ENVIRONMENTAL REVIEW TEAM REPORT

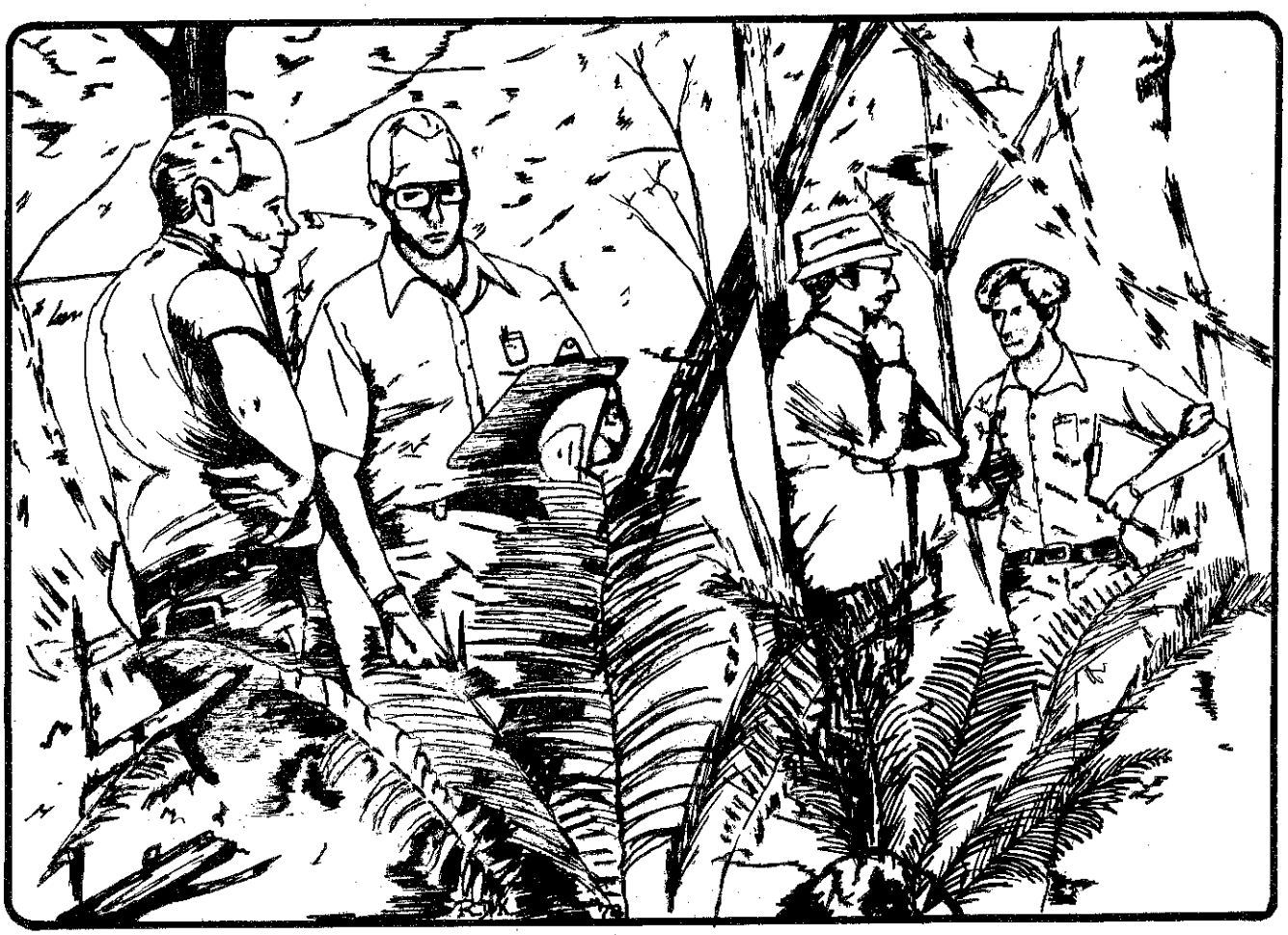
TIMBER TRAILS
SHERMAN, CONNECTICUT

KING'S MARK
RESOURCE CONSERVATION AND DEVELOPMENT AREA

KING'S MARK
ENVIRONMENTAL REVIEW TEAM REPORT

On

TIMBER TRAILS
SHERMAN, CONNECTICUT



NOVEMBER 1978

King's Mark Resource Conservation & Development Area

Environmental Review Team

P.O. Box 30

Warren, Connecticut 06754

ACKNOWLEDGMENTS

The King's Mark Environmental Review Team operates through the cooperative effort of a number of agencies and organizations including:

Federal Agencies

U.S.D.A. SOIL CONSERVATION SERVICE

State Agencies

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEPARTMENT OF HEALTH
DEPARTMENT OF TRANSPORTATION
UNIVERSITY OF CONNECTICUT COOPERATIVE EXTENSION SERVICE

Local Groups and Agencies

LITCHFIELD COUNTY SOIL AND WATER CONSERVATION DISTRICT
NEW HAVEN COUNTY SOIL AND WATER CONSERVATION DISTRICT
HARTFORD COUNTY SOIL AND WATER CONSERVATION DISTRICT
FAIRFIELD COUNTY SOIL AND WATER CONSERVATION DISTRICT
NORTHWESTERN CONNECTICUT REGIONAL PLANNING AGENCY
VALLEY REGIONAL PLANNING AGENCY
LITCHFIELD HILLS REGIONAL PLANNING AGENCY
CENTRAL NAUGATUCK VALLEY REGIONAL PLANNING AGENCY
HOUSATONIC VALLEY COUNCIL OF ELECTED OFFICIALS
AMERICAN INDIAN ARCHAEOLOGICAL INSTITUTE

x x x x x x

Funding Provided By

CONNECTICUT STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION
Stanley J. Pac, Commissioner

Policy Determined By

KING'S MARK RESOURCE CONSERVATION AND DEVELOPMENT AREA

Victor Allan, Chairman, Executive Committee
Stephen Driver, ERT Committee Chairman
Moses Taylor, Coordinator

Staff Administration Provided By

NORTHWESTERN CONNECTICUT REGIONAL PLANNING AGENCY

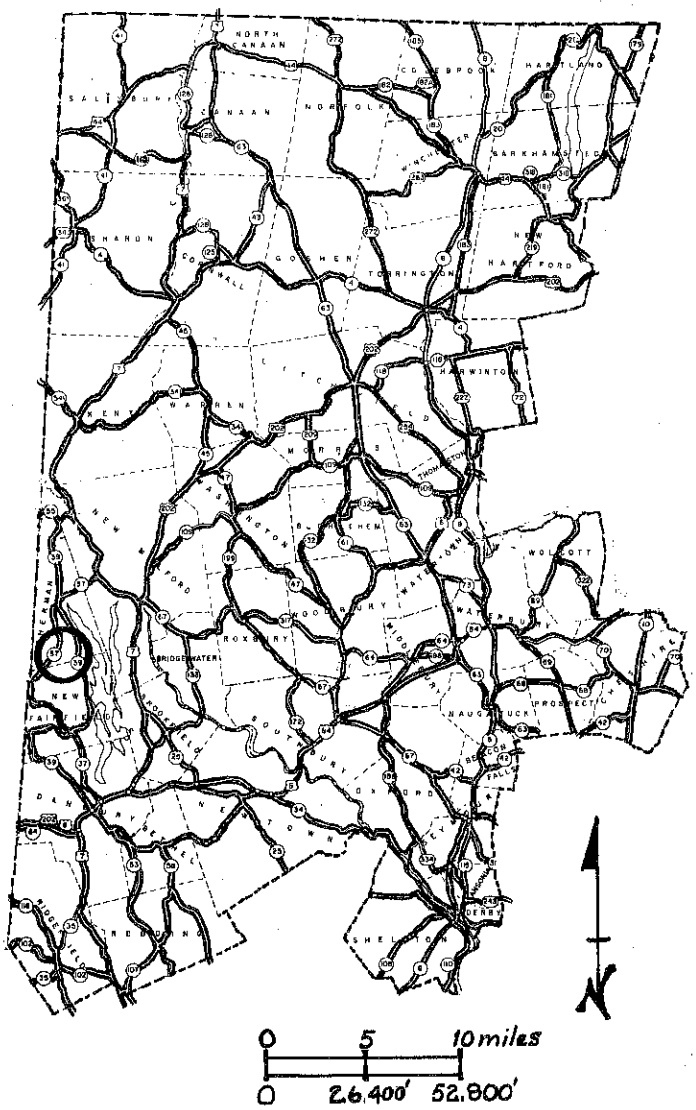
Bruce M. Ridgway, Chairman
Thomas A. J. McGowan, Director
Richard Lynn, ERT Coordinator
Robert Kaplan, ERT Draftsman
Patricia Dyer, ERT Secretary

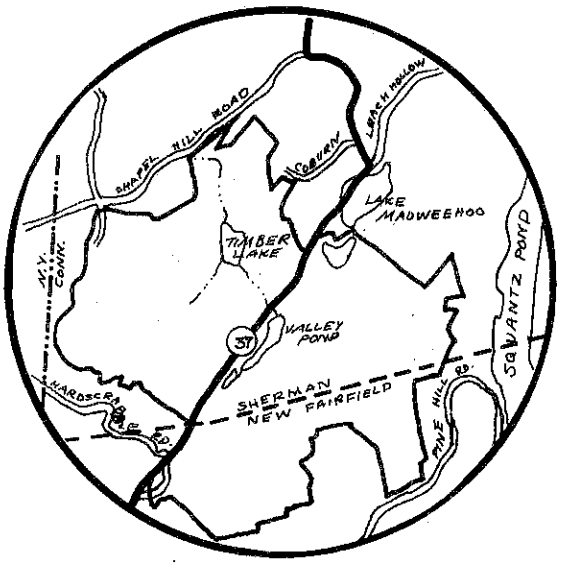
TABLE OF CONTENTS

LIST OF FIGURES

LOCATION OF STUDY SITE

TIMBER TRAILS
SHERMAN, CONNECTICUT





ENVIRONMENTAL REVIEW TEAM REPORT
ON
TIMBER TRAILS
SHERMAN, CONNECTICUT

I. INTRODUCTION

The Town of Sherman, Connecticut is presently reviewing two alternative proposals for residential development of a ± 960 acre parcel of land. The land, known as "Timber Trails", is located in the southwestern corner of town.

The first proposal calls for 580 single family units under the present one acre zoning (see Figure 1). The second proposal calls for 900 units in three clusters (see Figure 2). The developer is requesting a zone change to permit the cluster development which would leave more than 800 acres of the 960 acre tract in permanent open space. The proposed cluster plan would consist of one and two bedroom rental units serviced by a land spread sewer treatment plant and community water supply system. The conventional plan would utilize on-site septic systems and individual or community water supply systems.

The Planning and Zoning Commission from the Town of Sherman requested the assistance of the King's Mark Environmental Review Team (ERT) to help the Town in analyzing the two development proposals. The ERT was asked to identify the natural resources of the site and to highlight opportunities and limitations for development. Specific concern of the request include:

. Suitability of the property for development under present zoning regulations of one house site per acre.

. The proposed open space areas in the one-acre tract proposal regarding suitability for recreation and access for the proposed residents.

. The environmental impact of the clusters in the area as proposed by the developer.

. The advisability of the developer's proposed surface broadcast sewage disposal system considering the fact that Quaker Brook is rated class AA and is part of the Hudson River Basin.

The ERT met and field reviewed the site on Wednesday, July 26, 1978. Team members for this review consisted of the following:

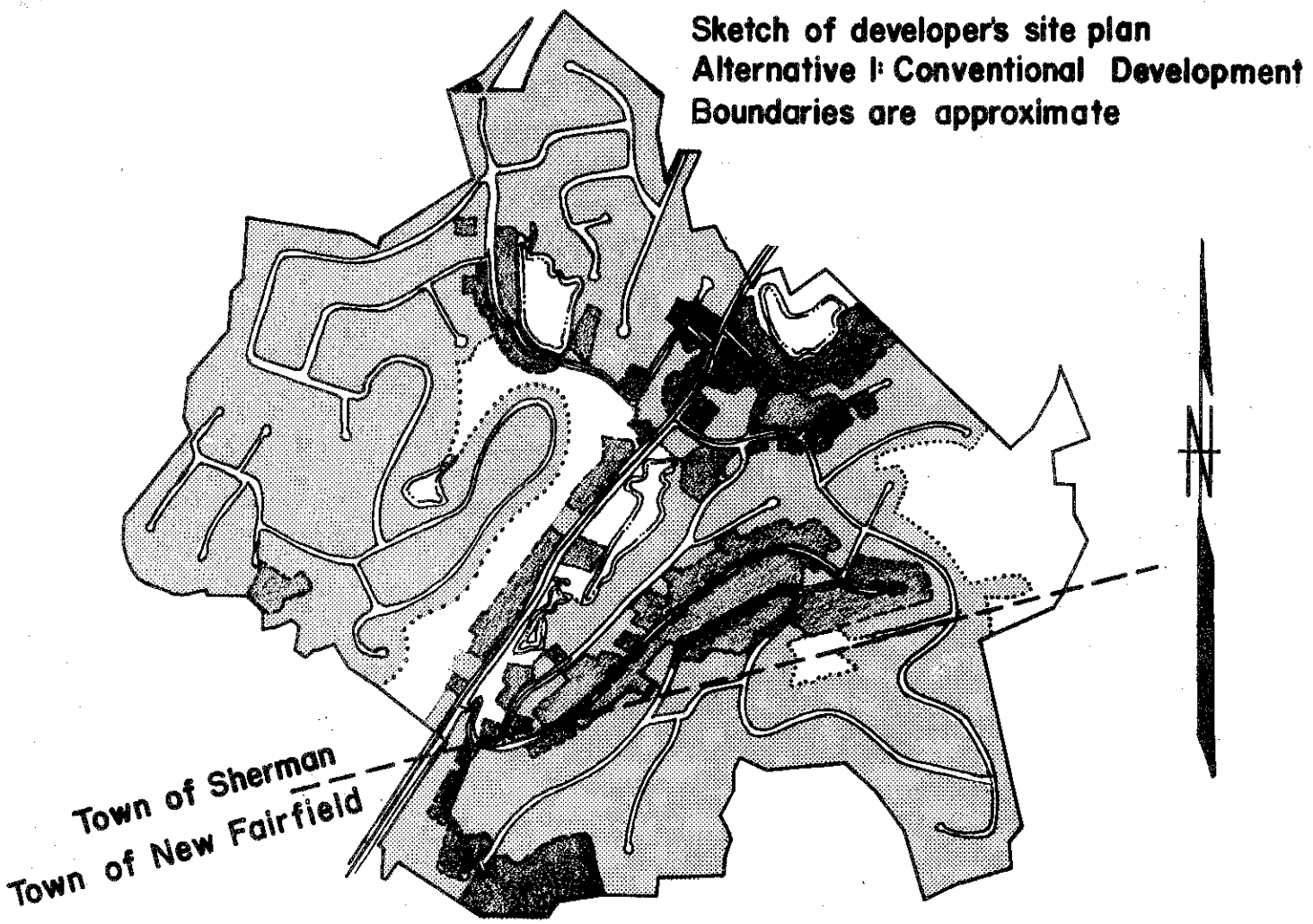
David Thompson.....District Conservationist..U.S.D.A. Soil Conservation Service

