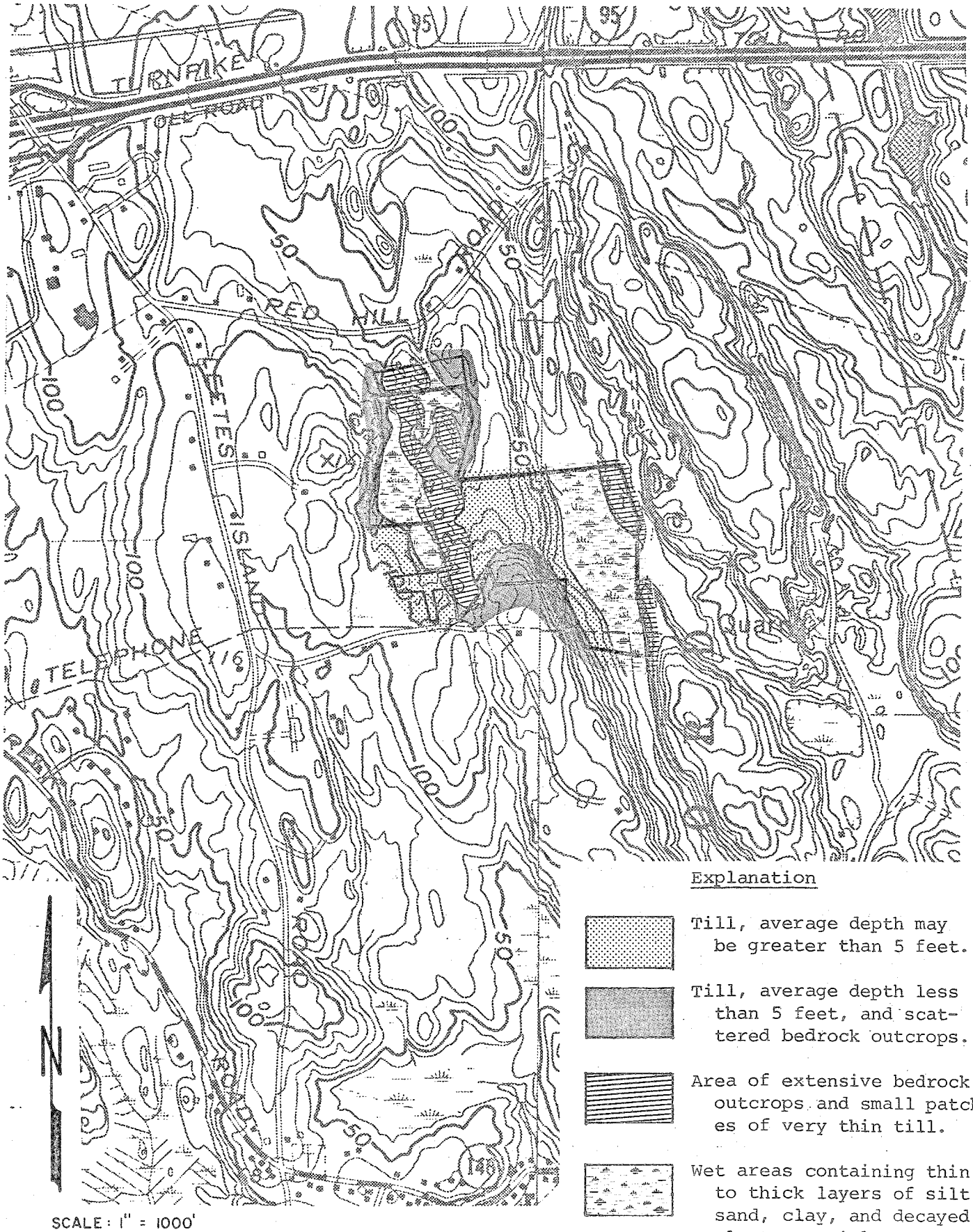
IV. HYDROLOGY

The topographic ridge which runs north-south through the center of the site (see Figure 1), including the cornfield area, divides the surface flows. West of the ridge, drainage is to an intermittent stream that flows north, ultimately passing under Red Hill Road. The stream then loops southward, passing again under the road, and thence flows into the large wetland in the eastern section of the site. Drainage originating in the area east of the aforementioned ridge flows directly into this wetland. Near the southeastern corner of the site, the wetland narrows into a watercourse. From this point, the watercourse flows approximately 1.8 miles southward, entering Long Island Sound just east of the village of Stony Creek. Numerous other wetlands are traversed by the stream along the way.

The wetlands within the parcel may serve several hydrologic (as well as biologic) functions. Floodwater storage is one of the most valuable functions. During periods of above-normal precipitation or snow melt when streams are exceeding their channel capacities, floodwaters are dispersed through the wetlands and stored temporarily. This reduces the peak flow rates that otherwise would occur in the stream. As a result, the potential for erosion and other flood-related damage is minimized. The wetland vegetation also helps to reduce erosion

FIGURE 2.

SURFICIAL GEOLOGY



Explanation

Till, average depth may be greater than 5 feet.

Till, average depth less than 5 feet, and scattered bedrock outcrops.

Area of extensive bedrock outcrops and small patches of very thin till.

Wet areas containing thin to thick layers of silt, sand, clay, and decayed plant materials overlying bedrock or thin till.

SCALE: 1" = 1000'

0 1/4 1/2 miles

0 1000' 2000' 3000'

by stabilizing the underlying soil. Conversely, the wetland may serve as a trap for sediments eroded from upstream areas. This tends to improve the quality of downstream waters. The overall change in water quality resulting from wetland processes may be mixed, however. Complex chemical, physical, and biological activities may lead to the release of certain elements or substances and the uptake of others. Organic decay in the wetlands may result in the enrichment of downstream waters with iron and manganese. Other substances may be utilized by the wetland vegetation and thereby removed from the water. In general, wetlands appear to provide an effective and beneficial natural buffer for pollutants generated by upstream sources.

The parcel is not believed to contain any substantial groundwater resource. Bedrock, which appears to be the only available source for a groundwater supply well on the site, usually is not capable of delivering more than a few gallons per minute to any such well. Yields of this magnitude may be suitable for meeting the needs of an average family or for some recreational needs, but they are insufficient to consider for large-scale public supplies.

V. SOILS

A soils map of the "Rose N. Van Wie Botanical Preserve" is presented in the Appendix of this report. The Appendix also contains a Soils Limitation Chart which identifies limiting factors for various land uses on individual soil types. A comparision of the Soils Limitation Chart and Soils Map will show the suitability of each area for various land uses.

The soils on the property are common soils of the Connecticut valley lowlands. They are formed mainly in material that weathered from Triassic sandstone and conglomerate. Ten soil types occur on the property. Each of these is discussed below.

A. Soil Descriptions (refer to Soils Map in Appendix)

1. Ce- Carlisle Muck:

This nearly level, very poorly drained, deep organic soil underlies the wetlands on the western portion of this property. The organic layers may range from 50 inches to more than 30 feet in depth on this soil type. Slopes are 0 to 3 percent but are dominantly less than 1 percent.

This soil has moderately rapid permeability. It has a high available water capacity. Runoff is very slow. This soil remains wet most of the year and is ponded for several weeks from fall to spring and after heavy rains in summer. Unless limed, the soil ranges from medium acid through neutral.

This soil is poorly suited to trees. The soil has moderate productivity for woodland use, however it has severe limitations to the use of modern equipment. Seedling mortality is high. Plant competition is severe. This soil has a severe windthrow hazard; the trees are shallow rooted because of the high water table. Trees to favor in existing woodlots are white ash, swamp white oak, and red maple. Trees to plant are Northern white-cedar, Austrian pine, and Eastern white pine.

This soil is poorly suited to cultivated crops and community development because of wetness. The soil has favorable conditions for dug-out type pond construction. It also has good potential for wetland wildlife habitat development. It is an inland wetland soil type.

