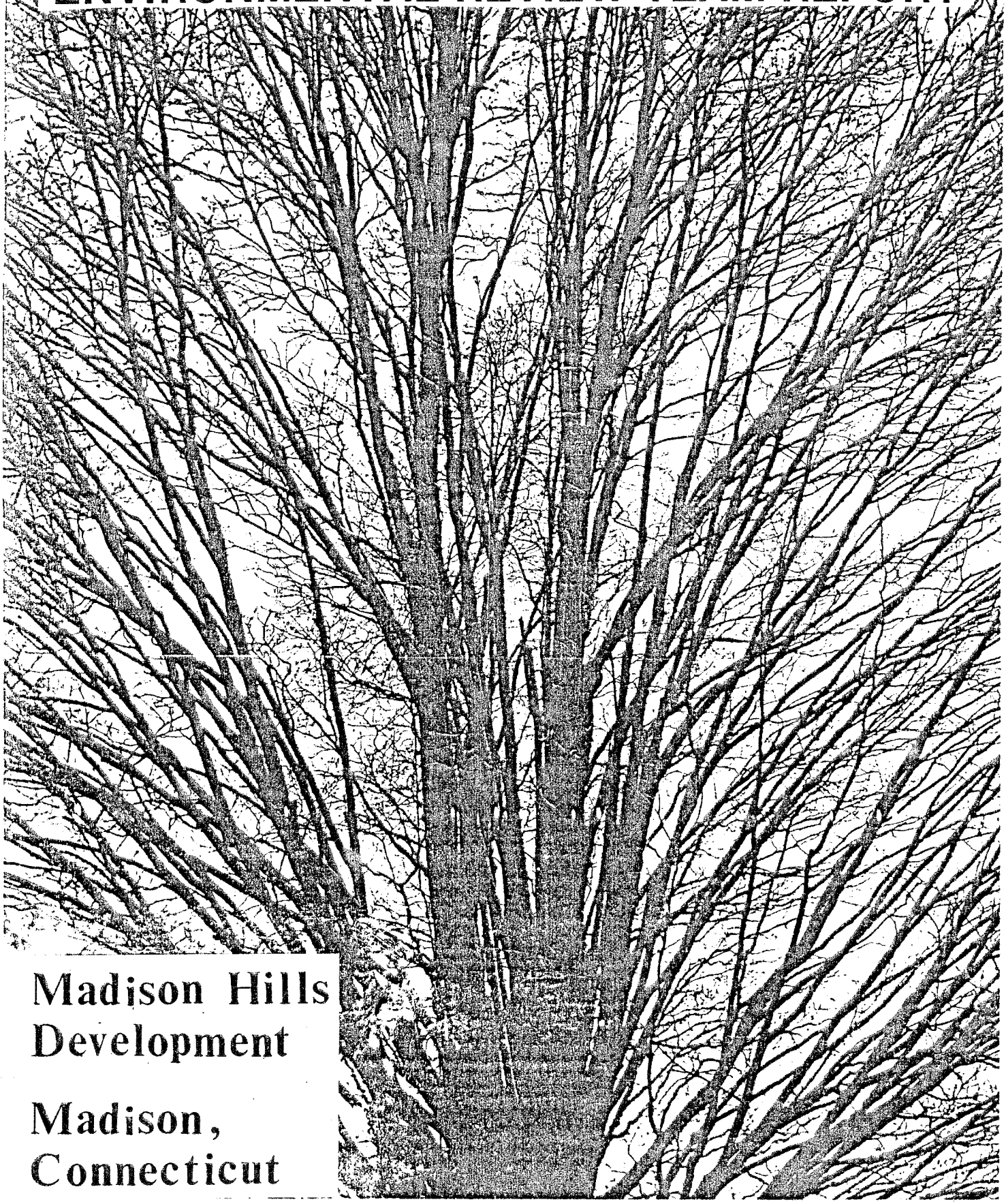
ENVIRONMENTAL REVIEW TEAM REPORT



Madison Hills Development

Madison, Connecticut

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

MADISON HILLS RESIDENTIAL DEVELOPMENT

MADISON, CONNECTICUT

Environmental Review Team Report

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

Wallingford, Connecticut

for the

Madison Planning and Zoning Commission

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 signficance to the proposed development and also suggests considerations that should be of concern to the developer and the Town of Madison. The results of the Team action are oriented toward the development of a better environmental quality and long-term economics of the land use. The opinions contained herein are those of the individual Team members and do not necessarily represent the views of any regulatory agency with which they may be employed.

JANUARY 1987

ACKNOWLEDGEMENTS

The King's Mark Environmental Review Team Coordinator, Keane Callahan, would like to thank and gratefully acknowledge the following Team members whose professionalism and expertise were invaluable to the completion of this study:

* William Warzecha, Geohydrologist
  Department of Environmental Protection - Natural Resources Center

* Judy Wilson, Wildlife Biologist
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* Kipen Kolesinskas, Soil Resource Specialist
  U.S. Department of Agriculture - Soil Conservation Service

* David Lord, District Conservationist
  U.S. Department of Agriculture - Soil Conservation Service

* Robert Rocks, Forester
  Department Environmental Protection - Forestry Bureau

* Donald Capellaro, Principal Sanitarian
  Department of Health Services - On-Site Disposal Section

* Anthony Sullivan, Planner
  Office of Policy and Management

I would also like to thank Laverne Mendela, 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 the following people for their cooperation and assistance during this environmental review: Carolyn Mullins, Zoning and Inland Wetlands Enforcement Officer and Stewart MacMillan, Town Engineer of the Town of Madison, and Richard Kaufmann of Pennconn Enterprises.

EXECUTIVE SUMMARY

The Madison Planning and Zoning Commission requested that the King's Mark Environmental Review Team (ERT) conduct an environmental study on an approximately 670-acre parcel of land proposed for development. The site is located off Route 79 in the northwesterly corner of Madison, bounded in part by the towns of Durham and Guilford. The King's Mark ERT studied portions of this parcel in 1982.

At the time of the ERT field review, two conceptual development plans were proposed for this site: (1) A conventional single-family residential development encompassing 327 units on two-acre lots and served by a community well and septic system and (2) A preferred planned residential cluster development encompassing 508 detached and semi-detached two and three bedroom condominium units. The Planning and Zoning Commission asked the King's Mark ERT to assess both proposals.

According to the developer, approximately 25 to 30 percent of the parcel will be used for cluster development, with the remainder being used for open space and recreation. The proposed cluster development will be served by community wells and a community septic system, with subsurface sewage discharge. Ponds on the proposed golf course will serve as retention areas for stormwater drainage. Conversely, the single-family residential development would occupy the majority of the site with two-acre lots. This development would also be served by community septic systems and drinking wells.

* *

The site is primarily forested with a mixture of tree species. The understory ranges from open areas to dense patches of shrubs and herbaceous species. There is evidence of past logging activities in some areas of the site. Ground cover consists of grassess, sedges, and ferns. Two rocky hills dominate the northern portion of the site. Slopes generally range from moderate to very steep. Small wetland areas occupy existing intermittent stream corridors and ponds.

The Planning and Zoning Commission was primarily concerned with potential environmental impacts of the proposed cluster and single-family residential developments on existing natural resources as well as potential impacts on traffic, access, and land use. Therefore, objectives of the King's Mark ERT were to inventory and assess existing natural resources and determine potential impacts of the proposed developments.

The review process consisted of four phases: (1) Inventory of the site's natural resources; (2) Assessment of these resources; (3) Identification of natural resource problem areas; and (4) Presentation of planning and land use guidelines. Based on the review process, specific resources, areas of concern, and development limitations and opportunities were identified. They fall into the following categories: (1) Physical Characteristics; (2) Biological Resources; and (3) Land Use and Planning Considerations.

* *

PHYSICAL CHARACTERISTICS

Geological Characteristics

From a geologic perspective, the generally shallow depth to bedrock soils which predominate the site will be the major hindrance to either the cluster development or the single-family development scheme.

The bedrock underlying the site is Ordivician-aged (438-505 million years old) metamorphic rocks. Most of the site is underlain by the Middletown Formation. The western portions of the site are underlain by two north trending belts of rocks identified as the Collins Hill Formation and its metavolcanic member. The differences in types of bedrock should have little influence on the potential of the property to support either proposed the cluster or conventional subdivision development.

The presence of bedrock at shallow depths suggests that blasting will be required in order to place on-site utilities, for road construction, or installation of house foundations and septic systems. Any blasting activity which takes place on the site should be under the strict supervision of persons experienced with state-of-the-art blasting techniques.

The site is dominated by three types of surficial geologic deposits. They are: (1) Till; (2) Stratified Drift; and (3) Swamp Deposits.

Water Supply

The only suitable water supply source for the proposed development is a bedrock-based aquifer. An aquifer is defined as a geologic formation that is capable of yielding a usable amount of water to a well. Yields from bedrock wells depend upon the number and size of water-bearing fractures that are intersected by the wells. According to a hydrogeologist retained by the developer, six potential well sites have been located on the site with the use of geophysical equipment. Test wells will be drilled in these areas to determine potential yields.

The quality of natural groundwater in the vicinity of the development should be good. There may be a possibility that an elevated mineral content, particularly iron and/or manganese, will exist in the water, particularly where the well taps the schistose zone. If well water proves to be high in mineral content, there are several filtration methods available to surmount most problems.

As mentioned in the Water Supply Section of the 1982 ERT report, there is a serious risk of groundwater contamination by septic system effluent due to the presence of shallow depth to bedrock soils. As a result, careful planning will be required in order to insure that well(s) do not become contaminated by sewage effluent.

Subsurface Sewage Disposal Considerations

In terms of general development and for sewage disposal purposes, the major site limitations present on this parcel are ledge rock outcrops and/or shallowness to bedrock and moderate to steep slopes. In addition, there are some watercourses and drainageways and areas of permanent and seasonal wetness. Limited soil testing indicated that about half of the number of test holes dug encountered ledge rock at depths of four feet or greater.

The concept of cluster development with respect to subsurface sewage disposal may be more desirable when favorable soil site conditions exist. In this case, the areas conceived for possible subsurface sewage disposal are probably the most suitable the parcel has to offer. However, this does not minimize the fact that the overall parcel, in general, has site conditions which are not favorable for community development or at least a high density of development.

Stormwater Management

Development of the site, under either proposal, can be expected to lead to increases in stormwater runoff. The amount of increased runoff will depend largely on the density and extent of development on the property, amount of impervious surfaces created, and timing of development. The two biggest problems associated with increased runoff is the potential for flooding and streambank erosion.

In order to prevent possible flooding problems from arising, the applicant may need to detain stormwater temporarily on-site so that post-development runoff conditions are maintained at present levels. A likey resolution for this requirement will be the construction of stormwater detention ponds. The applicant may be able to utilize existing ponds on the site or ponds associated with the proposed golf course for this purpose.

