LITCHFIELD ESTATES

LITCHFIELD, MORRIS, AND WASHINGTON, CONNECTICUT

KING'S MARK
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

KING'S MARK
ENVIRONMENTAL REVIEW TEAM REPORT

on the

LITCHFIELD ESTATES
LITCHFIELD, MORRIS, AND WASHINGTON, CONNECTICUT
APRIL 1976

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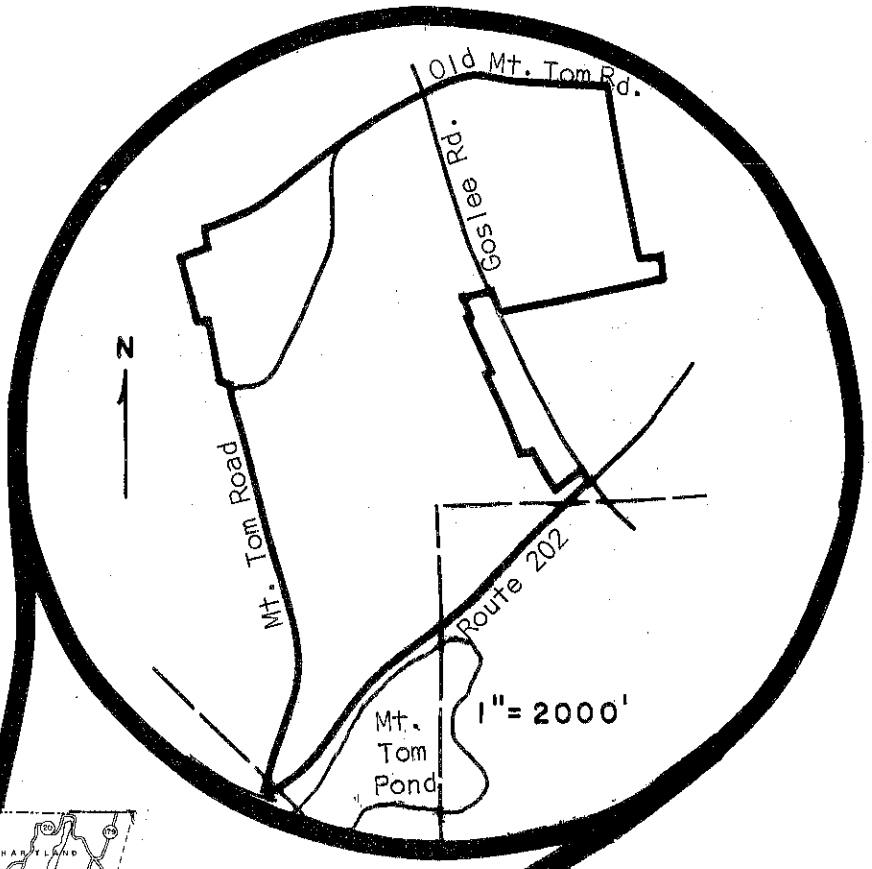
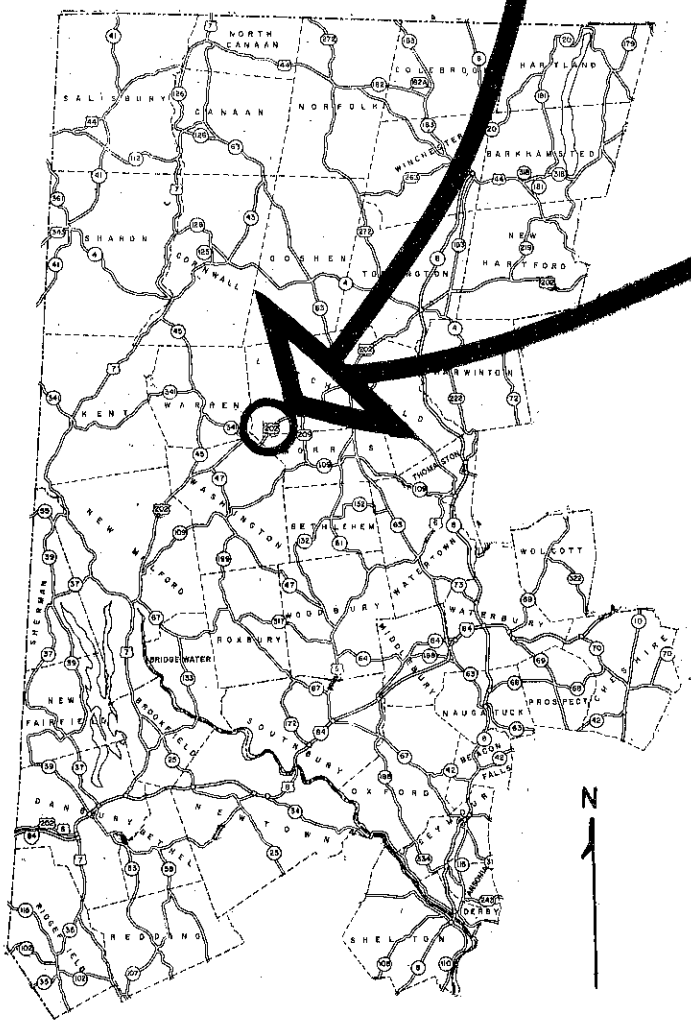
King's Mark Resource Conservation
and Development Project (RC&D)
Environmental Review Team
P. O. Box 30
Warren, Connecticut 06754

LOCATION OF STUDY SITE

LITCHFIELD ESTATES





ENVIRONMENTAL REVIEW TEAM REPORT
ON THE
LITCHFIELD ESTATES
LITCHFIELD, MORRIS, AND WASHINGTON, CONNECTICUT

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

The Environmental Review Team draws together a range of professionals in the fields of natural resources, engineering, and planning, who, based upon existing available data and field investigation, formulate an analysis of a proposed land use activity.

