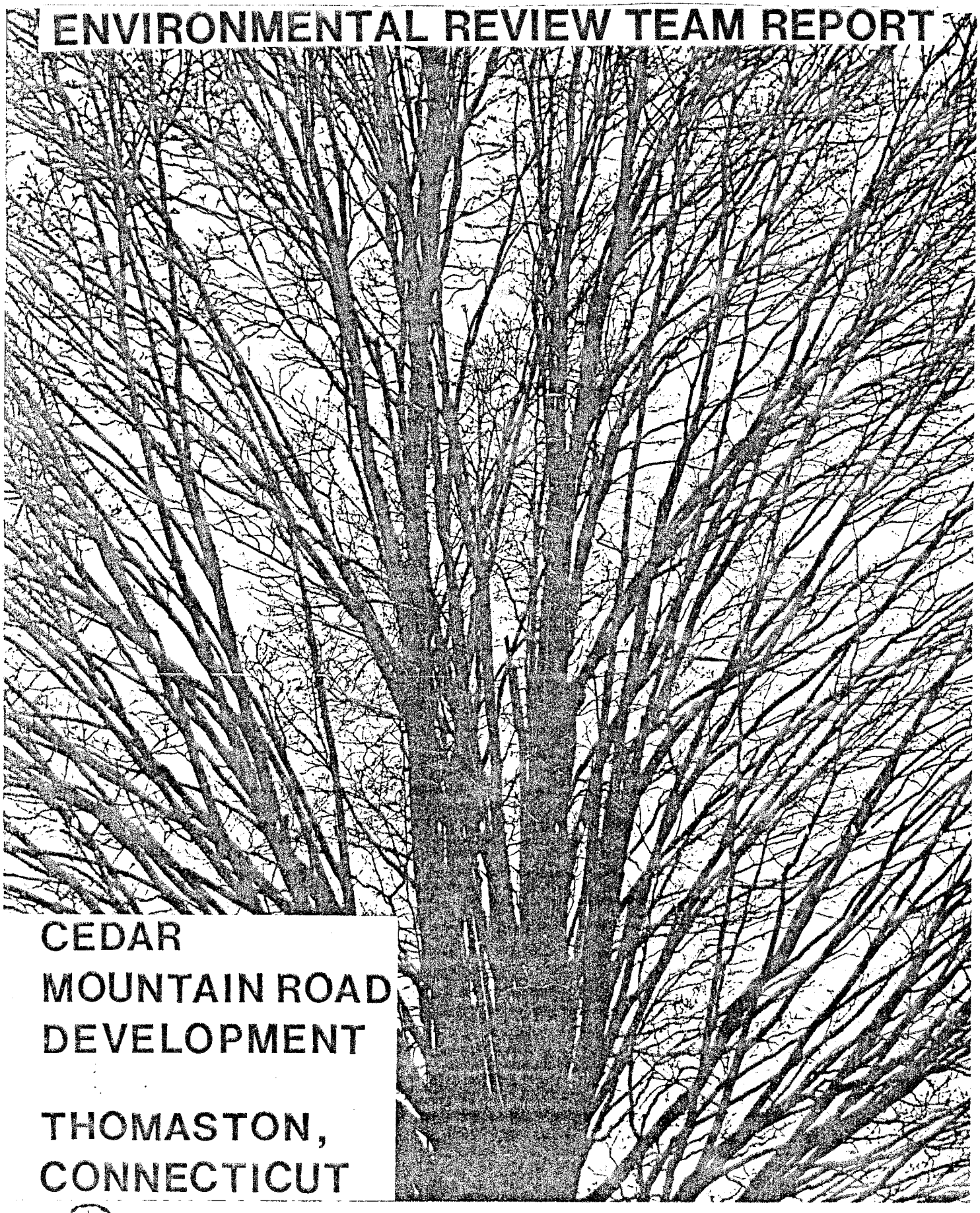
ENVIRONMENTAL REVIEW TEAM REPORT



CEDAR MOUNTAIN ROAD DEVELOPMENT

THOMASTON, CONNECTICUT

KING'S MARK RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

CEDAR MOUNTAIN ROAD DEVELOPMENT ENVIRONMENTAL REVIEW

Thomaston, Connecticut

Prepared by the King's Mark Environmental Review Team
of the King's Mark Resource Conservation
and Development Area, Inc.

Wallingford, Connecticut

for the

Thomaston Planning and Zoning Commission

APRIL 1986

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  Department of Environmental Protection

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  Council of Governments of the Central Naugatuck Valley

I would also like to thank Patricia Newton, Secretary, and Janet Jerolman, Cartographer of the King's Mark Environmental Review Team for assisting in the completion of this report.

Finally, special thanks to Leona Sheldon, Zoning Enforcement Officer, Town of Thomaston, Harrow Kindness, Acting Chairman of the Thomaston Planning and Zoning Commission and Charles Vidich, Principal Planner, Council of Governments of the Central Naugatuck Valley for their cooperation and assistance during this environmental review.

EXECUTIVE SUMMARY

The Thomaston Planning and Zoning Commission requested an environmental review on a site proposed for a subdivision development. The 29-acre site is located on Cedar Mountain Road in the eastern part of Thomaston. The site is mostly characterized by openland, open woodland and upland forest. A small portion in the southeast section of the study site was also utilized as a landfill area from 1960 to 1966. A preliminary site plan was submitted to the Planning and Zoning Commission but has since been withdrawn by the landownwer pending further review and analysis of the development potential of the site by the ERT.

The ERT was specifically asked to: (1) assess the overall development potential of the site; (2) inventory and assess the soil, geological, and hydrological conditions of the site; (3) assess the quantity and quality of groundwater on the site; (4) determine the feasibility of on-site septic systems; and (5) assess past and existing conditions of the former landfill area, and determine if this will significantly impact the developability of this site.

The review process consisted of four phases: (1) inventory of the study sites's natural resources (collection of data); (2) assessment of these resources (analysis of data); (3) identification of natural resource capabilities; and (4) presentation of planning and development guidelines.

Through the inventory and assessment process, specific resources, areas of special concern, and development opportunities and limitations were identified. They fall into two general categories: (1) physical characteristics; and (2) land use and planning considerations.

PHYSICAL CHARACTERISTICS

Landfill Area

The former landfill on the proposed site operated between 1960 and 1966. Municipal garbage, abandoned vehicles, and brush as well as cleaning chemicals from the Dorset Rex Company were disposed of at the former privately-owned landfill.

The presence of the landfill over shallow bedrock raises a major concern in terms of water quality, particularly since potential homes constructed on the site will need to rely on bedrock wells for drinking water and other domestic uses.

"Leachate" is a term given to the liquid created beneath a landfill when rainfall or snowmelt percolates through the materials disposed of at the site. Leachate can contain a wide range of organic and inorganic contaminants which can render the water unusable for drinking purposes. Since there are no records identifying specific materials that were buried on the site, there is always a possibility for change in water quality in the vicinity of the landfill.

The applicant should be required to conduct a detailed hydrogeologic study of landfill area, particularly since potential homes will need to rely on individual on-site water supplies. This study should include the installation of monitoring wells around the landfill site to determine groundwater flow and water quality.

It may prove possible to to develop this site in the area immediately adjacent to Cedar Mountain Road, if existing water supply wells near the property are sampled and analyzed. The existing wells' close proximity to this section of the study area may provide an adequate assessment of the groundwater quality for this section. It would be prudent, however, to require a developer to drill and sample a water supply well prior to allowing construction on this property.

Field reconnaissance of the landfill area revealed evidence that illegal dumping of solid wastes is continuing at this site. Proper closure of this site is desirable to prevent this activity and to diminish leachate generation. It should be noted that such action will probably not result in any short term improvement of degraded groundwater quality at the site.

Once thorough knowledge of the groundwater system in relation to the landfill is accomplished, there may be a potential well site within the property which would not be affected by leachate from the landfill. As a result, the well(s) might serve potential homes on the site in sufficient and acceptable quantities, and acceptable quality.

Hydrology

Based on visual observations made during the field review, most residences along Cedar Mountain Road rely on the underlying bedrock as a water source for domestic purposes.

The overall runoff increases from the site would be relatively low, about four percent or less for the 10, 25 and 100 storm events. Because of the low density which would be anticipated if development occurred on the property, runoff from the site should not have a high potential for erosion, especially if minimal land is disturbed. However, the presence of some moderate slopes in the western half of the study area may cause erosion especially if they are unnecessarily disturbed. In order to avoid any problems, it is suggested that a sound sediment and erosion control plan be devised and closely followed. Conscientious construction practices should also be employed to avoid erosion problems.

It is suggested that when the applicant re-submits a plan for the site, that he/she also be required to submit detailed hydrological information on pre- and post development runoff volumes and peak flows from the site. Estimates should be provided for the 2, 10, and 100 year design storms. Detailed design information on how the applicant plans to handle increased flow from the site should also be submitted for town review.

The natural quality of groundwater in this area should be satisfactory, except perhaps in the vicinity of the former landfill. The minerology of the rocks underlying the site may be tainted with elevated iron and manganese levels. As a result, these levels could affect well water quality to a point where an appropriate water treatment filtration system may be needed. It should be pointed out that elevated levels of the aforementioned minerals may also be indicative of contamination by leachate from a landfill.