The potential for concentrated runoff over a smaller area would be greater for the cluster-type development. In addition to this, the presence of moderate to steep slopes could lead to gulleying and siltation problems. As a result, it is suggested that a sound erosion and sediment control plan be formulated under either development scheme and followed closely with all phases of the development. It will be most important to contain and filter silt-laden water so that environmental damage is avoided.

Soil Resources

The Madison Hills development property consists dominately of shallow to deep, nearly level to very steep glacial till soils on bedrock controlled uplands. Throughout the parcel are narrow drainageways of deep glacial till soils and small depressional areas of soils formed in decomposed organic mottles over mineral materials.

At the proposed density, a great deal of blasting, cutting, and filling would be necessary. A large part of the surface and subsurface watershed for wetland soils and watercourses on and off the site would be highly disturbed and modified with resulting negative impacts.

On the proposed cluster development plans, most of the wetlands and watercourses will be highly modified as part of the golf course. To create suitable, season long play for fairways and greens, extensive cutting, filling and drainage would be necessary.

The use of wetlands and watercourses for additional stormwater storage is often undesireable, and often changes the functions and characteristics of associated ecosystems.

Erosion and Sedimentation Concerns

The phasing and construction sequence for this project should be timed to coincide with vegetative seeding periods to allow maximum soil erosion control. It will be critically important to permanently seed down all disturbed areas immediately after final grades are reached. All disturbed areas that will not receive final grading for longer than 60 days, or after September 1, should be seeded using temporary vegetative measures or mulched at a rate of 90 pounds per 1,000 square feet.

Soil erosion and sediment control planning will still be intensive and require complex measures to protect both the steeply sloping uplands and the adjacent wetland areas.

* *

BIOLOGICAL RESOURCES

Forest Resources

The tract proposed for residential development may be divided into several vegetation types. These include: (1) Mixed Hardwoods (located on sites with medium productivity potential, ±180 acres); (2) Mixed Hardwoods (located on sites with poor productivity potential (including oak ridges), ±390 acres); and (3) Hardwood Swamps, (also located on sites with poor productivity potential, ±85 acres). The remaining 15 acres is occupied by Coan Pond, a shallow fresh water pond.

Forest Management Considerations

As a result of poor site conditions and past harvesting practices, forest management for the next 20 or so years will be limited to: (1) Fuelwood thinnings; (2) Planting white pine seedlings to improve productivity and increase vegetative variety; and (3) Removal of overstory trees. This practice is probably not compatible with the proposed development.

In terms of the forest resource and its management, cluster development has one major advantage over traditional single-family residential development. In cluster development, generally, less land is actually developed, although the land that is developed is done so more intensively. This may leave large tracts of land as undeveloped common open space. In traditional single-family residential development, each person owns their own small lot with little or no acreage in common ownership or open space.

Wildlife Habitat

The proposed development site currently offers fair to good habitat because it lacks diversity of habitat. Because of past heavy logging, the on-site forest resource is currently considered a pole-size stand. Thus, it has low habitat diversity. The site, however, does offer better habitat in some areas because of the presence of wetlands and dense shrub understory.

Wetlands and hardwood swamps cover portions of the proposed project site. Wetlands are absolutely essential habitats for many species of wildlife, and important to all because they provide some habitat requirements needed for survival.

Wildlife Management Guidelines

The impact on wildlife of the area can be lessened to some degree if some thought is given to the development. Housing developments can be designed in two basic ways: (1) Houses can be built on larger lots or (2) Houses can be built on small lots or in clusters, leaving open space areas. Both designs leave more open space for wildlife as opposed to having small lots and developing the entire acreage.

If the proposed development is approved, it is encouraged that as many native trees and shrubs be retained and utilized for landscaping, especially those useful for wildlife.

* *

LAND USE AND PLANNING CONSIDERATIONS

Affects of Proposed Developments on the Community

The total or final impact on the Town will be essentially the same whether it is developed as a conventional single-family subdivision or as a planned residential cluster development. The total number of bedrooms is very nearly the same. This means that there will be similar numbers of vehicle trips generated and a similar number of school children added to the school system. It also means that the amount of solid waste generated will be similar and that the Town can expect a similar number of calls to its emergency services.

The developer relies on the fact that the development in the manner proposed, will reduce the overall number of bedrooms to be built, thereby reducing possible school children. It must be pointed out that census statistics reveal that the number of one parent households is increasing and should be taken into consideration when predicting school age population resulting from this development.

Access Concerns

One important item for the community will be proper and safe access to and from the site. One access in and out servicing a 670-acre parcel is inadequate. If the entrance and exit on Route 79 are the only alternatives offered to the Town, it should be made into a dual access.

Design Considerations

The unique vegetation, wildlife, and other natural features such as existing wetlands, drainageways and ponds should be protected as far as possible. In particular, Coan Pond should receive detailed attention by the PZC because of the obvious advantages offered to the Town and the developer. If any dredging or opening up of the pond is comtemplated, the PZC should consider its affects on the present state of its wildlife and vegetation.

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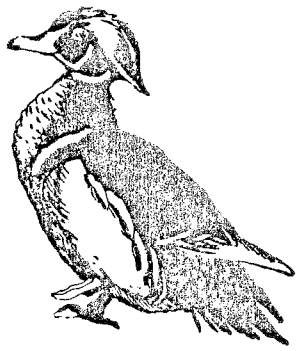


grassess, sedges, and ferns. Two rocky hills dominate the northern portion of the site. Slopes generally range from moderate to very steep. Small wetland areas occupy existing intermittent stream corridors and ponds.

LAND USE HISTORY OF SITE

The King's Mark ERT conducted a review on portions of this site in 1982. Approximately 225 acres, located primarily in the central areas of the existing 670 acres, were evaluated by the review team. The ERT at that time also reviewed two development proposals: (1) A conventional subdivision development totally 102 units on one and two acre lots and (2) A cluster development encompassing 110 units on one-half acre lots. Close to 69 percent of the area was proposed to remain as open space. The 1982 report entilted, The Madison Riding Club Property (King's Mark Environmental Review Team, 1982) concluded:

> "...It may be technically possible to create a large, conventional subdivision on this site. As a practical matter, however, it seems very likely that such a subdivision would be inordinately expensive, at least if all the proper engineering techniques were used to overcome the serious environmental limitations of the property... There are some areas or relatively flat slopes and deep soils where clusters of homes might be readily accomodated."

The 1982 ERT report continued to state,

> "...Both regional and state plans of development pinpoint this area for limited development at a very low density, and with the physical limitations of the site, clustering of units is the only practical source open to the developer for a relatively high density development. The total number of dwelling units should, however, be a function of the accessibility of the development to community services, including schools and public safety facilities such as fire and police. To conclude, the property is poorly situated geographicaly for high density development..."

Figure 1

LOCATION OF STUDY SITE

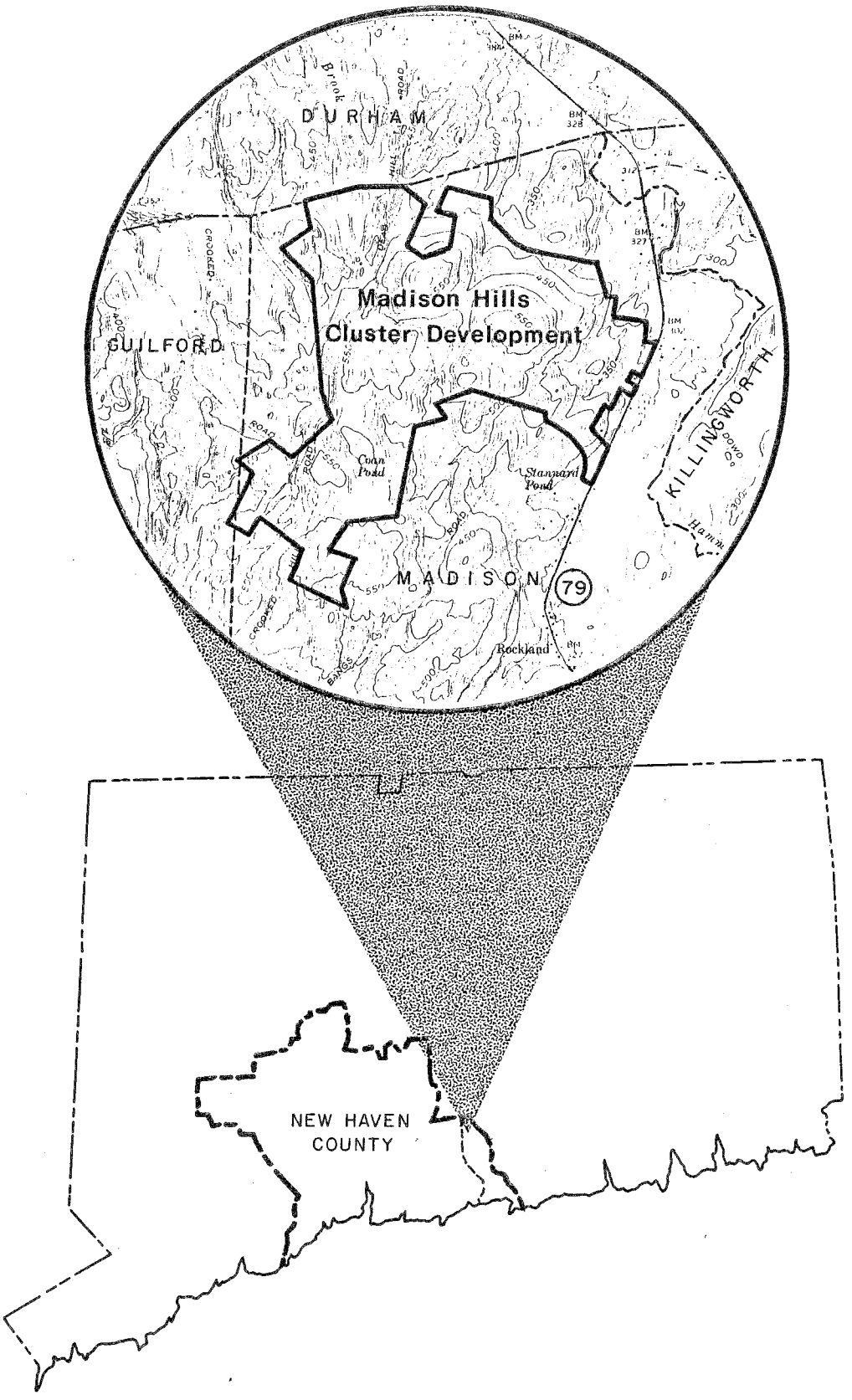
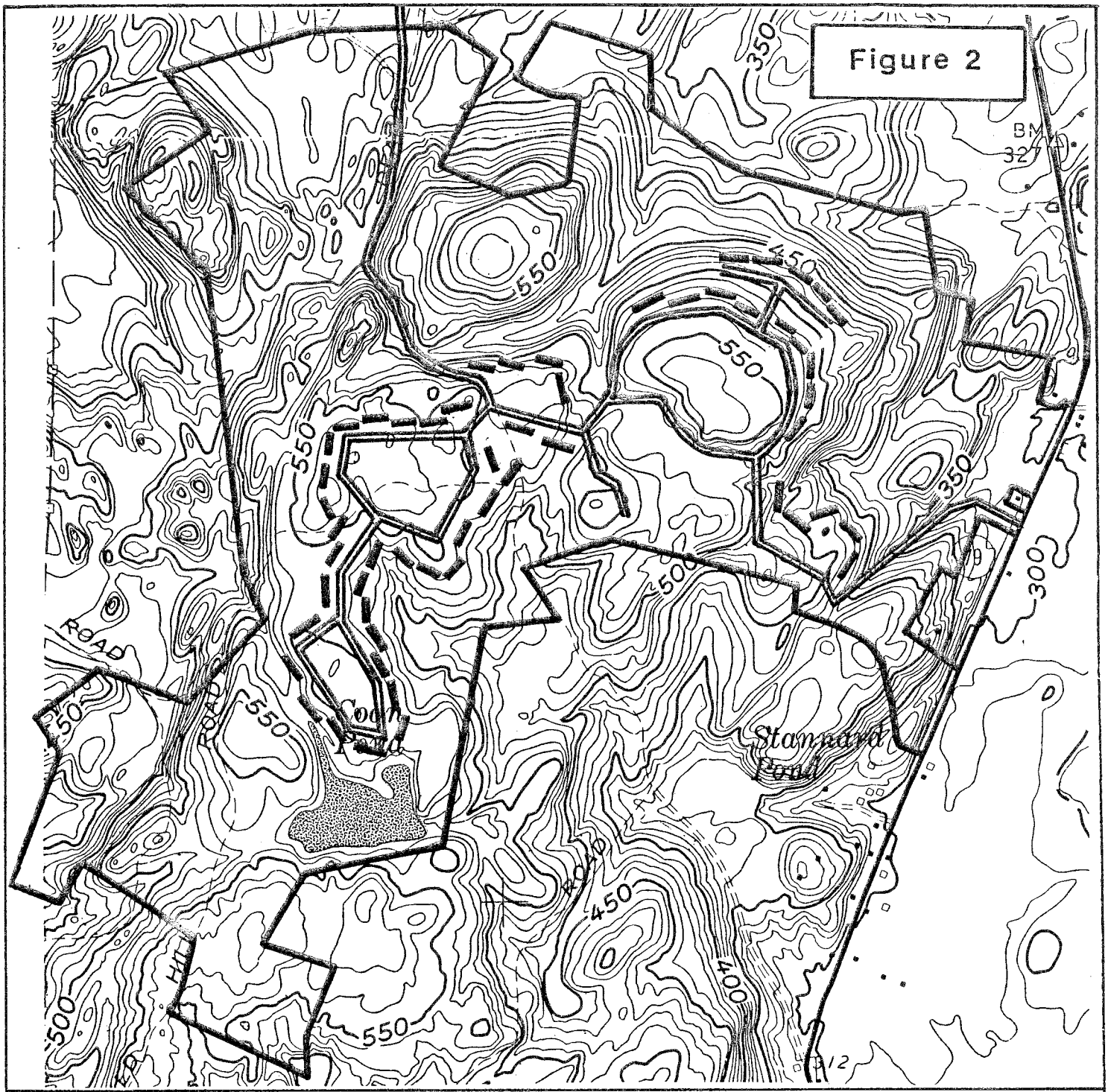