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

The members of the Environmental Review Team consisted of the following: Arthur Cross, District Conservationist, SCS; Barrie Wolf, Soil Scientist, SCS; Leon Gardner, Civil Engineer, SCS; Richard Hyde, Geologist, Connecticut Department of Environmental Protection (DEP); Lawrence Bandolin, Fisheries Biologist, DEP; George Brown, Forester, DEP; Steven Jackson, Wildlife Biologist, DEP; A. Carl Stamm, Parks and Recreation Specialist, DEP; Gilbert Roberts, Chief Sanitarian, Torrington Area Health District; John Breakell, Planning Services Administrator, Litchfield Hills Regional Planning Agency; Frank D'Addabbo, Manager of Traffic, Bureau of Highways, Connecticut Department of Transportation; Carol Youell, Environmental Review Team Coordinator, King's Mark RC&D Project.

The Team met and field reviewed the site on Monday, February 23, 1976. Reports from each Team member were sent to the ERT Coordinator for review and summarization for this final report.

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

The King's Mark RC&D Executive Committee hopes this report will be of value and assistance in making decisions on this particular site.

If any additional information is required, please contact Carol Youell (868-7342), Environmental Review Team Coordinator, King's Mark Resource Conservation and Development Project, P. O. Box 30, Warren, Connecticut, 06754.

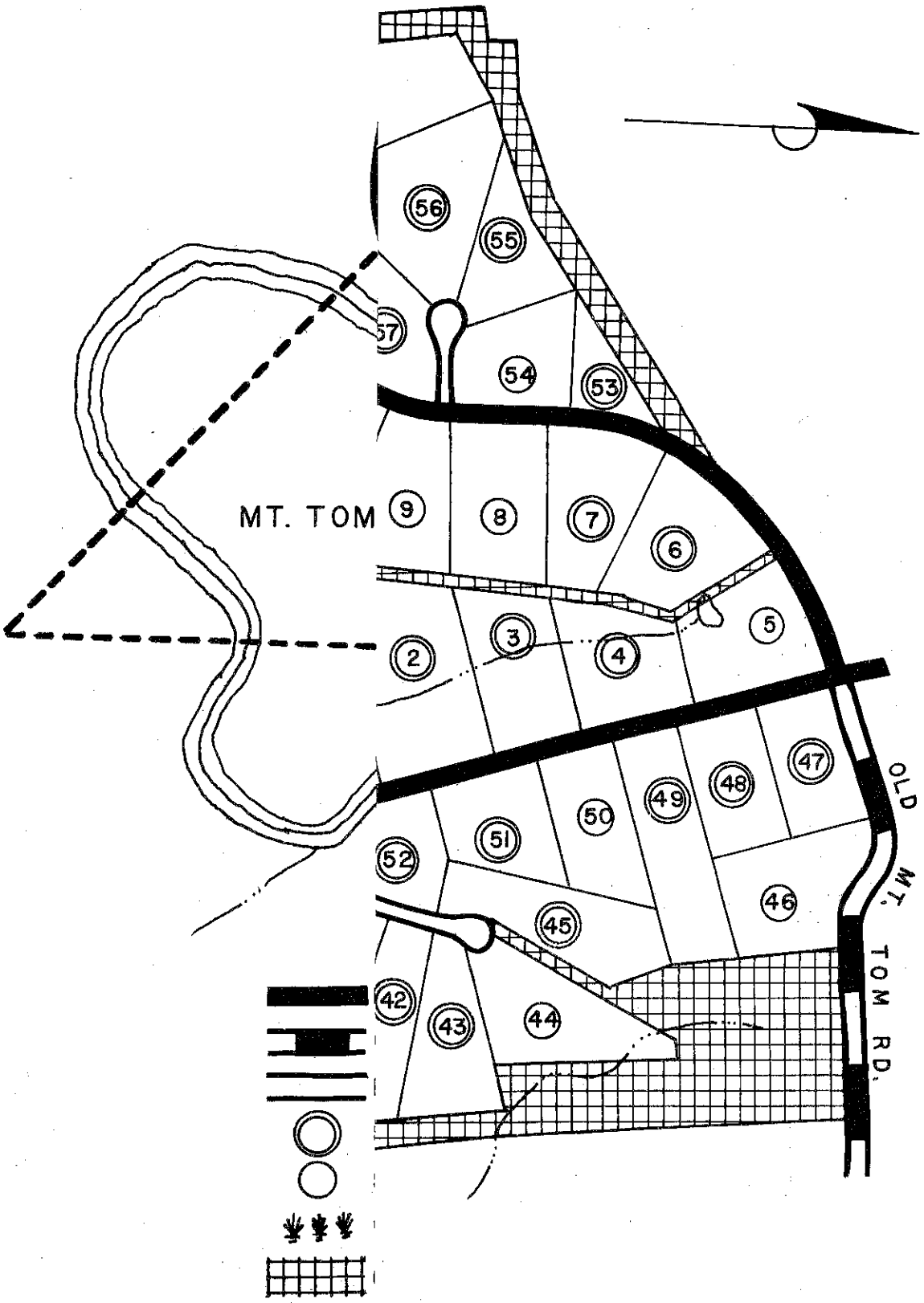
INTRODUCTION

The Litchfield Estates development is proposed for a ±420 acre tract of land located predominantly in the town of Litchfield with portions in Morris and Washington. The property, formerly the Avalon Farms Orchard, is located just north of Route 202, west of Goslee Road, and south and east of Old Mt. Tom Road. The land is currently undeveloped with portions of the orchard still remaining.

The Environmental Review Team field-reviewed the site relative to the proposal to subdivide the parcel into 60 lots averaging slightly over 5 acres per lot. The plans for the site indicated that an additional 100 acres will be set aside as permanent open space. The lots will be served by on-site water and sewage disposal systems. To date, 40 of the 60 lots have been approved for subsurface sewage disposal by the Torrington Area Health District (see Plot Plan Map).

The Team evaluated the site in terms of its ability to support the proposed development, pointing out limitations, concerns, and opportunities for site development given the preliminary plans. Some aspects of the development discussed by the Team are the effect of the development on the quality of Mt. Tom Pond (a state recreation facility), the location of on-site septic systems and the adequacy of the soils to accomodate the proposed systems, the potential of soil erosion and sedimentation hazard during and after construction, and the potentially hazardous road conditions which may exist.