Dwight Southwick...Civil Engineer.....U.S.D.A. Soil Conservation Service

Martin Drobney.....Hydrologist.....U.S.D.A. Soil Conservation Service

FIGURE I

SIMPLIFIED SITE PLAN MAP



Existing Residential Development

Proposed Residential Development

Existing Roads

Proposed Roads

Open Space

Water Bodies

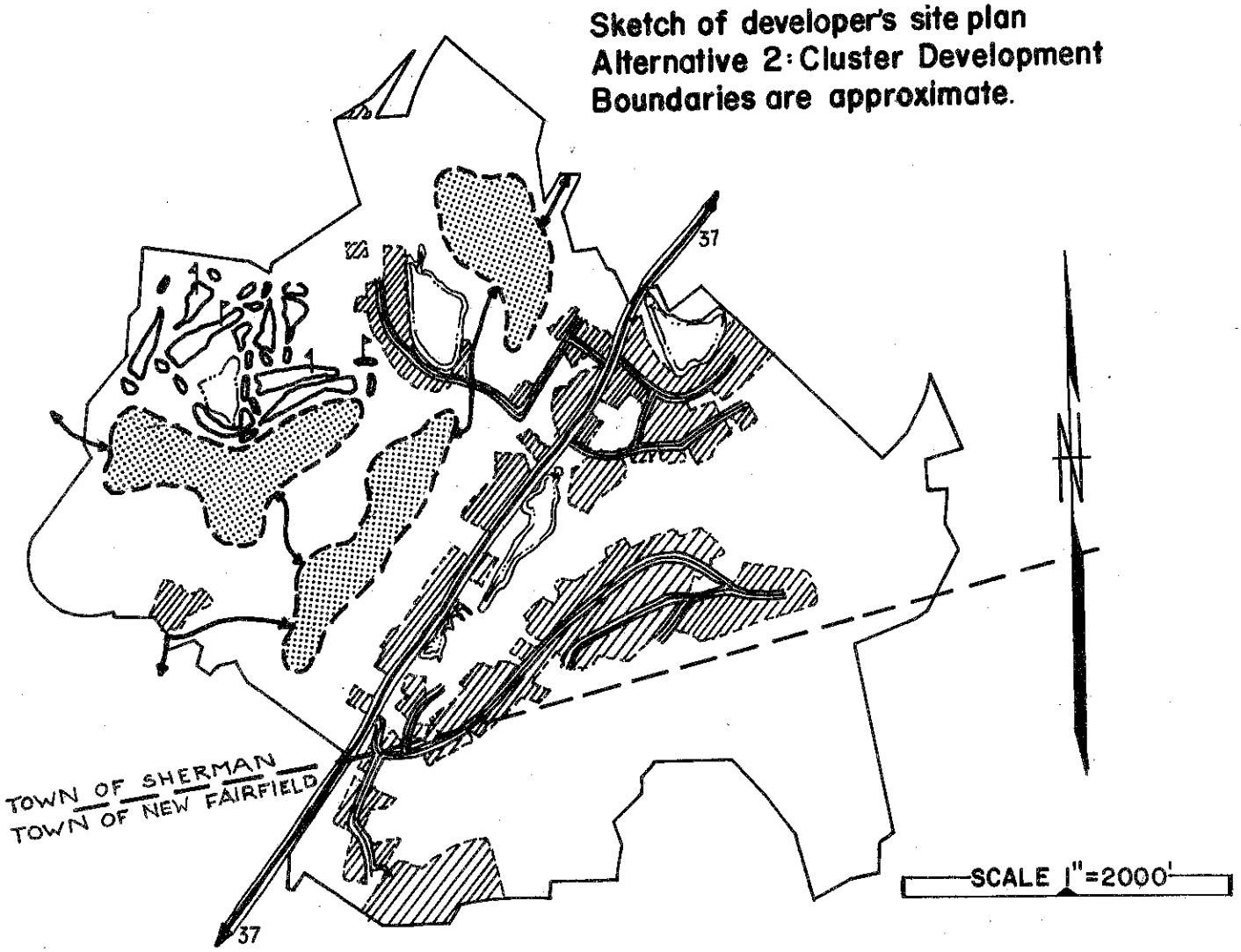
SCALE 1"= 2000'

0 1/4 1/2 1 mile

0 2000' 4000'

FIGURE 2

SIMPLIFIED SITE PLAN MAP



Mike Zizka.....Geohydrologist.....Dept. of Environmental Protection

Tim Hawley.....Forester.....Dept. of Environmental Protection

Jeff Schmaltz.....Wildlife Biologist...Dept. of Environmental Protection

Bob Orciari.....Fishery Biologist....Dept. of Environmental Protection

Robert Smith.....Sanitary Engineer....Dept. of Environmental Protection

Frank Magnotta....Sanitary Engineer....Connecticut Dept. of Health

Todd Cook.....Recreation Planner...State Office of Policy & Management

Russ Handsman.....Archaeologist.....American Indian Archeological Institute

John Chew.....Planner.....Housatonic Valley Council of Elected Officials

Prior to the review day, each team member was provided with a summary of the proposed project, a checklist of concerns to address, a soil survey map, a soil limitation chart, and a topographic map of the area. A limited number of the developer's detailed site plans were also provided to selected team members prior to the field review. 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 and recommendations. It is important to understand that the ERT is not in competition with private consultants and hence does not perform design work or provide detailed solutions to development problems. Nor does the Team recommend what ultimate action should be taken on a proposed project. The ERT concept provides for the presentation of natural resources information and preliminary development considerations - all conclusions and final decisions rest with the town and developer. It is hoped the information contained in this report will assist the Town of Sherman and the landowner/developer in making decisions regarding the future of the Timber Trails area.

If any additional information is required, please contact Richard Lynn (868-7342), Environmental Review Team Coordinator, King's Mark RC&D Area, P. O. Box 30, Warren, Connecticut.

* * * * * *

II. HIGHLIGHTS

SOILS

- *Rocky and shallow to bedrock soils are predominant in the upland areas and are the most common soils on the property. These soils present severe limitations for urban development.*

- *Both development proposals will require intensive erosion and sediment control planning for effective erosion control and sediment reduction. This planning should be integrated into the construction plans and specifications from the initial planning phase.*

GEOLOGY

- *The bedrock on the property is covered predominately by glacial till although there is some evidence that the surficial deposits in the immediate vicinity of Valley Pond consist largely of stratified drift. In most parts of the property, the till is estimated to be thinner than 10 feet, with bedrock outcrops visible in many places.*

HYDROLOGY

- *The Timber Trails subdivision may be expected to cause significant changes in surface run-off volumes resulting in potential for severe erosion and flooding problems in some parts of the development. Stringent run-off controls and engineering measures may be needed to overcome the hazards.*

- *Anticipated peak flow changes are not likely to cause significant increases in flooding along most stretches of the principal streams of the property. However, a noticeable increase in the flood prone area in the vicinity of Quaker Brook, between the suggested spray disposal area and Timber Lake, could result from the cluster proposal.*

FORESTRY

- *The Timber Trails tract is almost entirely forested, predominately by mixed hardwoods. There is considerable risk that some trees throughout the property will blow over because the stands are overcrowded and because many parts of the site have very thin soil and are on slopes exposed to wind. As development will aggravate the blowdown problem, it is recommended that a commercial thinning throughout the area proposed for development be undertaken to give remaining trees time to become stronger and better rooted.*

WILDLIFE

- *The Timber Trails parcel can be classified into four major types of wildlife habitat: hardwood forest, wetlands, water bodies, and open fields.*

. *Both proposals for development would have significant impacts on wildlife habitat and wildlife use of the area. Impacts would include direct loss of habitat, habitat change, and increased human presence. These impacts would be less severe with the cluster proposal.*

FISHERIES

. *The lakes and ponds at Timber Trails appear to be good quality "warm water" habitats supporting a number of desirable fish species. Quaker Brook is known to support native brook trout along portions of its length.*

. *Development of either the conventional or the cluster proposal would likely have a significant adverse impact on the fisheries of Timber Lake and the upper section of Quaker Brook above Timber Lake. Development under the conventional alternative would also likely have a significant negative effect on the fisheries of Valley Pond, Deer Pond, and Worden Brook; conversely, development under the cluster alternative would likely have little effect on the fisheries of these same waterbodies.*

CULTURAL RESOURCES

. *A cultural resource reconnaissance of the parcel revealed no obvious cultural resources which are going to be adversely impacted by the proposed development. It is probable, however, that the Timber Trails area does contain prehistoric and historic archaeological sites which could be adversely impacted by development plans. The legalities regarding the need for cultural resource assessment with implementation of the proposed project are not yet clear.*

WATER SUPPLY

. *It is likely most homes in the conventional subdivision would be able to use an on-site well. Water quality would probably be good providing there is no effluent contamination by septic systems.*

. *Community bedrock wells seem most feasible in the Route 37 area and, providing adequate yields are obtained, should function satisfactorily.*

. *Development and use of Timber Lake as a standby water source (indicated as a possibility by the developer at the ERT field review) would be a very expensive undertaking.*

WASTE DISPOSAL

. *Most of the land within the Timber Trails parcel presents severe limitations for septic systems. Detailed soil testing, including percolation tests and deep observation pits, on each proposed lot is necessary to*

confirm the suitability of proposed lots for septic systems. The use of mounded systems, proposed by the developer to create suitable septic sites, is not recommended in areas of steep slopes and shallow ledge according to State Department of Health design guidelines.

- *The surface broadcast sewage disposal system which has been proposed for the cluster development has not been widely tested for long time periods; hence ecosystem response to this type of input is not well understood. Based upon very limited preliminary information, the area proposed for forest spraying under the cluster proposal may prove suitable for this purpose. However, the quantity of effluent which could be adequately processed by the area is unknown. Before the Department of Environmental Protection (DEP) could act on a permit application for construction of such a sewage disposal system, much more detailed technical information would have to be provided by the developer. Administratively, if the Town of Sherman were to approve such a project, then the town must recognize its ultimate responsibility to insure that the system is properly operated and maintained and that it would be ultimately answerable to the DEP should problems arise.*

FOUNDATION DEVELOPMENT, STORMWATER MANAGEMENT, AND INTERIOR ROADS

- *The extensive grading and filling required under either development plan will probably result in severe erosion and downstream sedimentation unless stringent erosion and sediment control measures are implemented.*

- *The large amount of cutting and filling associated with construction of the proposed roads will make it extremely difficult to provide houses and dwellings at the proposed locations in the conventional plan.*

- *Due to the large cuts and fills of the conventional plan and the steep topography of the area, it is suggested that the entire storm drainage system as proposed be carefully reconsidered. Surface water collected along the proposed roads and discharged onto the steep slopes as proposed in the conventional plan would likely cause a serious erosion problem.*

- *It is vitally important that a conscientious and thorough erosion and sedimentation and run-off control plan be prepared in conjunction with any development plans for the property.*

RECREATION

- *The physical restraints of the majority of the Timber Trails land will make recreational development difficult. The only area generally suitable for active recreational development is the area around Valley Lake. Opportunities for passive recreational development would be severely limited under the conventional development proposal but would be excellent under the cluster development proposal.*

PLANNING CONSIDERATIONS

- *Current regional and state plans covering the Timber Trails area suggest densities lower than one dwelling unit per acre. Thus any reduction in density from the permitted one dwelling unit per acre would bring the proposed development in closer conformance with advisory state and regional land use policies.*

- *Future residents of the proposed Timber Trails development will likely be making longer than average trips in order to reach jobs and services.*

- *The Sherman School would clearly be unable to service the school age population resulting from the conventional development. Conversely, the school would be able to service the school age population generated by the cluster development although this alternative would largely occupy the remaining school enrollment capacity.*

- *Neither the conventional proposal nor the cluster proposal is likely to necessitate signalization along or major upgrading of Route 37.*

III. RESOURCE BASE

A. SETTING, TOPOGRAPHY, LAND USE

SETTING

Timber Trails is a large tract of land situated in the southwestern corner of Sherman astride the New Fairfield town line. Total acreage of the entire parcel (shown in Figure 3) is approximately 1447 acres. Of this 1447 acres, ± 1160 acres are in the Town of Sherman and ± 287 acres are in New Fairfield. Of the ± 1160 acres in Sherman, approximately 200 acres are already developed for residential use. It follows then, that about 960 acres of undeveloped land remain within the Timber Trails parcel inside the Town of Sherman's boundaries. It is this 960 acre parcel which is proposed for development.

The Timber Trails property is irregularly conformed, but is generally bounded on the north by Chapel Hill Road, and on the east by Lake Mauwehoo and Wanzer Mountain, southerly by Pootatuck State Forest and Hard Scrabble Road and westerly by the New York State boundary. Connecticut Route 37 nearly bisects the property (See Figure 3).

TOPOGRAPHY

The property is composed of three land forms -- two large, typical Western Connecticut highland areas and a narrow steep-sided valley. The highland areas are among the loftiest within both towns. Characteristically, they have a thin soil mantle, are forested in mixed hardwoods and have sloping and steeply sloping, complex terrain.

The land is primarily within the Hudson River Basin with the exception of a portion of the easterly and southerly extremities which contribute to the Upper Housatonic River Basin.

Quaker Brook, which originates in New York State, and Worden Brook with its source in the Pootatuck State Forest traverse the property. Quaker Brook is the major water source for three of the four ponds on the tract. The brook reenters New York via Haviland Hollow enroute to its confluence with the East Branch of the Croton River. Worden Brook flows easterly to Squantz Pond.

Four of the nine major waterbodies within Sherman are located on this property. All four waterbodies are man-made and include Timber Lake, Valley Pond, Deer Pond, and Pepper Pond.

LAND USE

There are large areas on the property, amounting to several hundred acres, which can be confirmed as having been used for agricultural production.

FIGURE 3

TOPOGRAPHIC MAP

The intensity of agricultural use is difficult to ascertain. Where stone walls were constructed, it must be assumed that some tillage occurred. Unquestionably, the land was abandoned by the 1930's since a resurgence of woody vegetation dominated most of the land in the early forties.

Today, with the exception of approximately one hundred and thirty five home sites and the recreational facilities at Valley Pond, the entire property is forested. Numerous trails have been developed throughout the forested portions of the property for hiking, ski-touring, and horse-back riding.

B. SOILS

A detailed soil survey map, soils limitation chart, and a series of soil limitation maps are presented in the Appendix of this report. The soil survey map illustrates the geographic location of all soils identified on the property. The soils limitation chart identifies limiting factors for various land uses on individual soil types. The soil limitation maps highlight in graphic form information presented in the soils limitation chart.

Twenty four soil types have been identified on the property. These soils are predominantly rocky and shallow to bedrock upland soils, and upland soils over glacial till.

Rocky and Shallow to Bedrock Soils are predominant in the upland areas and are the most common soils on the property. These soils typically have hard rock less than 20 inches below the soil surface and may contain barren rock outcrops. Although the rugged topography and rock ledges are picturesque and enhance adjoining areas, the rock outcrops and shallow to bedrock soils present severe limitations when developing this land for urban uses. Occasional pockets of deeper soils can accomodate individual home sites.

The central portion of the property, just south of Route 37 is characterized by upland soils over glacial till. The soils here are variable with respect to stoniness, slope, and water table and hence pose various opportunities and limitations for development. The soil map and soils limitation chart in the Appendix presents more specific information on the distribution and development potential of these soils.