2. CyC- Cheshire-Holyoke complex, 3 to 15 percent slopes:

This soil complex consists of gently sloping and sloping, well drained soils on uplands. The relief is affected by the underlying bedrock. The areas have a rough surface with bedrock outcrops, a few small wet depressions, and narrow intermittent drainageways. Areas may have 25 percent of the surface covered with stones and boulders. Approximately 45 percent of this unit is Cheshire extremely stony fine sandy loam, 30 percent is Holyoke silt loam, and about 25 percent is other soils. The Cheshire and Holyoke soils are found in such a complex and intricate pattern that they could not be separated in mapping.

The Cheshire soil has moderate permeability and a high available water capacity. The Holyoke soil has moderate permeability above the bedrock and a low available water capacity. Both soils have medium to rapid runoff and low shrink-swell potential. They are very strongly acid through medium acid, unless limed.

This soil complex is suited to trees. The Holyoke soil has low productivity because of a severe hazard of seedling mortality and a moderate hazard of tree windthrow due to the shallow root zone. Machine planting may be feasible with some difficulty in open areas that have no stones and boulders; however, it is not feasible in most areas because of the shallowness to bedrock, stoniness, and rock outcrops. Trees to favor are eastern white pine and northern red oak. Trees to plant are eastern white pine, white spruce, and eastern hemlock.

This soil has good potential for the development of woodland wildlife habitat.

3. HuD- Holyoke-Cheshire complex, 15 to 35 percent slopes:

This complex consists of moderately steep and steep, well drained and somewhat excessively drained soils on uplands where the relief is affected by the underlying bedrock.

The areas have a rough surface with bedrock outcrops, a few narrow intermittent drainageways, and small wet depressions. In many areas, up to 15 percent of the surface is stone and boulders. Approximately 40 percent of this complex is Holyoke silt loam, 35 percent is Cheshire extremely stony fine sandy loam, and about 25 percent is other soils and rock outcrops.

The Holyoke soil has moderate permeability above the bedrock. It has a low available water capacity and runoff is rapid. The Cheshire soil has moderate permeability. It has a high available water capacity and runoff is rapid. The Holyoke and Cheshire soils have a low shrink-swell potential. Unless limed, they are medium acid through very strongly acid.

This complex is not well suited to growing trees; however, woodland may be one of its best uses. The Holyoke soil has low productivity, and seedling survival is low because of droughtiness. Windthrow of the larger trees is common because of the shallow rooting depth. The Cheshire soils have moderate productivity. The steep slopes, stoniness and rock outcrops hinder the use of some harvesting equipment. Trees to favor in existing woodlots are eastern white pine and northern red oak. The trees to plant in open areas are eastern white pine.

4. HyC- Holyoke-Rock outcrop complex, 3 to 15 percent slopes:

This complex consists of gently sloping and sloping, somewhat excessively drained soils on uplands where the relief is affected by the underlying bedrock. The areas have a rough surface with bedrock outcrops, a few narrow intermittent drainageways, and small wet depressions. In most areas the surface is up to 15 percent stones and boulders. Approximately 45 percent of this complex is Holyoke silt loam, 30 percent is rock outcrop, and 25 percent is other soils. The Holyoke soil and rock outcrops are so intermingled on the landscape that they could not be separated in mapping at the scale used.

The Holyoke soil has moderate permeability above the bedrock. It has a low available water capacity. Runoff is rapid. Unless limed, this soil is medium acid through very strongly acid. Runoff is very rapid in areas of rock outcrop.

This complex is poorly suited to trees because of the shallowness to bedrock and rock outcrops; however, woodland may be one of its best uses. The Holyoke soil has low productivity. There is a severe hazard of seedling mortality because of droughtiness. Tree windthrow is a major problem because of the shallow rooting depth. The rock outcrops and stoniness hinder the use of some harvesting equipment. Trees to favor in existing woodlots are eastern white pine and northern red oak. Trees to plant in open areas are eastern white pines.

5. LpB- Ludlow silt loam, 3 to 8 percent slopes:

This gently sloping, moderately well drained soil is on the top of broad drumlins, in slight depressions, and near the base of drumlins and ridges of glacial uplands.

This soil has a seasonal high water table at a depth of about 20 inches from late in fall until mid-spring. Permeability is moderate in the surface layer and subsoil and is slow or very slow in the substratum. The available water capacity is moderate. Runoff is medium. This soil dries out and warms up slowly in spring. It has a low shrink-swell potential. Unless limed, this soil is very strongly acid through medium acid in the surface layer and subsoil.

This soil is well suited to trees. Productivity is moderately high. Trees to favor in existing woodlots are eastern white pine and northern red oak. Trees to plant are eastern white pine and European larch.

This soil has good potential for the development of either open land or woodland wildlife habitat development.

6. Sc- Saco silt loam:

This nearly level, very poorly drained soil encompasses the wetland on the eastern border of the property. Slopes are 0 to 3 percent.

This soil has a high water table at or near the surface most of the year. It is subject to frequent flooding. It has moderate permeability above a depth of 40 inches and moderate to rapid permeability below that. The soil has a high available water capacity. Runoff is very slow. The shrink-swell potential is low. Unless limed, this soil is strongly acid to slightly acid in the upper part and medium acid to neutral in the lower part.

This soil is unsuited for commercial timber production because of its wetness and the frequent flooding.

The soil has a good potential for the development of wetland wildlife habitat. Construction of dug-out ponds in this soil is not recommended due to frequent flooding.

7. WkB- Wethersfield loam, 3 to 8 percent slopes:

This gently sloping, well drained soil underlies the cornfield on this property.

Permeability is moderate in the surface layer and subsoil and slow or very slow in the substratum. The available water capacity is moderate. Runoff is medium. This soil tends to dry out and warm up rather slowly in the spring. It has a low shrink-swell potential. In areas that are not limed, this soil is strongly to very strongly acid in the surface layer.

This soil is well suited to cultivated crops. Good tilth is easy to maintain. Stones and boulders near the surface are an annoyance in using some tillage equipment. The hazard of erosion is moderate. Controlling runoff and erosion and maintaining good fertility and organic matter content are major concerns in managing this soil. Erosion control alternatives are discussed in the next section of this report.

This soil is well suited to trees. Productivity is moderately high. Trees to favor in existing woodlots are eastern white pine, sugar maple, northern red oak, and yellow-poplar. Trees to plant in open areas are eastern white pine.

This soil has good potential for the development of either openland or woodland wildlife habitat.

8. WkC- Wethersfield loam, 8 to 15 percent slopes:

This soil is the same as the preceeding soil, only the slopes are steeper.

9. WnC- Wethersfield extremely stony loam, 3 to 15 percent slopes:

From 3 to 25 percent of the surface of this soil type is covered with stones and boulders.

This soil has moderate permeability in the surface layer and subsoil and slow or very slow permeability in the substratum. The available water capacity is moderate. Runoff is medium to rapid. This soil tends to dry out and warm up slowly in the spring. It has a low shrink-swell potential. In areas that are not limed, this soil is strongly to very strongly acid in the surface layer and very strongly acid through medium acid in the substratum.

This soil is suited to trees. Productivity is moderately high. The stones and boulders hinder the use of some harvesting equipment and make machine planting generally not feasible. Trees to favor in existing woodlots are eastern white pine, sugar maple, northern red oak, and yellow-poplar. Trees to plant in open areas are eastern white pine.

10. WT- Wilbraham and Menlo extremely stony silt loams:

This undifferentiated group consists of nearly level to gently sloping, poorly drained and very poorly drained soils. Slopes range from 0 to 5 percent. About

3 to 25 percent of the surface is covered with stones and boulders. About 60 percent of the total acreage consists of Wilbraham extremely stony silt loam, about 30 percent is Menlo extremely stony silt loam and about 10 percent is other soils.

From late in fall until mid-spring, the Wilbraham soils have a water table at a depth of about 8 inches. The Menlo soils have a water table at the surface from fall through spring and after heavy rains. In many places, they are ponded for several weeks in winter. During the summer, the water table in these soils may drop to a depth of 5 feet or more. Permeability is moderate in the surface layer and subsoil and slow or very slow in the substratum. The available water capacity is high. Runoff is slow or very slow. The soils have a low shrink-swell potential. In areas that are not limed, the Wilbraham soils are very strongly acid in the surface layer and the Menlo soils are very strongly acid through medium acid in the surface layer.