This report will present a general description of the topography, geology, soils, wildlife, and other natural characteristics of the property, followed by an evaluation of the different aspects of the development as they relate to the natural resources. Hopefully, this report will be of assistance in determining the ultimate development of the land. Comments or recommendations made within the report are presented for consideration by all parties, and should <u>not</u> be construed as mandatory or regulatory in nature.



STATES

AN

1800 2400 ft

00'

TOPOGRAPHY

The Litchfield Estates property is located on the top and southern flank of a large till hill just east of the Shepaug River and north of Mt. Tom Pond. Land elevation changes quite dramatically, ranging from approximately 900 feet above mean sea level along its southern boundary, adjacent to Route 202 and Mt. Tom Pond, rising to the north to a high of 1160 feet above mean sea level just south of the northern border.

Several small southerly flowing streams have developed as part of the natural drainage of the property and are the principal sources for Mt. Tom Pond.

In this portion of the hill complex the land surface faces to the south with slopes generally ranging from under 5 percent up to 15 percent over approximately 60 percent of the property. Portions do exceed a 15 percent slope, principally along the margins of the southerly flowing streams which have developed as part of the natural drainage of the area. See Figure 1.

SURFICIAL GEOLOGY

The surficial geologist is concerned with that primary overburden, unconsolidated deposits, lying on top of the solid bedrock that have been relatively unaltered by the weathering process. The bedrock geologist is interested in the bedrock, its structure and composition, while the soil scientist works with the weathered zone of the surficial deposits (upper 3 to 5 feet) at the land's surface.

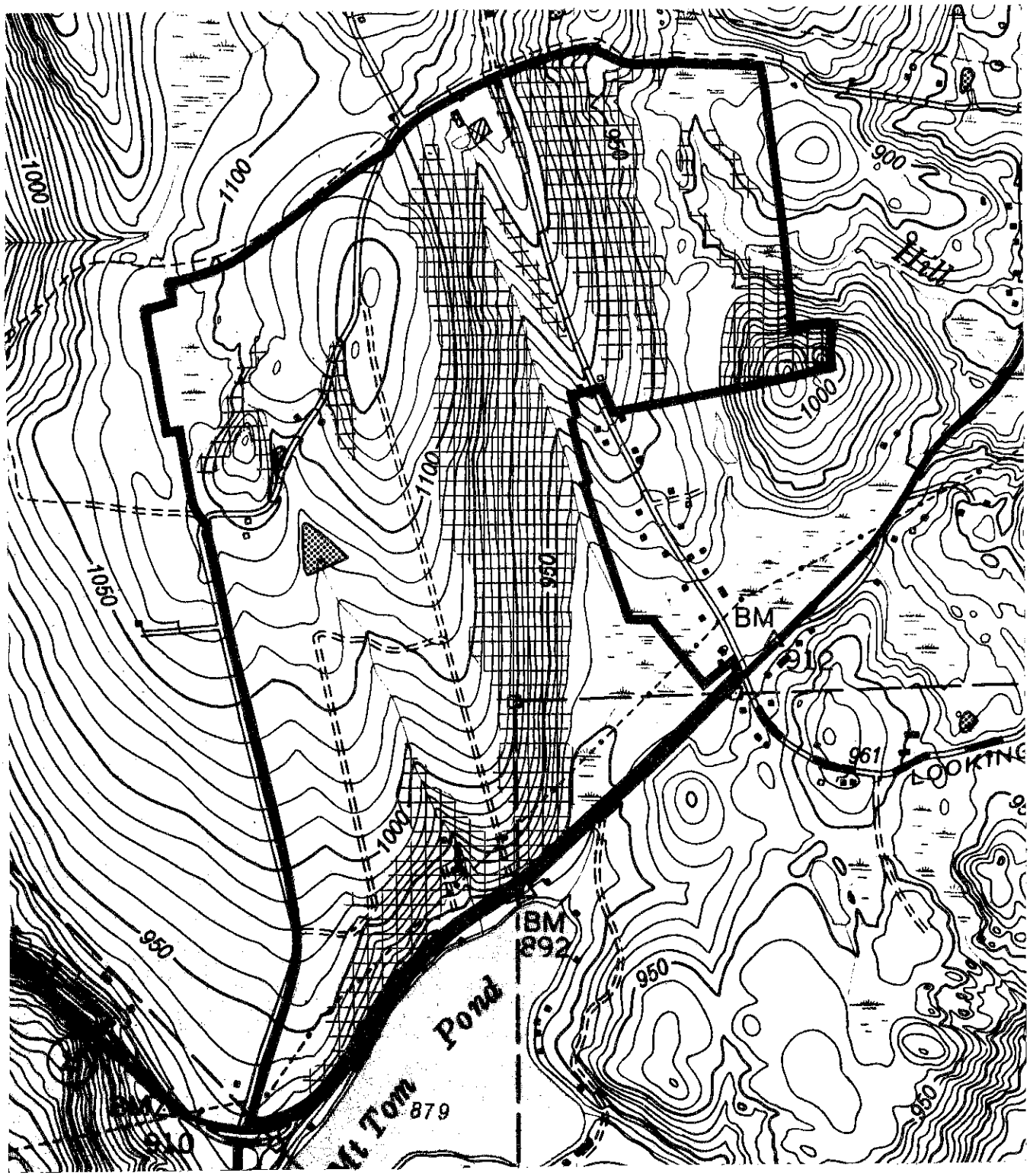
The surficial geology of the site falls basically into three types: till, ice-contact stratified drift and alluvium. (Figure 2.) Till is the predominant type of overburden covering the property just as it is throughout Connecticut. The term "till" is the geologist's word for "hardpan" or "boulder clay" which more often is used by the non-geologist. Simply, it is that mass of consolidated material carried on, within or under the glacial ice, that remained after all of the ice had melted. More precisely, it is a glacial lag deposit that may be described as a heterogeneous material composed of various mixtures of boulders, gravel, sand, silt and clay particles, none of which are significantly sorted or stratified according to particle grain sizes, as is the case with waterlain or windblown deposits.

Till thicknesses range from a very thin veneer at highest elevations of the property, with exposed bedrock and 5 to 10 feet at the top of the hill (see Figure 2), to thicknesses inferred to be greater than 40 feet along the lower margins of the property.