Soils

The proposed development comprises mostly of Hollis soil types. There are also Paxton and Woodbridge soils located on the site. The

Paxton and Woodbridge soils are more suited to development, though they are also considered prime farmland soils. Due to the hardpan nature of the soils, care must be taken when developing the site.

Proper drainage would be needed due to the high water table during the wet times of the year. Also, since the soil slopes towards the road, it is suggested that the septic systems be placed toward the road. Private wells should be placed 75 feet apart to avoid potential pollution from a possible septic failure. This will also conform to Torrington Area Health District standards.

LAND USE AND PLANNING CONSIDERATIONS

Land Use Compatibility

The proposed residential development would be compatible with the general neighborhood and surrounding land use. The developer is attempting to minimize development costs through the use of interior lots and the existing frontage on Cedar Mountain Road. In this attempt, however, he or she is creating excessively deep (i.e., 578 to 680 foot) lots, with the minimum frontage of 150 feet. This creates 10 points of access onto the public way.

The developer should be encouraged to redesign the preliminary site plan to include a short cul-de-sac. It is estimated that at least the same number of lots, and a reduction of lot depth and driveways could be obtained. Road access points could also be reduced. This, of course, is only obtainable if assurances of potable water in adequate quantity and subsurface sewage disposal can be provided. If the assurances cannot be made to the Town's complete satisfaction, the subdivision of the 29 acres should be reconsidered -- regardless of the number of lots proposed.

Zoning and Subdivision Requirements

The proposed subdivision, with a minimum size of two acres is consistent with municipal, regional, or state planning documents.

The proposal does or can meet the requirements of the zoning regulations. In terms of the subdivision ordinance, the Commission has sufficient basis in State statutes, and in their regulations to be particularly demanding of assurances from the applicant that this parcel can be utilized for building purposes without danger to health. Provision of potable water is the Commission's critical concern.

Traffic

The additional limited traffic generated by the subdivision would not unduly exacerbate the present situation.

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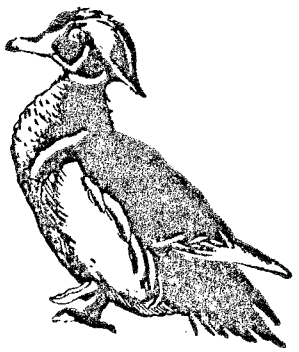


INTRODUCTION

Introduction

The Thomaston Planning and Zoning Commission requested an environmental review on a site proposed for a subdivision development. The 29-acre site is located on Cedar Mountain Road. The site is east of the Naugatuck River, south of Thomaston Center, just west of the Plymouth town line and north of the Mattatuck State Forest. Access is provided off of Cedar Mountain Road (Figure 1).

The site is mostly characterized by openland, open woodland and upland forest. A small area in the southest section of the study site was utilized as a landfill area. A preliminary site plan was submitted to the Planning and Zoning Commission but has since been withdrawn by the landownwer pending further review and analysis of the development potential of the site by the ERT.

The primary concern expressed by the Town is that a small, yet significant part of the site, was utilized as a landfill from 1960 to 1966. Municipal garbage, abandoned vehicles, and brush were disposed of here. Also, the Dorset Rex Company disposed cleaning chemicals in this landfill. Therefore, a primary concern is, will the presence of this abandoned landfill significantly impact the development potential of the entire 29-acre site?

The proposed development would require on-site wells and septic systems; therefore, another concern is the quality and quantity of existing groundwater and the feasibility of on-site septic systems.

Goals and Objectives of the ERT Study

The ERT was specifically asked to: (1) assess the overall development potential of the site, identifying development constraints and limitations; (2) inventory and assess the soil, geological, and hydrological conditions of the site; (3) assess the quantity and quality of groundwater, if any, on the site; (4) determine the feasibility of on-site septic systems; and (5) assess past and existing conditions of the former landfill area, and determine if this will significantly impact the developability of this site.

The ERT Process

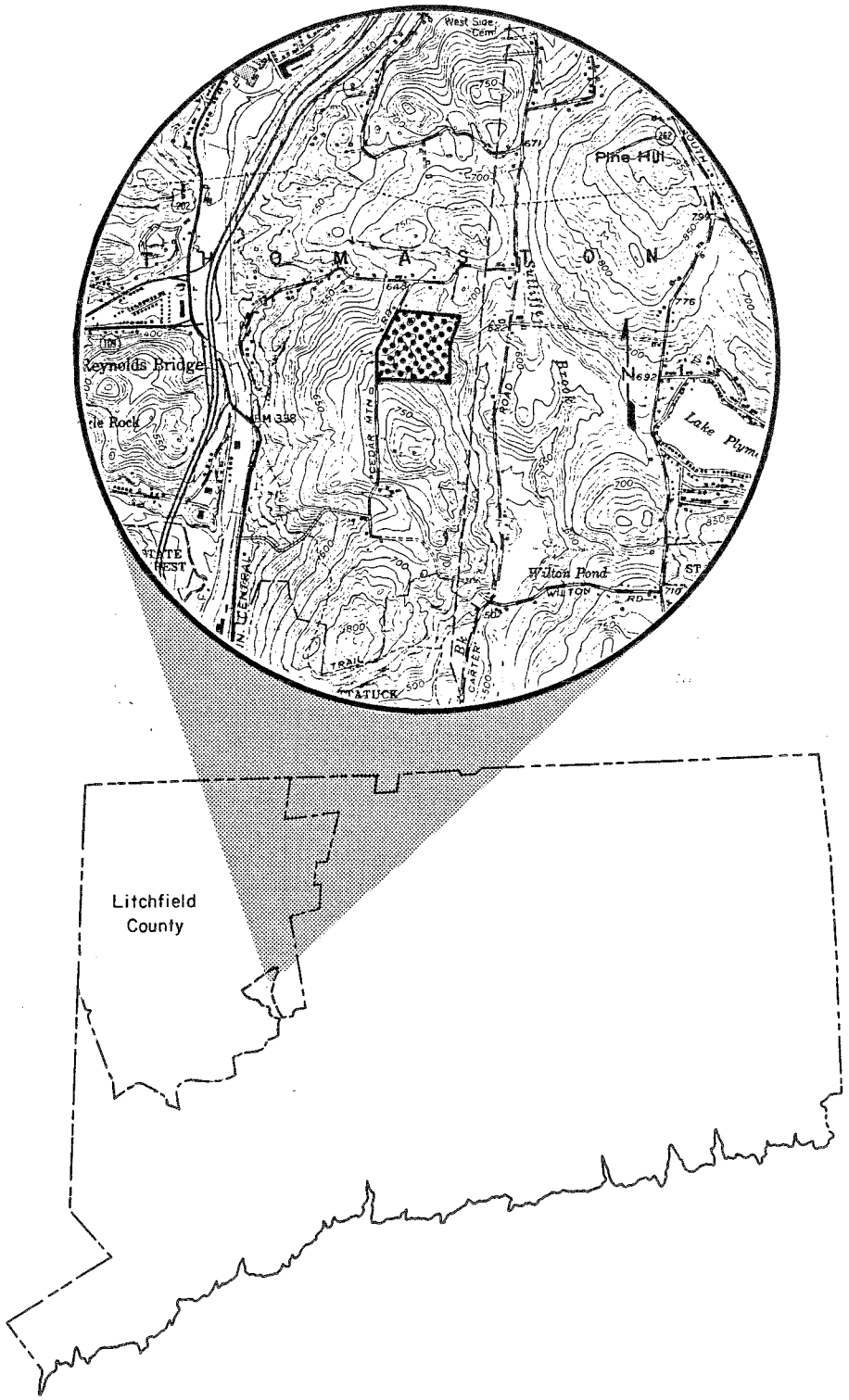
Through the efforts of the Thomaston Planning and Zoning Commission and the King's Mark Environmental Review Team, this environmental review was conducted for the Town. This report is not intended to compete with private consultant design plans for this site. Rather, it provides a natural resource data base allowing the Town to make informed decisions concerning the use of the proposed site.

The review process consisted of four phases: (1) inventory of the study sites's natural resources (collection of data); (2) assessment of these resources (analysis of data); (3) identification of natural resource capabilites; and (4) presentation of planning and development guidelines.

The data collection phase involved both literature and field research. Mapped data, technical reports, or town plans were perused and specific information concerning the site was collected. Field

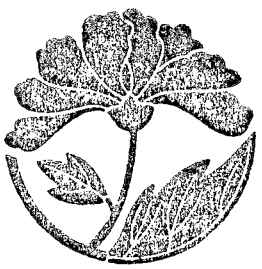
Figure 1

LOCATION OF STUDY SITE

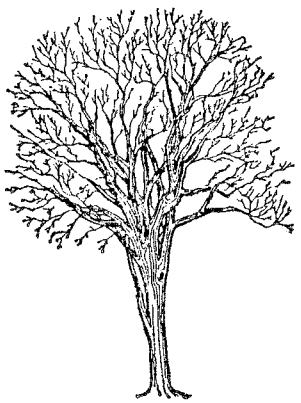


review and inspection of the site proved to be a most valuable component of this phase. The emphasis of the field review was on the exchange of ideas, concerns, and alternatives. Being on site also allowed Team members to check and confirm mapped information, and identify other resources.

Once the Team members had assimilated an adequate data base, it was then necessary to analyze and interpret their findings. The results of this analysis enabled the Team members to arrive at an informed assessment of the site's natural resource development opportunities and limitations.