Figure 2



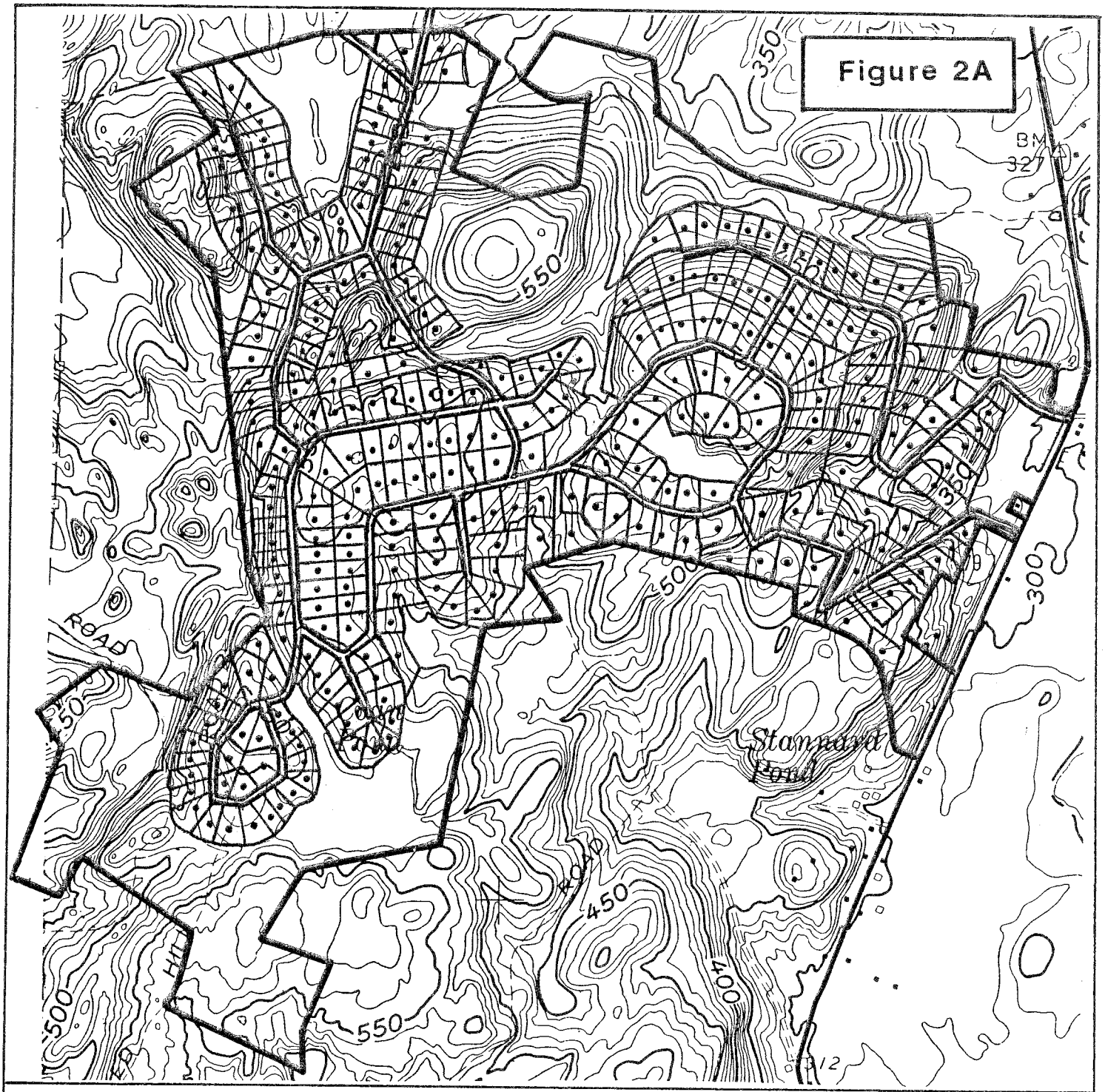
ADAPTED FROM DEVELOPER'S PLAN

MADISON HILLS
CLUSTER DEVELOPMENT
MADISON, CONNECTICUT

CONCEPTUAL SITE PLAN

King's Mark Environmental Review Team

NOT DRAWN TO SCALE



Adapted from Developer's Site Plan

MADISON HILLS CLUSTER DEVELOPMENT

MADISON, CONNECTICUT

CONCEPTUAL SINGLE FAMILY DEVELOPMENT

King's Mark Environmental Review Team

NOT DRAWN TO SCALE

GOALS AND OBJECTIVES OF THE ENVIRONMENTAL REVIEW

Therefore, with that background information, the Planning and Zoning Commission was primarily concerned with potential environmental impacts of the proposed cluster and single-family residential developments on existing natural resources as well as potential impacts on traffic, access, and land use. Therefore, the goals and objectives of the King's Mark ERT were to inventory and assess existing natural resources and determine potential impacts of the proposed developments.

THE ERT PROCESS

Through the efforts of the Town of Madison Planning and Zoning Commission, the developer, and the King's Mark ERT, this environmental review and report was prepared for the town. This report primarily provides a description of on-site natural resources and presents planning and land use guidelines.

The review process consisted of four phases:

(1) Inventory of the site's natural resources (collection of data).

(2) Assessment of these resources (analysis of data).

(3) Identification of natural resource problem areas.

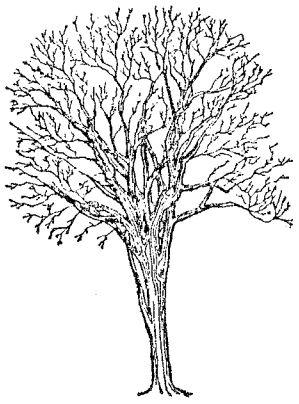
(4) Presentation of planning and land use guidelines.

The data collection phase involved both literature and field research. The ERT field review took place on October 29, 1986. Field review and inspection of the proposed development site proved to be a most valuable component of this phase. The emphasis of the field review was on the exchange of ideas, concerns, or alternatives. Mapped data or technical reports were also perused

and specific information concerning the site was collected. 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 analyses enabled the Team members to arrive at an informed assessment of the site's natural resource development opportunities and limitations. Individual Team members then prepared and submitted their reports to the ERT Coordinator for compilation into the final ERT report.