A small amount of ice-contact stratified drift is found along the stream valley in the eastern portion of the property. In this area, the deposit contains yellowish-brown stratified, layered, sand and coarse gravel which was deposited when melt-water streams flowed on, or in close proximity, to glacial ice in the past. Ice-contact deposits on this property occupy a fairly narrow strip of land and probably are not extremely thick although test drilling would be the only way to determine the thickness, make-up and water-bearing properties of these deposits.

TOPOGRAPHIC MAP

LITCHFIELD ESTATES



SCALE 1" = 1000'

N

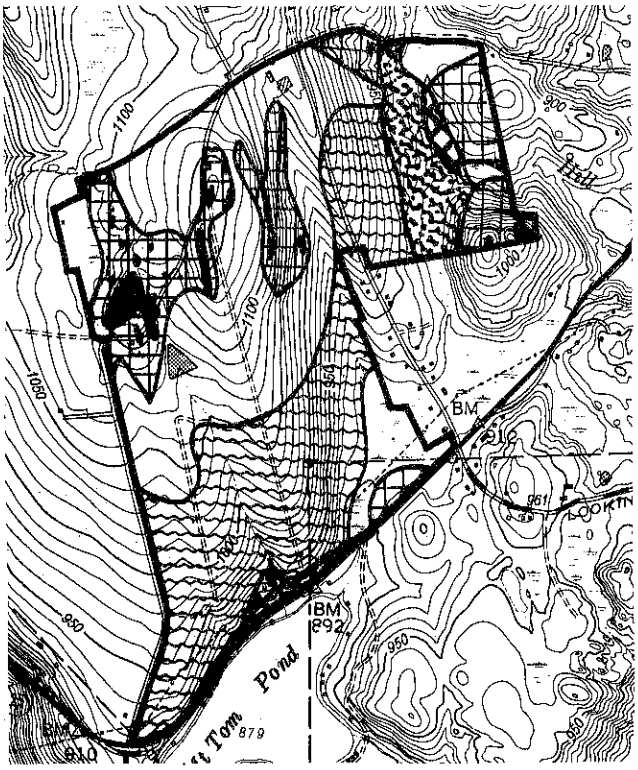
0 1/4 1/2 3/4 1 MILE

0 1000 2000 3000 4000 5000 FT

Land Slope Greater Than 15 %

(Figure 1)

LITCHFIELD ESTATES

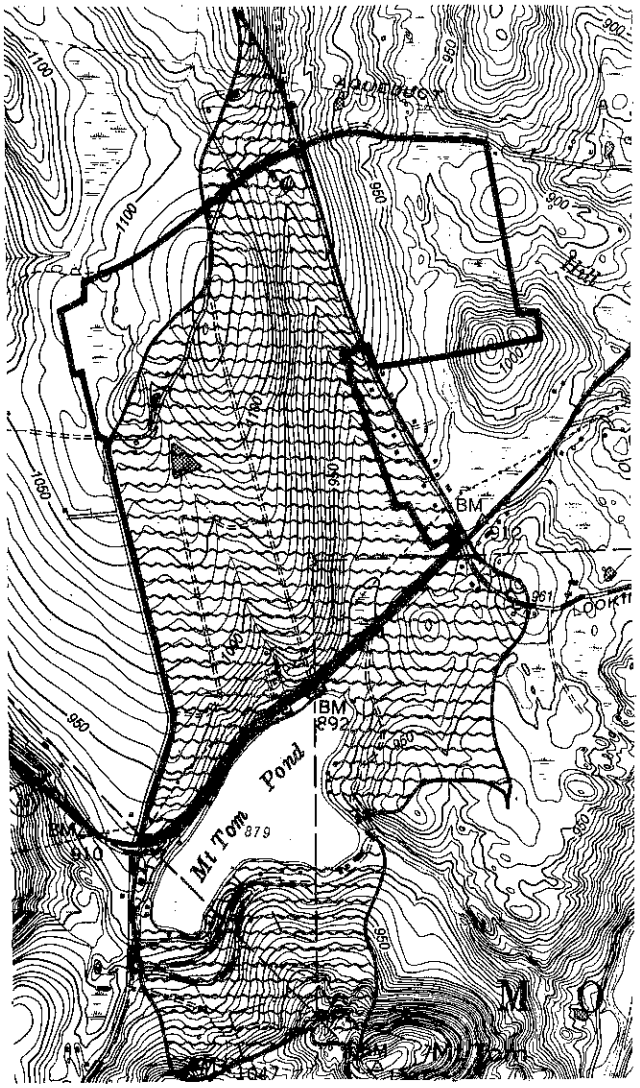


SURFICIAL GEOLOGY
(Figure 2)

- Till
- Till known or inferred to be at least 40 feet thick
- Ice-contact stratified drift
- Alluvium
- 5 to 10 feet to bedrock
- Individual outcrops

N

SCALE 1"=2000'



DRAINAGE AREA
into Mt. Tom Pond
(Figure 3)

- Drainage area

N

SCALE 1"=2000'

On top of a very small section of the ice-contact deposits to the east and along the northern edge of Mt. Tom Pond are small deposits of alluvium (See Figure 2). Alluvium is deposits of sand and gravel, and usually even finer materials, that have been developed in recent times along streambanks and floodplains.

SOILS

A detailed soils map of the property is given in the appendix to this report. As the map is an enlargement from the original 1320'/inch scale to 1000'/inch, the soil boundary lines should not be viewed as precise boundaries, but rather as guidelines to the distribution of soil types on the property. A table of limitations for each of the soils for on-site sewage, basements, landscaping, and streets and parking lots, is also given in the Appendix. It is the intention of the table to call to the attention of the user probable limitations associated with each soil type. However, limitations, even though very severe, do not always preclude the use of the land for development. If economics permit greater expenditures for land development and the intended objective is consistent with the objectives of local and regional development, many soils and sites with difficult problems can be used. (Note: site acreage according to our figures,which are based on soil types and the plot plan map, totals more than the anticipated 420 acres.)