PHYSICAL CHARACTERISTICS



PHYSICAL CHARACTERISTICS

Topography and Setting

The approximately 29-acre parcel of land is nearly square in shape, and located in eastern Thomaston not far from the Plymouth town line.

The site has approximately 1,125 feet of frontage along Cedar Mountain Road.

Bedrock, or ledge is visible at ground surface throughout the central portions of the study area. This part of the parcel marks the highest point (i.e., approximately 710 feet above mean sea level) on the site. Land surface in the western section slopes moderately north-northwest towards Cedar Mountain Road from the central portions, while the terrain in the eastern sections of the study site slopes moderately to steeply to the east. Lowest point in the eastern limits of the site is approximately 600 feet above mean sea level (Figure 2). No major stream courses were visible on the site during the field review. It should be pointed out that the abandoned landfill is located in the southeast corner of the site. According to information supplied to Team members, the former landfill operated between 1960 and 1966. Municipal garbage, abandoned vehicles, and brush as well as cleaning chemicals were disposed of at the former privately-owned landfill.

Geology

The site is located in the Thomaston topographic quadrangle. No bedrock geologic map has been published to date for the quadrangle.

As a result, the Team's geologist referenced John Rodger's Bedrock Geological Map of Connecticut for the bedrock geology section of this report. A surficial geologic map (GQ-984) for the quadrangle by Charles R. Warren has been published by the U.S.Geological Survey.

Bedrock Geology

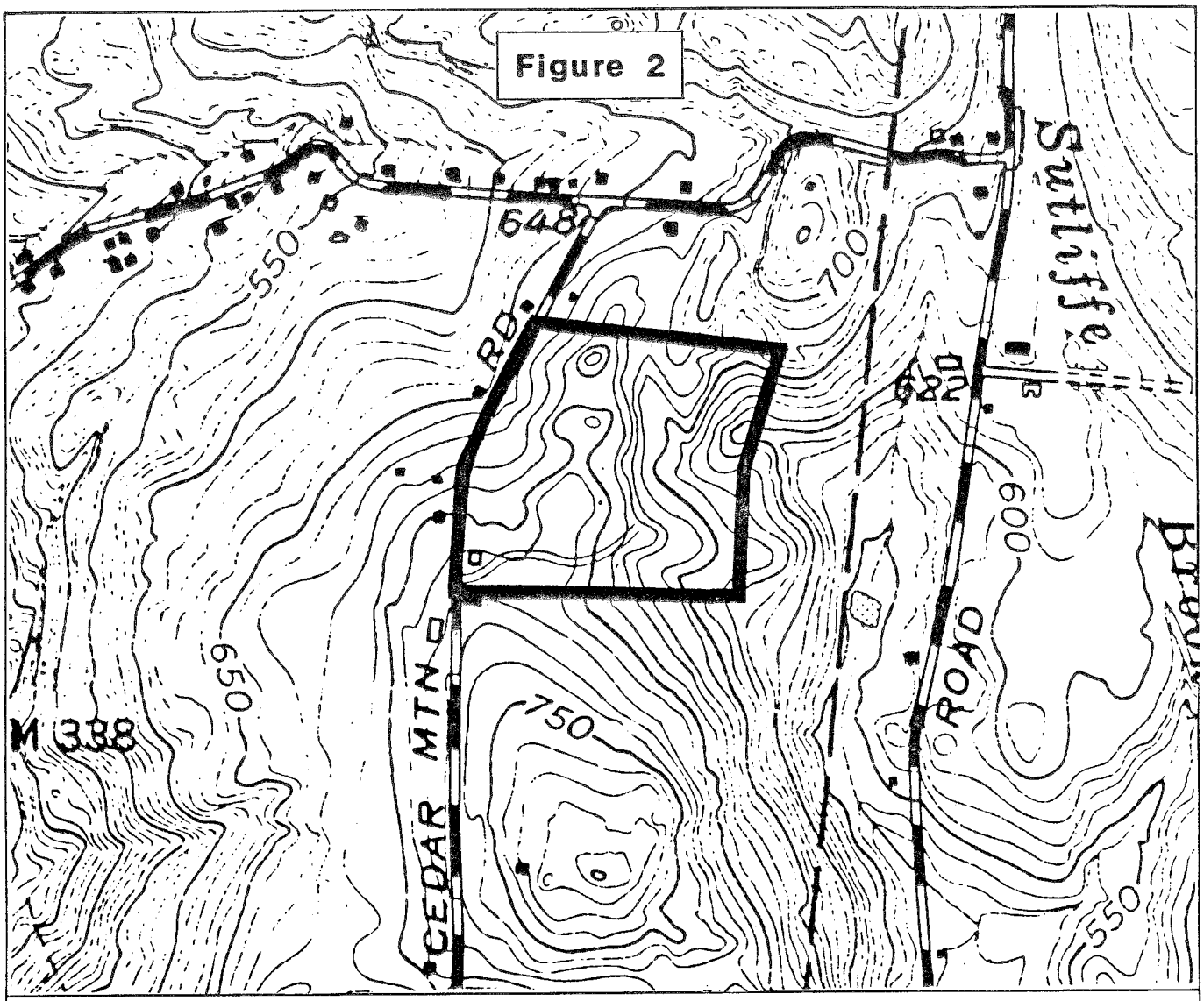
Bedrock underlying the entire site consists of very old, crystalline metamorphic rock of Ordivician geologic age (i.e., about 438-510 million years old). The term "metamorphic" refers to rocks which have been geologically altered as a result of great heat and pressure within the earth's crust. Rodger's identifies these rocks as Collinsville Formation. This rock unit consists of a mixture of rocks, which includes a gray and silver, medium to coarse grained schist, a dark, fine to medium grained amphibolite (i.e., rocks composed of amphibole-bearing minerals), and hornblende gneiss (Figure 3).

Based on visual observations made during the field review, most residences along Cedar Mountain Road rely on the underlying bedrock as a water source for domestic purposes.

Depth to bedrock on the site is generally shallow throughout the central and eastern sections of the study area, but is probably greater than 10 feet in the western sections.

Surficial Geology

A glacial sediment called till overlies bedrock throughout the site. As glacier ice advanced southward over the region, it collected and transported rock particles, rock fragments, and pre-existing overburden. Much of this transported debris was



CEDAR MOUNTAIN ROAD DEVELOPMENT

THOMASTON, CONNECTICUT

TOPOGRAPHY

King's Mark Environmental Review Team

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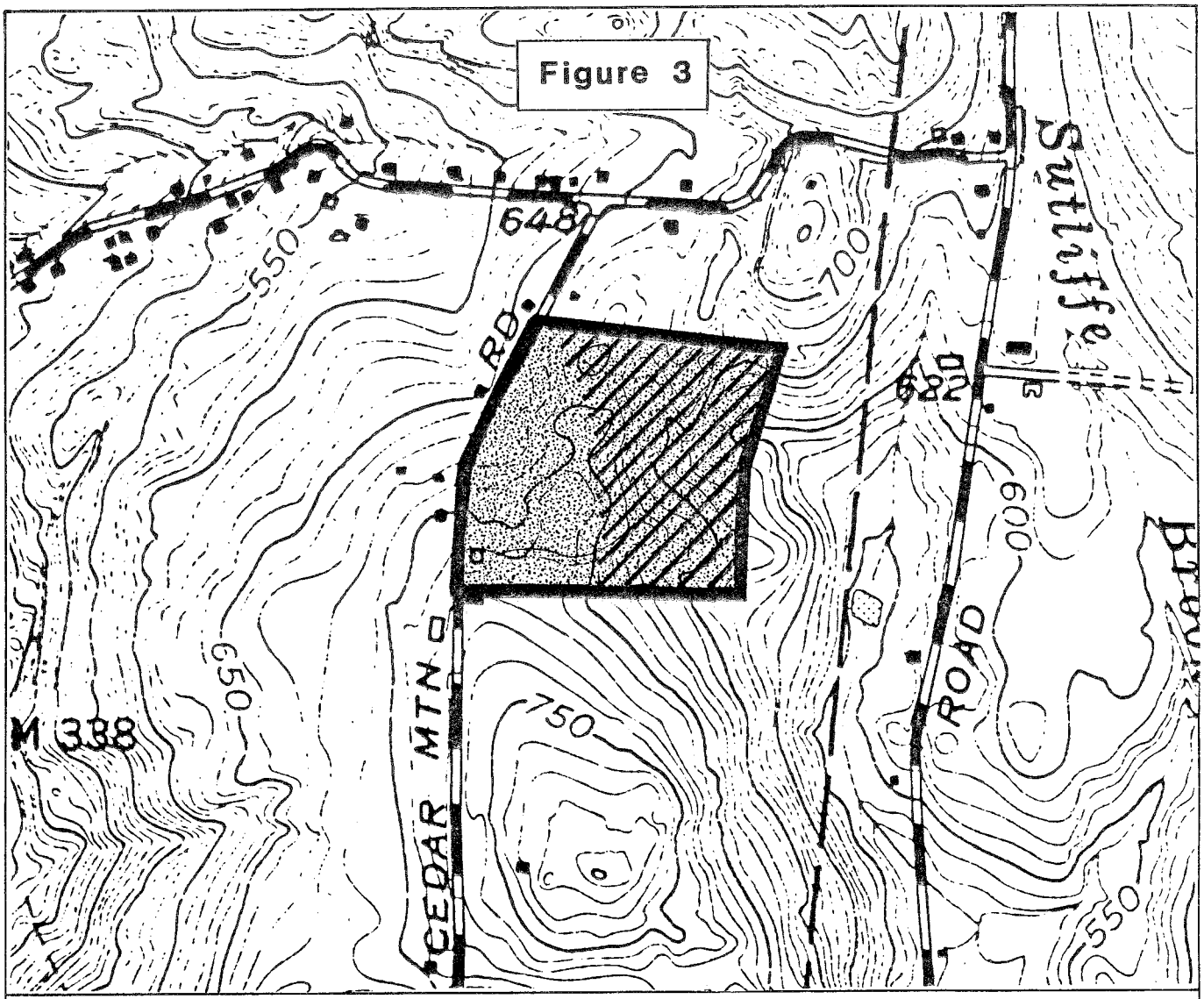