PHYSICAL CHARACTERISTICS



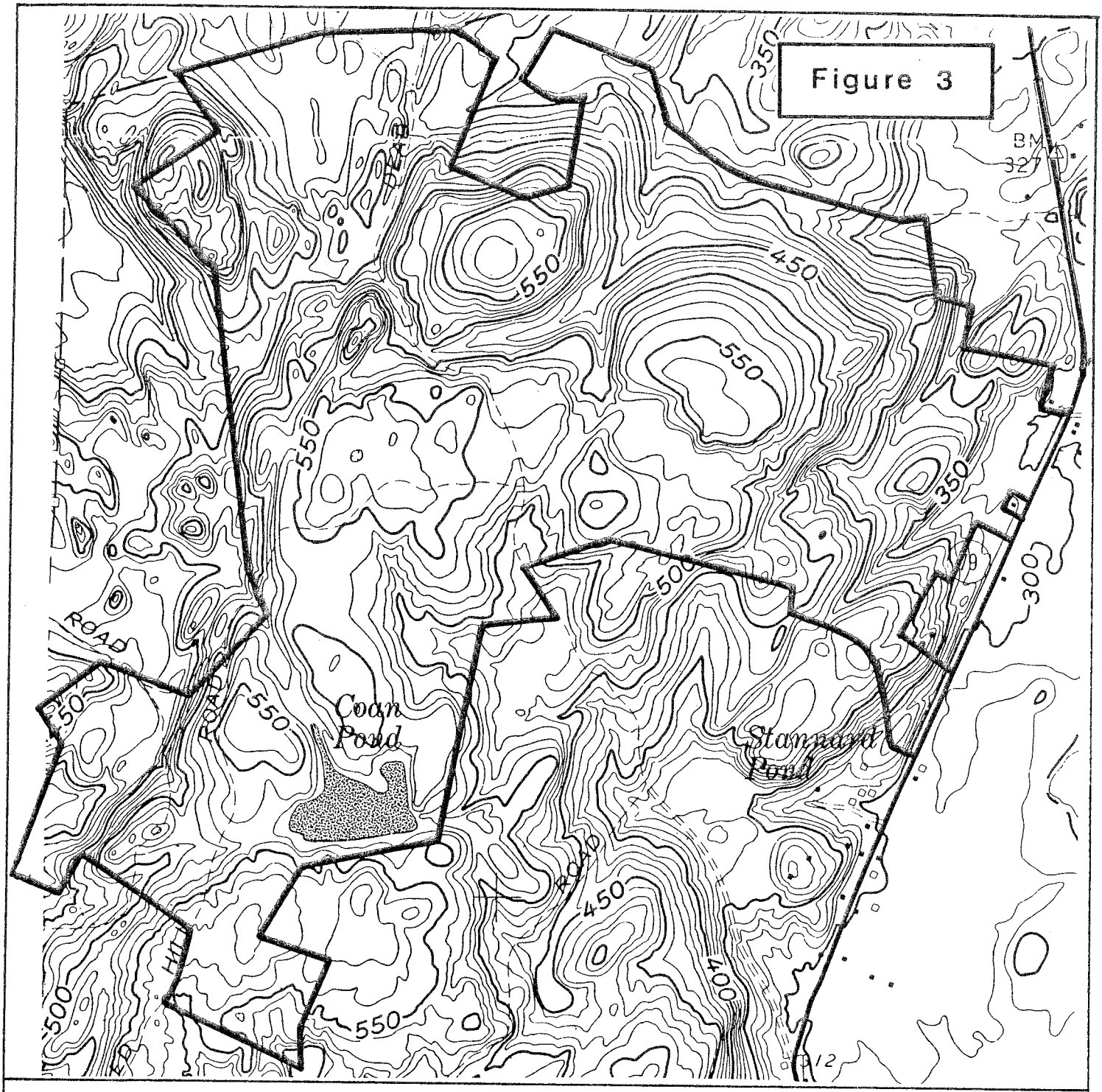
quadrangle has been published by the U.S. Geological Survey. No bedrock geologic map has been published to date. However, the Team's Geologist referenced John Rodgers' Bedrock Geological Map of Connecticut (1985) for the bedrock geology section of this report.

Bedrock Geology

Based on soils mapping information and observations made during the field review, the additional 445 acres acquired closely resembles the land reviewed by the ERT in 1982. Numerous bedrock outcrops and shallow soils characterize the land (Figure 4).

The bedrock underlying the site is described by Rodgers as Ordivician-aged (438-505 million years old) metamorphic rocks. "Metamorphic rocks" are rocks which have been subjected to great heat and pressure within the earth's crust. They consist of very complex rock units of variable composition and texture. Most of the site is underlain by the Middletown Formation. The rocks comprising this formation consists of interlayered, dark to light gray gneisses and granofels, hornblende gneisses, and amphibolites. They underlie the central and eastern portions of the parcel. The western portions of the site are underlain by two north trending belts of rocks identified as the Collins Hill Formation and its metavolcanic member. The Collins Hill Formation is described as a grey, rusty weathering, medium- to coarse-grained schist. The metavolcanic member is dark colored and consists of interlayered amphibolites, hornblende, schist, and light-gray gneisses. All of the rock names above (i.e., schist, gneisses, amphibolite and granofels), are textural terms given to metamorphic rocks.

The differences among the three rock types have been described above primarily for the purpose of thoroughness in the natural resources inventory.



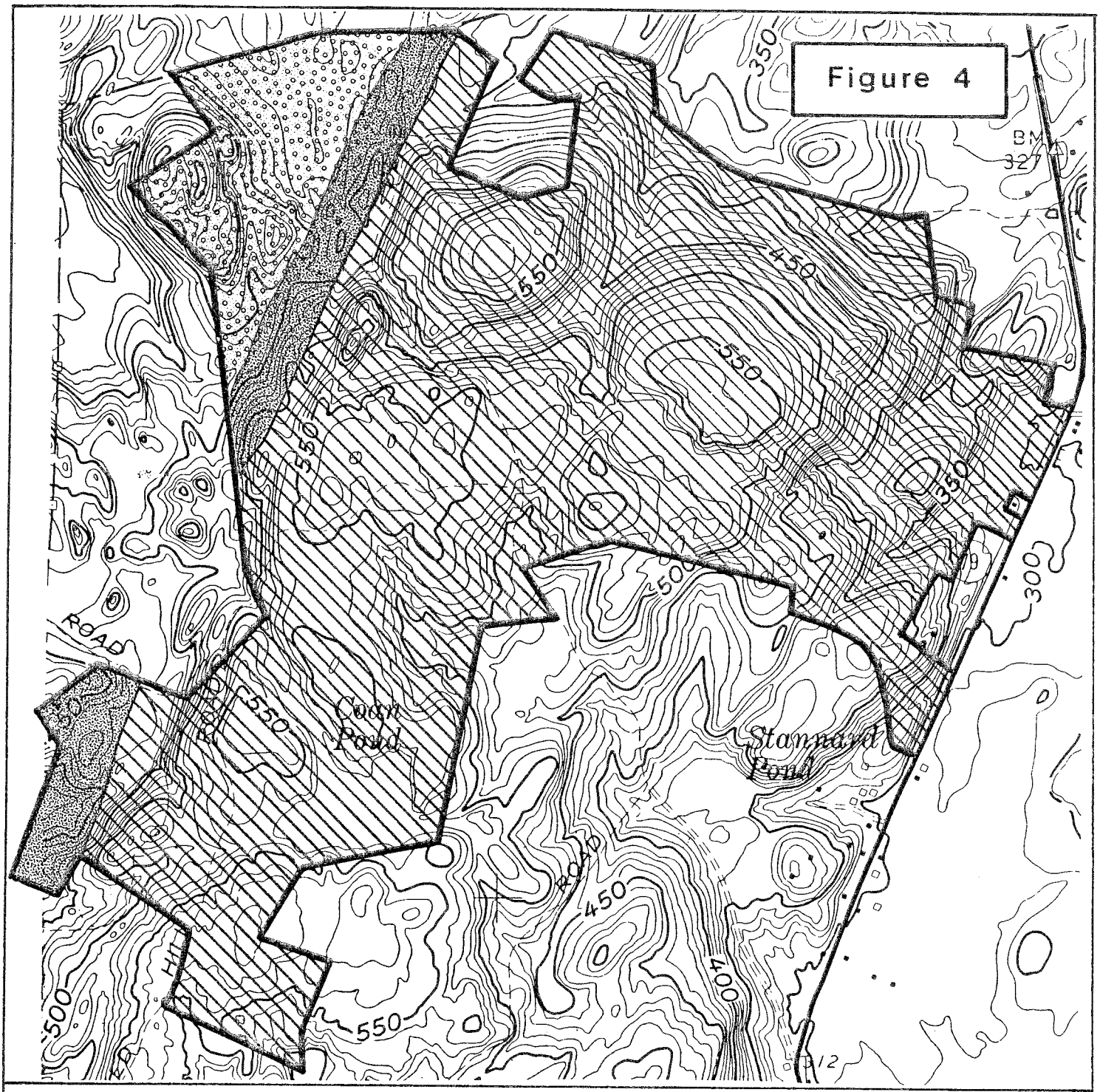
MADISON HILLS
CLUSTER DEVELOPMENT

MADISON, CONNECTICUT

TOPOGRAPHY

King's Mark Environmental Review Team

0 1125'



MIDDLETOWN FORMATION

METAVOLCANIC MEMBER OF COLLINS HILL FORMATION

COLLINS HILL FORMATION

Adapted from John Rodgers, Bedrock Geological Map of Connecticut, 1985

MADISON HILLS CLUSTER DEVELOPMENT

MADISON, CONNECTICUT

BEDROCK GEOLOGY

King's Mark Environmental Review Team

0 1125'

The differences should have little influence on the potential of the property to support either proposed the cluster or conventional subdivision development except perhaps in terms of water quality. It should be pointed out that proposed on-site wells will derive their water from the underlying metamorphic rock. (See Water Supply section).

The presence of bedrock at shallow depths suggests that blasting will be required in order to place on-site utilities such as electric lines, for road construction, or installation of house foundations and septic systems.

Potential problems commonly associated with blasting include:

(1) Increased turbidity levels in surface water and groundwater, at least in the immediate vicinity.

(2) Increase or decrease in the number of fractures or openings in the solid bedrock at least in the immediate vicinity, which may or may not impact nearby wells which rely on the underlying bedrock as a water source (It sould be pointed out that water stored in fractures and openings in the underlying bedrock is the source of groundwater to wells which tap the bedrock).

(3) Possibly cause damage to nearby structures and foundations.

In regard to the last comment, a pre-blasting survey of surrounding properties should be considered to reduce unwarranted damage claims. It seems likely that most blasting will be far removed from the existing structures. Any blasting activity which takes place on the site should be under the strict supervision of persons experienced with state-of-the-art blasting techniques. This will hopefully reduce the chance of unnecessary seismic shock or possible damage claims.

It seems likely that blasting will occur in the moderate to very steeply sloping terrain areas. Blasting in these areas will undoubtedly increase the chances of mobilizing fine-grained soil particles, which may quickly find their

way into drainageways. As a result, there is a chance for siltation problems to arise from blasting on rugged terrain. The blasting of bedrock in these areas will require a sound erosion and sediment control plan. Consideration should probably be given to constructing a sediment basin, which would allow fine-grained particles to settle out before reaching watercourses. Sediment basins would need to be maintained as often as necessary.