With the examination of the soils map, and the accompanying chart, a correlation between the soils and the surficial geology can be seen. All soils in Natural Soil Group A are underlain by water-deposited beds of sand and gravel (stratified drift). Groups B, C, and D are all upland soils that were formed in areas of till. Group B is generally found in the thicker deposits of till occurring on hillsides. Group C occurs mostly on the tops and slopes of drumlins* and has a hardpan at 16 to 36 inches below the soil surface. Group D is found mostly on steep side slopes and narrow ridge tops and is characterized by rockiness and shallow depths to bedrock.

The physical characteristics of the site together with the natural processes operating within an area, create situations which can be beneficial or problematic to the proposed development. In addition to the geologic data, soil classifications provide a good indicator of the suitability of an area for development.

In this case, the proposed subdivision is located on three, strongly sloping, north-south drumlins of upland soils over predominantly compact glacial till (hardpan). The drumlins are delineated by small valley streams and wetlands which drain, with one exception, southerly into Mt. Tom Pond. The eastern most drumlin drains approximately one-half into Mt. Tom Pond and one-half into the Hill Brook. The drumlins end, for the most part, just short (within a few hundred feet) of the pond.

These hardpan soils present various limitations for development. Permeability above the hardpan is moderate but the pan drastically reduces percolation. Sewage disposal problems may arise during the wet season when the pan restricts the downward movement of excess water in the soil. In

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* Drumlin - An oval hill of glacial drift, normally compact and unstratified, generally with its longer axis parallel to the movement of the ice responsible for its deposition.

those times, excess rainwater, that from spring thaws, or septage effluent from the leach fields may move rapidly downslope over the surface of the pan. This rapidly moving water poses a threat in that it may carry an overload of nutrients and/or pollutants with it into Mt. Tom Pond. In addition, during the construction phase, problems may arise due to the fact that these till soils are often quite stony, which adds difficulty when excavating for basements and on-site waste disposal systems.

Development problems on the site can also be related to areas of steep slope (especially when the slope exceeds 15 percent) and areas of seasonal high water table. Soil erosion can be a result of till soils when disturbed, especially when the slope is greater than 8 percent, as much of the property is. At the present time, however, erosion and sedimentation is at a very low rate, as almost the entire area is in good grass cover with small areas in shrubs, hardwood trees and orchard trees.

In general, the majority of the soils of the entire area are rated as having severe or very severe limitations for on-site sewage disposal systems. (See summary chart of limitations in the appendix.) On the steeper slopes (above 15 percent) the severe limitations include those homes and drives, in addition to septic systems. A small percentage of the area has severe limitations for reasons other than hardpan, specifically, the soils are shallow to bedrock, with barren rock outcrops. Costly measures may be required to overcome the severe limitations imposed by such factors mentioned as hardpan, stoniness, bedrock outcrops, steep slopes, and seasonal high water table.

WATER SUPPLY

Potential water supplies in all likelihood can be derived from the bedrock aquifer in the form of drilled wells for each house lot. The bedrock throughout this area of the state is a hard and dense composition of tightly interlocking mineral grains having a low percentage of interconnecting pore space. Consequently, wells drilled into rock of this nature are almost completely dependent on water flowing through joints, cracks or fissures in the rock that the well shaft has intersected. The amount of water available for a given location is proportional to the size and number of these rock openings below the water table. The more numerous and the larger the fractures and openings, the more water the well will be capable of receiving in the shortest possible time and thus be capable of providing to the user. Except for fault zones, which may extend deep into the earth, the greatest number of rock openings are found primarily within the 200 feet immediately below the bedrock surface. Below this zone, the pressure and weight of the overlying rock tends to decrease rapidly the possibility that openings can exist. Based on the records of 734 wells drilled in western Connecticut crystalline bedrock, statistics indicate 95 percent yield more than 1 gallon per minute, with 50 percent yielding 7 gallons per minute or more and 75 percent providing at least 3.5 gallons of water per minute. These figures indicate the likelihood of finding on-site water supplies from the bedrock sources is adequate for single family homes and even if one falls into the 95 percent grouping, the quantity is sufficient providing storage cold water facilities are enlarged. (Based on data taken from the "Water Resources Inventory of Connecticut Upper Housatonic River Basin", Connecticut Water Resources Bulletin No. 21.)

It should be noted on-site water supplies can be obtained from the bedrock sources but in drilling such wells the cost may vary from hole to hole. One factor in determining the cost is the amount of casing pipe utilized by the well driller to maintain an open hole between the land's surface and the soil bedrock. At the higher elevations of the property, the bedrock surface is very close to the land's surface and in these areas only short lengths of pipe will be necessary. But moving on down the hill, as previously stated, it appears the thickness of overburden material probably exceeds 40 feet in some places and possibly much more. In this case much longer lengths of pipe will be required.

Another potential water source might possibly be the ice-contact stratified drift deposits along the eastern edge of the property. Such deposits, if composed of saturated coarse grained materials of sufficient thickness, generally may prove to be the highest producers of water for household and municipal or community supply. The potential of such deposits, particularly small pockets as this one appears to be, cannot be properly evaluated without some sort of test drilling program prior to the decision to utilize the deposits as a water supply.

WASTE DISPOSAL

Due to the lack of public sewers in the area of the proposed development, waste disposal will have to be developed on-site. Based upon visual observations, soils and other data, and the physical features of the property, it appears that a considerable portion of the property is poorly suited for on-site sewage disposal. As discussed earlier, the upland hardpan soils could present septic difficulties. On the 3-15 percent slopes, with hardpan soils, an extensive tile drainage system is recommended to improve the conditions for septic systems. (For example, this may be applicable to the lots bordering Mt. Tom Road where a high seasonal water table was observed in standpipes.) Overall tile drain systems are considered more practical than having each lot owner work out his own on a piecemeal basis.

The proper placement of the homes and their septic systems on most lots will be important. The systems may require special engineering design. On the slopes above 15 percent (for example, lots 47-51) with hardpan soils, any kind of development will be very difficult. In the shallow to bedrock soil areas (Natural Soil Group D), further on-site investigation will be necessary to determine if adequate areas exist for septic systems (for example, lots 8-10, and 20). In all instances, it is recommended that septic systems be located as far away from the wetland soils and drainageways as possible.