SOIL LOSS AND SEDIMENTATION IMPACTS

Appraising the potential impacts of either development proposal must, of necessity, be as general as the proposals themselves. The only mention of erosion and sediment control appears on map no. 1 of the developer's conventional (one acre lots) development proposal which states: "Erosion Control Measures Shall Correspond to U.S.D.A. Soil Conservation Service Guidelines As Outlined In The 'U.S.D.A. Sediment Control Handbook.' Specific Measures Shall Be Determined At The Time Of Construction." This is, of course, totally inadequate. A detailed erosion and sediment control plan must be prepared in advance, and certain features of the plan must be installed prior to construction for effective erosion control and sediment reduction.

The prevention and control of adverse soil impacts is made possible by anticipating the categories of potential impacts (e.g. erosion, sedimentation, runoff, soil slippage) and then planning and implementing the necessary erosion and sediment control measures. Specific comments or recommendations regarding erosion and sediment control are difficult to make at this time however due to the lack of specificity in the developer's proposed plans. Detailed planning for erosion, sediment, and run-off control requires specific information on house locations, cuts and fills, wells, sanitary treatment facilities, etc. A few general comments may be made however.

It is critical in the development of any erosion and sediment control plan that the hydrologically stressed condition of the site be recognized. The mid and lower slopes in the area south and east of Valley Pond have numerous seasonal and permanent drainageways (gullies); the area surrounding Timber Lake has several well-defined drainage systems receiving contributions from a great number of seemingly insignificant drainageways. The delicate integrity of the site is preserved by the dispersion of runoff. Any mass modification of the site will alter, concentrate and augument runoff and shortcircuit this system.

The result of unplanned, uncontrolled construction activity will literally corrugate the upper slopes, gully the lower slopes and deliver tons of sediment to Quaker Brook and its attendant wetlands. It is also possible, in an uncontrolled situation, that mass movement or slippage of soil could occur.

The critical relationship encountered here involves the rapid runoff from the very shallow higher elevations and the capacity of the deeper lower slope soils to arrest it. Presently, a combination of topographic restraints, dispersement and vegetation have achieved an acceptable equilibrium. This will be disrupted by the introduction of additional impervious surfaces, by the melding of runoff flows, and the elimination of much of the existing vegetation.

The cluster proposal, as opposed to the conventional proposal, will preserve the equilibrium of more of the site, reduce clearing requirements by half, allow much better environmental control, utilize less restrictive slopes, concentrate the stress within a more manageable area, offer better protection of Quaker Brook, provide better buffering, eliminate post-construction repair costs to the town, and preserve the external aesthetic appearance of the Timber Trails area.

As mentioned above, both development proposals will require intensive erosion and sediment control planning. This planning should be integrated into the construction plans and specifications from the initial planning phase. The Fairfield County Conservation District is available for assistance in developing and reviewing erosion and sediment control plans.

C. GEOLOGY

The general bedrock geology of the Timber Trails property is described in the "Preliminary Geological Map of Connecticut, 1956", a publication of the Connecticut Geological and Natural History Survey. Detailed bedrock geologic maps of the New Milford and Pawling quadrangles, in which the property is located, have not yet been prepared. Route 37, which divides

the property, is an approximate boundary between two major rock types. On the east side, the bedrock consists principally of quartzite and gneiss, which are intruded in places by granite and pegmatite. Characteristic minerals are quartz, plagioclase, and biotite. Minor amounts of garnet, muscovite, oligoclase, and sillimanite are also present. On the west side, the bedrock consists largely of gray to pink granites and gneisses. These rocks are composed primarily of microcline, quartz, and biotite, with locally abundant plagioclase and hornblende, and minor amounts of zircon, apatite, sphene, epidote, and allanite. Microcline, a pink mineral, tends to occur in conspicuous columnar aggregates.

The bedrock on the property is covered by a generally thin, discontinuous blanket of unconsolidated materials, mostly of glacial origin. Most of these materials are rock particles, of widely varying sizes and shapes, that were plucked or abraded from a preexisting landscape by glacier ice. In most places, the materials were redeposited directly from the ice and are collectively known as till. In some areas, however, the particles were reworked and sorted by meltwater and redeposited in layers; the product, called stratified drift, is usually composed of sand and gravel. Although no subsurface information was readily available to the Team, there is some evidence that the surficial deposits in the immediate vicinity of Valley Pond consist largely of stratified drift. Elsewhere, till deposits predominate, although small lenses of well-sorted sand and gravel may be scattered about. In most parts of the property, the till is estimated to be thinner than 10 feet (see figure 4), with bedrock outcrops visible in many places.

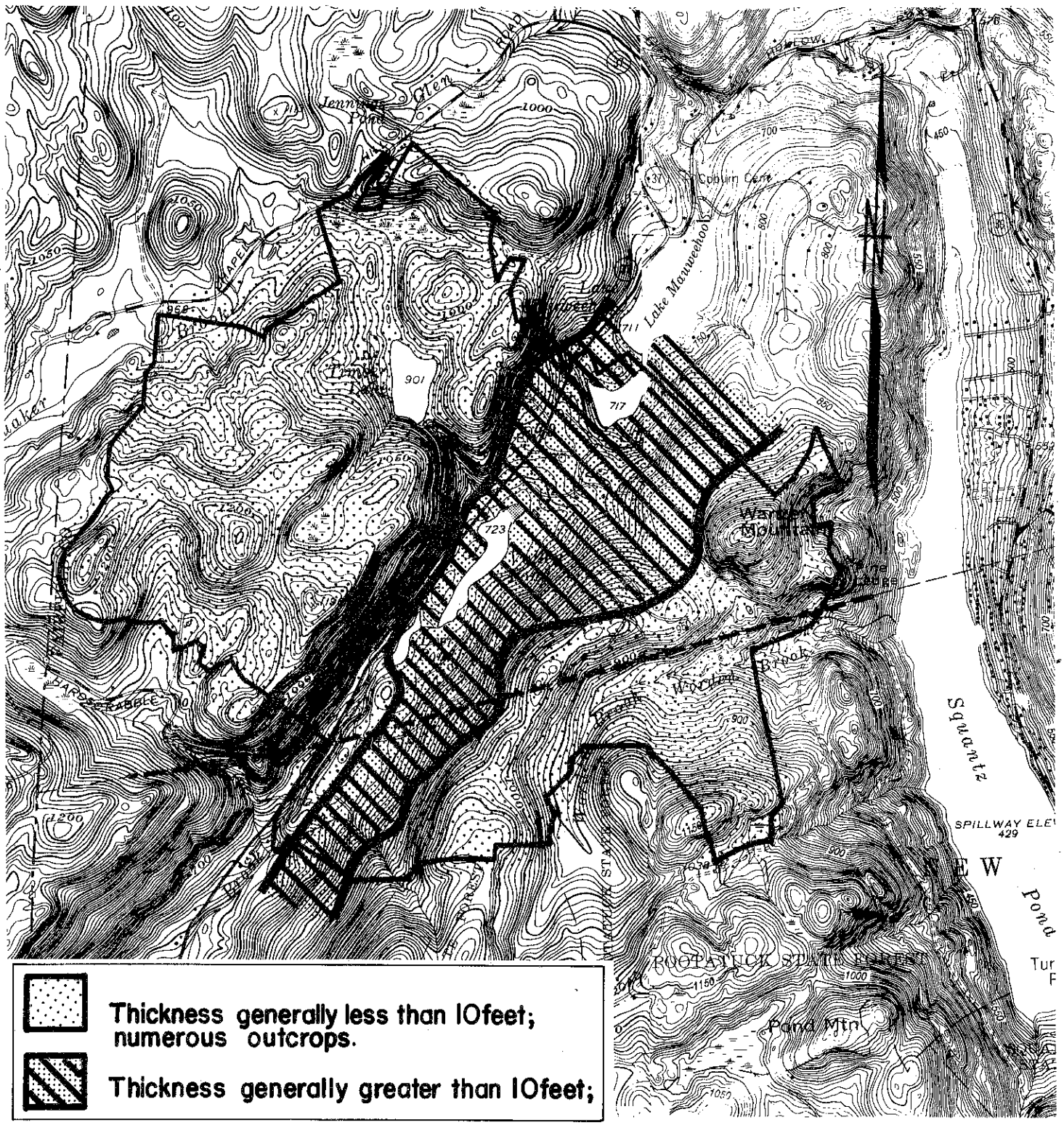
D. HYDROLOGY

The Timber Trails subdivision may be expected to cause significant changes in surface runoff volumes. The changes may be addressed from two standpoints: the effects on the property itself and the effects on the principal streams within and around the property. Runoff changes on specific developed areas are more difficult to generalize because of the different environmental conditions existing from place to place. However, these local changes are of critical importance because, in combination, they will affect a substantial land area.

One method for assessing potential runoff changes from any piece of land that has been proposed for development is found in Technical Release No. 55 of the Soil Conservation Service (hereafter called TR-55). This method considers soil types, vegetal cover, land use, slopes, and other factors. To calculate runoff changes, the method requires the estimation of curve numbers, which relate amounts of precipitation to amounts of runoff. An acre of land that may be considered typical of the Timber Trails property may have a curve number of 76. Following development, the same acre would have a curve number of approximately 83. The increase in runoff for the acre can be considered for 6-hour duration storms of various frequencies of occurrence. Results are shown in table 1. As shown there, the volume of runoff for the "typical" acre would increase 78 percent for a 6-hour storm with a 1-year recurrence interval and 25 percent for a

FIGURE 4

GEOLOGIC OVERBURDEN MAP



Scale 1"= 2000'

0 1/4 1/2 1mile

0 2000' 4000'

6-hour storm with a 100-year recurrence interval. It is especially significant that the percentage of increased runoff for the more common storms is high, because it suggests the potential for severe erosion and flooding problems in some parts of the development. This potential is further increased by the substantial amount of grading and filling that will be required on many lots to overcome problems associated with steep slopes and shallow-to-bedrock conditions. In areas of the property where lot density is high, stringent controls and engineering measures may be needed to overcome the hazards. If the cluster design were to be employed, hazards would be confined to a much smaller area, but the increased intensity of the development would require even stricter controls.

Table 1 Runoff increases expected for a typical acre of land in the Timber Trails subdivision.

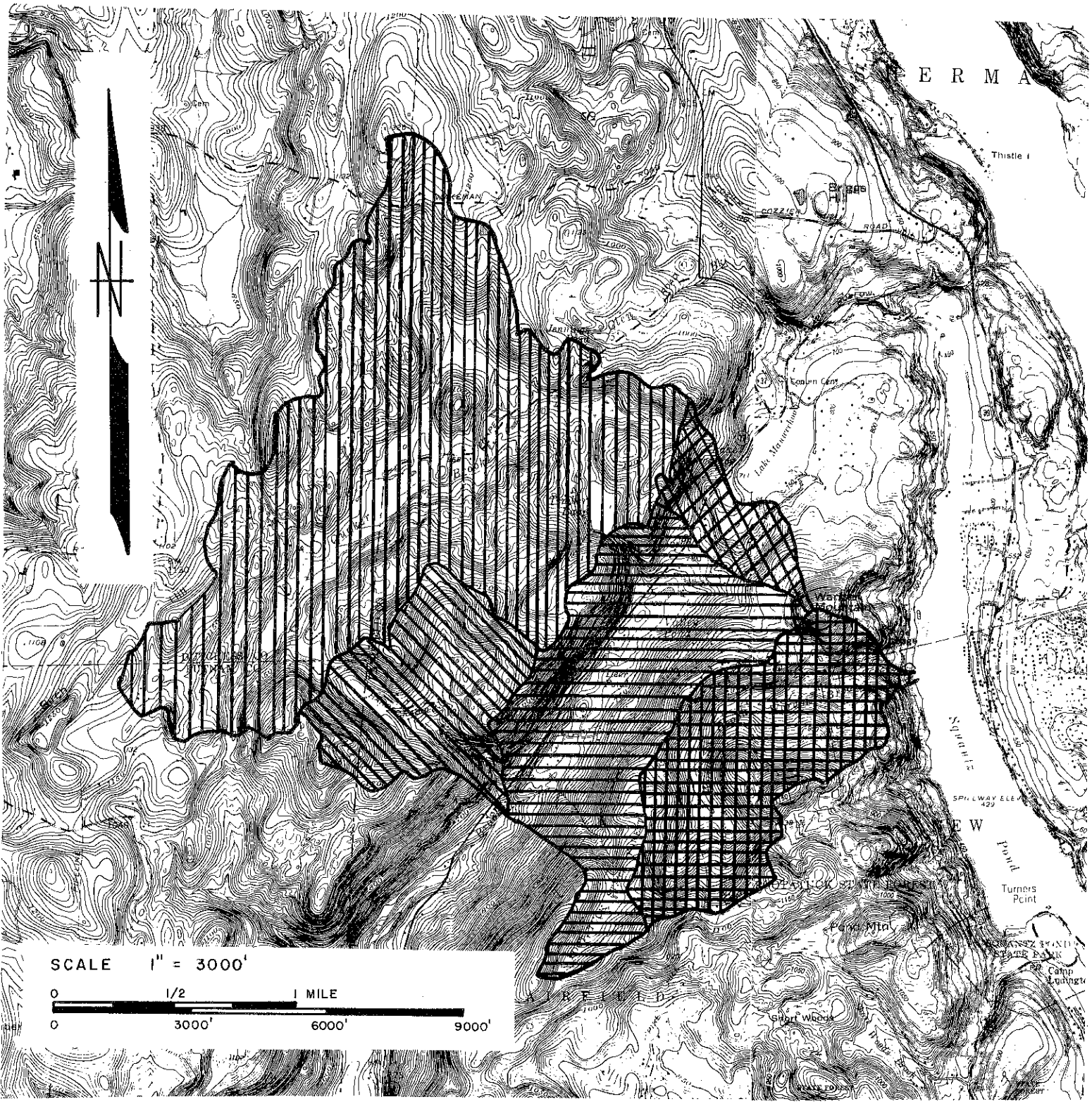
Storm recurrence interval	Precipitation (inches)	Surface runoff (inches) Present	After development	Percent increase
100 years	5.1	2.62	3.27	25
50 years	4.3	1.98	2.55	29
10 years	3.5	1.38	1.87	36
5 years	3.1	1.09	1.54	41
2 years	2.4	0.64	0.99	55
1 year	1.8	0.32	0.57	78

The effects of increased runoff on the principal streams in and around the property may now be analyzed. Most of the western and central parts of the property lie within the watershed of Quaker Brook. The remainder of the property drains into Squantz Pond. Watershed areas are shown in figure 5. For convenience, the large drainage areas have been broken down into smaller units in order to provide a perspective of the various parts of the system. Each watershed area is based upon a certain point of outflow and shows all the land from which runoff ultimately reaches that point. A small portion of Wanzer Mountain, in the southeast corner of the property, is omitted from the watershed diagram because no development has been proposed for that area under either of the alternative plans.