This unit has fair suitability for woodland use. The Wilbraham soils have moderate productivity and the Menlo soils have low productivity. The soils are limited mainly by their wetness and stoniness. Seedling mortality is high, and windthrow is common. The root zone is shallow because the water table is high throughout much of the year. Woodland however, may be one of the best uses for these soils. Trees to favor in existing woodlots are eastern white pine, sugar maple, red maple, and northern red oak. Trees to plant on the Wilbraham soils are eastern white pine and white spruce.

Pond construction in this soil mapping unit is limited by the large stones.

B. Soil Erosion from Cropland

Crop production causes soil to be disturbed and left without vegetation periodically. Because of this disturbance cropland is subject to soil erosion. Concern was expressed at the ERT's field review with regard to the degree of soil erosion on the cornfield on this property. The ERT was asked to address this concern and discuss alternative management strategies.

The method used by the Soil Conservation Service to measure soil erosion is the Universal Soil-Loss equation. The Universal Soil-Loss equation is used to predict soil loss from sheet and rill erosion. The rate of sheet and rill erosion depends on several factors as follows: 1) rainfall energy and intensity, 2) soil erodibility, 3) slope gradient and length of slope, 4) surface conditions such as grass, woodland farm crops or no cover, and 5) conditions of the soil surface and management practice used. These factors may be assigned quantitative values to be used in estimating soil loss.

The equation used is: $A = RK(LS)CP$ where:

A = the computed soil loss expressed in tons per acre per year.

R = the rainfall and runoff factor. This is the number of rainfall erosion index units in a normal year's rain. The average annual erosive rainfall factor (R value) for Connecticut is 150.

K = the soil erodibility factor. This is the soil loss rate per erosion index unit for a specific soil.

L = the slope length factor. This is the ratio of soil loss from the field slope to a 72.6 foot slope, under identical conditions.

S = the slope steepness factor. This is the ratio of soil loss from the field slope gradient to that from a 9 percent slope under identical conditions.

C = the cover and management factor. This is the ratio of soil loss from an area with specified cover and management to that from an identical area in a tilled fallow condition.

P = the support practice factor is the ratio of soil loss with a certain conservation practice to that of straight row farming up and down slope.

A certain amount of soil loss is natural and acceptable on each soil type. This is called the permissable soil loss (T). The computed soil loss (A) can be compared to T to determine if the cropland has a potential erosion problem.

To facilitate using the Universal Soil-Loss equation the cropland on the property was divided into three sections, 1, 2 and 3. Each section was based on common slopes and slope lengths. These sections are shown in Figure 3. Table A, presented with Figure 3, shows the current soil erosion in tons per acre occurring on the average each year for each section.

The soil on the cropland is Wethersfield silt loam. This has a soil erosion index (R) of 0.24. Continuous corn is grown with no winter cover crop. This gives a cropping management factor (C) of 0.44. Sections 1 and 2 have no significant support practices in use so the factor of 1.0 is used for P. Section 3 is farmed across the slope which lowers P to 0.9.

A comparison of A to T in Table A shows that significant erosion is taking place on all three sections. Soil erosion can be decreased by the use of alternative agronomic practices which lower either the cropping factor (C) or the support practice factor (P). The soil erosion which would occur under alternative management systems is shown in Table B below.

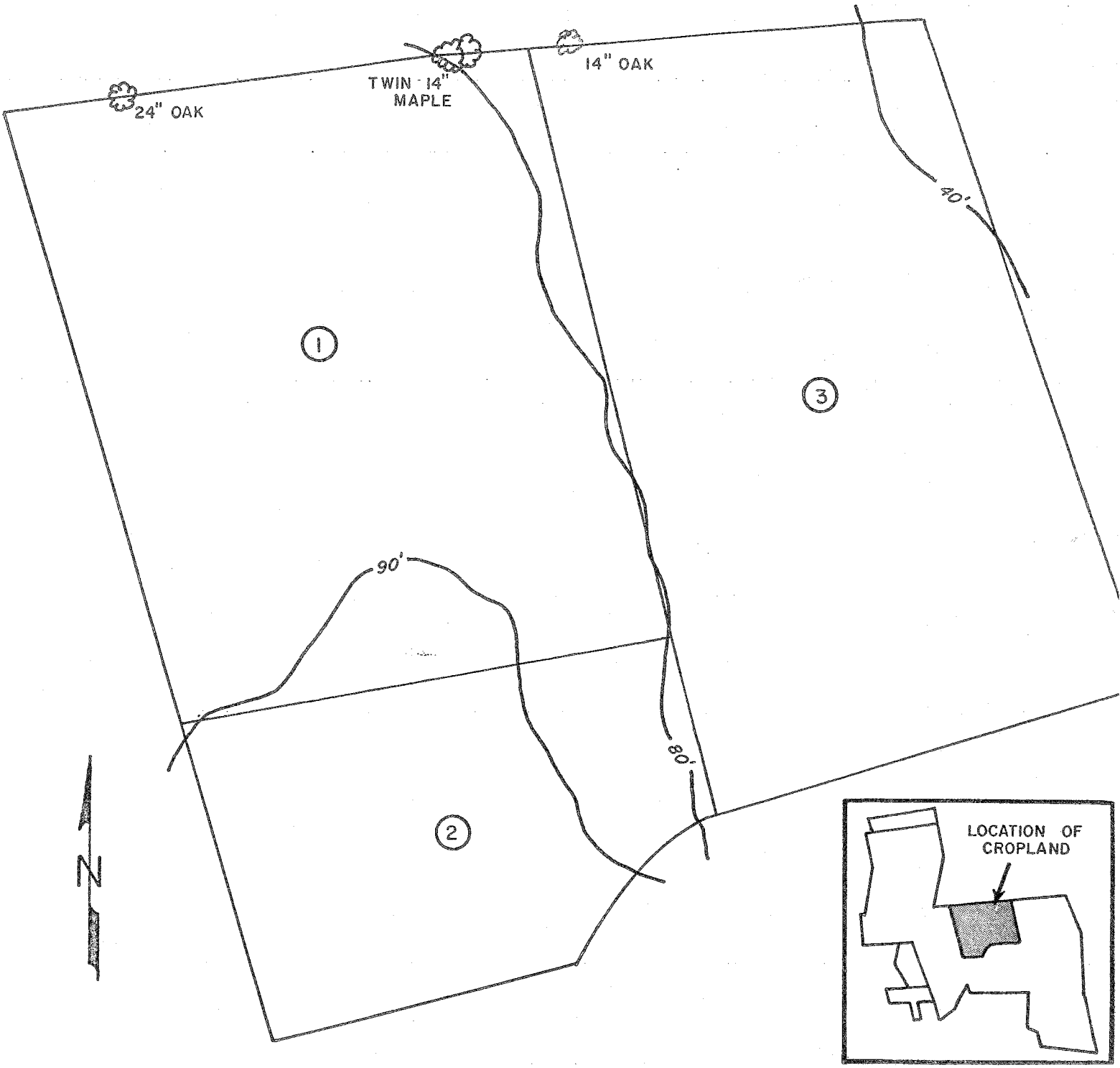
TABLE B SOIL EROSION FROM ALTERNATIVE CONSERVATION CROPPING SYSTEMS (Tons/Acre)

FIELD SECTION	No Change	Rye 1 Cover	Rc Rc HH[2] Rotation	Rc HH[3] Rotation	Hay[4]	No-Till[5] RC	Contour Strips[6] Rc Rc HH, Rotation
1	20	11	6	3	0.2	3	1
2	36	20	11	6	0.3	6	3
3	76	43	22	12	0.8	12	Not Applicable

1. Winter rye seeded into field in fall after corn is harvested to serve as winter cover.
2. A crop rotation of two years of corn with rye cover followed by two years of hay.
3. A crop rotation of one year corn with rye cover followed by two years of hay.
4. Grass or grass/legume mix grown continuously for hay.
5. Continuous corn grown with rye cover crop. No-till seeding methods used.
6. A crop rotation is used as in 2. Crops are grown in alternating strips 80 to 100 feet wide on the contour.