FOUNDATION DEVELOPMENT AND GRADED CONDITIONS

The major limiting factors concerning foundation development are the stoniness, steep slopes, and the existence of a seasonal high water table above the hardpan on portions of the property. With proper site location and installation of footing drains, these limitations can be minimized. It is recommended that footing drains be installed around each house. Three to one slopes are recommended on all road cuts and homesite cuts. Tile drain should be installed to avoid sloughing of cuts in seepage areas.

Increased surface water runoff, erosion, and sedimentation to nearby streams may a result of the development. These conditions can be minimized

by installing permanent sediment/storm water control basins. (For example, one such basin may be located in the open space area between proposed lots 24-25, at about the 940 contour, and another may be located to the rear of lot 36 in the open space area, at about the 920 contour.) The need for sediment and erosion control measures, both during construction and after, cannot be overemphasized or overlooked. In view of this, all disturbed areas should be timely seeded according to an overall plan.

ROADS

It is recognized that the intersection of Mt. Tom Road with Route 202 is undersirable from a traffic safety point of view. This blind intersection has very limited sight distance in both directions on a heavily traveled highway. Over two-thirds of the lots in this subdivsion access onto Mt. Tom Road and could be assumed to enter Route 202 at this intersection. It is recommended that the location be changed to go between proposed lots 21-22 and thence gradually curve to Route 202 following the contours. This relocation of the entrance approximately 2000 feet northeast on Route 202 in consultation with the Connecticut Department of Transportation might overcome the dangerous situation.

(The unpaved portions of Mt. Tom Road are assumed to be converted to hard-surface if the subdivision is undertaken).

Another potential problem area is the location of the proposed cul-de-sac on the east side of Goslee Road. This intersection has a steep approach onto Goslee Road which could be minimized by moving it south, thus taking advantage of the lower elevation. The cul-de-sac road could nearly follow the level contour and intersect Goslee Road at a 60^{o} angle or greater, as per the Litchfield Subdivision Regulations. The 150 foot diameter required by those regulations may require deep cut and fill and result in difficult access to this cul-de-sac off Goslee Road from the associated lots. Also, the lots fronting on Goslee Road range from an 8-25 percent slope and present serious difficulty for access. Driveways at such a grade would be particularly hazardous in the winter.

The proposed sediment basins associated with the new roads should be reevaluated in terms of their present location and desired function.

HAZARDS

It is suggested that the overall lot layout be more compatible with the soils, slopes and open space areas so that potential man-induced hazards can be minimized. For example, lots 1-3, 35-37, and 48-51 (as previously mentioned) occur on slopes 15 percent or greater. Here, driveways would be greater than 7 percent and considerable grading and filling, and cuts would be necessary.

In another instance, lots 1-4 occur on both sides of a stream (and its wetland) which may create problems. It is recommended that both sides of the stream and its associated wetland be designated as permanent open space. This would be a continuation of the strip of open space which begins at the southern end of Goslee Road.

The proposed sodded ditch, between lots 35 and 36 is on such a grade that erosion will probably occur. In view of this, it is important to note that the sequence of the development construction is very critical in controlling the amount of erosion and sedimentation which may occur. (For example, basins and outlets should be established first, before any earth moving takes place.)

AESTHETICS AND PRESERVATION

Fisheries and Mt. Tom Pond. The development of the Avalon Farms property into a residential area may have a negative effect on Mt. Tom Pond. Mt. Tom Pond is a natural pond of 61.5 acres with a maximum depth of 46 feet and an average depth of 21.2 feet. The pond is very clear, having scarce aquatic vegetation, and a sufficient volume of cold, well oxygenated water to support trout. It is the only pond in Litchfield, Morris, Warren, and Washington townships that has public access and sufficent cold oxygenated water to support a trout fishery. Last year, the State of Connecticut stocked 2800 trout in the pond. Fishing pressure for trout and the resident fish populations, bass, bullheads, and perch is moderately high when compared to other ponds in the State.

Shoreline development around the pond is low, with only a small number of summer cottages and homes. Mt. Tom State Park is located on the southeast shore for public swimming and picnicking. Attendance at this small but popular facility averages about 80,000 persons per year.

The area proposed for development encompasses approximately 60 percent of the Mt. Tom Pond drainage area (watershed), and the only inlet streams into the pond are wholly contained within the Avalon Farms property. Therefore, any degredation of the drainage of the watershed will manifest itself as a degredation of the pond -- its water quantity, quality, and its present and future recreational potential. (Drainage area or watershed of Mt. Tom Pond encompasses the area depicted in Figure 3. From the figure it can be seen that most of the property proposed for development is with the Mt. Tom watershed. The figure is based solely on the 1:24,000 scale topographic map, and not on thorough on-site investigations.)

Three potential problems related to development which may affect the pond are: erosion and sedimentation, surface fertilizer runoff, and nutrient leakage from septic systems.

Due to the steep topography of the property, any disturbance of the ground cover for road building, storm sewers, and individual lot development will cause erosion. Many of the lots abut streams, streams run through some lots, and one of the proposed cul-de-sacs crosses one seasonal and one permanent stream. Unless sedimentation basins are constructed and maintained during both road and home construction, the resulting siltation in Mt. Tom Pond could be severe. Unfortunately, control will be difficult after the developer has built the roads and sold the lots. After the developer is finished, individual lot owners will contract their own homes. This may lead to a number of contractors who have little regard for the effect of their actions on the siltation of Mt. Tom Pond.

Runoff from fertilizers used by homeowners on lawns and gardens could enter Mt. Tom Pond and enrich the pond to a point where algal blooms could use up enough oxygen to make Mt. Tom unsuitable for trout. This would greatly reduce the recreational fishing value of the pond.

Nutrient leakage from septic systems (including such wastes as human excrement, detergents and garbage) would have a similar effect on the pond as fertilizers applied to lawns (etc.). Given the severe soil limitations for on-site septic systems, septic failures or leakage could be a possibility.