Drainage Area No. 1 includes all of the watershed of Quaker Brook to the point of outflow of Timber Lake. Hence, this area includes all of the natural sources of nutrient input into the lake. Drainage Area No. 2 includes all those locations that contribute runoff to Quaker Brook via the unnamed stream along Hardscrabble Road. Drainage Area No. 3 includes all areas of input to Quaker Brook between the points of outflow of the first two areas. Drainage Area No. 4 includes all locations that contribute runoff to Pepper Pond. Drainage Area No. 5 is the watershed of Worden Brook. Table 2 lists

FIGURE 5

WATERSHED AREAS (see text for brief description)



EXPLANATION

- Drainage Area No.1
- Drainage Area No.2
- Drainage Area No.3
- Drainage Area No.4
- Drainage Area No.5
- Watershed boundaries

the five watershed areas, the approximate number of one-acre lots that would be included under the conventional subdivision plan, and the approximate number of acres in each that would be developed under the cluster plan.

Table 2 Extent of proposed development in five watershed areas. See text for a description of the individual areas.

Drainage Area No.	1	2	3	4	5
Approx. number of lots, conventional subdivision plan	292	82	174	25	98
Approx. number of acres to be developed under the cluster plan	103	21	15	3	0
Total number of acres in the drainage area	1699	358	689	147	514

Because the percentage of land that would be developed under the conventional subdivision plan is roughly equivalent for each drainage area, an analysis of estimated peak flow changes was made for only the Hardscrabble Road brook watershed (Drainage Area No. 2). TR-55 techniques were used in this analysis. Several factors which ordinarily would be incorporated into the calculations were not included here because not enough information was available. Nevertheless, the results of the study should prove useful as "ballpark" guides to anticipated peak flow increases. Table 3 lists the results.

Table 3 Peak flow analysis for the Hardscrabble Road brook watershed (Drainage Area No. 2). Future peak flows are estimated for the conventional subdivision plan.

Storm recurrence interval	100 yr.	50 yr.	10 yr.	5 yr.	2 yr.	1 yr.
Present estimated peak flows (cubic feet per second)	980	842	541	417	259	188
Future estimated peak flows (cubic feet per second)	1043	898	696	547	368	281
Percent change	6.4	6.6	28.6	31.1	42.1	49.5

No detailed information concerning the cluster proposal was available to the Team; it is therefore difficult to assess peak flow changes in the principal streams as a result of that alternative. It is likely that the increases would be somewhat smaller than those that would result from the conventional subdivision. However, in the Timber Lake watershed (Drainage Area No. 1) a significant amount of excess runoff could be generated by the spray-irrigation sewage disposal system, particularly during periods of heavy rainfall, when the soil would tend to be saturated. It is estimated that the volume of effluent to be sprayed in this manner would be approximately 150,000 gallons per day. According to U.S. Weather Service charts, as presented in TR-55, rainfall in the Timber Trails area during a 50-year, 24-hour storm event is 6.5 inches, and rainfall during a 100-year, 24-hour storm is 7.1 inches. If it is assumed that rainfall is evenly distributed throughout the watershed, and that at least 90 percent of the effluent generated would run off during heavy rains, wastewater would then account for an increase in watershed input of 76.5 percent during the 50-year storm and 70 percent during the 100-year storm.

Most of the peak flow changes described above do not seem likely to cause significant increases in flooding along the principal streams, although, as mentioned above, localized flooding and erosion may be severe. It appears, however, that a noticeable increase in the floodprone area in the vicinity of Quaker Brook, between the suggested spray-disposal area and Timber Lake, could result from the cluster proposal. Moreover, the high percentage of effluent in the runoff could easily damage the water quality of Quaker Brook, at least as far as Timber Lake. During periods of heavy rainfall, when most effluent would run off, the effect on the brook would be analogous to that of having a package treatment plant on the brook. It is likely that many nutrients from the wastewater would be carried to, and remain in, the lake. The tremendous amount of cutting, filling, and grading that will be necessary to prepare the land for either development alternative may add a substantial volume of sediment to the lake unless strict preventive measures are followed. The combination of increased nutrient and sediment loads in Timber Lake would tend to speed up the process of eutrophication (biological aging and deterioration of the lake). The conventional subdivision plan does not present as high a risk of nutrient enrichment of Quaker Brook and Timber Lake, assuming all septic systems would function properly, but it does offer an increased potential for erosion and concurrent sedimentation. Furthermore, the geologic environment of Timber Trails is generally so hostile to septic systems that the chance for failures or other problems is great.

E. FORESTRY

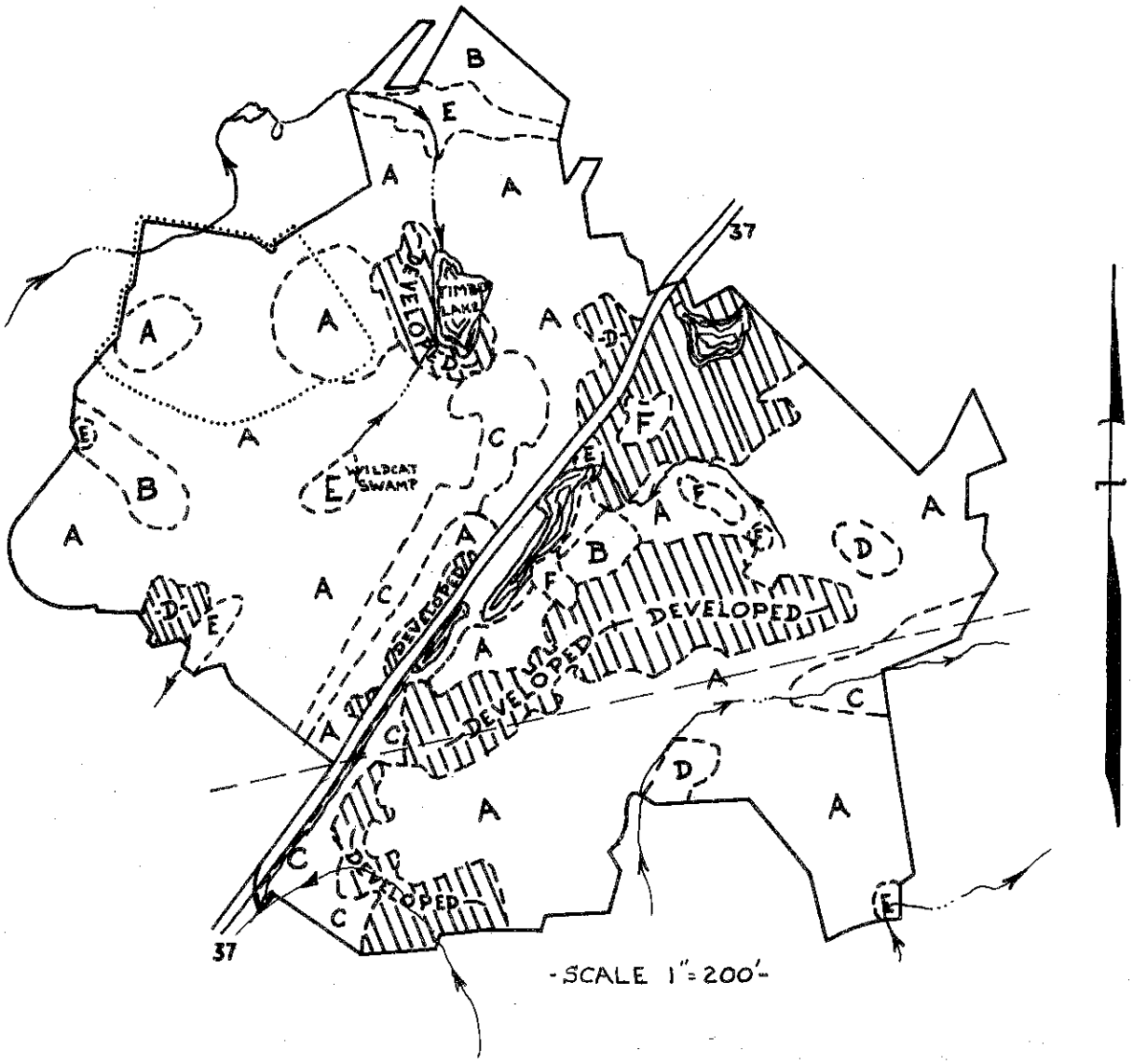
The Timber Trails tract is almost entirely forested. There are several ponds and wetlands, but most of the land is well-drained upland. Present forest stands are shown on Figure 6.

VEGETATION TYPES SUMMARY (Refer to Figure 6):

TYPE A - Mixed hardwoods (oak, hickory, maple, tulip, ash), pole to sawlog-size, 873 acres. This forest type covers a broad range of sites from

FIGURE 6

VEGETATION MAP



LEGEND

- ROAD
- SITE BOUNDARY
- TOWN LINE
- VEGETATION TYPE BOUNDARY
- EXISTING DEVELOPMENT
- STREAM
- PROPOSED SEWAGE EFFLUENT DISPOSAL SITE

VEGETATION TYPES*

A	MIXED HARDWOODS, POLE TO SAWLOG SIZE
B	MIXED HARDWOODS, POLE SIZE
C	HEMLOCK-HARDWOODS, SAWLOG SIZE
D	MIXED HARDWOODS, POLE SIZE
E	RED MAPLE SWAMP, POLE SIZE
F	OLD FIELDS

* POLE SIZE TREES = 6 TO 11 INCHES IN DIAMETER AT BREAST HEIGHT
SAWLOG SIZE TREES = 11 INCHES OR GREATER IN DIAMETER AT BREAST HEIGHT

droughty ridges supporting stunted chestnut oak to poorly drained depressions containing pole-size red maple and yellow birches. Where moisture is available and drainage is good, medium-quality sawlog-size red oak is the principle species with maple, tulip, and ash occuring in varying proportions.

Understory vegetation also reflects soil moisture conditions. The ridges (convex terrain) have low-bush blueberry, bracken fern, and hairy-cap moss. The mid-slope zone contains tree seedlings, witchhazel, striped maple, and viburnum. Concave topography supports dense sweet pepperbush, spicebush, and tree saplings in the understory.

Most of the stands in this vegetation type are overstocked and should be thinned or regenerated.

TYPE B - Mixed hardwoods (sugar maple or red maple or black birch), pole-size, 58 acres. The overstory is so dense that frequently nothing grows beneath it. Stands in this type will respond more readily to thinning and better tolerate a change in land use than most of the other stands because the trees are smaller and hence more adaptable.

TYPE C - Hemlock and red oak, sawlog-size, 88 acres. This type occurs on some of the steepest slopes. The hemlock shade is heavy and prevents understory vegetation from becoming established. Although most of the trees are over-mature, the slopes are so steep that harvesting should not be attempted on most of the type. These areas are best left as natural areas, allowing normal tree mortality and succession to slowly replace the senescent trees.

TYPE D - Mixed hardwoods (black birch; black, red and chestnut oak; and red maple), 17 acres. Mountain laurel is the predominant understory species. This type occurs on boulder fields too rough for economic forest management and so should be left as natural areas.

TYPE E - Red maple swamp, pole-size, 43 acres. These sites are very poorly drained and may have some standing water, even in summer. Sweet pepperbush, spicebush, witherod, and skunk cabbage form a dense understory. Frequent, light thinnings are necessary to maintain the vigor of trees in these stands and minimize the risk of blowdown.

TYPE F - Old fields, dominated by grasses, 9 acres. This type includes the ski hill above Valley Pond.

* * * * * * *

LIMITING CONDITIONS

There is considerable risk that some trees throughout the property will blow over because the stands are overcrowded and because many parts of the site have very thin soil and are on slopes exposed to wind.

Development would aggravate the blowdown problem by opening corridors in which windspeed increases and by causing erosion which will expose or undermine tree roots. A commercial thinning, aimed at encouraging the largest trees and directed by a competent forester, should be conducted throughout the area proposed for development at least three years prior to development. This will give remaining trees time to become stronger and better rooted.

Trees are sensitive to changes in soil depth and may die as a result of development activity up to three years after construction ceases. This problem is particularly relevent here, because the widespread occurence of steep slopes and exposed bedrock will necessitate much grading and filling. If soil must be disturbed beneath the canopy of a tree, then the tree should be removed. On many of the sites proposed for development, this would mean clearing large, open lots in order to accomodate roads and engineered septic systems. Large, cleared lots on such steep terrain and fine-textured soil will require costly erosion-control techniques.

Red maple swamps are often affected by slight changes in water level. The usual result is death of most trees and shrubs in the wetland and development of a snag-filled open-water marsh. Also, the ability of the wetland to buffer peak flows and attenuate pollutants is greatly reduced. In light of this, development around wetlands should be carefully designed so that the water level is not significantly altered.

Intensive use of the most interesting natural features of the property, such as the waterfall on the outlet of Timber Lake and the adjacent hemlock stand, would result in irreversible changes to these areas. Soil compaction and erosion would likely become severe in a few years. As a result, deep gullies could ultimately replace trails and nearby trees could die, creating a hazard. This problem is already beginning to develop under current use-pressure on the Timber Lake Trail.

F. WILDLIFE

The Timber Trails parcel can be classified into four major types of wildlife habitat. These include hardwood forest, wetlands, water bodies, and open fields. The location of these habitat types can be ascertained from Figure 6.

The major portion of the parcel is hardwood forest. Tree species present include maples, oaks, birch, aspen, tulip, and ash. Hemlock, a softwood species, occurs amongst the hardwoods in several areas. Some portions of the property have a dense understory of blueberry bushes. Other shrub species include dogwood and virburnams. White-tailed deer, grey squirrel, chipmunks, ruffed grouse, scarlet tanager, black and white warbler, and box turtle are examples of wildlife species which utilize this habitat type.

In addition to red maple and scattered trees of other species the wetland habitat areas contain many valuable wildlife shrubs such as nine-bark,

grey dogwood, spicebush, and shadbush. Herbaceous plant species include skunk cabbage, false hellebore, and numerous grasses and sedges. This habitat type is important as a breeding area for many frogs, toads, and salamanders. Raccoons and muskrats are found here and a variety of songbirds nest in both the shrub layer and the higher tree layer.

Four small bodies of water are located on this parcel. Aquatic vegetation found along the margins include cattails, pickeral weed, and water lilies. These areas provide a home for green frogs, bullfrogs, painted and snapping turtles, muskrats, little green herons, and waterfowl such as mallard ducks and Canadian geese.

The open fields are maintained in grasses with some small shrubs coming in. Cottontail rabbits and foxes live and feed here. Red-winged blackbirds, cardinals, and other birds nest in the fields and old fencerows. Hawks and owls hunt small rodents in these open areas. Deer, grouse, and other woodland wildlife use these areas for feeding.

Both proposals for development of this parcel, the conventional and the cluster, would have significant impacts on wildlife habitat and on wildlife use of the area. The primary impact under both proposals would be direct loss of habitat due to roads, buildings, driveways, parking lots, recreational facilities, etc.. The acreage directly lost in this manner would be greater for the conventional proposal. In addition, under the conventional proposal, a further impact would be the change in habitat occuring where the hardwood forest is cleared for lawns. This does not represent a habitat loss, but rather a change from one habitat type to another. Under the cluster proposal, a similar change in habitat type may occur, on a much smaller acreage, due to vegetation response to the land spread sewer system.

A third impact under both proposals will be the increased human presence, vehicular traffic, and number of roaming cats and dogs. This will drive the less tolerant wildlife species from the remaining habitat, even though it has not been physically changed. This impact will be less with the cluster proposal because these disturbances will be fewer in the more remote sections of the open space areas.