FIGURE 3.

CROPLAND SECTIONS



CURRENT SOIL EROSION FROM CROPLAND (see text for further discussion)

Field Section	Critical Slope (percent)	Slope Length (Feet)	Rainfall Factor (R)	Soil Erosion Index (K)	Cropping Factor (C)	Conservation Practice Factor (P)	Soil Erosion Tons/Ac (A)	Permissable Erosion Tons/Ac (T)
1	8	160	150	0.24	0.44	1.0	20	3
2	11	200	150	0.24	0.44	1.0	36	3
3	17	290	150	0.24	0.44	0.9	76	3

Table B shows the alternative agronomic practices which will reduce soil erosion to a permissable level. On section 1 there are four alternatives which could be used. The corn, hay, hay crop rotation, the no-till continuous corn, and the continuous hay are all acceptable. The corn, corn, hay, hay rotation would only be acceptable if grown in a contour strip cropping system.

On section 2 either the strip cropping system or continuous hay are acceptable.

On section 3 only continuous hay will bring soil erosion down to an acceptable level due to the steep slopes. The slope lengths are too great in this section for a contour strip cropping system to be effective.

The use of the contour strip cropping system on sections 1 and 2 and continuous hay on section 3 is probably the most practicable way to reduce soil loss to an acceptable level while producing as much corn as possible on this field.

There are structural water control measures which could also be installed on this site to decrease erosion on sections 1 and 2. These structures might allow the growth of continuous corn without significant soil loss. However, construction of these structures would require a large capital investment; therefore they are not seen as practical alternatives for this site.

Soil Conservation Service staff is available for technical assistance in installing any of the above mentioned conservation practices. For further information, contact the New Haven County Conservation District in Wallingford at 269-7509.

VI. VEGETATION

A. Vegetation Type Descriptions

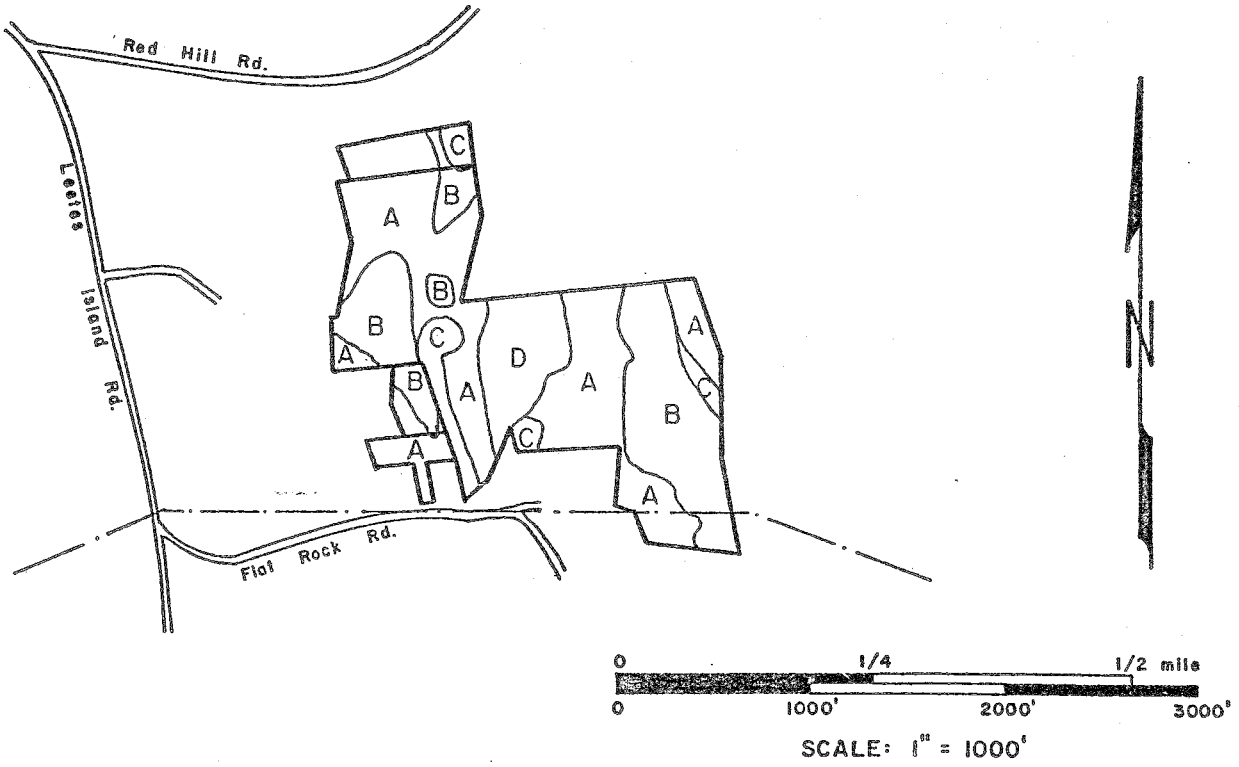
As shown in Figure 4, the Van Wie property contains a variety of vegetation types. The composition of these types is discussed below.

TYPE A - Mixed Hardwood Forest Type (27+ acres)

This forest is 60 - 80 years old and has gone beyond the Old Field Type to emerge as the Oak-Hickory climax forest of this climatic zone. In another 20 years this forest will reach its mature stage with the largest trees measuring from 18 to 24 inches d.b.h (diameter at breast height, i.e. 4½ feet above ground level). In the more moist and sheltered ravines found in this area some of the trees have already reached the sizes associated with maturity. Mixed in with the oaks and hickories are maples, birches, and beech with tulip poplar trees in the wetter areas. This forest type also has scattered patches of evergreen hemlock. The hemlock are particularly prevalent in the southeastern corner of this property. Many of the hemlocks were severely defoliated by the gypsy moth larvae during June, 1981 and this poses a threat to the survival of this tree species. Although the hardwoods were also defoliated, they can better survive this stress in their normal growth pattern. By the middle of July in 1981 most of the hardwoods had refoliated.

FIGURE 4.

VEGETATION TYPE MAP



VEGETATION TYPE DESCRIPTIONS

Type A — Mixed hardwoods, 27± acres.

Type B — Hardwood swamp, 19± acres.

Type C — Old field, 5± acres.

Type D — Open field/agricultural land, 7± acres.

LEGEND

Roads

Property boundary

Vegetation type boundary

TYPE B - Hardwood Swamp (19+ acres)

This forested wetland has a complete forest canopy. The chief species here is swamp maple (Acer rubrum) with tulip poplar and oak found on the higher drier areas. The rarer black gum (Nyssa sylvatica) is also found around the edges of this type. If the moisture relationship is maintained in the soil, this area will continue to be dominated by the species mentioned. If the water level in the soil drops, the oaks and hickories will gradually take over as the dominant forest type.

TYPE C - Old Field Type Reverting to Hardwood Forest (+ 5 acres)

Sapling and pole-size trees of a 20-40 year age class are found growing throughout this area. The forest canopy in this area is open with grassy patches and scatterings of red cedar (Juniperus virginians) individually or in clumps. Grey birch, sumac, and aspen are also present together with the more permanent oaks, hickories, tulip poplar and hemlock. This developing forest is headed for the oak-hickory climax forest of Area "B".

TYPE D - Open Field/Agricultural Land (7+ acres)

Most of this area is presently being used for the production of silage corn to be harvested by a local cattle farmer. With the almost complete disappearance of farming from the economy in Branford, any agricultural use of land such as this should be encouraged and maintained. With almost 70% of Connecticut forested, the once common sweep of vistas of field and forest are fast disappearing and giving way to solid high, green walls of forest. The old adage of "you can't see the forest because of the trees" is becoming more and more a reality, not only in Branford but throughout most of Connecticut.

