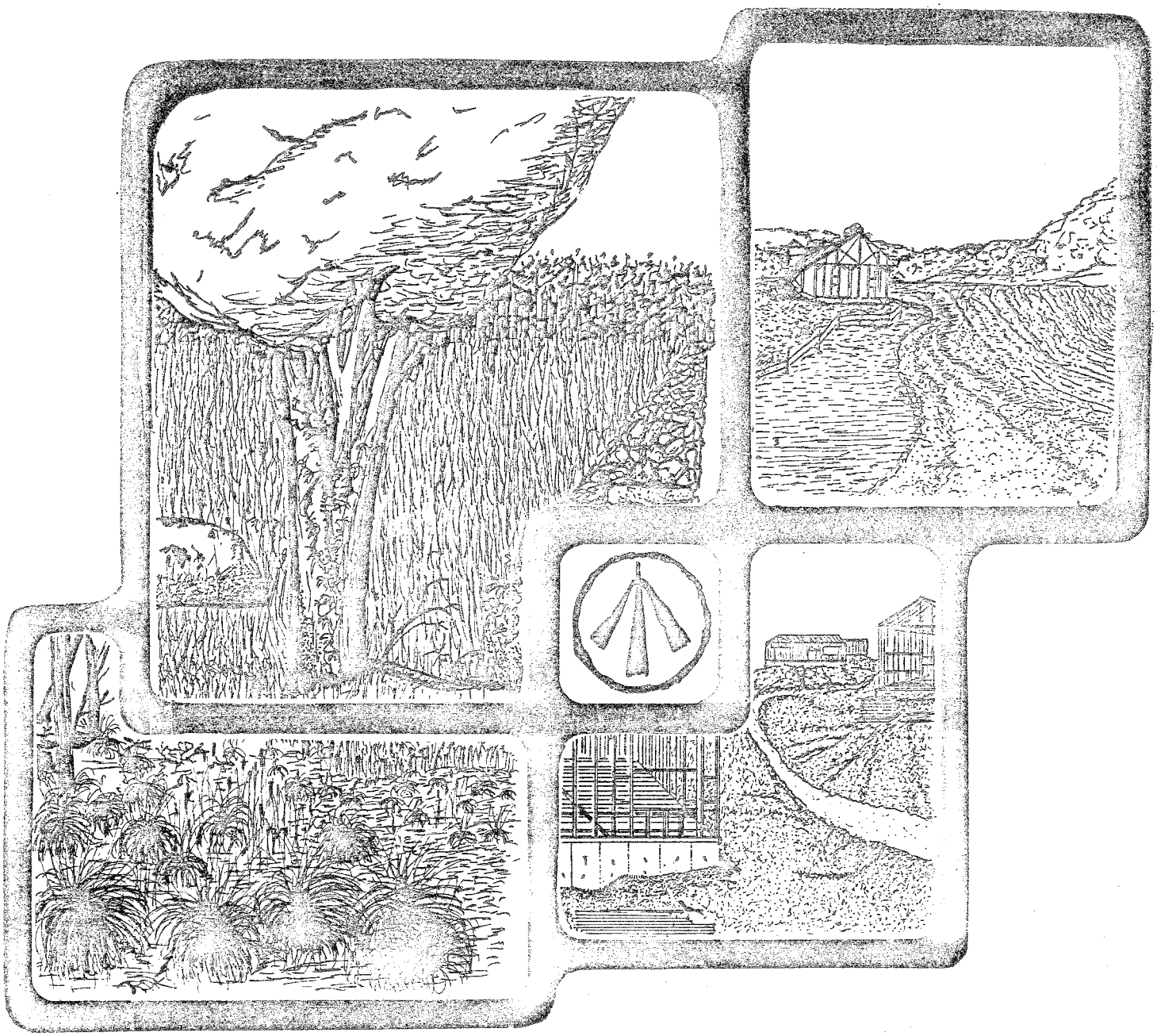
ENVIRONMENTAL REVIEW TEAM REPORT



PROPOSED CEMETERY, DIOCESE OF BRIDGEPORT
STAMFORD, CONNECTICUT

KING'S MARK
RESOURCE CONSERVATION & DEVELOPMENT AREA

KING'S MARK
ENVIRONMENTAL REVIEW TEAM REPORT

ON

PROPOSED CEMETERY, DIOCESE OF BRIDGEPORT
STAMFORD, CONNECTICUT

FEBRUARY 1981

Kings Mark Resource Conservation and Development Area

Environmental Review Team

P.O. Box 30

Warren, Connecticut 06754

ACKNOWLEDGMENTS

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

Federal Agencies
U.S.D.A. SOIL CONSERVATION SERVICE

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

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

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Richard Lynn, ERT Coordinator
Rebecca West, ERT Cartographer
Irene Nadig, Secretary
Brenda Lloyd, Secretary