Surficial Geology

A thin blanket of glacial sediment called till overlies bedrock on the site (Figure 5). It consists generally of a non-sorted mixture of sand, silt, clay, gravel, and boulder. These materials were collected, transported and redeposited by an ice sheet as it moved through the region about 10,000 to 12,000 years ago. Although soil testing has been conducted on the parcel (mainly within the original 225 acre tract reviewed by the ERT in 1982), no test pit data was available to Team members on the review day. Nevertheless, soils mapping information supplied to Team members suggest that soils are generally shallow (i.e., probably less than five feet) throughout most of the site, but there was no test pit data to confirm this.

Where till is less than five feet thick, it is commonly sandy, very stony and loose. It should be noted that some deeper pockets of soil may exist within the parcel but it is doubtful that soils exceed 10 feet.

A small area of medium-grained sand to pebble gravel overlies till and bedrock in the eastern limits of the site along Route 79. These sediments are also of glacial origin and are called stratified drift. These materials were deposited by glacial meltwater streams (see Figure 5).

A final surficial geologic material found within the parcel are swamp deposits. These post-glacially deposited sediments consists of decayed

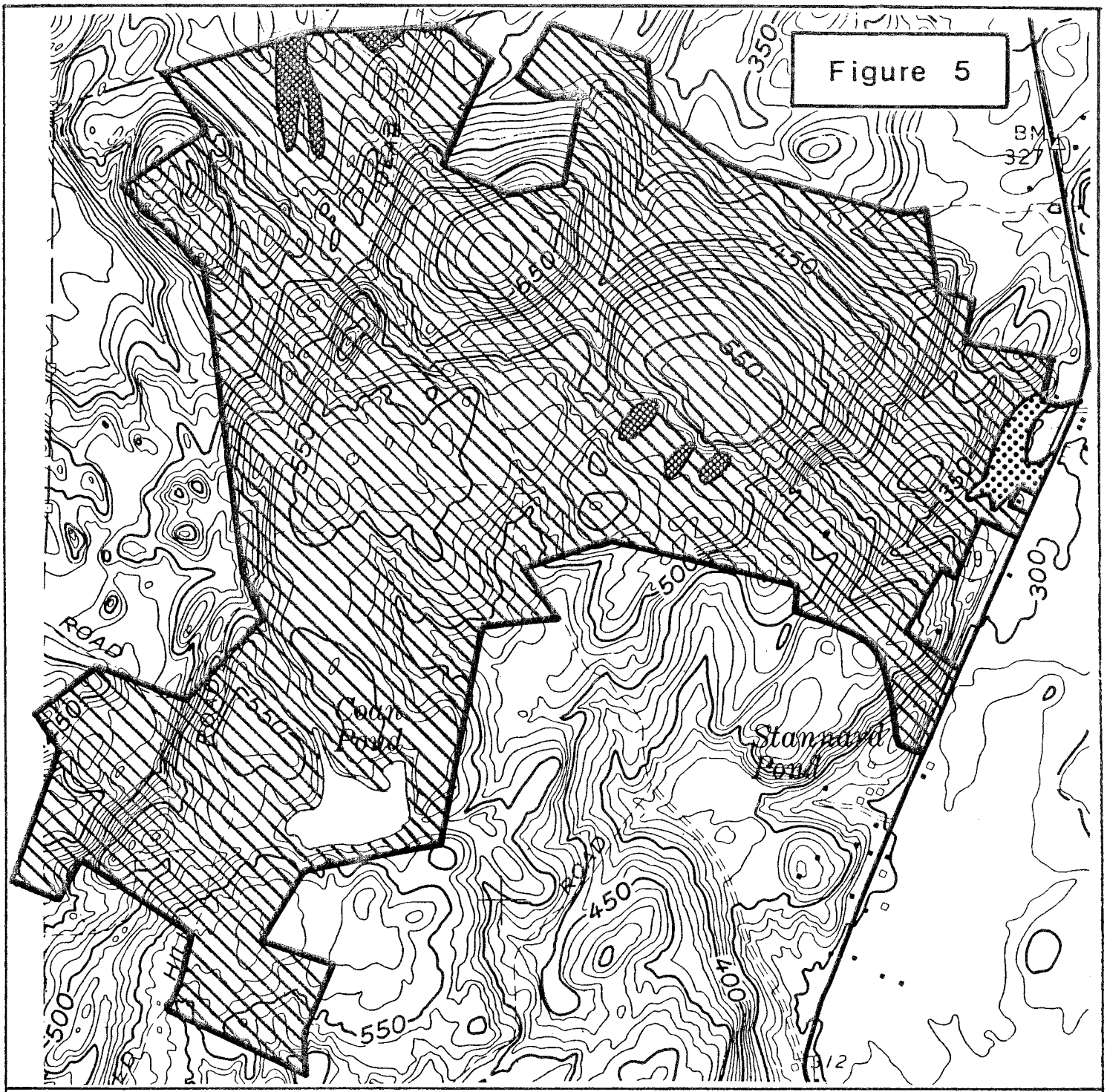


Figure 5
BM
327
350
400
450
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ROAD
Coon
Pond
Stannard
Pond
TILL
STRATIFIED DRIFT
SWAMP SEDIMENTS
MADISON HILLS
CLUSTER DEVELOPMENT
MADISON, CONNECTICUT
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on-site well or wells. Because the proposed wells will serve more than 25 persons, the applicant will need to obtain a "Certificate of Public Convenience and Necessity" for the construction of a community water supply. The certificate will need to be obtained by the Department of Public Utility Control (DPUC) and Department of Health Services (DOHS).

The only suitable aquifer on the site appears to be bedrock-based. An aquifer is defined as a geologic formation that is capable of yielding a usable amount of water to a well. Yields from bedrock wells depend upon the number and size of water-bearing fractures that are intersected by the wells. Density and size of fractures in different bedrock zones vary widely, but they generally occur within the first 100 to 150 feet on the surface. Since the yield of a given well depends upon the number and size of water bearing fractures that it intersects, and since the distribution of fractures in bedrock is irregular, there is no practical way, outside of expensive geophysical testing, of predicting the yield of a well drilled in a specific location. It sould be pointed out that the applicant has obtained the services of hydrogeologic firm to locate a bedrock well or wells which would adequately serve the proposed project. According to the project hydrogeologist, six potential well sites have been located on the site with the use of geophysical equipment. Test wells will be drilled in these areas to determine potential yields.

According to present plans, the proposed cluster development includes 300 three bedroom units and 208 two bedroom units. By utilizing design criteria in the DOHS, Community Water Supply Design Criteria For Water Systems Serving Less Than 1,000 People (November 1985, Draft #5), it is possible to estimate the total water demand of the proposed cluster development. Assuming an average occupancy of 4 persons/3 bedroom unit and 3 persons/2 bedroom unit, and an

average per capita water use of 75 gallons per day, the total water demand of the cluster development, excluding water for fire protection and irrigation for the proposed golf course, would be about 137,000 gallons per day. Based on an 18-hour pumping period, a total yield of about 127 gallons per minute (gpm) would, therefore, be required from the well. As mentioned above, this design criteria does not include requirements for fire protection or irrigation. It is the responsibility of the design engineer and the water supply owner to insure that applicable federal, state, and local fire protection requirements are satisfied. Consideration for the purposes of irrigation for the golf course is also warranted so that it does not detract from the proposed domestic water supply.

In a survey of 314 domestic wells in the Lower Connecticut River Basin found that about 80 percent of bedrock-based wells tapping a rock similar to that underlying the proposed site, provided three gallons per minute or more; 50 percent yielded seven gallons per minute or more; and only 10 percent yielded 18 gallons per minute or more. Based on this information, it may be necessary to drill several wells in order to supply the development needs. As a pre-cautionary measure, it might be safer to drill the well or wells first to determine what the potential yields would be. It should be noted that although yields can vary tremendously within short distances, records of a few wells in the vicinity of the proposed development suggests that it may be possible to obtain moderately high yielding bedrock wells. Well completion reports for three domestic bedrock wells reported yields of 15, 18 and 50 gallons per minute.

The well(s) would be classified as a public water supply and therefore, necessitate approval for any well locations by the DOHS, Public Water Supply Section. It is encouraged that they be contacted as soon as possible to

discuss the proposal. Water quality, yield, along with plans for pumpage, storage and distribution would need to be reviewed and approved by DOHS, Public Water Supply Section.

If more than one well is required, they should be conservatively spaced to avoid the risks of mutual interference (i.e., the yield of one well detracting from the yield of another).

The quality of natural groundwater in the vicinity of the development should be good. There may be a possibility that an elevated mineral content, particularly iron and/or manganese, will exist in the water, particularly where the well taps the schistose zone. If well water proves to be high in mineral content, there are several filtration methods available to surmount most problems.

As mentioned in the Water Supply Section of the 1982 ERT report, there is a serious risk of groundwater contamination by septic system effluent due to the presence of shallow depth to bedrock soils. As a result, careful planning will be required in order to insure that well(s) do not become contaminated by sewage effluent.

HYDROLOGY

Watershed Boundary

A major watershed boundary traverses the western limits of the parcel. Most of the central and eastern parts of the parcel lie within the Hammonassett River Watershed. Surface water and groundwater on this part of the site flows generally downslope towards discharge points such as drainageways, streamcourses, wetlands, or ponds. Water is then routed under Route 79 via the

watercourses toward Hammonassett River. The western limits of the site lie within the headwater region of the Coginchaug River. As mentioned above, surface water and groundwater in this part of the site also flows downslope towards discharge points such as drainageway, which ultimately route the water to Coginchaug River. Bedrock underlying the site largely controls groundwater flow throughout the parcel.

A small, southern part of the site drains southward through a series of small wetlands and is ultimately routed to Stony Brook (Figure 6).

Stormwater Management Considerations

Development of the site, under either proposal (i.e., single-family subdivision versus cluster development), can be expected to lead to increases in stormwater runoff. The amount of increased runoff will depend largely on: (1) The density and extent of development on the property; (2) Amount of impervious surfaces created; and (3) Timing of development.

No drainage calculations were made available to Team members on the review day. It should be pointed out that the Team Geologist computed runoff estimates for different storm events for a one-acre standard subdivision and for a quarter-acre cluster subdivision for the previous ERT Report (1982). As indicated in the 1982 report, the cluster-type development has an hydrological edge over the one-acre single-family development. It seems likely that the same would be true under the new proposal except that runoff values would be greater due to higher densities, as a result of increased impervious surfaces. Table 1 of the 1982 ERT Report indicates that the percentages in increased runoff under either proposal would be significant, especially for the one-acre lot subdivision.

The two biggest problems associated with increased runoff is the potential for flooding and streambank erosion.