* * *

The following is a listing of the lower level plants found in the area:

SHRUBS

Maple leaved Viburnam
Dentate Viburnam
Sweet Viburnam
Black Alder
Spice Bush
Red Alder
Button Bush
Water Willow
Witch Hazel
Barberry
Black Willow
Hackberry
Blueberry
Staghorn Sumac
Smooth Sumac
Poison Sumac

Buckthorn
Male Berry
Autumn Olive
Tartarian Honeysuckle
Spirea
Elderberry
Blackberry, several species
Black Raspberry
Red Raspberry
Sweet Pepperbush
Gray Dogwood
Silky Dogwood
Flowering Dogwood
Shad Bush
Mountain laurel

In addition several varieties of grapes are found, plus Virginia creeper, and oriental and native bittersweet. Also present are poison ivy, bull briar, greenbriar and honeysuckle.

FERNS

Common Polypody
Christmas Fern
Cinnamon Fern
Interrupted Fern
Regal Fern
Sensitive Fern
Bracken Fern
Beech Fern
Woods Fern
Lady Fern

In addition 2 or 3 club mosses are found here. An in depth study should reveal more species of ferns.

FLOWERING PLANTS

During a Connecticut Botanical Society Field trip made to the Stony Creek Quarry Area in August, 1973 the following listing of plants was observed in the wet areas (listing of common names only). Many of these same species are likely present in the wet areas of the Van Wie property.

Water purslane
Bugle-weed
Yellow loosestrife
Wild sensitive plant
Smooth aster
Mild water pepper
Water pepper
Agrimony
Water parsnip
Button bush
Climbing false buckwheat
Fireweed
Lance-leaved goldenrod
Arrow arum
Intermediate dogbane
Black ash
Silky dogwood
Couch or witch grass
Lemna minor
Spirodela polyrhiza
Wolffia columbiana

B. Forest Management

TYPE A - Until such time as this area reaches maturity (80-100 years) it is recommended that a cordwood thinning be accomplished over this section. All the final crop trees should be identified and any competing trees removed in an initial thinning operation. In selecting trees for removal, care should be taken to leave certain dead wildlife trees and den trees. Also, harvesting should be restricted in particularly scenic areas such as the northwestern portion of this property. All aspects of a forestry program on this area should be under the direction of a competent forester.

As the crop trees reach maturity, 20 years hence, a decision will have to be made as to whether or not to harvest these trees under the silvicultural system that assures reproduction of the species that now are dominant over the area. Most of the forests in Connecticut are the result of large scale clear-cutting in the past, essentially for lumber and firewood. As a result, our forests are generally even-aged and of sprout origin.

With the development of suburbia in Connecticut during the past 30 to 40 years, clear-cutting of large forested areas is generally not acceptable. Clear cutting in small patches (½ - 5 acres) is a more feasible alternative. This method assures proper reproduction of our valuable oak-hickory forest and the harvesting operation does not intrude too drastically on our landscape today as it did in the past.

If no harvesting is accomplished 20 to 40 years hence, the forest can be allowed to grow on to old age. At this time, mother-nature will step in and make the openings essential to reproduction of our native hardwoods, that is oak and hickory. To the average forester, this non-handling of forest resources is wasteful and anathema to good conservation practices.

The main objective of the suggested initial thinning program on this area would first be to improve the forest. The second objective would be to supply firewood for our current energy crunch.

TYPE B - The wetland along the eastern border of the property is an extension of a much larger wetland area to the south and east owned by the Town of Branford.

This larger wetland area eventually empties out into a salt marsh area on the north shore of Long Island Sound. This entire wetland corridor is a very rich plant area worthy of observation, study and preservation.

Prior to any activity in the Van Wie portion of this wetland corridor, an in-depth study should be made. From a forestry standpoint, this area can be managed along the lines mentioned for Type B to improve the forest stand and utilize any wasting resource. On the other hand, this may be one area the Branford Land Trust should consider preserving and not actively managing.

The other wetland areas on this property could also benefit from forest management. Here again, however, the Branford Land Trust may choose to preserve these areas rather than manage them for forest products.

TYPE C - This area, which has been gradually developing a forest cover from fields abandoned some 30 years ago, now has a mix of the temporary trees (grey birch, sumac, aspen, red cedar) co-mingled with the more permanent oaks, hickories, tulip poplar and hemlock. Of importance in the temporary tree list is our native red cedar which is found scattered over the area in small clumps or as individual trees. The cedars are being relentlessly crowded out by the more aggressive hardwoods. Our native red cedar is one of our most valuable wildlife species and is a source of post and pole material. Efforts should be made to preserve as much of the cedar as possible. This can be accomplished by eliminating the competing hardwoods in a release operation. If nothing is done to save the cedars, they will succumb to the hardwood pressures during the next 20 years. If cedar is released, they can live on for 100 to 150 years providing valuable food and shelter to wildlife, especially the bird population.

As this area heads on to maturity, the forest canopy will close and many lesser wildlife shrubs and forbs will be eliminated from the area. It is recommended that any openings found over the area be so maintained by keeping advancing tree growth out. Wildlife plants should be planted and those on the site should be encouraged to grow.

Weedings should be done in the sapling tree stage or smaller to eliminate undesirable species and to begin early thinnings of areas where reproduction has come up too thickly. Cordwood thinnings should be accomplished in areas containing larger tree growth, 4 inches and up in diameter. This material can be used for firewood.

TYPE D - This area should be maintained as a cultivated open field by continued leasing to any farmer interested in raising an annual crop on the land.

WOODLAND ROADS AND TRAILS If the forests of the Van Wie tract are to be managed, a forest road system should be developed and connected to the main town roads. These forest roads should be designed to double as recreational trails.

A regional forester from the DEP is available at 295-9523 to provide additional guidance on woodland road design and forest management.

It should be noted that the Van Wie tract is part of an expanding open space area that includes the 310 acres owned by the Town of Branford to the east. Lying further to the east beyond the Branford townline is an 80 acre piece that is presently being acquired by the Guilford Land Trust. Still further east in the Town of Guilford is the Westwoods Trail area. This is a continuing open space area owned by the Town, the Land Trust, the State of Connecticut and some 12 or more private land owners.

The Westwoods trails have been extended westward as far as the Van Wie land. It is the hope of the trail people that the trail might be extended westward as far as Light House Point in New Haven and eastward to Cornfield Point on the Connecticut River in the Town of Old Saybrook.

In developing this trail network, it is highly desirable that all uses of the tracts of land complement one another. All future planning should aim in this direction.

VII. WILDLIFE

The Van Wie preserve is dominated by woodland, but contains three wildlife habitat types. Two major wetland areas are present; one a 7 acre shrub swamp located along the westerly boundary and the other a 12 acre shrub/wooded/emergent wetland located along the easterly border. These wetlands are part of the same drainage system, and provide habitat to small game and non-game species, including songbirds, raccoon, etc. The wetlands lack a significant amount of open water which would make them beneficial to waterfowl. Between the wetlands is a band of forested land. Trees species present include red maple, black birch, American beech, red and white oak, hemlock, hickory, and sugar maple. Understory growth includes spicebush, maple leaf viburnam, flowering dogwood, witch hazel, mountain laurel, sweet pepperbush along wetland margins, and greenbriar in drier locations. Habitat is available to a variety of game and non-game species, such as the ruffed grouse, white-tailed deer, gray squirrel, seasonal songbirds, raccoon, skunk, and small mammals, such as mice. Habitat quality varies from fair to good. The third habitat type is openland habitat provided by a 5 acre cornfield devoted to the production of silage corn.

All areas are unmanaged, but game trails and droppings show the area to be used quite extensively by white-tailed deer. Escape cover and loafing cover is well developed where hemlock and laurel create thickets. Many species of plants used as browse by deer are present, but do not show evidence of over-browsing, or even moderate browsing. The vegetative resources are of good quality and are adequate to support existing usage. This property is part of a larger wooded area extending from the Connecticut Turnpike to the Sound. Generally speaking, it is undeveloped to housing or other urban uses and well suited for use by deer and other wildlife.