COLLINSVILLE FORMATION

SHALLOW TO BEDROCK AREAS

CEDAR MOUNTAIN ROAD DEVELOPMENT

THOMASTON, CONNECTICUT

BEDROCK GEOLOGY

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redeposited directly from the ice, either by being plastered onto the land from beneath the ice mass, or by being let down gently as the ice melted. The resulting deposit was till. Because of its mode of deposition, till contains a non-sorted mixture of particles ranging in size from clay to large boulders. The till may be sandy, stony and loose, or silty, less stony and tightly compact. Based on mapped soil information, the latter variety of till comprises the western sections of the parcel. The thickness of the till in this area may very well exceed 10 feet. Till in the central and eastern portions is relatively shallow (e.g., probably less than five feet), and is generally loose (Figure 4).

For approximately six years (1960-1966), a privately-owned landfill was operated in the southeast corner of the site. The exact volume of refuse disposed of in the landfill is unknown. According to information supplied to Team members, refuse disposed of in the landfill consisted of garbage, combustible and non-combustible rubbish, abandoned vehicles, and industrial wastes.

Hydrology

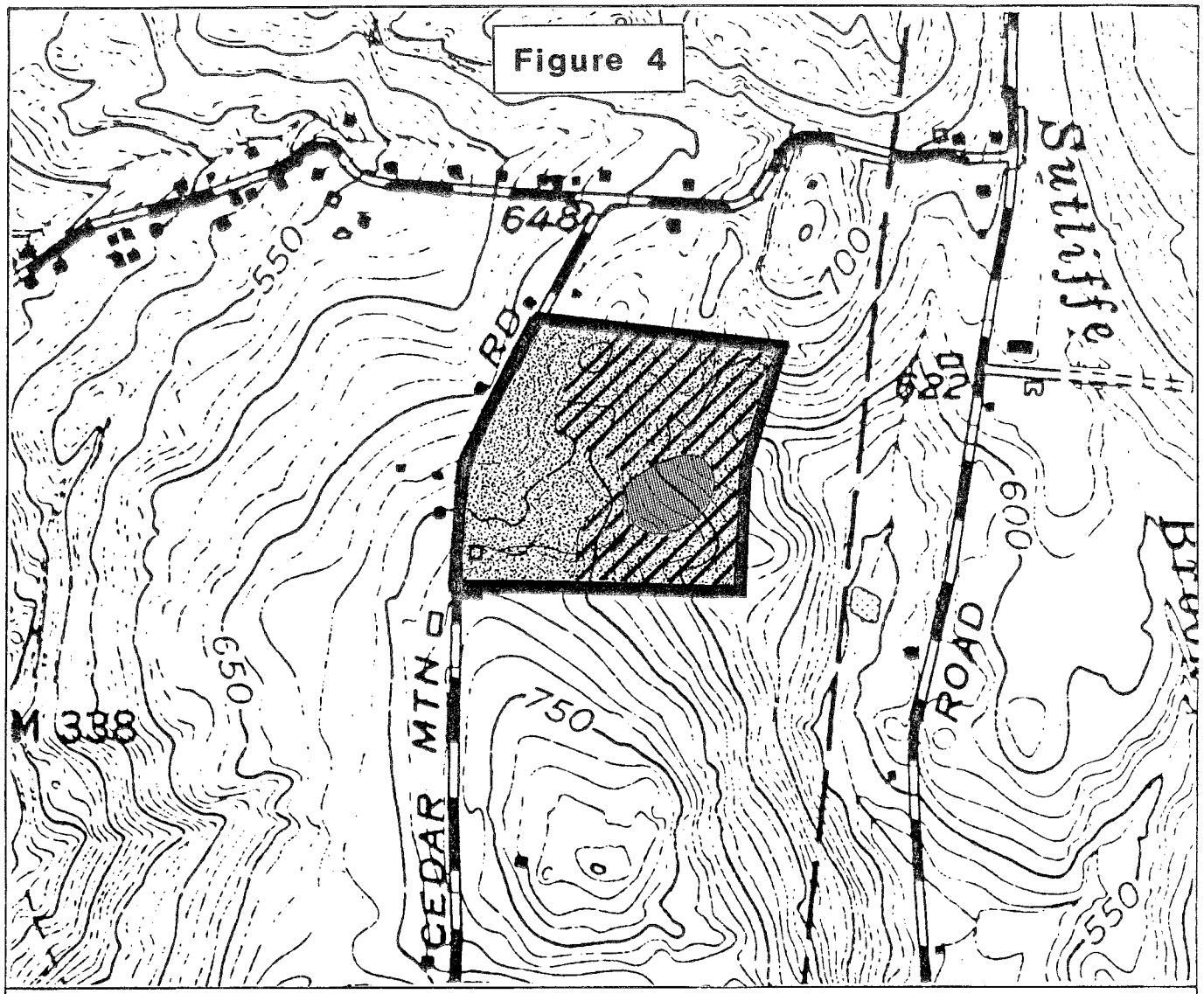
Surface drainage, and to a large extent subsurface drainage on the site, may be divided nearly in half. Most of the surface drainage in the western half of the study site flows downslope to a culvert passing under Cedar Mountain Road in the northwest corner. From the outlet of this pipe, water flows towards, and ultimately under Urban Street. It then discharges into an unnamed tributary to the Naugatuck River. Surface runoff in the eastern parts of the parcel flows downslope to an unnamed tributary to Sutliff Brook in Plymouth (Figure 5).

Development of the site for residential homes would be expected to lead to increases in runoff. The amount of the increases would depend upon the extent of development, the amount of impervious surface created, and the amount of vegetation removed.

Peak flows and runoff changes for certain storm events (i.e., the 10 year, 25 year and 100 year storm) may be estimated by a method described in Technical Release No. 55 (TR-55) of the Soil Conservation Service. This method considers soil types, vegetative cover, land use, slopes, and other factors. In order to calculate runoff changes and peak flows, TR-55 requires the estimation of curve numbers, which relate amounts of precipitation to amounts of runoff. The rainfall figures indicated represent an amount that would occur within a 24 hour period. A higher curve number indicated that a greater volume of runoff would occur following a given amount of precipitation.

Since the preliminary site plans have been withdrawn, several assumptions were made in order to analyze the potential runoff and peak flow conditions following development. Two of the major assumptions are: (1) if development occurs, it would take place only in the western half of the parcel, and therefore, would drain to the culvert on Cedar Mountain Road; and (2) it was estimated that a total of 0.5 an acre of impervious surface (i.e., roof tops, driveways, existing roads, patios, etc.), would be created in the watershed as a result of development.

It should be pointed out that the peakflow estimates shown in Table 1 does not take into account potential engineering measures that could affect the natural channel. For example, piping may



TILL - thick

TILL - generally less than three feet

FORMER LANDFILL SITE (approx.)