In order to prevent possible flooding problems from arising, the applicant may need to detain stormwater temporarily on-site so that post-development runoff conditions are maintained at present levels. A likey resolution for this requirement will be the construction of stormwater detention ponds.

The applicant may be able to utilize existing ponds on the site or ponds associated with the proposed golf course for this purpose. These facilities could be created for runoff/storage function as well as for aesthetics. It might be wise to combine the runoff/storage with a sediment retention function as well. If sediment does accumulate in the pond(s), it will have to be removed periodically in order to assure that the runoff/storage capacity of the pond is not diminished.

It is advised that a detailed engineering study, which includes pre- and post-development data as well as a careful stormwater management plan be developed and implemented prior to any construction or site preparation. These plans should also include detailed information on the proposed detention basins. Once plans have been completed they should be submitted to Town officials for their review and comments. A careful look at all downstream culverts is also suggested.

As mentioned in the 1982 ERT report, (Hydrology Section), the potential for concentrated runoff over a smaller area would be greater for the cluster-type development. In addition to this, the presence of moderate to steep slopes could lead to gulleying and siltation problems. As a result, it is suggested that a sound erosion and sediment control plan be formulated under either development scheme and followed closely with all phases of the development. It will be most important to contain and filter silt-laden water so that environmental damage is avoided.

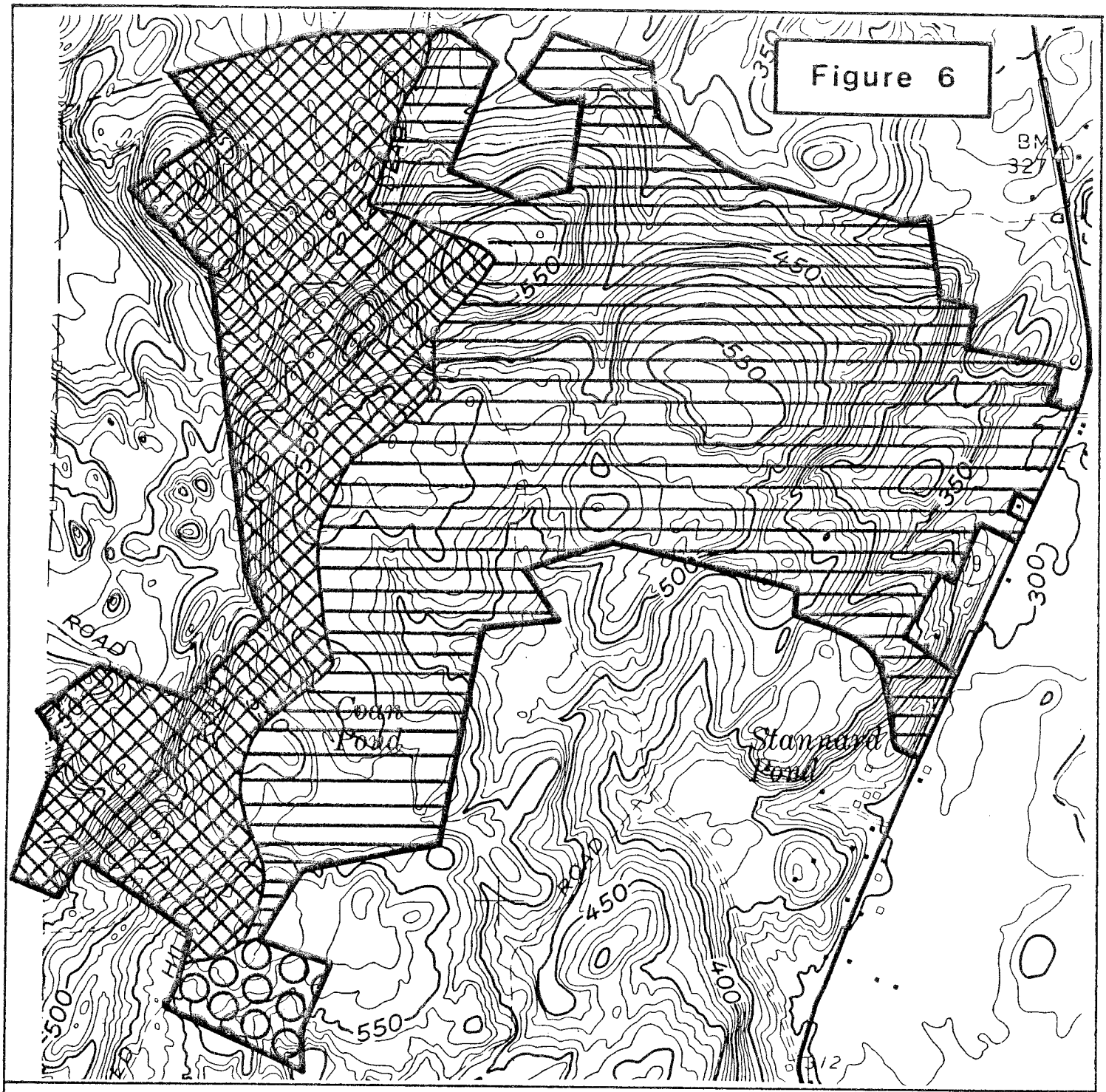
Figure 6
BM
327
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450
550
500
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ROAD
Coan
Pond
Stannard
Pond
HILL
PORTION OF PROPERTY WHICH DRAINS TO COGINCHAUG RIVER
PORTION OF PROPERTY WHICH DRAINS TO HAMMONASETT RIVER
PORTION OF PROPERTY WHICH DRAINS TO STONY BROOK
MADISON HILLS
CLUSTER DEVELOPMENT
MADISON, CONNECTICUT
WATERSHED
BOUNDARY
King's Mark Environmental Review Team
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SOILS RESOURCES AND CHARACTERISTICS

The Madison Hills development property consists dominately of shallow (i.e., less than 20 inches) to deep (i.e., greater than 40 inches), nearly level to very steep glacial till soils on bedrock controlled uplands. Throughout the parcel are narrow drainageways of deep glacial till soils and small depressional areas of soils formed in decomposed organic mottles over mineral materials.

The soils map included with this report is a copy of the map sheets from the Soil Survey of New Haven County (1979) (Figure 7). The soils on portions of the property were briefly evaluated during the field review and seemed to be generally accurate at the scale mapped. There are, however, numerous watercourses and small areas of wetland soils that are not shown (because of the scale mapped). The planned intense wetland mapping by a private soil scientist will provide valuable information that should be used in the planning and design of this development. Below is listed some additional information on the map units mapped on the parcel.

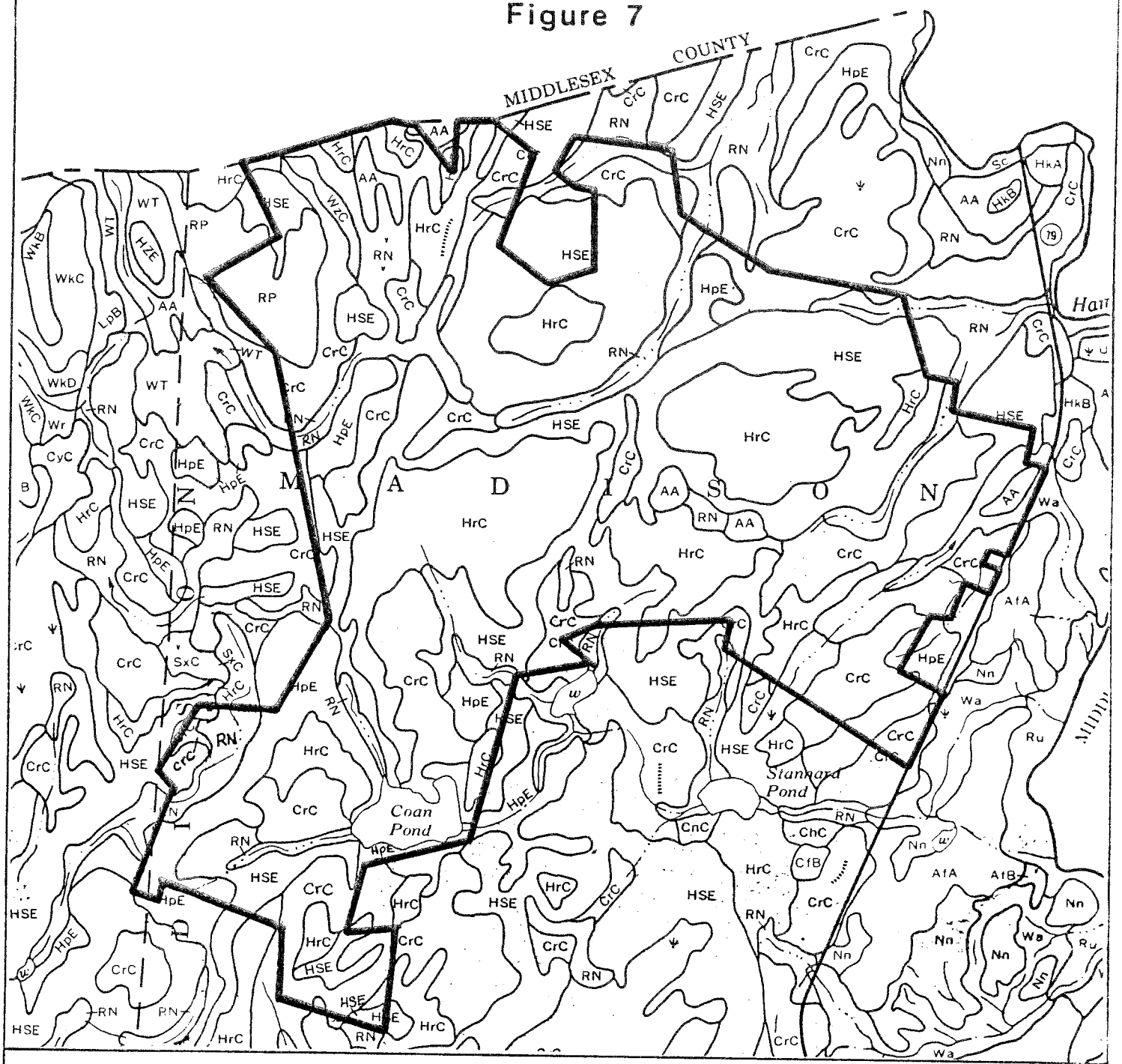
Map Units CrC, HpE

Included with these complexes in mapping are areas of moderately deep (i.e., 20 to 40 inches) to bedrock glacial till soils, and small areas of exposed bedrock. Also included in mapping are small areas of moderately well drained soils and poorly and very poorly drained soils in drainageways.

Map Units HrC, HsE

Included with these complexes in mapping are large areas of moderately deep (i.e., 20 to 40 inches) to bedrock glacial till soils.