Gypsy moth damage to oaks on the preserve and off may reduce mast (acorn) production, limiting a valued fall food for deer.

Management opportunities exist on the preserve lands to improve quality and quantity of browse and forage grasses for deer and other wildlife species.

Diversity of habitat could be improved by establishing a mix of grasses and legumes on an area approximately ½ acre in size along the easterly edge of the cornfield (±100 feet deep). This would help tie the wetland corridor with the open and woodland areas. Development of this area should also include a cut-back border around the cornfield. This would remove all large trees 3" in diameter or greater for a depth of 30 feet from the field edge. Removal of these larger trees would stimulate shrub growth useful as browse, improve nesting and feeding sites for songbirds, improve corn growth by increasing sunlight penetration and benefit wildlife in general. The cornfield should have a winter cover of rye to protect soil resources and provide fall forage and spring forage for deer.

Other management could include plantings of hemlock to improve thicket cover, and release cuttings for high value plant species to improve their growth rates and fruiting conditions.

The northwesterly portion of the property has unusual rock formations which create a high visual impact. This area should not be cleared or changed to the point of lowering its aesthetic appeal. Management for wildlife in this area should be limited to releasing existing desirable plants by cutting away competing vegetation at least 10 feet beyond the diameter of the crown of plant being managed.

The three smaller parcels evaluated don't appear to contain significantly different or better quality habitat. Therefore, management plans should treat the entire area as a single unit.

The proposed use of the area as a preserve should help ensure that adequate land area remains in this portion of town where high quality habitat can be available for a variety of game and non-game species.

If future acquisitions are being considered, the land immediately north of the cornfield would be highly desirable. The owner has cut brushy growth in this area which will help create uneven aged vegetation. Saplings and young trees have tender shoot growth useful to many animals, including the white-tailed deer. This growth should be periodically cut to stimulate resprouting.

A detailed habitat management plan can be developed which could include seeding rates, dates of seeding, desired species, management techniques, and methods to employ. The New Haven County Soil and Water Conservation District should be contacted at 269-7509 for more details.

VIII. PLANNING CONSIDERATIONS

Surrounding Land Use

Land use surrounding the subject site is large lot residential, agricultural and undeveloped. The piece is bounded on the east by the 310 acre Stony Creek Quarry Preserve, a town-owned natural area. As previously discussed, the Van Wie tract has potential for a trail system that would link with existing trails at the Stony Creek Quarry Preserve. The use of the Van Wie area as a passive recreation site is compatible with surrounding land uses and secures additional protection to the Stony Creek Quarry Preserve.

Access

Pedestrian access to the parcel in question is via a pedestrian easement off Red Hill Road to the town-owned open space parcel which abuts the property on the north, via Flat Rock Road on the south,and via trails located on the Stony Creek Quarry Preserve to the east. Vehicular access to the site is limited. Parking for a few vehicles is afforded by the Granite Road cul de sac off Red Hill Road on the north, and a dirt road turnoff from Flat Rock Road on the south. There is also parking space available at the Quarry Preserve along Old Quarry Road. Parking facilities are generally deemed adequate at this time due to the

intended limited use of the site for passive recreation purposes. Vehicular access could be improved however by the creation of a small parking lot off Flat Rock Road (see discussion in Section IX of this report).

Estimated User Population and Demand

The Van Wie property can be viewed as an extension of the Stony Creek Quarry Preserve which connects to Westwoods Trails System and Guilford Land Trust parcels to the east. The Stony Creek Preserve receives moderate use on weekends with daily use noted; the Westwoods Trails System is heavily used, and presently showing signs of overuse. There are very few large tracts available for passive recreation in Branford; the Supply Ponds being the only other substantial natural area holding. The Supply Ponds receive heavy use and show signs of overuse. Considering the growing interest in jogging, hiking and nature appreciation, additional properties open to the public for passive recreation is desirable. In comparision to other municipalities in the region of similar population and land use, Branford's public undeveloped open space acreage is low. Branford does, however, have ample active recreation areas servicing the densely populated areas.

The Van Wie property represents an exceptionally fine addition to the public open space, both within the town and regionwide.

IX. RECREATION POTENTIAL

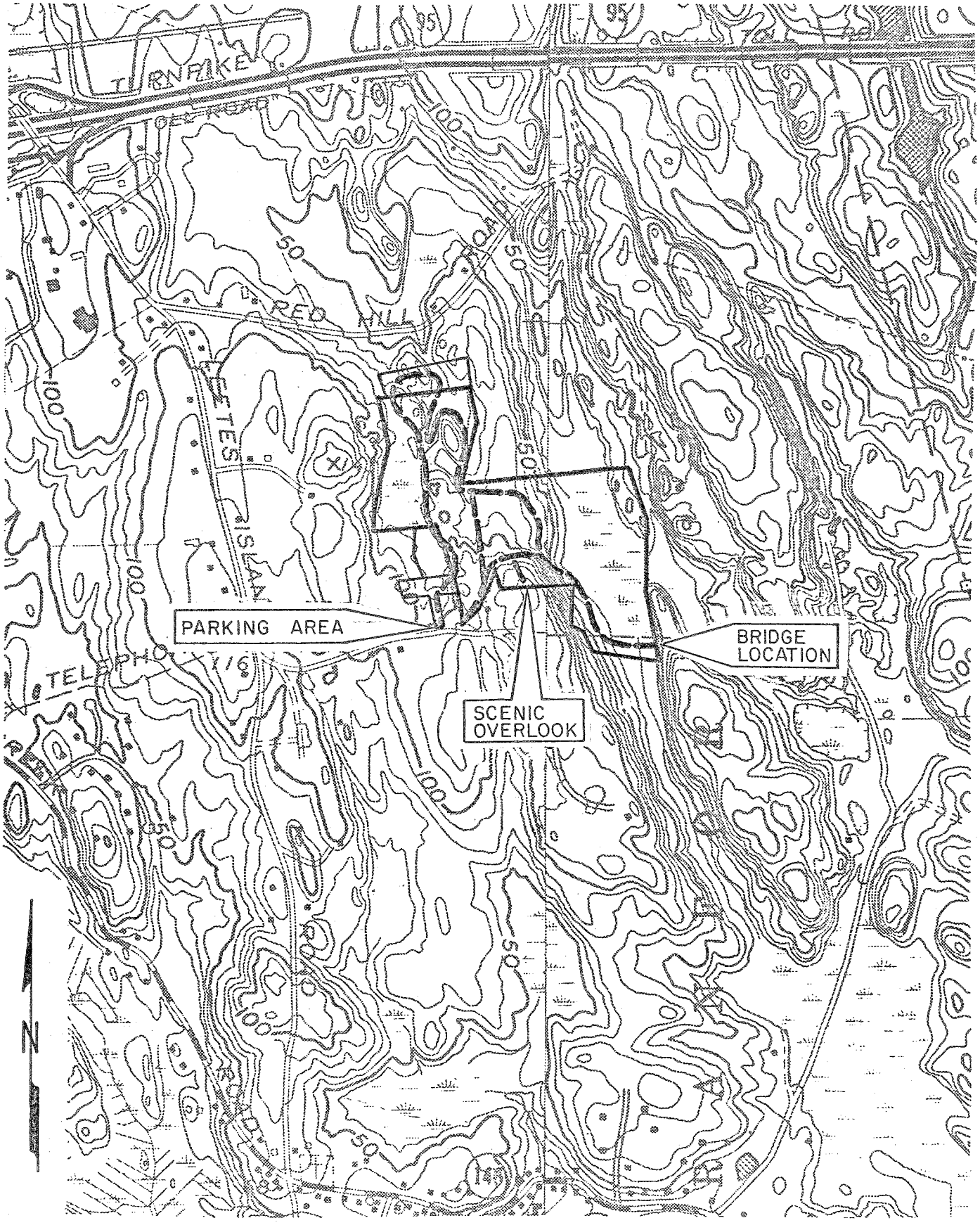
The principal access to this property is via Flat Rock Road, a small, narrow paved town road. If permission can be secured from the town to use the road corridor, or the town-owned parcel abutting Flat Rock Road for parking, it would eliminate the necessity of users of the tract virtually driving through and parking in the Van Wie's back yard. The area in which the ERT parked on the day of the site review was in close proximity to the Wan Wie residence. This area would probably require the least amount of site modification for establishment of a parking lot, but may affect the privacy of those nearby residents if night time activity begins to occur here. The land corridor for Flat Rock Road is reportedly 100' wide with the paved portion probably 16' or less in width. Unwanted activity may be curtailed by locating the parking in a more visible area along the road where police cruiser patrols would be more effective. Parking perpendicular to the road should provide adequate space for about 6 cars.