G. FISHERIES

Located within the 1447 acre Timber Trails tract proposed for development are Quaker Brook, Worden Brook, Timber Lake, Valley Pond and Deer Pond. Pepper Pond is also located on the 1447 acre parcel, but is within an existing developed area and should not be influenced by the proposed Timber Trails development. The lake and ponds, at the time of inspection, were free of nuisance growths of algae and water weeds and were found to be aesthetically pleasing. These bodies of water also appeared to be good quality "warm water" habitats, supporting Largemouth bass, Chain pickeral, Yellow perch, and sunfish. Quaker Brook is known to support native Brook trout along portion of its length. The portion of Quaker Brook above Timber Lake appeared to be suitable habitat for native Brook trout. However, the section of stream below Timber Lake is warmed by re-

ceiving lake and pond water and would generally not be suitable for native trout within the boundaries of the Timber Trails parcel. Blacknose dace, White suckers and Golden shiners were observed in this lower stream section. Below the parcel, Quaker Brook may support native trout throughout the year, since it is cooled by two unnamed mountain brooklets. Worden Brook, which flows into Squantz Pond, may also be capable of supporting native Brook trout.

No stocking by the Connecticut Department of Environmental Protection is carried out in any of the ponds and streams within the Timber Trails tract. However, Timber Lake, Deer Pond and Valley Pond should provide good fishing for existing warm water fish species. Although Quaker Brook does not have great value as a sport fisheries resource, its upper section does have importance in providing suitable habitat for native Brook trout.

Development of either 580 single family units or 900 units in three clusters would likely have a significant impact on Timber Lake. Increased siltation could be expected during the construction period causing high turbidity and an accelerated filling-in of Timber Lake. Although the initial loading of silt can be expected to diminish after construction is completed, chronic siltation and turbidity problems may persist in Timber Lake unless stringent erosion and sediment control measures are followed.

Plans to use Timber Lake as a stand-by water source (indicated by the developer at the ERT field review) may cause fluctuation in water levels when in use. Fluctuating water levels occurring in the spring or early summer would have negative effects on fish reproduction.

Development of the tract under either alternative would also tend to increase nutrient loading in Timber Lake, causing an increase in algae and water weed production with a subsequent reduction in aesthetic value.

In addition to impacting Timber Lake, the proposed cluster development would also tend to increase amounts of silt and nutrients entering the upper section of Quaker Brook to the detriment of any native Brook trout inhabiting this stretch. However, development under the clustered unit alternative plan would probably have little effect upon the fisheries of Valley Pond, Deer Pond, and Worden Brook, since they would be within designated permanent open space areas.

Conversely, development of 580 separate single units spread throughout the tract would likely have a negative impact on all ponds and streams within Timber Trails (excluding the above mentioned Pepper Pond). Therefore, from the standpoint of preserving as much of the existing fisheries resource as possible, the cluster development alternative is preferable to development of 580 single family units.

H. CULTURAL RESOURCES

A cultural resource reconnaissance of the Timber Trails parcel revealed no obvious cultural resources which are going to be adversely impacted by the proposed housing development. However, a brief field study did indicate that the locality adjacent to Valley Pond and Lake Mauweehoo has been used for intensive campsites by prehistoric populations. In addition, interviews with avocational archaeologists and landowners isolated evidence of significant archaeological sites in the Lake Candlewood lowland, immediately to the east of the project area. It is hence probable that the lands associated with Timber Trails contain prehistoric and historic archaeological sites which could be adversely impacted by the proposed residential development.

Ordinarily, privately financed land developers are not legally responsible for archaeological sites or structures on their land which may be affected by development plans. As long as the proposed construction is not assisted or financed by the Federal government, then no mandate exists to force the town or the developers to locate and evaluate cultural resources.

However, the proposed land spread sewage treatment system under the cluster proposal must be licensed by the Commissioner of Environmental Protection for the State of Connecticut. It is not yet clear whether the proposed granting of such a license is enough to "trigger" a cultural resource assessment study. Clearly, environmental impact reviews mandated by Connecticut's Environmental Policy Act (CEPA) must include cultural resource assessments (see Title 22a, Part I, Sec. 22a-1a(b)(4) of the General Statutes of Connecticut, most recent edition). However, the relationship between this statute and water pollution control regulations is somewhat obscure as no formal guidelines have yet been promulgated for CEPA. The regulations associated with water pollution control (Title 25, Ch. 474a of the General Statutes of Connecticut) do not even mention cultural resources.

In summary, the legalities of this situation are not clear. Currently, staff members of the Connecticut Historical Commission are discussing general policy with the Department of Environmental Protection.

In the absence of any clearer understanding of the legal context of Timber Trails, the purpose of this section of the ERT report is to identify the potential of the cultural resource base in the region. Archival and field studies indicate that this potential is high. The proposed development will definitely affect any extant resources in an adverse manner. Extant sites will be disturbed or destroyed during actual construction and may also be threatened because of the increase in public access to and use of the parcel.

From the perspective of archaeology and historic preservation, it must be assumed that the proposed development will adversely impact both prehistoric and historic sites. It is suggested that if the Town of Sherman does approve the project, that notification of such be sent to the American Indian Archaeological Institute so that plans can be formulated to retrieve cultural resource data prior to the start of construction. This is especially important since many of the significant sites in this region have already been destroyed during the construction of the Lake Candlewood area.

IV. DEVELOPMENT ACTIVITIES

A. WATER SUPPLY

Assuming that an average family uses about 250 gallons of water per day, a total of approximately 145,000 gallons each day would be needed to supply the subdivision under the conventional plan. Under the cluster proposal, smaller families and single persons would be more likely to occupy any given unit, so that a smaller demand for water for each unit would be predicted. Assuming 150 gallons per unit per day for this plan, a total of approximately 135,000 gallons per day would be needed to supply the clusters. The conventional plan would require wells that could sustain an average production of 104 gallons per minute (gpm). The cluster plan would require wells sustaining an average production of 94 gpm. Individual on-site wells under the conventional plan generally would need a pumping rate of 3 gpm or more to satisfy peak demand periods. With a community well system under either plan, peak demand periods would probably require pumpage of about 700 to 1000 gpm.

Obtaining water from any given bedrock well is dependant upon the number and size of water-transmitting fractures that are encountered by the well. In the upper Housatonic River basin, a large number of wells was surveyed for Connecticut Water Resources Bulletin No. 21. Of all those wells surveyed that tapped a type of bedrock similar in physical characteristics to the bedrock in the Timber Trails property, 80 percent yielded 3 gpm or more and 98 percent yielded at least 1 gpm. Hence, it is likely that most homes in the conventional subdivision would be able to use an on-site well. The initial quality of the water probably would be good in most cases. However, because of the large area of the subdivision, the intensity of development proposed in the conventional plan, and the poor geologic environment, it seems very likely that effluent contamination of some individual wells would ultimately be experienced. Periodic water-quality testing of individual wells might be a wise safety precaution.

Community bedrock wells seem most feasible in the Route 37 area. The prominent valley, as well as the relatively high yields reported from some wells in the area (18-25 gpm), suggests a dense fracture system in the local bedrock. If 20 gpm can be obtained from each of six wells and a large storage capacity is provided by a tank or tanks, the community supply should function well. Adequate filtration should be provided to remove undesirable mineral constituents. The potential for contamination of a community system by septic effluent is much smaller than that of contamination of on-site wells under the coventional plan. An attempt should be made to space the producing wells at least 500 feet apart to reduce the possibility of mutual interference during pumping. Of course, the wells should be substantially separated from the wells of private homeowners for the same reasons.

The proposed plans for the conventional development call for 12 connections of the new water main to the existing 2 inch lines serving the present 130+ customers. This 2 inch distribution line is inadequate in size even to

serve the existing customers. State design requirements would allow connection to the 2 inch mains only for pressure equalization and not for distribution purposes. An entirely separate distribution system would be required to serve any new additional development. In light of this situation, should a community water supply be the approved alternative, it is recommended that the existing distribution system be upgraded by replacing all undersized piping.

It is further recommended that, prior to any formal approval by the Town of the community water supply concept, the entire design of the new system be reviewed and approved by the State Health Department.

Finally it should be pointed out that development and use of Timber Lake as a standby water source (indicated as a possibility by the developer at the ERT field review) would be a very expensive undertaking. The regulations of the federal Safe Drinking Water Act and the regulations of the State Health Code for public water supply would mandate a complete filtration system with development of the facility for public water supply. In addition, detailed analysis of water quality and administrative/maintenance concerns would also need to be addressed before a permit application to the State Department of Health could be acted upon. Approval of the State Department of Health must be obtained before any facility construction is begun.

B. WASTE DISPOSAL

CONVENTIONAL DEVELOPMENT

As shown on the "Soils Limitation Map-Septic Systems" presented in the Appendix of this report, most of the land within the Timber Trails parcel presents severe limitations for septic systems. Limiting factors of the soil in various areas include: shallow to bedrock, slope, stoniness, slow permeability, and high water table. The fact that most soils have severe limitations for septic systems does not necessarily preclude their use for this purpose. A severe limitation does indicate, however, that the use of the soil is seriously limited by hazards or restrictions that require extensive and costly measures to overcome.

A shallow to bedrock condition is prevalent throughout the site. According to State Health Code criteria an area with less than 4 feet of soil to ledge is an unacceptable condition at that time for on-site waste disposal. In recognition of this, the developer has indicated he will utilize mounded systems to meet health department criteria. Mounding consists of raising the leaching field above the original ground level by introducing sufficient, well drained fill to achieve a four foot vertical distance from the distribution pipes to the bedrock surface.

It should be recognized that guidelines developed by the State Health Department (Guidelines For Design of Subsurface Sewage Disposal Systems For 2000 Gallons Per Day Or Less In Compliance With The Public Health Code - Connecticut State Department of Health) discourage the use of mounded systems

in areas underlain by shallow rock or on hillsides. The guidelines state in part:

- "Leaching systems should not be constructed in fill over ledge. However, if the existing soil on top of the ledge is suitable for sewage disposal purposes and the bottom of the leaching system can be located in this original soil and 4 feet above the ledge, one or two feet of fill may be added to the area to complete the system."

- "Shallow ledge rock area (less than 7 feet deep) should particularly be avoided for large sewage disposal systems or where a number of building lots are involved, each to be served by an on-site sewage system and water supply well. Well pollution frequently occurs in such areas."

- "Generally, the construction of leaching systems in fill on slopes or hillsides should be avoided since there is a tendency for sewage to flow downhill and break out at the lower end of the fill. However, there may be situations where a shallow depth of fill can be used to raise the area of the leaching system so as to utilize a layer of good soil overlying relatively impervious soil or ledge. In such a case, it is important that the bottom of the leaching system be located in the original soil, not in the fill; otherwise the sewage may flow through poorly compacted fill on top of the original soil, and break out below the filled area."

- "The construction of level leaching beds on terraces made by cutting and filling slopes should be avoided because intercepted ground water from the cut area often floods such systems causing failure. No system should be constructed by filling on hillsides above an area of ledge outcrops or springs, since it is certain that the sewage effluent must surface at those locations."

Although the above Health Department guidelines discourage mounding in shallow ledge rock areas and on hillsides, present Health Code regulations do not necessarily prohibit mounding in such areas. If a developer submits design plans and test results which indicate a mounded system will function satisfactorily, a permit may be issued.

Detailed soil testing, including percolation tests and deep observation pits, on each proposed lot is necessary to confirm the suitability of proposed lots for septic systems. It is recommended that a representative of the Town, certified in sewage disposal by the State Department of Health, observe all soil testing done. It is also recommended that any and all mounded system proposals be reviewed and approved by the State Health Department prior to formal approval by the Town.

CLUSTER DEVELOPMENT

According to the developer, the cluster proposal involves the construction of approximately 900 one and two bedroom rental units to be built in a cluster arrangement, thus requiring a central sewage collection and disposal system. This sewage collection system would consist of conventional gravity sewers, pumping stations, force mains, some type of a secondary sewage treatment plant with the treated effluent to be sprayed in the forest for final disposal. The developer has indicated the area to be used for spray disposal is the ± 100 acres of land identified for a golf course on the cluster development plan. This area consists primarily of Hollis-Charlton rocky complex soils of 3 to 15 percent slope. The area is bordered by Hollis-Charlton rocky complex soils of 15 to 35 percent slope, Hollis extremely rocky fine sandy loam 3 to 15 percent slope and to a lesser extent Leicester, Ridgebury-Whitman fine sandy loam. In general, the soils are well drained and limitations with respect to sewage disposal are caused by rocks and boulders, shallowness to bedrock and slope. The Leicester soils have a high groundwater table which is their limiting factor.

The surface broadcast sewage disposal system which has been proposed has not been widely tested for long time periods; hence ecosystem response to this type of imput is not well understood. According to a series of EPA seminar publications* the proposed irrigation process has the following characteristics:

- most frequently used process of land application
- most often used in connection with crop production
- has the greatest potential for pollutant removal
- data lacking on stabilization and pathogen reduction needs prior to application
- highest in energy consumption
- prone to offensive odors
- requires a storage lagoon
- can be used on rolling topography
- application rate range .3 - 4 inches/ac/week
- buffer area recommended
- requires largest land area
- application regulated by low temperatures, precipitation and amount of snow cover
- requires surface runoff control
- minimum adverse impact on soil and vegetation
- highest concentration of total dissolved ionic solids in percolate

Based upon very limited preliminary information, the area proposed for forest spraying under the cluster proposal may prove suitable for this purpose. Hollis-Charlton soils, which comprise most of the area proposed for forest spraying, are typically well drained and can be expected to provide satisfactory renovation of a finite amount of secondary treated effluent. However, the quantity of effluent which could be adequately processed by the area is unknown at the present time. Administratively, the

* "EPA Technology Transfer Seminar Publication - Land Treatment of Municipal Wastewater Effluents" EPA - 625/4-76-010, January 1976.

developer would be required to obtain a discharge permit from the Department of Environmental Protection (DEP) prior to initiation of construction of such a sewage disposal system. Before the DEP could act on a permit application, the developer would have to provide detailed technical information on the hydrogeologic conditions in the disposal area, the design of the sewerage system including the sewers, the treatment facility and the storage basin. A complete evaluation of the residual nutrients in the treated effluent including a mass balance for the retention and transport of nitrogen and phosphorus in the soils of the site would be a special consideration.

Another concern of the Department of Environmental Protection (DEP) is the ownership and the arrangements for proper operation and maintenance of any such central sewage disposal system. The DEP is obligated under the statutes to review not only the technical aspects relating to the design of sewage disposal facilities but also the method of operation. Formal approval by the DEP is required before the developer can begin construction of any component of the sewerage facility. Experience with private ownership of central sewerage facilities in the State of Connecticut is extremely poor and for this reason, the DEP takes the position that the municipality in which the sewerage facilities are to be constructed must assume responsibility for the management of the system to insure proper operation and maintenance. It is preferred by the DEP that the municipality take the actual ownership of the sewerage facility and provide the operation and maintenance. It is possible for the municipality to establish a water pollution control authority under Section 7-246 of the General Statutes. The water pollution control authority can then provide the necessary administration to properly operate and maintain the sewerage facilities and can establish a sewer district and sewer use charges as necessary so that only those persons receiving the benefit of central sewerage facilities would be burdened with the expense of operation. Other contractual arrangements may be possible whereby sewerage facilities could be privately owned and/or privately operated. In such circumstances the municipality must recognize that if the DEP should find that a community pollution exists, the municipality would become ultimately responsible for any necessary corrective action to control pollution. The powers available to a water pollution control authority are sufficient to allow a municipality to protect itself from such liability.