CEDAR MOUNTAIN ROAD DEVELOPMENT

THOMASTON, CONNECTICUT

SURFICIAL GEOLOGY

King's Mark Environmental Review Team

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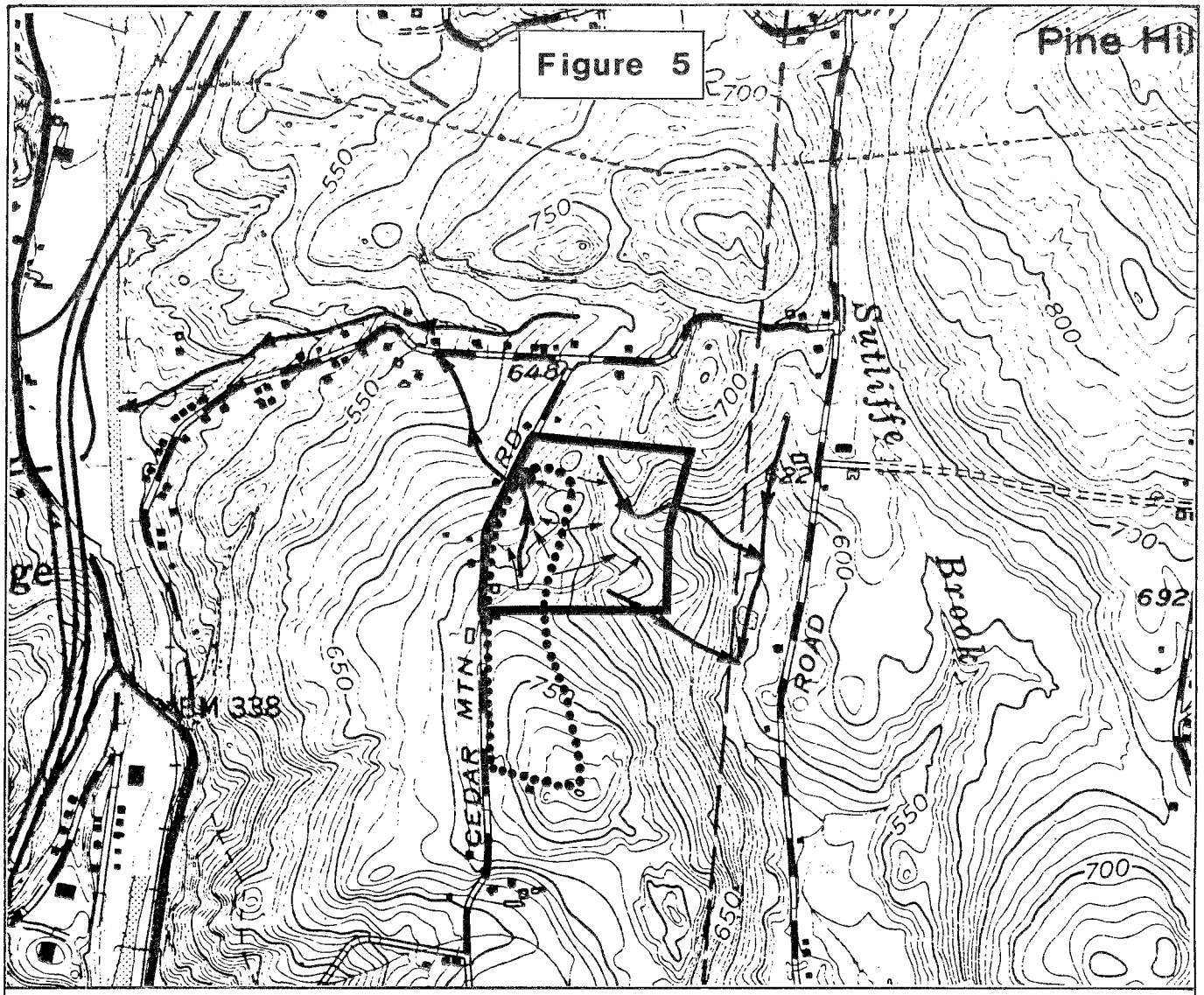

WATERSHED BOUNDARY AND ITS RESPECTIVE DESIGN POINT (at culvert) USED TO DETERMINE RUNOFF CALCULATION

WATERCOURSES SHOWING DIRECTION OF FLOW

DIRECTION OF SURFACE FLOW

CEDAR MOUNTAIN ROAD DEVELOPMENT

THOMASTON, CONNECTICUT

WATERSHED BOUNDARY

King's Mark Environmental Review Team

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increase the peak flows while energy dissipators would reduce them.

As Table 1 indicates, the overall runoff increases from the site (based on the aforementioned assumptions) would be relatively low, about four percent or less for the storm events indicated. Because of the low density which would be anticipated if development occurred

TABLE 1

ESTIMATED RUNOFF DEPTHS (IN INCHES) FOR
PREDEVELOPMENT AND POSTDEVELOPMENT CONDITIONS*

Storm Recurrence Interval	Precipitation (inches)	Runoff (inches) Predevlp.	Postdevlp.	% Increase
10	4.7	1.97	2.04	3.5
25	5.5	2.59	2.68	3.5
100	7.0	3.83	3.94	4.0

* Assumed that four (4) moderately sized homes with paved driveways would be constructed on the parcel.

on the property, runoff from the site should not have a high potential for erosion, especially if minimal land is disturbed. The presence of some moderate slopes in the western half of the study area may cause erosion especially if they are unnecessarily disturbed. In order to avoid any problems, it is suggested that a sound sediment and erosion plan be devised and closely followed. Conscientious construction practices should also be employed in order to avoid erosion problems.

The effect of increased runoff to the culvert passing under Cedar Mountain Road may now be analyzed. The watershed area analyzed for the peak flows is shown in Figure 5. It is based upon a certain point of outflow (i.e., culvert passing under Cedar Mountain Road), and shows all of the land from which runoff ultimately reaches that point.

As mentioned earlier, TR-55 techniques were used in the analysis to determine peak flow. Several factors which ordinarily would be incorporated into the calculations were not included (i.e., piping), because no final site plan has been devised to date. Nevertheless, the results of the peak flow calculations should prove useful as "ball park" guides to anticipated peak flow increases. As indicated in Table 2, the calculated peak flow increases (based on the aforementioned assumptions) are moderately high (about 14 percent for the 10, 25 and 100 year storm events). These increases may be of particular concern to the Town, especially in view of the 12-inch pipe passing under Cedar Mountain Road. The pipe may be too small to handle increased flows due to additional development in the watershed during certain storm events. As a result flooding problems could arise in this area. Therefore, if development occurs on the parcel, the project engineer should take a close look at this culvert.

Much of the watershed analyzed is undeveloped. There is a possibility that several more homes could be developed along Cedar Mountain Road in the southern parts of the watershed. These additional homes would also contribute to increased flows at the culvert passing under Cedar Mountain Road. As a result, each developer in the watershed should do his/her part to minimize the

TABLE 2

PEAK FLOWS FOR PREDEVELOPMENT AND POSTDEVELOPMENT CONDITIONS AT THE INLET TO PIPE UNDER CEDAR MOUNTAIN ROAD * #

Storm Frequency	10 year	25 year	100 year
Before Development Curve Number 72	21.5 cfs	28.6 cfs	43.0 cfs
After Development Curve Number 73	24.5 cfs	32.5 cfs	49.0 cfs
Percent Increase	14.0 %	14.0 %	14.0 %

* Assumptions same as Table 1.
\# All flows given in cubic feet per second.

potential for possible flooding problems at the culvert or elsewhere in the watershed.

It is suggested that once the applicant submits a plan for the site, that he/she be required to submit detailed hydrological information on pre- and postdevelopment runoff volumes and peak flows from the site. Estimates should be provided for the 2, 10, and 100 year design storms. Detailed design information on how the applicant plans to handle increased flow from the site should also be submitted for town review.

Water Supply

Although the Town of Thomaston has a public water system, the subject parcel is located too far away to tie into the line.

Extension of the water supply line to the site would probably be cost prohibitive due to the terrain and numerous ledge outcroppings. Since the density of the development would probably be low, it would not be feasible to tie into the public water supply system. Therefore, on-site wells will need to be developed to service potential home sites.

Since no extensive sand and gravel deposits exist within the site, the underlying bedrock would be the most likely aquifer to be tapped. If sand and gravel deposits are thick enough and saturated, they can generally yield water at a high rate compared to wells tapping crystalline bedrock. The exact yield of a bedrock based well is a function of many geologic factors, such as the number and size of fractures present in the bedrock. Since the fractures in bedrock are irregular, there is no practical way of predicting the yield of a bedrock well drilled in a specific location. Even with geophysical exploration, it is extremely difficult to predict such yields. Nevertheless, wells drilled in bedrock are generally capable of supplying small but reliable yields.

An assessment of existing bedrock based wells has been conducted for the lower Housatonic River basin which includes the subject site. (Source: Connecticut Water Resources Bulletin No. 19). All of the 294 wells surveyed in Bulletin #19 tap crystalline bedrock, which is the same as the bedrock underlying the study site. This assessment allows one to predict the chances for any new well to achieve certain minimum yields. Based on Bulletin #19, 85 percent of the wells tapping the type of rock underlying the site yielded about 2.0 gallons per minute (GPM) or more; 70 percent yielded about 4.0

GPM or more; and only 28 percent yielded 9.0 GPM or more.

A survey of well completion reports for existing bedrock floored wells serving homes along Cedar Mountain Road were reviewed by the Team's geologist. The reports revealed yields ranging between 1.5 GPM and 7 GPM at varying depths of 125 feet to 305 feet.

The natural quality of groundwater in this area should be satisfactory, except perhaps in the vicinity of the former landfill. The minerology of the rocks underlying the site may be tainted with elevated iron and manganese levels. As a result, these levels could affect well water quality to a point where an appropriate water treatment filtration system may be needed. It should be pointed out that elevated levels of the aforementioned minerals may also be indicative of contamination by leachate from a landfill.

The former landfill area discussed earlier is located in the southeast corner of the study area. Based on available soil mapping, bedrock is at or near ground surface throughout this area. The presence of the landfill over shallow bedrock raises a major concern in terms of water quality, particularly since potential homes constructed on the site will need to rely on bedrock wells for drinking water and other domestic uses.

"Leachate" is a term given to the liquid created beneath a landfill when rainfall or snowmelt percolates through the materials disposed of at the site. Water percolating down through the material dissolves soluble materials, and carries them along with the water flow. The resulting leachate ultimately becomes part of the groundwater system. Groundwater recharges the openings (i.e., fractures, seams, joints, etc.) in the underlying bedrock. Leachate

can contain a wide range of organic and inorganic contaminants which can render the water unusable for drinking purposes. The volume and characteristics of landfill leachate depend on the amount of water that passes through the refuse, and the materials that are buried at the site. Since there are no records identifying specific materials that were buried on the site, there is always a possibility for change in water quality in the vicinity of the landfill due to a ruptured barrel, or disturbance of the landfill by heavy equipment. Leachate continues to be produced for many years after the landfill has been abandoned, but persists in gradually diminishing concentrations for many years. According to information supplied to Team members, the landfill closed in 1966. As a result, it is probably in the late leachate production cycle.