Foot trails are desired for the site according to representatives of the Branford Land Trust. The parking area would logically be the starting point for such a trail network which could be so routed as to offer access to the widest variety of land forms on the site (see Figure 5). The more difficult parts of the site to traverse may best be covered by loop trails which could be bypassed by the less agile. These loop trails could be posted as being more difficult to travel.

The swamp comprising the easterly boundary offers a barrier to cross over to the town-owned quarry property. Water depth on the day of the review precluded walkover to the quarry tract. Bridging this barrier would enhance the options for trail continuation onto and through the quarry tract with the potential for ultimate tie-in to the West Woods Trail in Guilford. If a bridge is employed it need only be high enough to not impede water flow and constructed so as to prevent damage by ice heave. To discourage motorcycle use of the trails and the bridge (if erected), a barrier would have to be installed on the bridge.

FIGURE 5.

CONCEPTUAL TRAIL ROUTE



A series of staggered upright posts on the bridge deck or a low cross rail near the bridge ends could be employed to this end. The barrier should be stoutly constructed to counter vandalism which will ensue if trail bike riders are determined to use this passage. If cross-country skiing is to be accommodated, the barrier design should be such that provision is made for this. Most of the Van Wie tract does not lend itself to cross-country skiing but it could become a component of a trail system if an adequately long network is provided by tie-in to the quarry site and other land to the east.

Trail uses seen for the Van Wie property are: hiking, jogging, bird watching/nature study, and snowshoeing. Cross-country skiing is not seen as a viable proposal if the Van Wie tract alone is considered for this activity; as indicated, a longer trail would be necessary.

The educational opportunities presented by a botanical preserve at the Van Wie property may well be exploited by the local schools. Student input through class projects or 4-H participation may be a possibility in laying out and maintaining a trail network. They may establish numbered stations and produce a self guiding map to which these stations could be cross referenced. Particular plants and their habitats, geological formations and how they came to be, and possibly other aspects of the natural sciences could thereby be shown. Student involvement can mutually benefit the land trust and the school system by reducing the work load on the land trust, and by their involvement, making the students feel a greater appreciation of the preserve by vested interest. Maintenance and periodic revisions could make such a trail an ongoing, year to year, school project.

The cornfield located near the middle of the tract could offer an opportunity for establishing an arboretum of native plants if cultivation for crops were to cease. With the dwindling supply of native farm land, continued use as a crop field is preferable but if discontinued, use as an arboretum may be an alternative for a portion of the field rather than its complete abandonment. The planting of native specimen plants, labelling or numbering them, and care of them may become another school project. Abandoned portions could further serve an educational role by monitoring of plant succession as the field reverts to woodland. Year by year, photographic documentation could capture the evolution from cornfield to woodland and serve to illustrate the growth variabilities on a particular site, by the various species comprising the plant community.

The highest point on the property could, through selective cutting of some trees on the hillside below, afford a rather nice vista of the swamp lying to the east. This would offer a good vantage point to bird watchers. Trail routing to this point should be incorporated in the layout, even if this becomes a dead end spur to the trail. The southerly portion of the hill is quite steep and may preclude the possibility of routing a loop trail back onto the main trail at the base of the hill.

As discussed in a previous section, forest management of the property may be undertaken to improve the woodland by removing the low vigor trees. A timber stand improvement program of selective cutting may also be monitored for its effectiveness and can provide a further opportunity for class study. It should be noted that logging operability of much of the tract appears poor because of the terrain (wetlands, boulders, and steep slopes). Wet and rocky

areas with shallow soils are normally not considered favored sites for extraction of merchantable timber because of poor growth and operability. Cordwood cuts for firewood however are feasible. Where cutting is undertaken and tote roads are established for log extraction, the roads should be laid out to form the core of a recreational trail network.

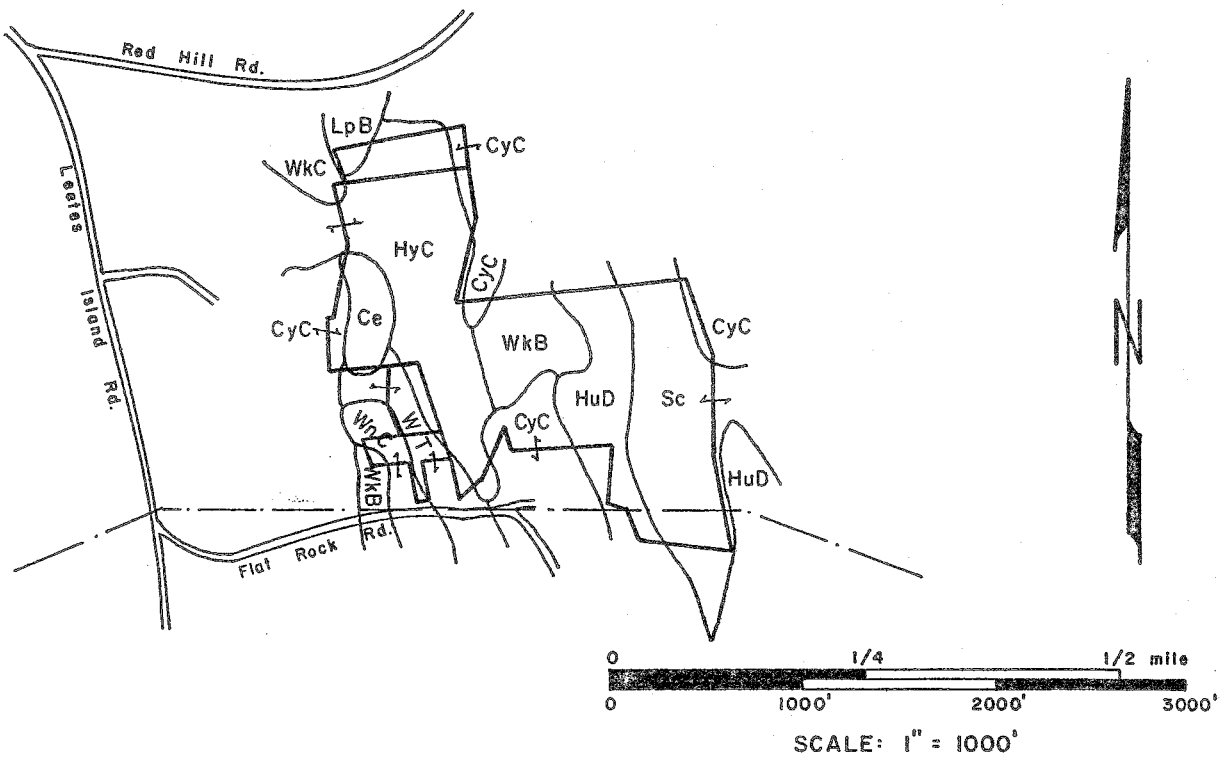
The passive, primarily trail related activities proposed for the Van Wie tract would be in keeping with the philosophy of land trust stewardship and should not impose an untoward burden on the resources of the Branford Land Trust to manage in the manner prescribed. The property is well suited to these passive recreation uses. School participation in management (via educational programs) may further reduce the finanacial and/or manpower commitment by the land trust and is an avenue that should probably be investigated.

* * * * *

X. APPENDIX

Soils Map
Soils Limitation Chart
Guidelines for Recreational Trail Development

SOILS MAP



SCALE: 1" = 1000'

* ADAPTED FROM NEW HAVEN COUNTY SOIL SURVEY, U.S.D.A. – S.C.S.