In conclusion, it appears that the area delineated for spray disposal may prove acceptable for that purpose. However, it must be recognized that this is based on very limited preliminary information. Before the Department of Environmental Protection could act favorably on a permit application, a detailed investigation and evaluation must be provided by the developer. Such a study can be performed by an engineering firm competent in the field of sanitary engineering with special expertise in land disposal. Administratively, if the Town of Sherman were to approve such a project, then the town must recognize its ultimate responsibility to insure that the system is properly operated and maintained and that it would be ultimately answerable to the Department of Environmental Protection should problems arise. It should be specifically recognized that while the land may have the capacity to accept the quantity of sewage that may be generated from the number of dwelling units presently under consideration, it is also possible that it has the capacity to accept only a small fraction of that quantity. A great deal of additional technical information would have to be provided to the Department of Environmental Protection before a permit application can be acted upon.

C. FOUNDATION DEVELOPMENT, STORMWATER MANAGEMENT, AND INTERIOR ROADS

CONVENTIONAL DEVELOPMENT

As discussed previously, much of the Timber Trails area is characterized by steep slopes and shallow bedrock. If developed as proposed in the conventional plan, extensive grading and filling will be required. The extensive grading and filling required will undoubtedly result in severe erosion and downstream sedimentation unless stringent erosion and sediment control measures are implemented.

One major area of concern is the large amount of cutting and filling associated with construction of the proposed roads. According to site plans, some house lots will be 20-40 feet below or above proposed road grades. To extend cuts and fills at the proposed 2:1 and 3:1 side slopes, the base of the road fill or top of cut will be 50 to 100+ feet. Clearly, to provide a house and driveway at these locations will be extremely difficult.

There are additional problems that the large cuts and fills create in relation to the storm drainage system, water and hydrant lines. Special care is required in laying water and hydrant lines in fill to combat settling and possible rupturing of lines. It is suggested that the entire storm drainage system as proposed be carefully re-considered. Standard headwalls and outlets for culverts should not be used where outlets are on fill and the topography is steep. Surface water collected along the proposed roads and discharged onto the steep slopes as proposed in the conventional plan would likely cause a serious erosion problem. A more preferable plan would be to maintain drainage easements between house lots at selected locations where surface run-off could be carried down via drop manholes to a safe outlet at the base of the slopes. Such a plan would include construction of curbs and gutters with catchbasins along roads to control side slope erosion. Although there is shallow to bedrock soils over much of the area, this will not eliminate the need to carry culvert flow down-slope to a safe outlet. It is also recommended that temporary settling basins be constructed down-slope at pipe outlets to settle out silt, sand, and gravel.

Of the $\pm$ 10 miles of roads proposed, about 21 percent of these are at a grade of 10 percent and 38 percent are at grades of over 7 percent. In addition it appears that many proposed lots have over half of the lot area on slopes in excess of 40 percent. Because of the steepness of the proposed road and building lots, the cost of construction and maintenance will be high. The amount of exposed bedrock and shallow to bedrock areas will also increase cost of construction and maintenance.

It would be important for erosion and sediment control to construct only short segments of the roadway at a time and completely finish the grading, paving, and seeding before the next strip is even cleared. In view of the deep cuts and fills required in road development, it is recommended that shoulders and guardrails be provided outside the 24 foot travelway for safety reasons.

CLUSTER DEVELOPMENT

Many of the comments made under the conventional development will apply for the cluster development. The roads will not be as extensive, but they will be steep and have large cuts and fills. Drainage provisions for storm run-off will have to be made beside and under the proposed roads. Although the proposed clusters are located along the tops of the ridges or hills, much of the land area is still steep (15 to 30 percent slopes).

As discussed above, it is vitally important that a conscientious and thorough erosion and sedimentation and run-off control plan be prepared in conjunction with any development plans for the property.

D. RECREATION

GENERAL COMMENTS

The Sherman Town Plan of Development of 1978 indicates the Town owns 209 acres of recreation and open space properties. This Plan also indicates there are 22 acres of State-owned Conservation and Passive Recreation Areas and 227 acres of Private-owned Conservation and Recreation Areas. Most of these existing recreation/open space sites are 2-3+ miles from the proposed Timber Trails development, and hence are not readily accessible to prospective Timber Trails residents. It is obvious that with implementation of either of the two development proposals additional recreational facilities would have to be provided.

Neither of the alternative development proposals identify planned recreational facilities with the exception of the golf course planned for the cluster development proposal. In light of this situation, comments on recreation under the two development proposals must of necessity be very general in nature.

CONVENTIONAL DEVELOPMENT

According to page 0 of the developer's conventional plan proposal, ± 226 acres of land would be left in open space (23.5% of parcel). With the exception of the open space proposed in the vicinity of Valley Pond and Deer Pond, the area delineated is characterized by either very steep slopes or wetland soils. It is obvious that opportunities for recreational use would be severely limited in such areas.

The developer has indicated to the ERT that with the conventional development, recreational facility development would center on expanding existing facilities (e.g. increasing beach front on Valley Pond, building additional tennis courts, etc.). The ± 15 acres proposed for open space/recreation near Valley Lake is the only area generally suitable for intensive recreational development of that land designated for open space use under the conventional plan. Of this ± 15 acres, roughly half is already developed with a variety of recreational facilities (softball fields, playground, tennis courts, beach). The remaining ± 7 acres of land, located primarily south of Deer Pond, has slight to moderate limitations for recreational development. Although the ± 15 acre area around Valley

Pond and Deer Pond could be re-developed to provide additional recreational facilities, its suitability as a recreational focal point is questionable as:

1) the area is limited in size and irregular in shape. These characteristics may pose space problems for additional recreational facility development and parking lots adequate to meet the needs of the anticipated user population.

2) many residents would be beyond walking distance to the area and may be unwilling or unable to drive to the recreational facility complex

3) intensive recreational use of an area not served by sewers may create a pollution problem. The potential for a pollution problem is exacerbated by the proximity of existing water bodies.

CLUSTER DEVELOPMENT

Under the proposed cluster development, over 800 acres of the 960 acre tract would be left in open space. This would obviously permit a more extensive passive recreational network than would be possible under the conventional development proposal. Many of the existing trails throughout the parcel could be preserved and the natural atmosphere of the area would be protected.

If the cluster development proposal is implemented, it would be advisable to include active recreational facilities (tennis courts, swimming pools, etc.) with each clustered unit. This would provide convenient accessibility and enhance use of the facilities.

The conceptual plan for the cluster development indicates an area in the northwestern portion of the parcel earmarked for a golf course. It should be pointed out however that the developer indicated on the day of the ERT field review that this golf course would probably not be built with implementation of the cluster proposal as this area would be needed for the land spread sewage treatment plant.

DESIRABLE RECREATIONAL FACILITIES

Active recreational facilities would appear to be most in demand as Sherman has many properties to fulfill passive recreation needs and normally residents don't mind driving longer distances for passive recreation. Recreational activities desirable with development of the Timber Trails area would include:

.Golf:

Generally, 120 to 160 acres are required for an 18-hole course; 60 to 80 acres for a 9-hole course. Although a golf course is a desirable development under either proposal, no space is available for such a facility under the conventional development proposal nor under the cluster plan with the planned land spread treatment plant.

.Swimming:

One consideration in evaluating the sanitary quality of a pond for use as a bathing area is the amount of dilution water flowing through the bathing area. Experience has shown that bathers themselves will introduce a considerable amount of contamination into the bathing area during bathing activity. According to State Department of Health swimmer capacity criteria (1000 gallons of dilution water flowing through the bathing area for each person using it during the course of a day), Valley Pond should be able to support 161 swimmers per day during a normally dry period. (The standard used for a "normally dry period" is the 7 day-2 yr. low flow. A flow that is exceeded 95% of the time.) This assumes of course that the sanitary quality of the inflowing water is good. Under similar conditions of low flow, Timber Lake should be able to support an average of 155 swimmers per day assuming inflowing water is of good quality.

Additional considerations which should be addressed in establishing or expanding swimming areas include: space for swimming and sunning, access, and support services. It appears that opportunities for expanding or developing swimming facilities at Timber Lake and Valley Pond are quite limited. Space for developing/expanding a swimming area is clearly limited at Timber Lake under the conventional proposal due to the existing homes bordering the lake and the location of proposed waterfront lots. Opportunities may be better under the cluster alternative if the north shore of Timber Lake (proposed for open space) proves suitable for swimming development (unlikely due to ledge and slope considerations). Although the soils just west of Valley Pond offer good potential for intensive recreational development (see Soils Limitation Map in Appendix), most of this land is already developed (residences, recreational facilities). Without removing or re-developing existing land uses adjacent to the western shore of Valley Pond, there will be little room for expanding swimming and other recreational facilities in this area.

.Tennis:

As a general rule of thumb, a minimum of two courts should be constructed for each 250 houses or units constructed. One acre can provide space for six courts.

.Playgrounds:

For both proposals, playgrounds should be provided in conjunction with any swimming and tennis facilities. One acre of level land would be satisfactory as a children's recreation area and could include a hard-surface area for court games, a field for softball and group games, open space for informal play, and playground apparatus.

.Other:

A number of other recreational amenities would be desirable under either proposal. These include pedestrian networks, bicycle paths, equestrian centers, ice skating and skiing facilities. Clearly, the cluster development proposal would lend itself more readily to development of these activities than the conventional proposal.

IN CONCLUSION

To conclude, it has been difficult to review the developers proposals from the standpoint of recreation as no tentative layout of recreational facilities has been proposed in any detail. It is obvious that the physical restraints of the majority of the land will make recreational development difficult. The only area generally suitable for active recreational development is the area around Valley Pond. Opportunities for passive recreational development would be severely limited under the conventional development proposal but would be excellent under the cluster development proposal.

V. PLANNING CONSIDERATIONS

PERMITTED DENSITY ACCORDING TO LOCAL REGULATIONS

The portion of the proposed development within Sherman is entirely within a B Residence zone where a minimum lot area of 40,000 square feet, slightly less than one acre, is required. Cluster subdivisions are not permitted by the Sherman regulations. The portion of the proposed development within New Fairfield is in an R-88 zone where residential lots of 87,120 square feet, exactly 2 acres, are required. Cluster subdivisions are not permitted by the New Fairfield regulations.

SUGGESTED DENSITY ACCORDING TO REGIONAL AND STATE PLANS

According to the Regional Plan of Development adopted by the Housatonic Valley Council of Elected Officials in 1971 the New Fairfield portion of Timber Trails is recommended for residential lots of less than one dwelling unit per acre. At the time the HVCEO plan was formulated Sherman had not yet been designated as part of the Housatonic Valley Region and thus no advisory policy presently exists for the Sherman portion of Timber Trails.

According to Connecticut's Proposed Plan of Conservation and Development, The Timber Trails area is categorized as an "Area of Environmental Concern" where densities should be low enough to assure the indefinite functioning of on-lot wastewater disposal facilities. The adopted 1974 version of this plan suggests that 2 acre lot minimums are necessary in order to insure the indefinite functioning of on-lot systems.

According to the Hudson River Basin Plan (the Hudson River Basin includes that portion of Timber Trails which drains westward into New York State) land use patterns in the Basin should follow that presented in the Connecticut Plan of Conservation and Development to discourage non-point source pollution. The Basin report recommends that a maximum density of one dwelling unit per two acres be used in the future for limited development unless further studies can show that higher densities are safe for the protection of ground and surface water quality.

According to the Regional Development Guide recently adopted by the Tri-State Regional Planning Commission, the entire Timber Trails area has been classified as an "Open Land" area. According to the Tri-State Plan "The lowest residential densities deemed constitutional should be maintained in open-land areas: three to ten acres per dwelling, more if possible. In any case, local zoning should be encouraged for densities lower than two acres per dwelling."

The low density suggested in these plans for the Timber Trails area is due largely to the remoteness of the site from jobs and services. All of these plans suggest higher residential densities near existing and proposed centers of jobs and services, with the goal of creating efficient land use patterns that are of least cost overall. Thus any reduction in density from the permitted one dwelling unit per acre would bring the proposed development in closer conformance with advisory State and regional land use policies.

AVAILABILITY OF EMPLOYMENT AND SERVICES

The total number of auto trips made each day from Sherman to New Milford exceeds the number of trips made daily from point to point within the Town, indicating that local residents rely heavily upon employment opportunities and services provided outside of the Town. A similar relationship is found between New Fairfield and Danbury, where local residents make more trips to Danbury each day than from point to point within New Fairfield. These statistics provide a key indicator of the rural nature of both New Fairfield and Sherman.

The employment base of Sherman is about 100 jobs and of New Fairfield about 670 jobs. This combined total is about 1.6% of the employment base of the 10 town Housatonic Valley Region. Neither Town has any available vacant industrial acreage, and thus employment will not be available locally for most residents of the proposed development. It is also the case in both Towns that significant additional areas for the expansion of trades and services are not planned. These factors lead to the conclusion that future residents of the Timber Trails development will be making longer than average trips in order to reach jobs and services.

PROJECTED POPULATION *

If the development contains 580 single-family homes each with 4 bedrooms then the population of the development would be approximately 2880. If the 580 homes have only three bedrooms then the population generated will be 2285. If the development contains 900 apartment units, 50% of which contain one bedroom and 50% two bedrooms, then the population of the development would be about 1770 persons.

The number of school age children occupying the 580 single-family homes if built with 4 bedrooms each is 1200, the number if built with 3 bedroom homes is 655, and the number given 900 apartment units with an equal number of one bedroom and two bedroom units is 85.

The enrollment in the Sherman School in mid-1978 was 310 pupils and the capacity enrollment was 440 pupils. The Sherman School serves grades K-8 while grades 9-12 are enrolled in non-local schools. Even though the Sherman School has an available physical capacity to house an additional 130 students and only about 2/3 of the projected school age populations resulting from Timber Trails would require enrollment in the school since only grades K-8 are served, the present facility would clearly be unable to service the school-age population resulting from the single-family home development alternative whereas it would be able to accomodate the cluster proposal. However, the cluster alternative would largely occupy the remaining school enrollment capacity, thus necessitating an expansion with additional population growth in Sherman.