To the best of the ERT's knowledge, no study has been conducted on the groundwater system to date in the vicinity of the old landfill.

Prior to approving the site for residential development, the applicant should be required to conduct a detailed hydrogeologic study of landfill area, particularly since potential homes will need to rely on individual on-site water supplies. This study should include the installation of monitoring wells around the landfill site to determine groundwater flow and water quality. Because water quality may change in the area of the landfill, especially if its disturbed, water in monitoring wells as well as domestic wells should be tested on a regular basis (i.e., perhaps once a year) to detect if there has been any change in water quality. The information compiled from such a study should allow for the determination of the landfill

impacts on the local groundwater system. Until such time that a hydrogeologic study is conducted on the former landfill, can the site be properly assessed for residential development with on-site water supplies.

After a study of the groundwater system on the site has been completed, the applicant may wish to consider utilizing a community well(s) to serve the needs of potential homes on the site instead of several individual wells. Once thorough knowledge of the groundwater system in relation to the landfill is accomplished, there may be a potential well site within the property which would not be affected by leachate from the landfill. As a result, the well(s) might serve potential homes on the site in sufficient and acceptable quantities, and acceptable quality.

Since the Public Water Supply section of the State Health Department reviews and approves community water supplies, they should be contacted as early as possible in order to discuss the following:

(1) projected needs of the development in terms of water quantity;

(2) location of the community well or wells on the site, keeping in mind the former landfill;

(3) water quality testing requirements; and

(4) plans for pumpage, storage, treatment if necessary, and the distribution system. Consideration should be given in advance to providing for proper operation and maintenance to a potential community water supply system (i.e., establishment of a homeowners association).

The developer(s) should consider drilling the well or wells first, and test for water quality and quantity prior to any actual construction on the site. It would probably be worthwhile to review

any well completion and water quality reports for existing bedrock wells along Cedar Mountain Road.

Sewage Disposal

At the present time, only the center of Thomaston has the availability of municipal sewers. The closest connection to the public sewer line in relation to the study site is unknown. It seems likely that extension of the public sewer line to the site would be too costly. Therefore, any residential development would need to be served by individual on-site subsurface sewage disposal systems.

To the best of the ERT's knowledge, no deep test pits or seepage (percolation) tests have been conducted on the site. Based on visual observations and mapped soil data, it appears that the soils are a mixture as to their suitability for on-site sewage disposal. In the western portions of the site, (i.e., along Cedar Mountain Road), soils are influenced by a compact zone or hardpan layer. It occurs at about two feet below ground surface. This commonly results in a high seasonal groundwater condition, and slow percolation rates. Areas which have high seasonal water levels should be given special attention, and will undoubtedly require an engineered design. Mitigative measures commonly used to overcome seasonal high groundwater condition are: (1) keep the leaching system shallow, and spread out; (2) placement of proper fill material so that the bottom of the leaching system is properly elevated above the maximum high ground water level; and (3) the installation of a curtain drain to protect the leaching system from groundwater flow. Depending upon the leaching system location for potential homes, it appears that

slopes in the western sections would be conducive to the installation of curtain drains.

The central and eastern portions of the site are dominated by a rocky terrain where the soils are shallow, but tend to be well drained. However, as they consist of a complex, the major constraint for subsurface sewage disposal systems would be shallow depth to underlying ledge rock. Based on visual observations and soil mapping data, depth to bedrock in the central and eastern sections of the study area ranges from zero in rock outcrop areas, to probably not much more than 1.5 feet to 2 feet below ground surface. In general, where there is less than four feet of naturally occurring soil over ledge rock, particularly where the land has yet to undergo development, the area should be avoided for sewage disposal purposes. Certain areas that tend to have shallow ledge should be extensively tested in order to possibly locate suitable sites within the area which could accommodate leaching systems. The Public Health Code requires the bottom area of leaching systems to be kept to a minimum of four feet above ledge rock. This means that 6 to 7 feet of soil over rock is needed in order to construct shallow type leaching systems.

Environmental Effects of the Landfill Area

The abandoned landfill site on this 29 acre parcel has had an undetermined effect on the underlying groundwater. The landfill site is an approximately 0.5 acre area with a probable fill height of 20-30 feet above grade. Reconnaissance of the site revealed car bodies, furniture, televisions, and other items protruding from the

side slopes. Verbal statements by town officials alluded to possible dumping of solvent and other hazardous materials at this site in the 1960s. Although it is not possible to definitively prove that these materials were placed here, the evidence of what is there coupled with the reasonable philosophy that virtually any material may be present, makes it likely that groundwater quality has been impaired.

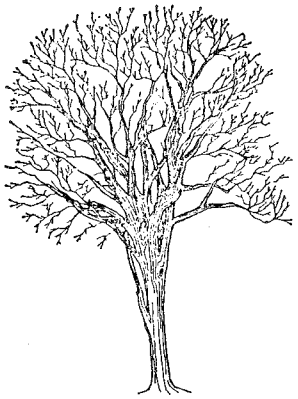
Leachate flow from this site in the unconsolidated material overlying the bedrock will follow the topographic profile, and project toward the stream on the east side of the site. Impacts on this surface water body can be studied relatively easily through sampling and analysis for appropriate leachate indicator parameters.

Flow in the consolidated bedrock, from which any development of the site would have to draw its water supply, is accomplished through cracks and fractures. Without site specific knowledge of the bedrock's fracture pattern, it is impossible to predict where leachate in the bedrock aquifer may travel. It may prove possible to to develop this site in the area immediately adjacent to Cedar Mountain Road, if existing water supply wells near the property are sampled and analyzed. The existing wells' close proximity to this section of the study area may provide an adequate assessment of the groundwater quality for this section. It would be prudent, however, to require a developer to drill and sample a water supply well prior to allowing construction on this property.

Bedrock monitor wells could also be installed at the site to determine groundwater quality although this is an expensive option.

Field reconnaissance of the landfill area revealed evidence that illegal dumping of solid wastes is continuing at this site. Proper

closure of this site is desirable to prevent this activity and to diminish leachate generation. It should be noted that such action will probably not result in any short term improvement of degraded groundwater quality at the site.



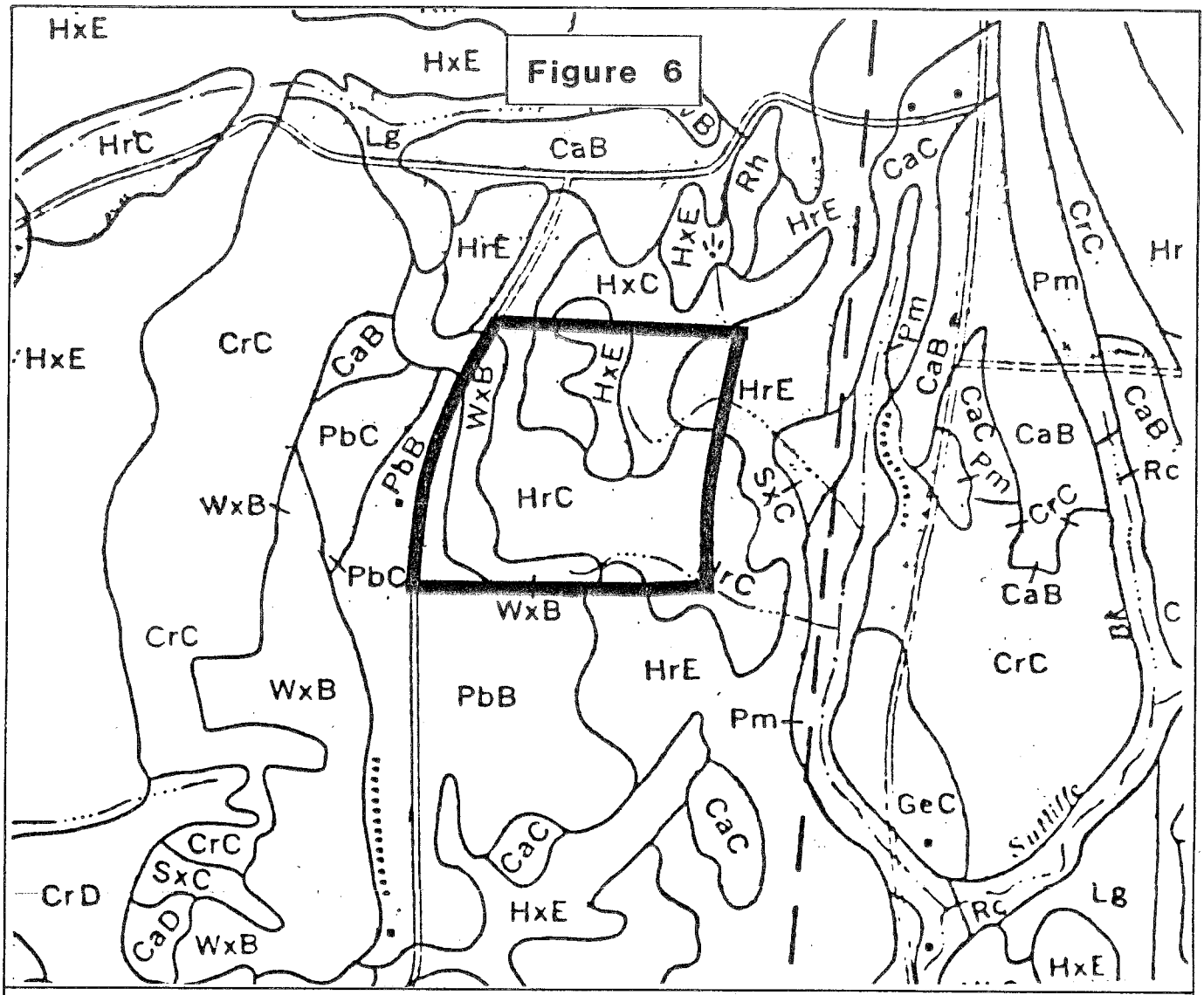
Soil Characteristics

The proposed 29-acre development on Cedar Mountain Road comprises mostly of Hollis soil types. There are also Paxton and Woodbridge soils located on the site. These two soils as well as Hollis are derived from glacial till. The former landfill in the southeast section of the study area has disturbed some soils (Figure 6).