Figure 7



MADISON HILLS CLUSTER DEVELOPMENT

MADISON, CONNECTICUT

DISTRIBUTION OF SOILS

King's Mark Environmental Review Team

0 1320'

Both Proposals

(1) The non-wetland soils on most of the site are complexes of shallow to deep soils over bedrock. Depth to bedrock is highly variable and subject to change over short distances. Additional deep test pits may be necessary in many of the potentially suitable effluent disposal areas.

EROSION AND SEDIMENTATION CONCERNS

All soil erosion and sediment control planning should follow the planning principles detailed in the Guidelines for Erosion and Sediment Control Handbook (1985).

As with any large development project, the sequence of major construction activities should be carefully planned and scheduled. This site lends itself very readily to the phasing of development on a section by section basis. This would minimize the amount of land at any one time being in an disturbed and unprotected condition.

The phasing and construction sequence for this project should be timed to coincide with vegetative seeding periods to allow maximum soil erosion control. It will be critically important to permanently seed down all disturbed areas immediately after final grades are reached. All disturbed areas that will not receive final grading for longer than 60 days, or after September 1, should be seeded using temporary vegetative measures or mulched at a rate of 90 pounds per 1,000 square feet.

The preliminary single-family subdivision plan shows a very dense lot layout especially in steeply sloping areas with slopes of 25 percent and greater. Lot layouts do not follow the existing ground contour. Many of the lots will require extremely intensive and complex erosion and sediment control

TABLE 1

SOILS LIMITATION CHART

MADISON HILLS CLUSTER, MADISON, CT

MAP UNIT	GENERAL SOIL PROPERTIES	DRAINAGE CLASS AND DEPTH TO SEASONAL HIGH WATER TABLE	MAJOR LIMITATIONS FOR THE DEVELOPMENT OF: DWELLINGS WITHOUT BASEMENTS	SHALLOW EXCAVATIONS	LOCAL ROADS AND STREETS	GOLF COURSES
AA - Adrian and Palms mucks	Soils formed in deposits of decomposed organic matter over loamy or sandy materials	Very poorly drained +1 - 1.0 ft.	Ponding Wetness Subsides	Ponding Wetness	Ponding Wetness Subsides	Ponding Wetness Subsides
CrC - Charlton Hollis-Fine sandy loams 3-15% slopes	Complex of deep to shallow glacial till soils over bedrock formed in loamy materials.	Well drained to excessively drained > 6 ft.	Variable depth to bedrock	Variable depth to bedrock	Variable depth to bedrock	Variable depth to bedrock droughty
HpE - Hollis-Charlton fine sandy loams, 15%-35% slopes	Complex of shallow to deep glacial till soils over bedrock Formed in loamy materials.	Well drained to excessively drained > 6 ft.	Variable depth to bedrock Slope	Variable depth to bedrock Slope	Variable depth to bedrock Slope	Slope Variable depth to bedrock slope droughty
HrC - Hollis-Rock outcrop complex 3-15% slopes	Complex of shallow and moderately deep glacial till soils and exposed bedrock. Formed in loamy materials.	Excessively drained > 6 ft.	Depth to bedrock	Depth to bedrock	Depth to bedrock	Depth to bedrock droughty
HSE - Hollis-Rock outcrop complex 15-35% slopes	Complex of shallow and moderately deep glacial till soils and exposed bedrock. Formed in loamy materials.	Excessively drained > 6 ft.	Depth to bedrock Slope	Depth to bedrock Slope	Depth to bedrock Slope	Slope Depth to bedrock droughty

SOILS LIMITATION CHART

MADISON HILLS CLUSTER, MADISON, CT

MAP UNIT	GENERAL SOIL PROPERTIES	DRAINAGE CLASS AND DEPTH TO SEASONAL HIGH WATER TABLE	MAJOR LIMITATIONS FOR THE DEVELOPMENT OF: DWELLINGS WITHOUT BASEMENTS	SHALLOW EXCAVATIONS	LOCAL ROADS AND STREETS	GOLF COURSES
RN - Ridgebury, Leicester, and Whitman extremely stony fine sandy loams	Glacial till soils formed in loamy materials.	Poorly drained to very poorly drained. +1 - 1.5 ft.	Wetness	Wetness	Wetness subject to frost action	Wetness
Wa - Walpole sandy loam	Glacial outwash soils formed in loamy or sand and gravel materials.	Poorly drained 0 - 1.5 ft.	Wetness	Wetness	Wetness subject to frost action	Wetness

measures to protect adjoining properties from serious off-site sedimentation problems.

The preliminary cluster proposal shows building orientation along the contours of the hills on this property. Access roadways likewise conform to the existing contours.

Intrusion into and development of the inland wetland areas is also proposed with the cluster development. The proposed golf course development in areas adjacent to the wetlands is certainly a less intensive utilization of these areas.

Soil erosion and sediment control planning will still be intensive and require complex measures to protect both the steeply sloping uplands and the adjacent wetland areas.

SEWAGE DISPOSAL CONSIDERATIONS

Introduction

It is understood the proposed developments would be located on a sizeable parcel of approximately 670 acres and would consist of 508 detached and semi-detached 2 and 3 bedroom condominium units. Around 250 acres of the overall parcel would be utilized for the cluster project. The envisioned development would have the various residential units located at or near the upper reaches of the parcel's topography and surrounded by a golf course. The golf course area would be a chief component for the subsurface disposal of sewage wastewater which would be generated. In lieu of a posible cluster type development by special exemption permit, a residential subdivision development of some 327 single-family homes would then be proposed. At the present time, zoning in this remote portion of North Madison requires minimum lot sizes of two acres.

Site Location and Features

The parcel is located in the northwest corner of Madison. The east side is bounded by Route 79, to the north by the Madison/Durham townline and to the west by the town line of Madison/Guilford. The site is characterized by a number of rock knolls, several of which reach an elevation of 550 feet. The gentle to very steep sloping terrain is punchuated by rock outcrops and the shallowness to underlying bedrock. Interspersed among the knolls are drainageways and associated wetland soils. Towards the southeastern side of the property, Coan Pond drains easterly to an off-site pond (Stannard Pond), which eventually flows into the Hammonassett River, east of Route 79 in the town of Killingworth. The northeast part drains in a northerly direction through a watercourse which also flows to the Hammonassett River. The northwest section, which contains a considerable amount of wetlands, also drains in a northerly direction to a brook which is a tributary of the Coginchaug River. Most of the property in question is located on a public water supply watershed (South Central Connecticut Regional Water Authority).

Water Supply and Quality Condsiderations

Since no public water is available in this section of Madison or other close by section of nearby towns, a community-type public on-site water supply system has been proposed. A water supply of this type and size would come under the jurisdiction of the Department of Public Utility Control and the Public Water Supply Section of the Department of Health Services.

Preliminary geological surveys by the developer's hydrogeologist indicate that a series of promising well sites have been located, which could possibly be used for the development of drilled wells. As a general rule, however, drilled wells in bedrock are more likely to provide a relatively small and

reliable yield rather than producing substantial yields. Probably more than any other factor for this large scale cluster development would be the need to obtain an adequate supply of water. As previously mentioned, the Team's Geologist estimated that approximately 137,000 gallons per day or 127 gallons per minute would be needed to serve the domestic needs of the proposed cluster development. According to the developer's estimates, a more conservative figure of 200,000 gallons per day would be required for domestic needs for such a project. This in turn would mean wells should have a combined, overall yield of about 200 gallons per minute based on an 18-hour pumping day. The need for test wells is apparent as the next logical sequence of events. In addition to adequacy, is the need for proper well siting in order to protect and minimize water sources from potential sources of pollution, chief of which would be subsurface sewage disposal facilities to serve the many residential units. Well pollution is more of a problem in areas of shallow ledge rock and steep slopes where sewage effluent may not undergo adequate treatment by filtration and dilution prior to the effluent entering cracks or fissures in the rock. The Public Health Code requires a minimum separating distance of at least four feet between the bottom area of leaching systems and ledge rock in order not to interfere with the functioning of the system and to provide for some treatment processes. Of course, where larger flows and systems are anticipated, detailed site investigation and hydraulic analysis would be necessary to determine suitability. Certainly, as far as community wells are concerned, they should be kept at relatively high elevations and remote as possible from on-site sewage disposal systems. No doubt the best way to prevent well pollution or water quality or quantity problems in areas of shallow ledge rock would be to extend (if at all possible) public water supplies.

The Public Water Supply Section of the Department of Health Services, in their regulatory functions, would need to review and approve well sites and water quality, following adequate yield testing. Plans for pumpage, storage, any necessary treatment and the layout of the distribution system would need to be prepared for submittal/review and approval purposes.

Subsurface Sewage Disposal

Madison or other adjacent towns to the parcel in question do not have municipal sewerage systems. Therefore, any development in this remote area of the community will utilize and rely upon on-site or subsurface sewage disposal facilities.

Due to the community-type of sewage systems and overall volume of sewage which would require disposal, site testing, review and analysis of detailed reports, plans and specifications for the facilities would be subject to the approval of the Department of Environmental Protection, Water Compliance Unit. At this present time, the consulting engineering firm engaged by the developer has prepared a preliminary report for wastewater treatment. In general, the expected effluent flow from condominium units would be approximately 200,000 gallons per day. Limited soil testing indicated that about half of the number of test holes dug encountered ledge rock at depths of four feet or greater.

A typical subsurface sewage treatment facility would consist of a septic tank, series of sand filters and a leach area which is presently proposed to be constructed under portions of the golf course. It is understood that should the cluster concept proposal not receive necessary town support and approval, the substitute subdivision of single-family homes would also utilize a community-type septic system rather than having an individual on-site septic system for each house lot.

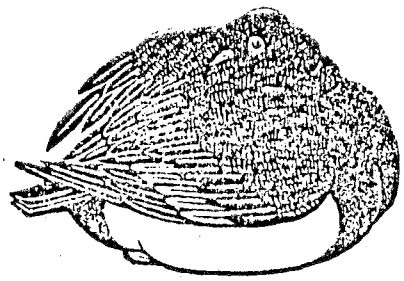
In terms of general development and for sewage disposal purposes, the major site limitations present on this parcel are: (1) ledge rock outcrops and/or shallowness to bedrock and (2) moderate to steep slopes. In addition, there are some watercourses and drainageways and areas of permanent and seasonal wetness. As previously mentioned, approximately 225 acres of the property was reviewed by the ERT in 1982. Although there is a significant increase in the overall acreage, mainly towards the south and west, geological limitations are still as pronounced and abundant as was formerly found at the site. In other words, the additional acreage does not seem to provide much in the way of more favorable landscape and suitable soil conditions which could enhance the feasibility for subsurface sewage disposal.