In summary, any type of disturbance by development will have some effect upon the quantity and quality of the water entering Mt. Tom Pond The major points to consider to minimize this effect are:

1. A sound road, lot, and open space layout which is compatible with the hardpan soils, steep slope areas, and drainageways.

2. A feasible surface and subsurface drainage system which will improve the site conditions for on-site sewage disposal.

3. Permanent sediment/storm runoff control basins.

4. A logical sequence of development to minimize adverse effects such as from erosion and sedimentation.

5. Control over individual lot development, which should be done according to the initial, overall plan.

Extreme care must be exercised in the development of the parcel and all anticipated problems must be adequately solved to insure the quality and unblemished potential of this excellent natural resource.

Forestry. Forestry per se is not really a consideration here. No attempt has been made to prescribe management in terms of raising a crop of trees to harvest. The forested areas of the site comprise less than 20 percent of the total area. Various mixed hardwood species and softwood species are present, such as: red and white oak, black and white ash, red maple, poplar, red and white pine, and white spruce. The wooded areas provide food and cover for wildlife, and in many cases, serve as a buffer to protect and shade water courses and wetlands. Minimum disturbance of existing trees and shrubs is recommended. It is also recommended that certain areas, such as the steep open space grasslands between the powerline and Route 202 be planted to pines, spruce, or other compatible species to help prevent erosion, to reduce fire hazards, and to provide a noise absorbing buffer between the development and the highway.

Wildlife. The proposed development site provides valuable wildlife habitat for farmland and woodland wildlife and probably has some value for wetland wildlife. Included are such species as: rabbits, woodchucks, mice, deer, ruffed grouse, ducks, muskrats, and a great variety of birdlife common to all three habitats. Any development of this area will alter its value and use by wildlife. For the area to be managed to its utmost for wildlife, some cover planting and maintenance work would be valuable as well as having the area open to hunting for good utilization of the resource.

The following recommendations are made to preserve the present use and perhaps encourage additional wildlife use. The designated open space areas should remain virtually unaltered for a few years, and should include the edge between the forest and the fields as well as some of the field areas. All of the apple trees presently in a condition that could be made productive should be preserved. Brush areas extending into the fields should remain

unchanged. Scattered clump planting of a variety of trees (conifers) and shrubs (fruit-bearing species) in open areas is encouraged, and may increase utilization. Also, measures should be considered to prevent conflict between wildlife and agricultural uses of the land. Home gardens should be fenced with small mesh wire buried in the ground, and vulnerable trees and shrubs should be protected from browsers, or not planted.

Recreation. Use of certain portions of the site for community recreation purposes may be feasible. For example, the property contains a large pond (2+ acres) which could be used by the community as a whole. It is recommended that it be included as open space, and managed by the proposed homeowners' association. This proposed recreational open space area should include, besides the pond, a 50 foot minimum shoreline (on all sides) and an area down to the open space between lots 29-30.

Lot 31 could contain a warming shelter, parking, and public access for various seasonal activities associated with the pond.

Another area of the property (lots 8-10) contains large planted pines and larch of sufficient size to provide an excellent picnic grove and play area for the development. The shallow soil and ledge outcroppings on these lots will not preclude its use for these recreational purposes but may create problems for residential use. Its preservation should be considered.

Lot 60, which comprises 20 acres, contains an excellent variety of natural habitats and could provide an excellent wildlife and nature sanctuary, and education area.

The currently proposed reserved open space, while an excellent wildlife habitat and protective natural greenbelt, is of little use for most extensive recreational purposes being mostly wetland or land too steep for any form of development.

COMPATIBILITY OF SURROUNDING LAND USES

The lands just west of Mt. Tom Road are being used for agricultural purposes; orchard and silage corn. Other than occasional spray drift and agricultural implement traffic on Mt. Tom Road, there should be little conflict with the proposed subdivision.

The subdivision does not appear to be inconsistent with the Litchfield Plan of Development or in violation of the Town's zoning and subdivision regulations. It is not inconsistent with the Litchfield Hills Regional Planning Agency's Preliminary Plan of Development.