SOILS LIMITATION CHART - RECREATIONAL DEVELOPMENT

MAP SYMBOL	SOIL NAME	PATHS & TRAILS: RATING	PATHS & TRAILS: REASON	PICNIC AREAS: RATING	PICNIC AREAS: REASON	CAMP AREAS: RATING	CAMP AREAS: REASON
Ce	Carlisle Muck	Severe	Wetness	Severe	Wetness	Severe	Wetness
CyC	Cheshire-Holyoke complex, 3-15% slopes, Cheshire part	Slight	--	Moderate	Slope	Moderate	Slope
	Holyoke part	Slight	--	Moderate	Slope	Moderate	Slope
HuD	Holyoke-Cheshire complex, 15-35% slopes, Holyoke part	Severe	Slope	Severe	Slope	Severe	Slope
	Cheshire part	Moderate	Slope	Severe	Slope	Severe	Slope
HyC	Holyoke-rock outcrop, 3-15% slopes, Holyoke part	Slight	--	Moderate	Slope	Moderate	Slope
	Rock outcrop part	Moderate	Exposed rock	Moderate	Slope	Severe	Exposed rock
LpB	Ludlow silt loam 3-8% slopes	Slight	--	Slight	--	Moderate	Percs slowly
Sc	Saco silt loam	Severe	Wetness	Severe	Wetness	Severe	Floods, Wetness
WkB	Wethersfield loam 3-8% slopes	Slight	--	Slight	--	Moderate	Percs slowly
WkC	Wethersfield loam 8-15% slopes	Slight	--	Moderate	Slope	Moderate	Slope,Percs slowly

MAP SYMBOL	SOIL NAME	PATHS & TRAILS RATING	PATHS & TRAILS REASON	PICNIC AREAS RATING	PICNIC AREAS REASON	CAMP AREAS RATING	CAMP AREAS REASON
WnC	Wethersfield extremely stony loam 3-15% slopes	Severe	Large stones	Moderate	Slope, Large stones	Severe	Slope, Large stones
WT	Wilbraham & Menlo extremely stony silt loams	Severe	Wetness	Severe	Wetness	Severe	Wetness

EXPLANATION OF RATING SYSTEM:

SLIGHT LIMITATION: indicates that any property of the soil affecting use of the soil is relatively unimportant and can be overcome at little expense.

MODERATE LIMITATION: indicates that any property of the soil affecting use can be overcome at a somewhat higher expense.

SEVERE LIMITATION: indicates that the use of the soil is seriously limited by hazards or restrictions that require extensive and costly measures to overcome.

GUIDELINES FOR RECREATIONAL TRAIL DEVELOPMENT

The natural features of the Van Wie property such as rock outcrops, intermittent streams, inland wetlands and scenic vistas will greatly enhance the value of constructing recreation trails. However, these same features will impose limitations on trail placement and construction methods. Soil features which can adversely affect trail construction on this property are wetness, steep slopes and rock outcrops.

Trails should be planned for those areas where slopes are not excessive to decrease erosion hazards. Water bars can be placed periodically along sloping trails to divert runoff water away from trails to a stable soil area. An erosion and sediment control plan should be prepared and followed during trail construction to protect nearby streams and wetlands from sediment deposition.

The natural vegetation in the inland wetland areas can be easily damaged by foot traffic. Also, the Saco soil (see Soils Map) is subject to frequent flooding which may prevent trail use during brief periods. For these reasons trails should be kept out of wetlands whenever possible. Where trails must cross streams or wetlands, artificial walkways or raised embankments may be beneficial.

THE FOLLOWING GUIDELINES SHOULD BE FOLLOWED FOR TRAIL CONSTRUCTION:

1. A general plan showing the approximate line, grade and width of trails and erosion and sediment control measures should be prepared.

2. All trees, shrubs and fallen timber should be removed for a distance of 2 feet each side of the trail centerline. Stumps should be cut close to the ground. All protruding limbs should also be removed for a distance of 2 feet each side of the trail center line. Where other than foot traffic is planned, protruding limbs should be removed to a height of 10 feet. Limbs removed should be cut off as close to the trunk as possible.

3. All undesirable material such as soil high in organic matter, stumps and large stones should be removed from the tread area of the trail.

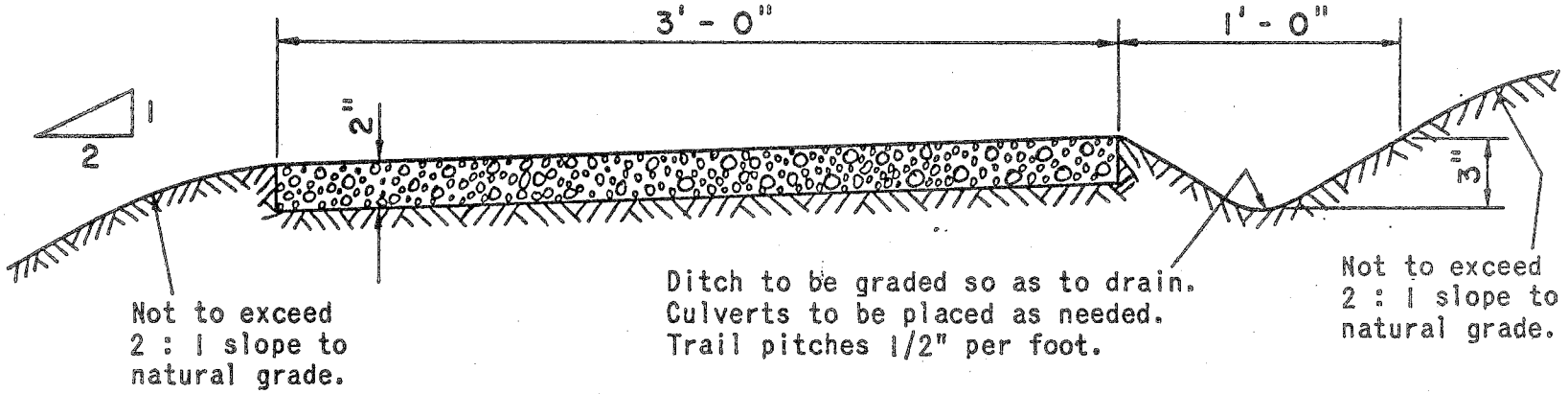
4. All grading should be to the lines shown on the plan. All culverts, bridges, turnouts, handrails, grade dips and erosion control measures should be installed as shown on the plan.

5. The trail surface should be finished to a uniform firm surface and free of loose material.

A typical trail section is shown on the following page.

NOTE: Unsuitable material should be excavated and the trail filled with aggregate not exceeding 1" in diameter. Depth of filled aggregate may vary from 0" to 6" according to the soil and its trafficability. In very wet areas artificial walkways or raised embankments may be needed.

Width of trail may be increased in accord with traffic load.



SCS-REC-110
3-71

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

TYPICAL TRAIL SECTION

FROM ORIGINAL DESIGN BY
NEVADA STATE PARK SYSTEM

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, foresters, climatologists, soil scientists, landscape architects, recreation 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 - a 47 town area in western Connecticut.

As a public service activity, the team is available to serve towns and developers within the King's Mark Area --- free of charge.

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 the review of a wide range of significant activities including subdivisions, sanitary landfills, commercial and industrical 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 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 an administration agency such as planning and zoning, conservation, or inland wetlands. Requests for reviews should be directed to the Chairman of your local Soil and Water Conservation District. This request letter 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 purposes of review, and a statement identifying the specific areas of concern the team should address. When this request is approved by the local Soil and Water Conservation District and the King's Mark RC&D Executive Committee, the team will undertake the review. At present, the ERT can undertake two reviews per month.

For additional information regarding the Environmental Review Team, please contact your local Soil Conservation District Office or Richard Lynn (868-7342), Environmental Review Team Coordinator, King's Mark RC&D Area, P.O. Box 30, Warren, Connecticut 06754.