TRAFFIC IMPACT

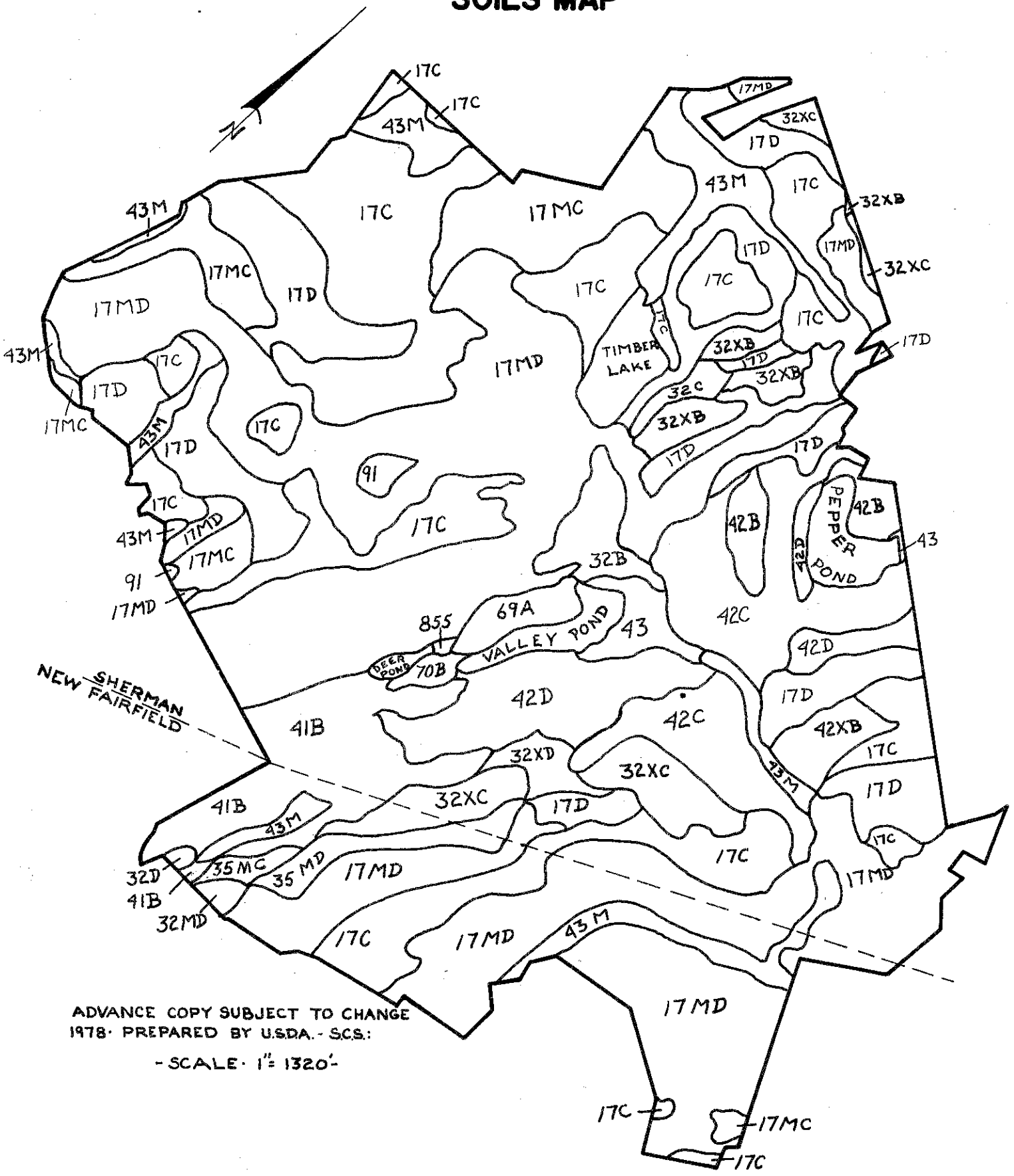
The development alternative calling for 580 single-family homes would generate approximately 6150 trips per day and the alternative calling for 900 apartment units would generate about 6120. The ratio of existing traffic volumes on Route 37 near the proposed development to the capacity for traffic at that point is .07. This very low figure would be raised to about .34 if either the single-family or apartment alternatives were developed in their entirety.

It is generally the case that a road does not become seriously congested until a ratio of volume to capacity of about .80 is reached. Thus with a projected ratio of about .34 it is not likely that the proposed development would necessitate either signalization along or major upgrading of Route 37.

*Population projections are based upon information presented in The Fiscal Impact Handbook, Center for Urban Policy Research, Rutgers University, New Jersey, 1978.

APPENDIX

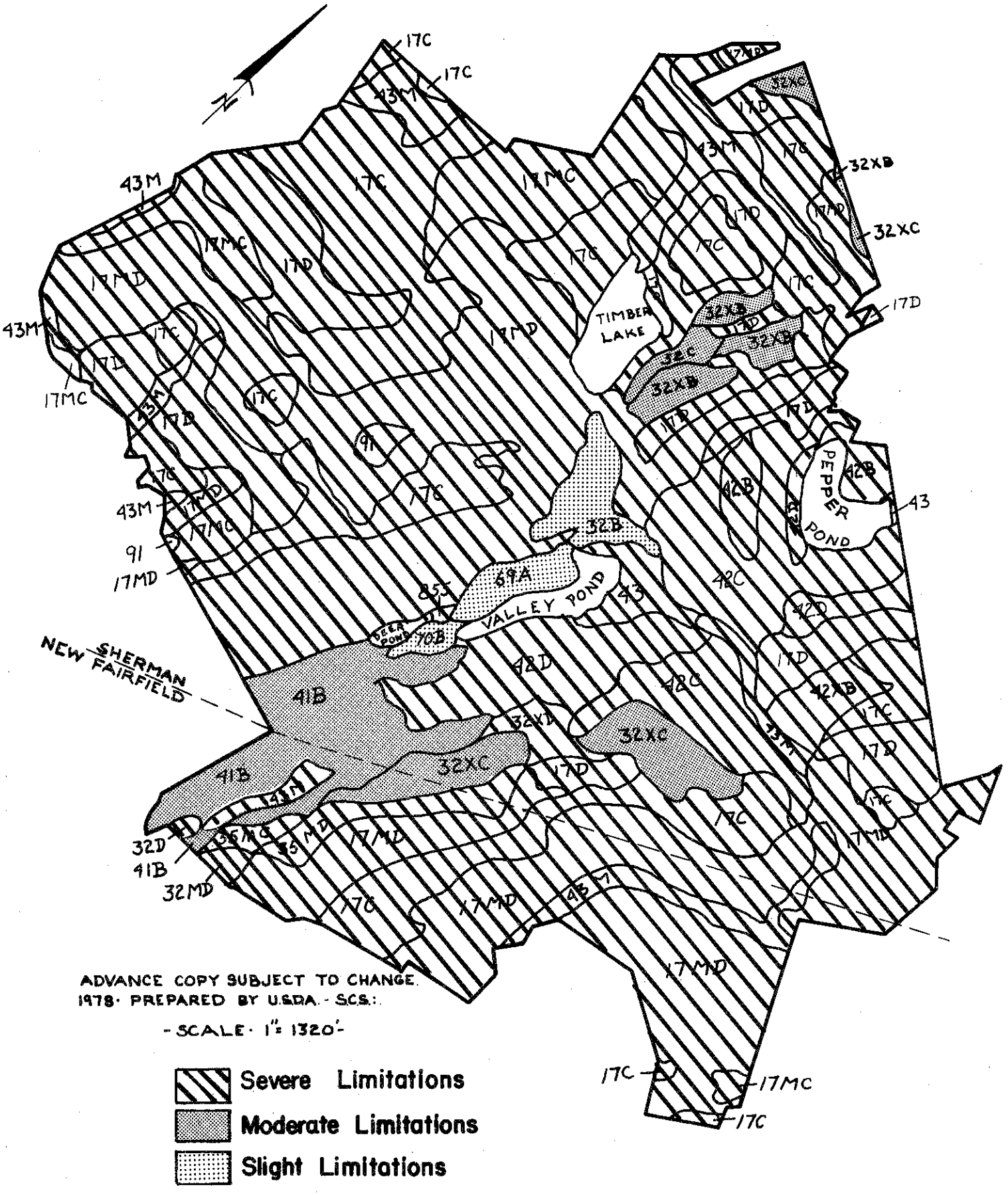
SOILS MAP



ADVANCE COPY SUBJECT TO CHANGE
1978· PREPARED BY U.S.D.A.- S.C.S.:

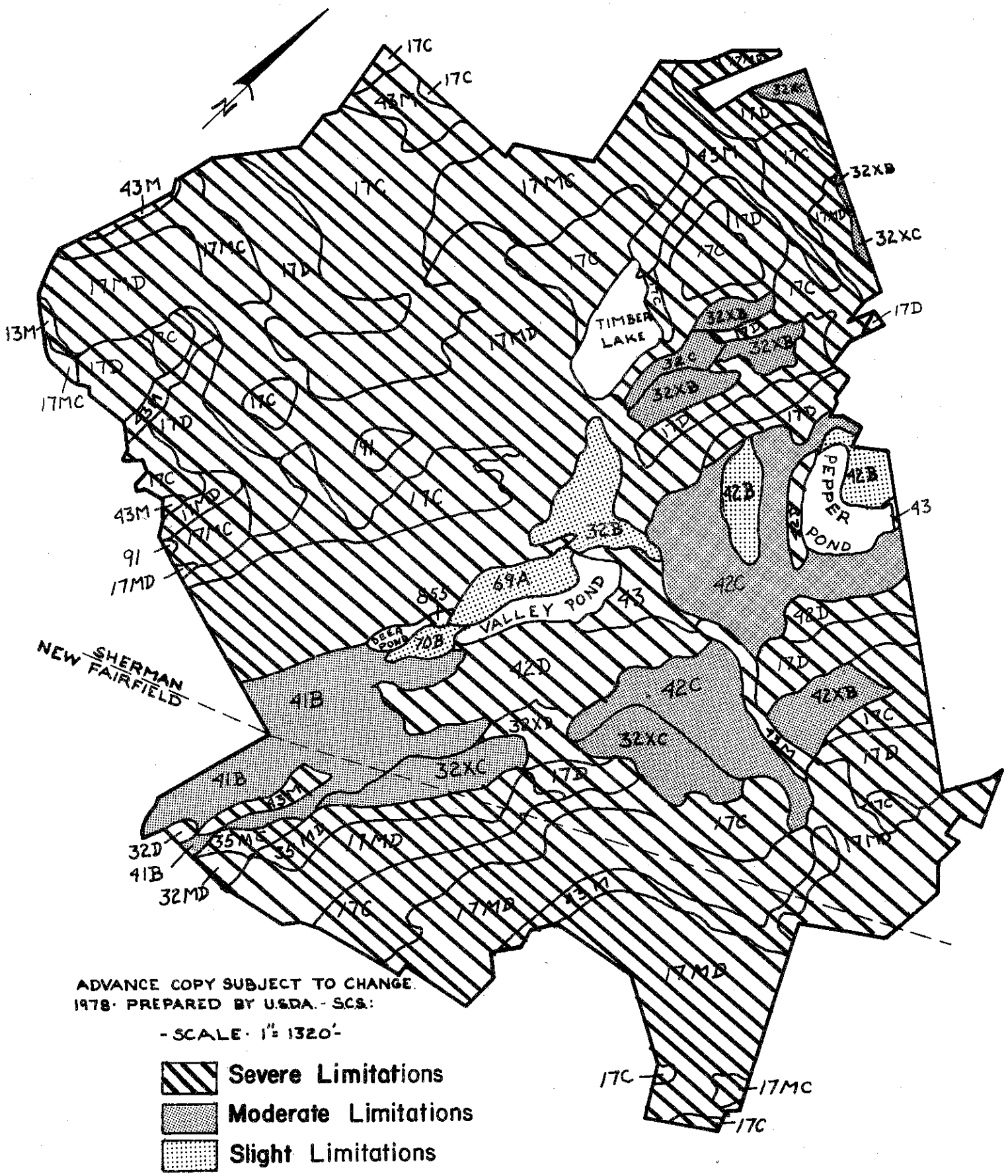
- SCALE· 1"= 1320'-

SOILS LIMITATION MAP—SEPTIC SYSTEMS



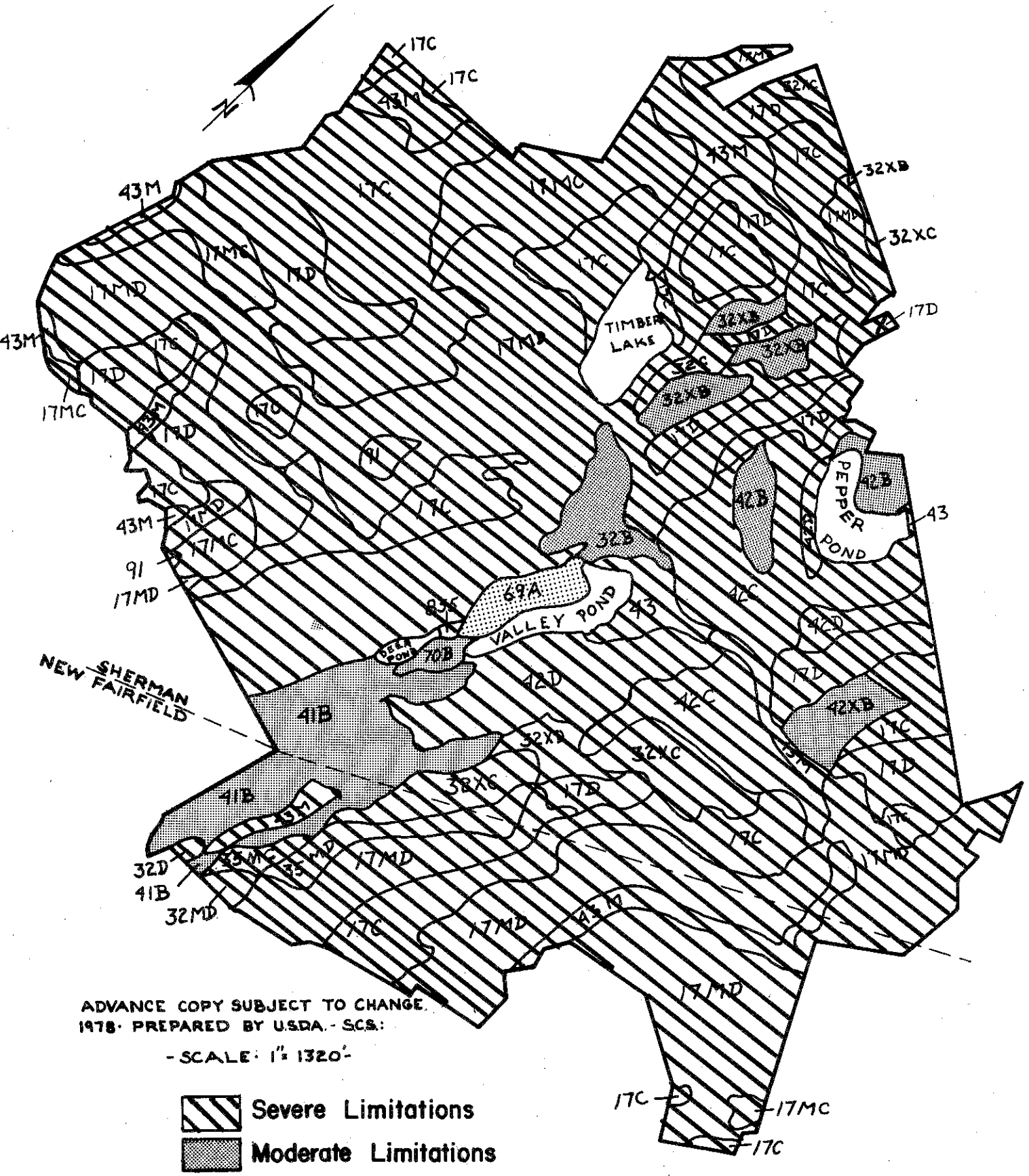
(Based Upon U.S.D.A Soil Conservation Service Limitation Ratings)