The Hollis soils have considerable severe limitations regarding housing developments due to the shallow to bedrock nature of the soil. A possibility could exist that small inclusions of Charlton soils may be found in the Hollis soil area. This particular soil is most often suitable for development as well as septic systems. A public service or private soil scientist should be consulted to determine that possibility. The soil scientist can also determine the extent of the landfill area as well as the hazardous chemicals disposed of there.

The Paxton and Woodbridge soils found along Cedar Mountain Road are more suited to development. They are also considered prime farmland soils. However, due to the hardpan nature of the soils, care must be taken when developing the site. Proper drainage would be needed due to the high water table during the wet times of the year. Also, since the soil slopes towards the road, it is suggested that the septic systems be placed toward the road. Private wells should be placed 75 feet apart to avoid potential pollution from a possible septic failure. This will also conform to Torrington Area Health District standards.

Test pits on the property will also determine the amount of suitable building lots that can be divided from the property.



CEDAR MOUNTAIN ROAD DEVELOPMENT

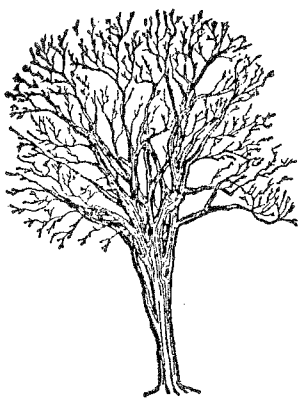
THOMASTON, CONNECTICUT

DISTRIBUTION OF SOILS

King's Mark Environmental Review Team

0 667' 1000'

LAND USE AND PLANNING CONSIDERATIONS



LAND USE AND PLANNING CONSIDERATIONS

Surrounding Land Use

As one approaches the site on Cedar Mountain Road from old Route 8, up Jackson Street (a 400 foot rise), it is obvious that the predominate use of land is single-family residences on parcels of less than 40,000 square feet now required by the zoning regulations. A quonset hut, mobile homes, and a significant amount of "do it yourself additions" are readily discernable. On Jackson Street, there is also a welding shop, a small factory (Modelcraft Co., Inc.), and a cattle farm. On the west side of Cedar Mountain Road, just south of the study area, a residential subdivision of eight lots is under construction. These substantial homes are on lots approximating one acre in size. Several interior lots with driveway access are similar to the proposed subdivision for this site. Further south on Cedar Mountain Road, and west on West Hill Road to old Route 8, there is scattered single-family development, and an apparent working gravel mining operation.

Applicable Plans of Development

Municipal

Thomaston's latest plan of development was completed in 1969 by S. Spielovogel and Associates. That plan, woefully out of date, recommends the subject property, and indeed the entire area east of Route 8 and south of Route 6 to the Plymouth town line for residential, low density development. Low density is specified at a

minimum 40,000 square foot lots. There are no recommendations for public water or sewer extensions into this area, nor are any new roads or upgrading of existing roads proposed. This area of Thomaston is devoid of any planned land use changes.

Regional

The adopted regional plan of the Central Naugatuck Valley recommends the steep areas east and west of Cedar Mountain Road as natural areas. Areas with steep slopes probably are undevelopable, except on very large lots (i.e., excess of two acres). The area including and in the immediate vicinity of the study area is defined as "Residential Limited Development" non-clustered at 0.5 or less dwellinng units per acre net. No access changes are proposed for this area in the regional transportation plan and program.

State

The State Plan of Conservation and Development, and its Locational Guide Map (April 1982) indicates a small finger of "Urban Conservation Area" along Jackson Street west of the study area. Urban conservation is defined as, "Support for maintenance of basically stable developed neighborhoods and communities as well as intensification of development when supportive of community stability and consistent with the capacity of available urban services." The major portion of this section of Thomaston is classified "Rural." The State strategy for "Rural" is, "...avoiding support of structural development forms and intensities which exceed on-site

carrying capacity for water supply and sewage disposal on a permanent basis, which are inconsistent with open rural character or conservation values of adjacent areas, and which are more appropriately located in Rural Community Centers."

Zoning and Subdivision Regulations

Zoning

The study area and immediate vicinity are zoned RA-40. This designation requires a minimum lot size of 40,000 square feet. Minimum lot frontage is 150 feet, 50 feet frontyard and 15 feet side yards (Figure 7). Minimum floor area for a single-family dwelling is 750 square feet, and maximum floor area is 15 percent of the lot area. The only use permitted as a matter of right in RA-40 is a single-family detached dwelling. Other accessory uses are also permitted.

A single interior lot is permitted if there is a 20 foot strip of land providing access to a street. Two interior lots are permitted if the access strip is 30 feet. Solar orientation capability and access must be demonstrated by the applicant.

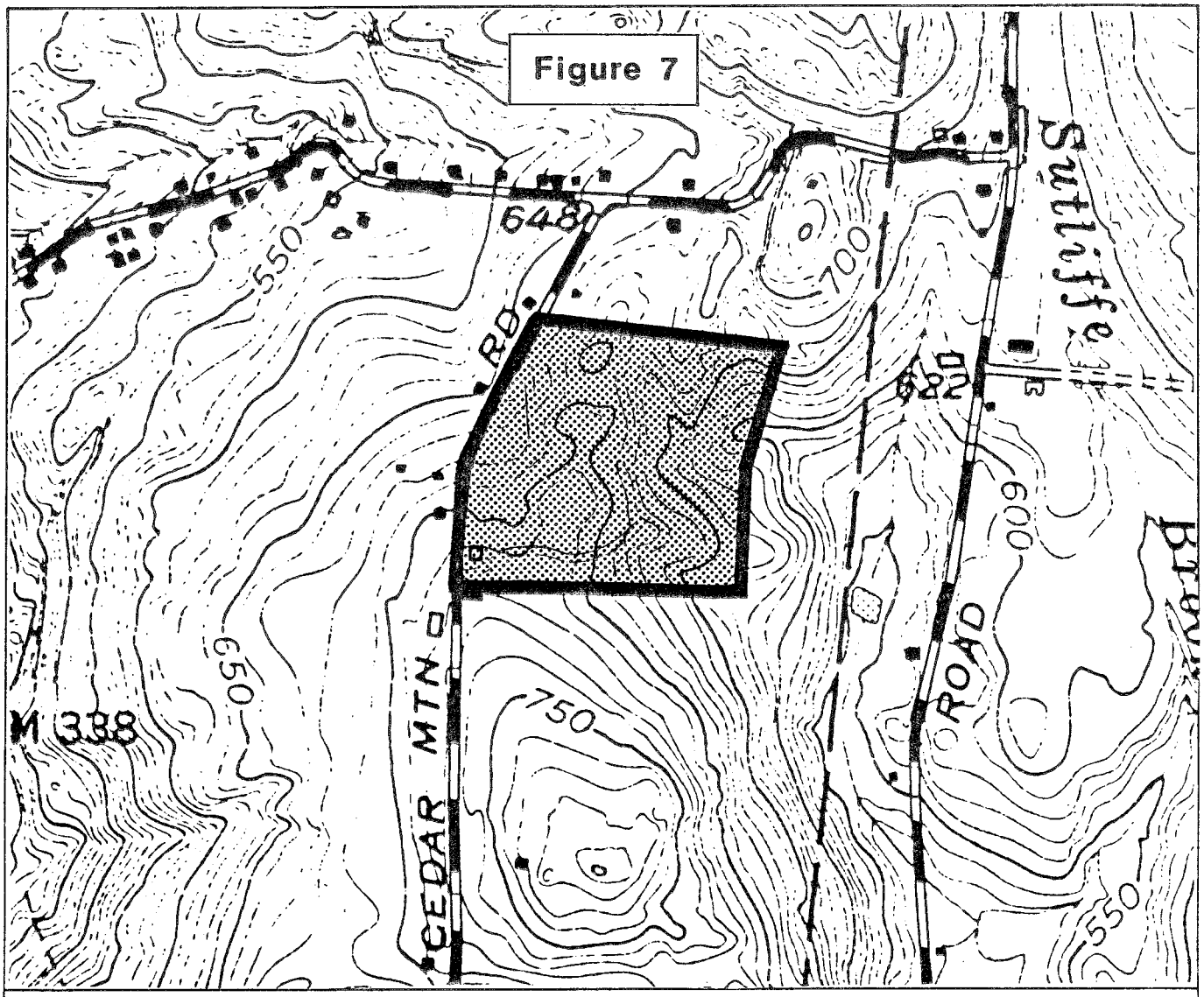
Subdivision

The preamble to the regulations in part state "The Commission will seek to ameliorate or prevent the creation of situations detrimental to health, safety and general welfare of the municipality and its residents and landowners which situation shall include but should not be limited to water supply, storm water disposition and disposal of sanitary wastes." This preamble paraphrases Chapter 126,