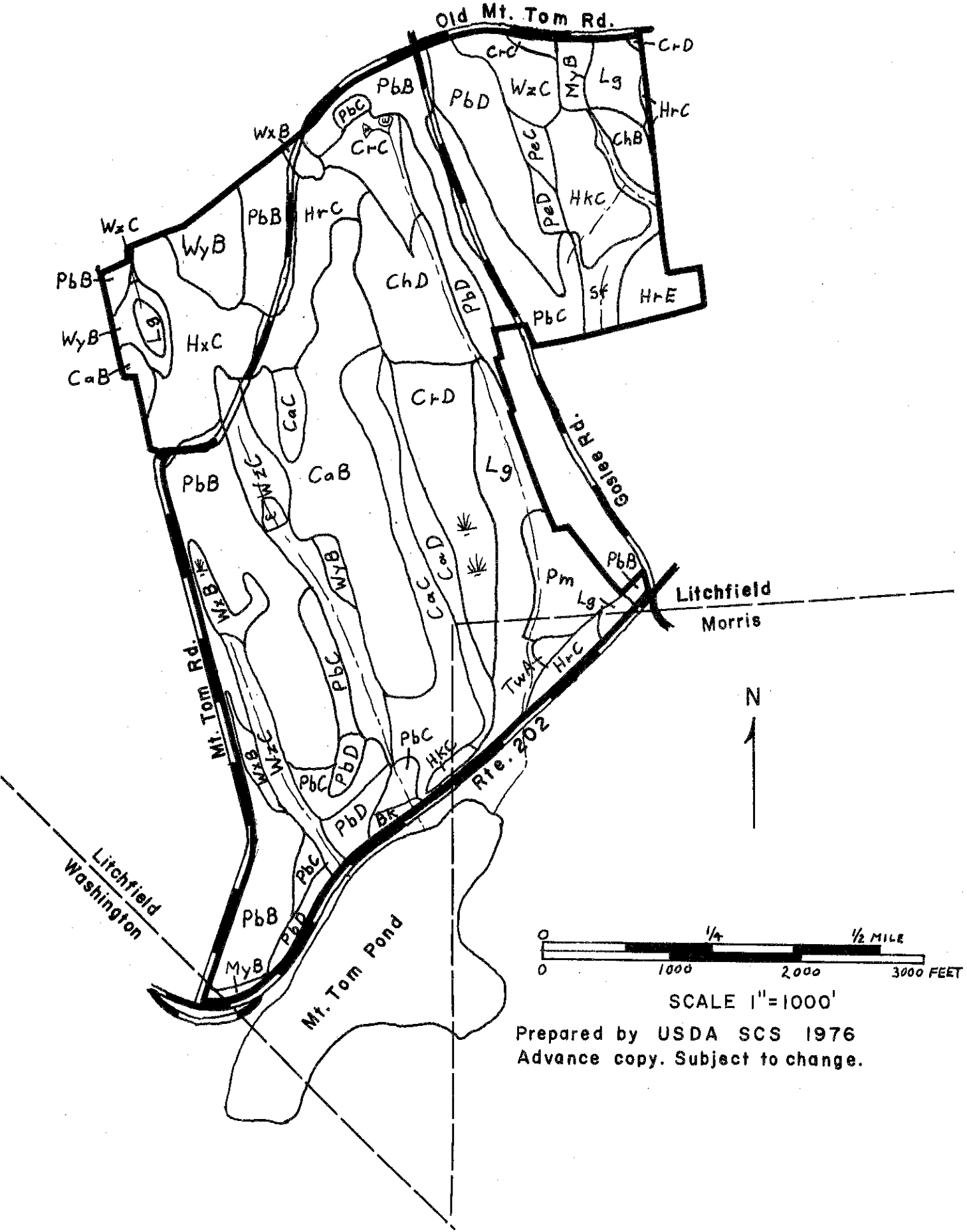
ALTERNATIVE LAND USES FOR THE AREA

Approximately one-hundred acres of the property is rated as prime agricultural land. An alternative use for the property (other than what is proposed) could be to develop it into an orchard or christmas tree farm (orchard on less sloping areas, christmas trees on the steeper (+15 percent) areas). This land has been successfully used as a commercial orchard and is particularly suited topographically for this type of use. Another possible use could be to develop it as a portion of a dairy, horse, or beef farm (cropland and hayland on the more desirable agricultural soils, and pasture on the steeper areas).

The area is also well suited for use as a golf course. However, in any use, fertilization, runoff, and erosion would want to be controlled in the same manner as for a subdivision so as to prevent possible eutrophication of Mt. Tom Pond.

APPENDIX

SOIL MAP
LITCHFIELD ESTATES



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LITCHFIELD ESTATES
Soils Limitations Chart

Natural Soil Group*	Mapping Symbol	Slope (%)	Acres	Percent of Total Acres	Limitations for:** On-site sewage	Building w/basement	Landscaping	Streets and Parking	Reason for Limitation
A-1b	HkC	3-15	13.0	2.95	1	1	3	2	droughtiness, slope
A-1d	MyB	3- 8	4.5	1.02	1	1	2	2	droughtiness, slope
A-2	TwA	0- 3	1.5	.34	2	2	1	2	seasonal water table
A-3b	+Sf	-	7.0	1.59	4	4	4	4	very high water table
A-3b	+Pm	-	11.0	2.50	4	4	4	4	very high water table, organic material
B-1a	ChB	3- 8	3.0	.68	1	2	2	2	stoniness, slope
B-1a	CaB	3- 8	44.0	10.00	1	1	1	2	slope
B-1b	CaC	8-15	23.5	5.34	2	2	2	3	slope
B-1c	CrC	3-15	10.0	2.27	3	3	3	3	stoniness, slope
B-1d	CaD	15-25	10.5	2.39	3	3	3	3	slope
B-1d	ChD	15-25	18.0	4.09	3	3	3	3	slope
B-1e	CrD	15-35	22.0	5.00	3	3	3	3	stoniness, slope
B-3b	+Lg	0- 5	30.0	6.82	4	4	4	4	very high water table, stoniness
C-1a	PbB	3- 8	72.0	16.36	3	1	1	2	fragipan, slope
C-1b	PbC	8-15	29.5	6.70	3	2	2	3	fragipan, slope
C-1c	PeC	3-15	3.0	.68	3	3	3	3	stoniness, fragipan, slope
C-1d	PbD	15-25	36.5	8.29	3	3	3	3	slope
C-1d	PeD	15-35	2.5	.57	3	3	3	3	stoniness, slope
C-2a	WyB	3- 8	14.5	3.30	3	2	2	2	fragipan, seasonal water table, stoniness, slope
C-2a	WxB	3- 8	8.5	1.93	3	2	1	2	fragipan, seasonal water table, slope
C-2b	WzC	3-15	32.0	7.27	3	3	3	3	stoniness, fragipan, seasonal water table, slope
D-1	HrC	3-15	17.0	3.86	3	3	3	3	shallowness, slope
D-2	HrE	15-35	6.5	1.48	3	3	3	3	shallowness, slope
D-2	HxC	3-15	17.5	3.98	4	4	4	4	shallowness, slope
U	Ma	-	1.0	.23	V	V	V	V	variable (made land)
U	Bk	-	1.5	.34	V	V	V	V	variable (borrow and fill land), sandy, gravelly
Totals			440.0	100.00					

* Refer to Know Your Land, Natural Soil Groups for Connecticut, Soil Conservation Service, USDA Connecticut Cooperative Extension Service, for further explanation of the natural soil groups.

** Limitations: 1-slight; 2-moderate; 3-severe; 4-very severe.

U - Unclassified
V - Variable
+ - Inland Wetland soils

LITCHFIELD ESTATES
Acreage Summary of Limitations

	(1) Slight		(2) Moderate		(3) Severe		(4) Very Severe	
	Acres	%	Acres	%	Acres	%	Acres	%
On-site sewage	64.50	14.65	25.0	5.68	282.50	64.19	65.50	14.89
Basements	133.50	30.33	80.50	18.29	158.0	35.90	65.50	14.89
Landscaping	126.0	28.63	75.0	17.04	171.0	38.85	65.50	14.89
Streets and Parking	0.0	0.00	161.0	36.58	211.0	47.94	65.50	14.89