SOILS LIMITATION MAP—HOME SITES WITH BASEMENTS



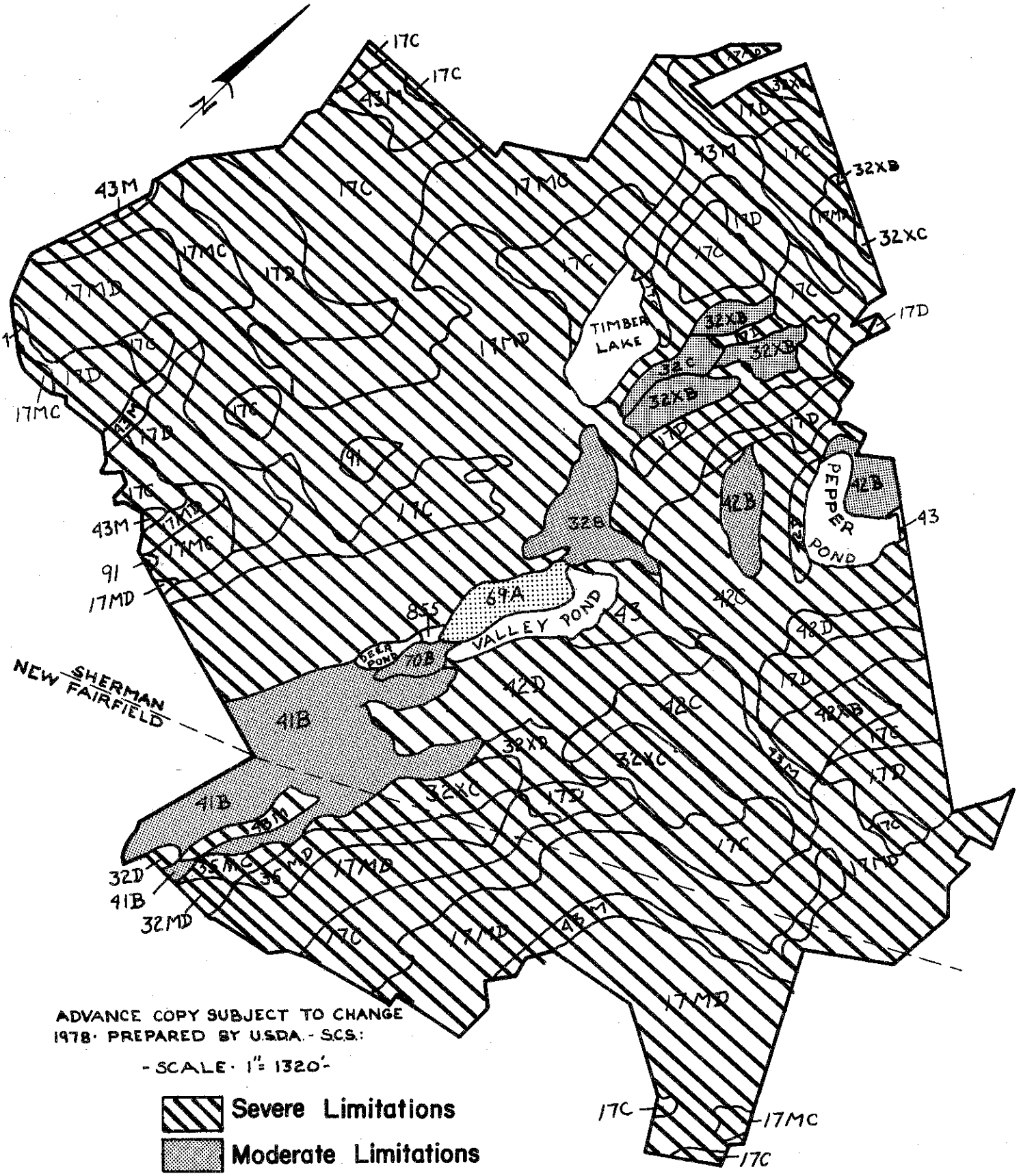
(Based Upon U.S.D.A Soil Conservation Service Limitation Ratings)

SOILS LIMITATION MAP—STREETS AND PARKING LOTS



(Based Upon U.S.D.A Soil Conservation Service Limitation Ratings)

SOILS LIMITATION MAP—INTENSIVE PLAY AREAS



ADVANCE COPY SUBJECT TO CHANGE
1978· PREPARED BY U.S.D.A. - S.C.S.:

- SCALE · 1" = 1320' -

Severe Limitations

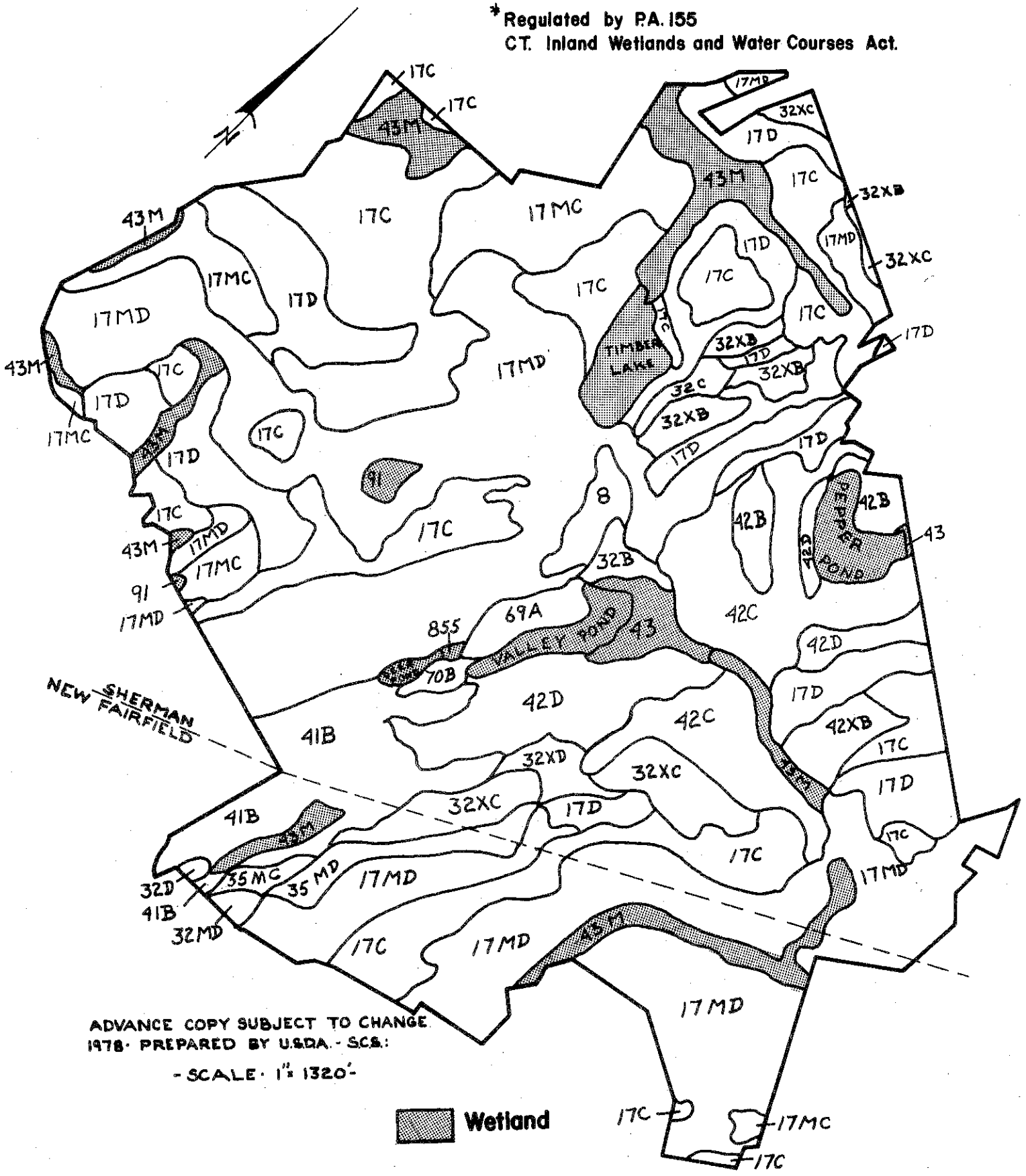
Moderate Limitations

Slight Limitations

(Based Upon U.S.D.A. Soil Conservation Service Limitation Ratings)

INLAND WETLAND SOILS AND WATERBODIES*

*Regulated by P.A. 155
CT. Inland Wetlands and Water Courses Act.



ADVANCE COPY SUBJECT TO CHANGE
1978 · PREPARED BY U.S.D.A. - S.C.S.
- SCALE · 1" = 1320' -

Wetland

SUITABILITY OF SOILS FOR URBAN USES

LIMITATIONS AND PRINCIPAL LIMITING FACTORS FOR: *

Map Symbol	Soil Name	Septic Tank Filter Field	Homesite with Basement	Homesite Landscaping	Streets & Parking Lot	Reason for Limitation
17C	Hollis-Charlton Rocky Complex 3-15% Slopes	3	3	3	3	Shallowness, Rockiness
17D	Hollis-Charlton Rocky Complex 15-35% Slopes	3	3	3	3	Shallowness, Slope
17MC	Hollis Extremely Rocky Fine Sandy Loam 3-15% Slopes	3	3	3	3	Shallowness, Rockiness
17MD	Hollis Extremely Rocky Fine Sandy Loam 15-35% Slopes	3	3	3	3	Shallowness, Rockiness, Slope
31MD	Woodbridge-Fine Sandy Loam 3-8% Slopes	3	3	3	3	Stoniness, Fragipan, Slope
32B	Charlton Fine Sandy Loam 3-8% Slope	1	1	1	2	Slope
32C	Charlton Fine Sandy Loam 8-15% Slope	2	2	2	3	Slope
32D	Charlton Fine Sandy Loam 15-25% Slope	3	3	3	3	Slope
32XB	Charlton Stony Fine Sandy Loam 3-8% Slope	2	2	2	2	Stoniness, Slope

*Explanation of Rating System

1. Slight Limitation: Indicates that any property of the soil affecting use of the soil is relatively unimportant and can be overcome at little expense.
2. Moderate Limitation: Indicates that any property of the soil affecting use can be overcome at at somewhat higher expense.
3. Severe Limitation: Indicates that the use of the soil is seriously limited by hazards or restrictions that require extensive and costly measures to overcome.

SUITABILITY OF SOILS FOR URBAN USES

LIMITATIONS AND PRINCIPAL LIMITING FACTORS FOR:

Map Symbol	Soil Name	Septic Tank Filter Field	Homesite With Basement	Homesite Landscaping	Streets & Parking Lots	Reason for Limitation
32XC	Charlton Stony Fine Sandy Loam 8-15% Slope	2	2	2	3	Slope, Stoniness
32XD	Charlton Stony Fine Sandy Loam 15-25% Slope	3	3	3	3	Stoniness, Slope
35MC	Paxton Very Stony Fine Sandy Loam 8-15% Slope	3	3	3	3	Fragipan, Stoniness
35MD	Paxton Very Stony Fine Sandy Loam 15-35% Slope	3	3	3	3	Stoniness, Slope
41B	Sutton Fine Sandy Loam 3-8% Slope	2	2	1	2	Seasonal water table, Slope
42B	Stockbridge Loam 3-8% Slope	3	1	1	2	Slow permeability, Slope
42C	Stockbridge Loam 8-15% Slope	3	2	2	3	Slow permeability, Slope
42D	Stockbridge Loam 15-25% Slope	3	3	3	3	Slow permeability, Slope
42XB	Stockbridge Stony Loam 15-25% Slope	3	2	2	2	Slow permeability,Stoniness,Slope
43	Leicester Fine Sandy Loam	3	3	3	3	High water table
43M	Leicester, Ridgebury-Whitman Fine Sandy Loams	3	3	3	3	Very high water table, Stoniness
69A	Agawam Fine Sandy Loam 0-3%	1	1	1	1	
70B	Merrimac Sandy Loam 3-8% Slope	1	1	2	2	Droughtiness, Slope
855	Rumney Fine Sandy Loam	3	3	3	3	Flood hazard, high water table
91	Shallow Muck	3	3	3	3	Very high water table, organic material

SUITABILITY OF SOILS FOR RECREATIONAL USE

LIMITATIONS AND PRINCIPAL LIMITING FACTORS FOR: *

Map Symbol	Soil Name	Camp Areas For Intensive Use	Bldgs. in Rec. Area	Picnic Areas	Intensive Play Area	Paths & Trails	Reason for Limitation
17C	Hollis-Charlton Rocky Complex 3-15% Slopes	2	3	1	3	3	Ledge-Slope
17D	Hollis-Charlton Rocky Complex 15-35% Slopes	3	3	3	3	3	Ledge-Slope
17MC	Hollis Extremely Rocky Fine Sandy Loam 3-15% Slopes	3	3	3	3	3	Ledge-Slope
17MD	Hollis Extremely Rocky Fine Sandy Loam 15-35% Slopes	3	3	3	3	3	Ledge-Slope
31MD	Woodbridge-Fine Sandy Loam 3-8% Slopes	3	3	3	3	2	Slope - Seasonal Water
32B	Charlton Fine Sandy Loam 3-8% Slope	1	1	1	2	1	Slope
32C	Charlton Fine Sandy Loam 8-15% Slope	1	1	1	2	1	Slope
32D	Charlton Fine Sandy Loam 15-25% Slope	3	3	3	3	2	Slope
32XB	Charlton Stony Fine Sandy Loam 3-8% Slope	1	1	1	2	1	Slope

*Explanation of Rating System

1. Slight Limitation: Indicates that any property of the soil affecting use of the soil is relatively unimportant and can be overcome at little expense.
2. Moderate Limitation: Indicates that any property of the soil affecting use can be overcome at a somewhat higher expense.
3. Severe Limitation: Indicates that the use of the soil is seriously limited by hazards or restrictions that require extensive and costly measures to overcome.

SUITABILITY OF SOILS FOR RECREATIONAL USE

LIMITATIONS AND PRINCIPAL LIMITING FACTORS FOR:

Map Symbol	Soil Name	Camp Areas For Intensive Use	Bldgs. in Rec. Area	Picnic Areas	Intensive Play Area	Paths & Trails	Reason for Limitation
32XC	Charlton Stony Fine Sandy Loam 8-15% Slope	2	2	2	3	1	Slope
32XD	Charlton Stony Fine Sandy Loam 15-25% Slope	3	3	3	3	2	Slope
35MC	Paxton Very Stony Fine Sandy Loam 8-15% Slope	2	2	2	3	2	Slope
35MD	Paxton Very Stony Fine Sandy Loam 15-35% Slope	3	3	3	3	3	Slope
41B	Sutton Fine Sandy Loam 3-8% Slope	2	2	1	2	1	Slope Drainage
42B	Stockbridge Loam 3-8% Slope	2	2	1	2	2	Slope Drainage
42C	Stockbridge Loam 8-15% Slope	2	2	2	3	2	Slope Drainage
42D	Stockbridge Loam 15-25% Slope	3	3	3	3	2	Slope Drainage
42XB	Stockbridge Stony Loam 15-25% Slope	3	3	3	3	2	Slope Drainage
43	Leicester Fine Sandy Loam	3	3	3	3	3	Drainage
43M	Leicester, Ridgebury-Whitman Fine Sandy Loams	3	3	3	3	3	Drainage
69A	Agawam Fine Sandy Loam 0-3%	1	1	1	1	1	
70B	Merrimac Sandy Loam 3-8% Slope	1	1	1	2	1	Slope
855	Rumney Fine Sandy Loam	3	3	3	3	3	Flood Prone
91	Shallow Muck	3	3	3	3	3	Drainage

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.