The more permeable and somewhat deeper soils on the property generally occupy small areas between the bedrock controlled ridges and knolls. However, the profile of the underlying rock can vary considerably over relatively short distances and thus there is no guarantee the depth of soil will remain constant throughout a given area. Therefore, there is a need for thorough on-site testing (i.e., pits) in areas where subsurface sewage leaching systems might be proposed. In general, where there is less than 6 to 7 feet of existing soil over ledge rock, the placement of fill would be necessary. Certainly the construction of leaching systems would become more critical, if at all possible, where there is less than four feet of existing soil. The depth of soil downslope from the leaching systems must also be considered. Sloping areas that require extensive filling are also likely to be subject to erosion and sedimentation problems.

The concept of cluster development with respect to subsurface sewage disposal may be more desirable when favorable soil site conditions exist. In this case, the areas conceived for possible subsurface sewage disposal are

probably the most suitable the parcel has to offer. However, this does not minimize the fact that the overall parcel, in general, has site conditions which are not favorable for community development or at least a high density of development.

BIOLOGICAL RESOURCES



highly fractured allowing roots to penetrate for anchorage. Trees in the overstory include pole-sized chestnut oak, scarlet oak, black oak, white oak, black birch, red maple, hickory and American beech. Mountain laurel, lowbush blueberry, huckleberry, sweet fern, greenbrier, bayberry, sheep laurel, American chestnut sprouts, and oak seedlings form a continuous understory. Ground cover where present is made up of club mosses and bracken fern.

Hardwood Swamps

Many hardwood swamps are located throughout this tract. They total approximately 85 acres or 13 percent of the tract and are interconnected by numerous small streams. They occupy poorly and very poorly drained soils which have poor forest productivity potentials. The trees present in these areas are usually slow growing, of poor quality, and have high potential for windthrow as they are unable to become securely anchored in the soils which are saturated with water for a good part of the year. Red maple is the dominant species in the overstory with scattered yellow birch, white ash, black gum and occasional swamp white oak. Dense understories of sweet pepperbush, spicebush, highbush blueberry, witch hazel, swamp rose, mountain laurel and several species of viburnum are common throughout. Ground cover includes skunk cabbage, tussock sedge, sphagnum moss, cinnamon fern, sensitive fern, Christman fern, and club mosses.

Forest Management Considerations

Within the last few years, this entire tract has received a harvest which has removed a majority of the merchantable sawtimber-size trees. This has left the density and quality of the remaining trees extremely variable. Areas which

Figure 8

HARDWOOD SWAMPS, 85 ± acres

MIXED HARDWOODS WITH MEDIUM PRODUCTIVITY POTENTIAL, 180 ± acres

MIXED HARDWOODS/OAK RIDGE WITH POOR PRODUCTIVITY POTENTIAL, 390 ± acres

OPEN MARSH / POND, 15 ± acres

STREAMS

WOOD ROADS AND TRAILS

MADISON HILLS CLUSTER DEVELOPMENT

MADISON, CONNECTICUT

VEGETATION TYPES

King's Mark Environmental Review Team

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vigor by the removal of fuelwood and sawtimber for revenue. In traditional single-family residential development, each person owns their own small lot with little or no acreage in common ownership or open space. Improvement of the forest resource for recreation and wildlife will be limited but not impossible. The same is true if improving tree health and vigor can be accomplished through the harvesting of fuelwood. However, if the forest is such that only the removal of sawtimber-size trees will create the desired improvement, the small lot size coupled with the economies of scale related to timber harvesting may pre-empt the harvest altogether.

WILDLIFE RESOURCES

Wildlife Habitat Considerations

All wildlife species have basic requirements such as food, cover, water and a living space which are provided by the habitat in which the wildlife species occupies. Habitats or vegetative classes, and habitat components such as snag and den trees randomly dispersed over an area best meets the requirements of most wildlife. This variety of habitats is known as habitat diversity.

The proposed development site currently offers only fair to good habitat because it lacks diversity of habitat. The on-site forest resources is currently considered a pole-size stand, because of past heavy logging. Thus it has low habitat diversity. The site, however, does offer better habitat in some areas because of the presence of wetlands and dense shrub understory.

Hardwood Forests

The forested areas provide little or no forage or food for wildlife because the larger oaks which produce more mast or food for wildlife have been cut.

The understory, consisting of mountain laurel, huckleberry and lowbush blueberry does provide some cover and food. Since cutting of larger trees allows more sunlight to penetrate a forested area, understory species, needing greater sunlight to propagate, are better able to compete and establish themselves in these open areas. Therefore, their numbers increase and provide more browse for species such as white-tailed deer.

Development will decrease the amount of wildlife habitat because the habitat will be replaced with and occupied by buildings. The quality of the habitat will also decrease because undeveloped areas will be discontinuous with buildings and human activity. Species which are adaptable and tolerant of man's activities or presence, however, will probably remain. Some new species may even be attracted to the developed area.

Wetlands and Coan Pond

Coan Pond currently offers some species of wildlife such as racoons and perhaps muskrat, occasional ducks and various birds, reptiles, and amphibians good habitat. The pond offers open water for feeding and escape. The herbaceous cover provides food, nesting, and escape cover.

Wetlands and hardwood swamps cover portions of the proposed project site. Wetlands are absolutely essential habitats for many species of wildlife, and important to all because they provide some habitat requirements needed for survival.

Not only are wetlands important to wildlife, they are also important to man. They act as water storage and absorption areas that attenuate or reduce flooding. There are usually inherent limitations in developing wetlands due to poorly drained and unstable soil types.

Wetland habitat can provide a rich variety of food, cover, nesting, and rearing sites for a great number of wildlife species. They can provide breeding and nesting sites for waterfowl, and habitat for more that 50 species of game and non-game species including beaver, fox, mink, muskrat, opossum, white-tailed deer, and snowshoe hare. Because of previous development, there is less wetlands available for use by wildlife, in general. Developing any small areas for buildings will leave the majority of the area unavailable for wildlife to use.

Wildlife Management Guidelines

If implemented properly, the following wildlife management guidelines can help lessen the impact to some wildlife species using the area. Some animals will emigrate from the area but others may find it even more attractive after development.

Design of Development/Wetlands

The impact on wildlife of the area can be lessened to some degree if some thought is given to the development. Housing developments can be designed in two basic ways: (1) houses can be built on larger house lots or (2) they can be built on small lots or in clusters, leaving open space areas. Both designs leave more open space for wildlife as opposed to having small lots and developing the entire acreage.

Since wetlands are important wildlife feeding, nesting, and cover areas, it is advised that wetland areas be left undisturbed and in their natural state. Also, a vegetative buffer area should be left along the entire length of any watercourse and around Coan Pond. This will provide food, cover, and nesting sites for many wildlife species.

Site Preparation and Landscaping

If the proposed development is approved, it is encouraged that as many native trees and shrubs be retained and utilized for landscaping, especially those useful for wildlife (Table 2).

TABLE 2

PLANTS USEFUL TO WILDLIFE SPECIES

White Oak (Quercus alba)	Quaking Aspen (Populus tremuloides)
Red Oak (Quercus rubra)	Red-osier Dogwood (Cornus stolonifera)
Black Cherry (Prunus serotina)	Apple (Malus spp.)

On small acreage with many buildings, landscaping can do a great deal to provide habitat and make an area attractive to wildlife. First, leave as many trees as possible around the buildings. This will not only benefit wildlife by providing food, cover, and nesting sites (i.e., especially for songbirds), but will also be more aesthetically pleasing for the residents of the development.

Leave as many snag trees (i.e., standing dead trees) and den trees (i.e., trees with holes) as possible. These trees are used by insect eating birds and cavity-nesting birds and mammals. Plant trees and shrubs which are useful to wildlife and landscaping (Table 3).

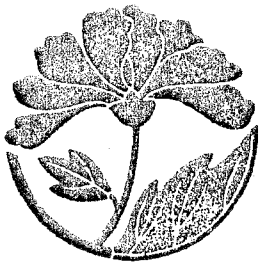
TABLE 3

WILDLIFE AND LANDSCAPING PLANTS

Japanese Barberry (Bergeris bulgaris)	American Mountain Ash (Sorbus americana)
Flowering Dogwood (Cornus florida)	Autumn Olive (Elaegnus umbellata)
Honeysuckle (Lonicera spp.)	Winterberry (Ilex verticillata)
Juniper (Juniperus spp.)	American Cranberrybush (Vernum trilobum)
Bayberry (Myrica pensylvanica)	Red Maple (Acer rubrum)
Chokecherry (Purnum virginiana)	Red-osier Dogwood (Cornus stolonifera)
American Holly (Illex opaca)	
Alternate-leaf Dogwood (Cornus stolonifera)	
Maple-leaved Virburnum (Virburnum acerifolium)	

A variety of trees and shrubs should be used. Most species of wildlife need to have cover when they move from place to place. By leaving corridors of vegetation this will allow wildlife to utilize the area and also have access to adjacent areas. Large expanses of lawn with no trees or shrubs present should be discouraged. These factors will allow wildlife to better utilize the area and thus make it more attractive to wildlife.

LAND USE
AND
PLANNING CONSIDERATIONS



road out separated by several hundred feet. The PZC should request that the developer explore other possible accesses, either at Poole Road or through Durham at Dead Hill Road. These possibilities should be discussed with the Town Police Force and the State Police.

The final maps and plans which the PZC approves should have the greatest degree of accuracy and be at the best scale that the PZC can extract from the developer in order that the Town's records benefit from the approval of this development.

The unique vegetation, wildlife, and other natural features such as existing wetlands, drainageways and ponds should be protected as far as possible. In particular, Coan Pond should receive detailed attention by the PZC because of the obvious advantages offered to the Town and the developer. If any dredging or opening up of the pond is comtemplated, the PZC should consider its affects on the present state of its wildlife and vegetation.

Under a cluster concept development, many areas within this site will be dedicated as open spaces. The PZC should know how this will relate to the open space in the rest of the Town. Will it be available to townspeople or only to the owners of dwellings in the development? Are the dedicated open spaces to be deeded to the Town or to another organization? If it is to be dedicated to the Town, does the Town want the liability for such acreage? Do easements guarantee no future development on the open space?

On-site septic facilities for single-family homes conforms to a technology which is well recognized. However, the Plan of Development promulgated in 1969 for the Town of Madison recommended that cluster developments should be approved around or near the developed center of Madison and not in the area proposed in this development. Therefore, the PZC should require that any septic system or community sewer system designed for this site be "state-of-the-art"

to give the Town some assurance that there will be no failures, the correcting of which will fall to the Town in the future.

Finally, the developer relies on the fact that the development in the manner proposed, will reduce the overall number of bedrooms to be built, thereby reducing possible school children. It must be pointed out that census statistics reveal that the number of one parent households is increasing and should be taken into consideration when predicting school age population resulting from this development.

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 identifying 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.