Section 8-25 of the Connecticut General Statutes relating to the subdivision of land. In an area like the Cedar Mountain Road proposal "...the applicant shall submit a report prepared by a Sanitary Engineer licensed to practice in the State of Connecticut certifying that the land to be subdivided and the subdivision plan are satisfactory for on-site sewage disposal and/or water supply systems..." (Section 2.3.5). "Other evidence may be required from the applicant in order to establish to the satisfaction of the Commission the following matters: that the land to be subdivided is of such character that it can be used for building purposes without danger to health or the public safety; that proper provision will be made for water ..." (Section 2.3.10)

Existing Road Network

Access to the parcel from the west is over Jackson Street, to the north, and West Hill Road to the south (Figure 8). Both roads are very lightly traveled, extremely narrow (20 feet maximum), have drainage problems, and are in very poor physical condition. Horizontal and vertical alignment are bad in several locations. Grades at some points are 10 percent. It was observed that there is very little through traffic with most trips originating or destined to the existing residential development. Due apparently to the poor road conditions, the very low volume of traffic moves slowly and cautiously. Cedar Mountain Road is relatively level except for the southern end, and is in moderate condition.



RA - 40 (i.e., 40,000 square feet; 150 feet of frontage, 15 feet side yards and 50 feet front yards)

CEDAR MOUNTAIN ROAD DEVELOPMENT

THOMASTON, CONNECTICUT

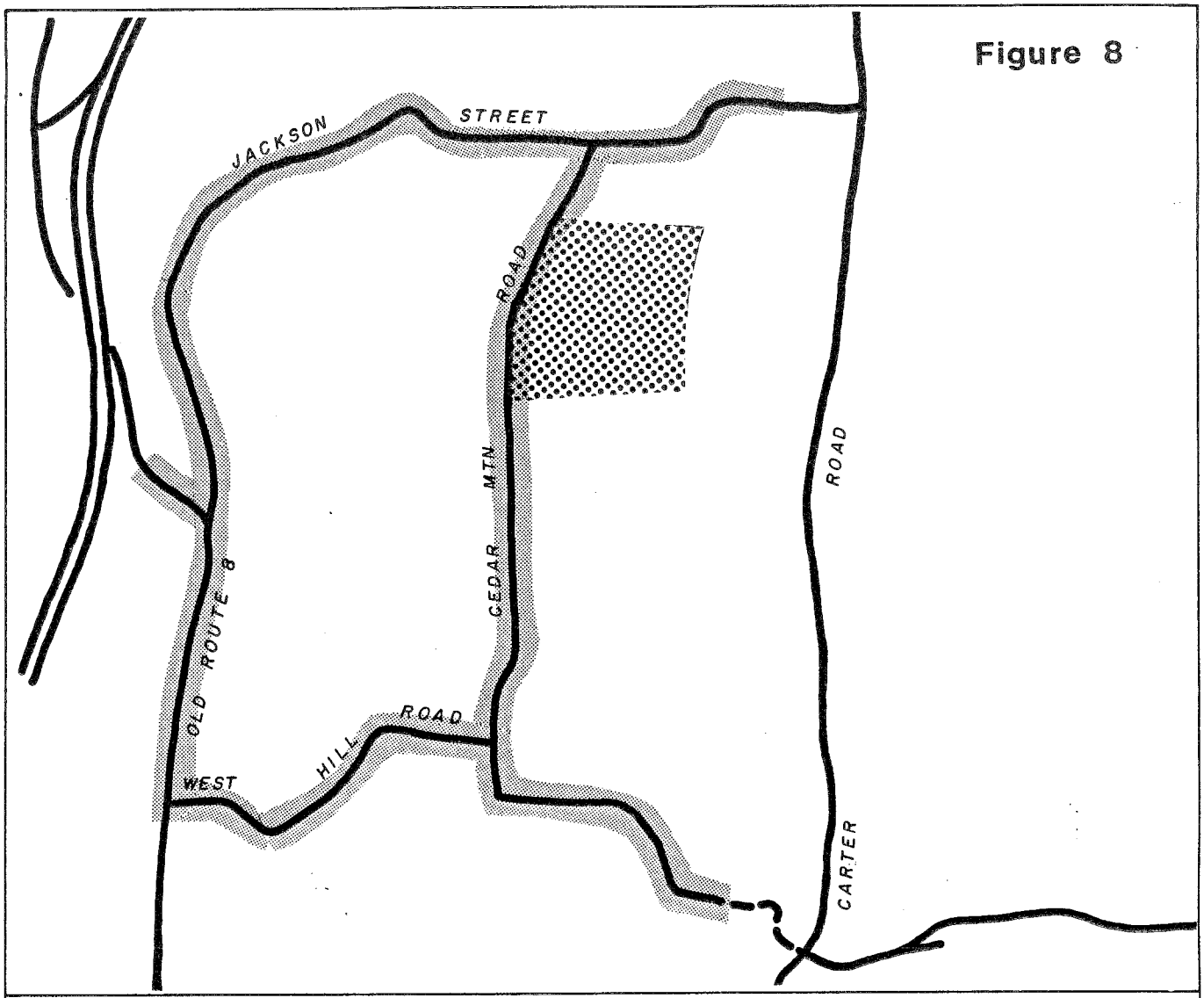
EXISTING ZONING

King's Mark Environmental Review Team

0 667' 1000'

N

Figure 8



STUDY SITE

EXISTING ACCESS ROADS

CEDAR MOUNTAIN ROAD DEVELOPMENT

THOMASTON, CONNECTICUT

EXISTING ROAD NETWORK

King's Mark Environmental Review Team

0 1000'

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APPENDIX A

SOILS LIMITATION CHART

SOILS LIMITATION CHART

CEDAR MOUNTAIN ROAD - THOMASTON, CONNECTICUT

MAP SYMBOL	SOIL NAME	SEPTIC ABSORPTION FIELDS		BUILDINGS W/BASEMENTS		BUILDINGS w/o BASEMENTS		ROADS or DRIVEWAYS		LANDSCAPING	
		Rating	Reason	Rating	Reason	Rating	Reason	Rating	Reason	Rating	Reason
HrC	Hollis: Very rocky fine sandy loam 3-15% slopes	Severe	Depth to Rock	Severe	Depth to Rock	Severe	Depth to Rock	Severe	Depth to Rock	Severe	Thin soil layer
HrE	Hollis: Very rocky fine sandy loam 15-35% slopes	Severe	Depth to Rock Slope	Severe	Depth to Rock Slope	Severe	Depth to Rock Slope	Severe	Depth to Rock Slope	Severe	Slope Thin soil layer
HxC	Hollis: Extremely rocky, fine sandy loam 3-15% slopes	Severe	Depth to Rock	Severe	Depth to Rock	Severe	Depth to Rock	Severe	Depth to Rock	Severe	Depth to Rock
HxE	Hollis: Extremely rocky, fine sandy loam 15-35% slopes	Severe	Depth to Rock Slope	Severe	Depth to Rock Slope	Severe	Depth to Rock Slope	Severe	Depth to Rock Slope	Severe	Slope Thin soil layer
PbB*	Paxton: Fine sandy loam 3-8% slopes	Severe	Percs slowly	Moderate	Wetness	Moderate	Wetness	Moderate	Wetness Frost Action	Slight	----
WxB*	Woodbridge: Fine sandy loam 3-8% slopes	Severe	Wetness Percs slowly	Severe	Wetness	Moderate	Wetness	Severe	Frost Action	Moderate	Wetness

Note: (*) - Prime Farmland Soil

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, soil scientists, foresters, climatologists, landscape architects, recreational 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 83 town area serving western Connecticut.

As a public service activity, the Team is available to serve towns and/or developers within the King's Mark RC & D Area - free of charge.

PURPOSE OF THE ENVIRONMENTAL REVIEW TEAM

The Environmental Review Team is available to assist towns and/or developers in the review of sites proposed for major land use activities. For example, the ERT has been involved in the review of a wide range of significant land use activities including subdivisions, sanitary landfills, commercial and industrial developments, and recreational/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 indentifying the natural resource base of the site, and highlighting opportunities and limitations for the proposed land use.

REQUESTING AN ENVIRONMENTAL REVIEW

Environmental Reviews may be requested by the chief elected official of a municipality, or the chairman of an administrative agency such as planning and zoning, conservation, or inland wetlands. Environmental Review Request Forms are available at your local Soil and Water Conservation District, and the King's Mark ERT Coordinator. This request form 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 investigate. When this request is approved by the local Soil and Water Conservation District and King's Mark RC & D Executive Committee, the Team will undertake the review. At present, the ERT can undertake two (2) reviews per month.

For additional information regarding the Environmental Review Team, please contact your local Soil and Water Conservation District or Keane Callahan, ERT Coordinator, King's Mark Environmental Review Team, King's Mark Resource Conservation and Development Area, 322 North Main Street, Wallingford, Connecticut 06492. King's Mark ERT phone number is 265-6695.