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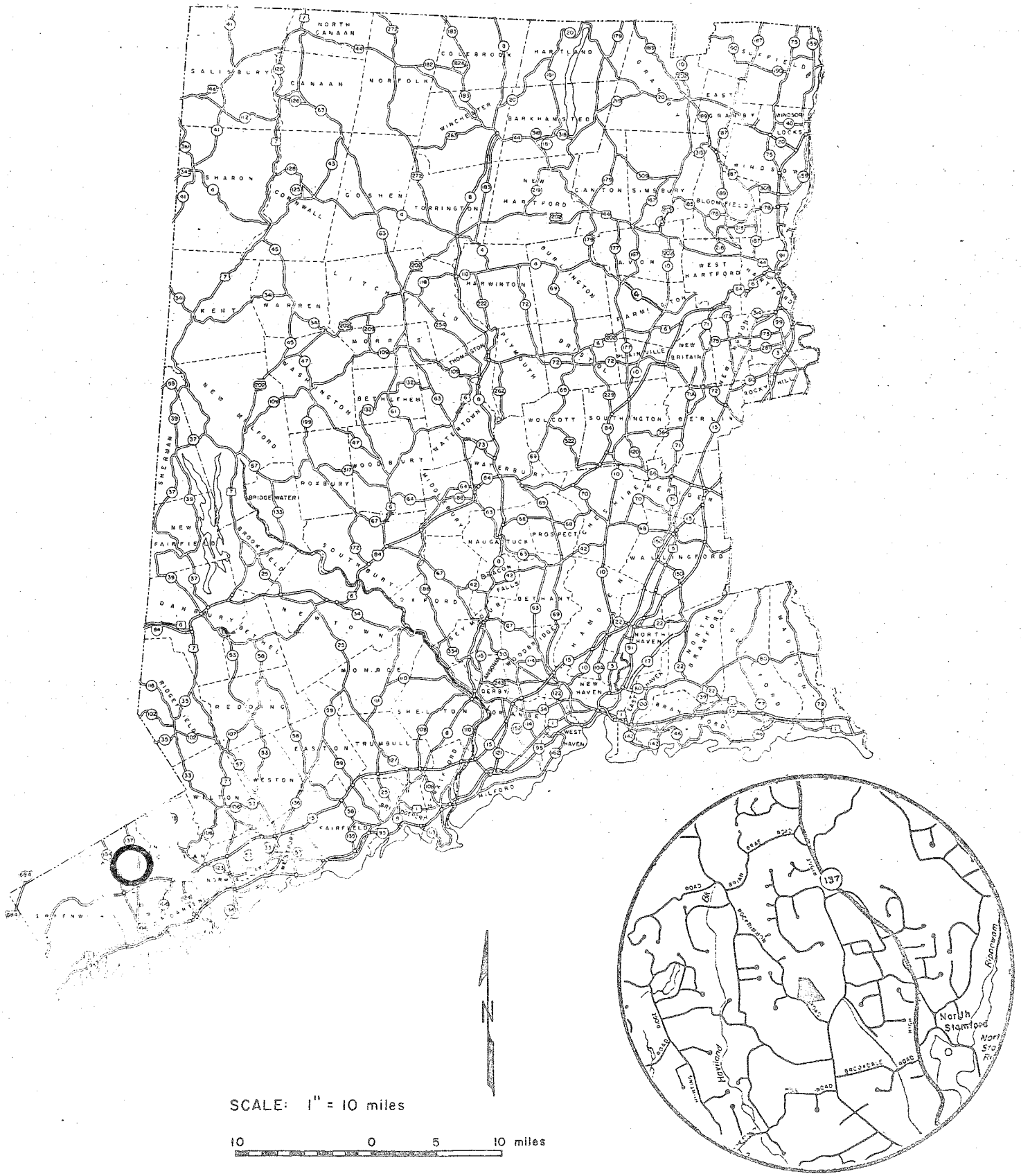


ENVIRONMENTAL REVIEW TEAM REPORT
ON
PROPOSED CEMETERY, DIOCESE OF BRIDGEPORT
STAMFORD, CT.

I. INTRODUCTION

The Stamford Environmental Protection Board is presently considering an application for a new cemetery submitted by the Diocese of Bridgeport. The subject site is ± 18.8 acres in size and located in the northern portion of town off Rock Rimmon Road.

The subject site is undeveloped, mostly wooded and owned by the Diocese. As shown in Figure 1, the property is dome shaped with slopes on the property ranging from slight to steep. From the property's central knoll, the land dips down in all directions. Much of the land at the periphery of the property, and directly adjacent to the site, is wetland. Beyond this wetland area, land use is predominently residential. However an institutional use (nursing home) abuts the southwest portion of the site, and an abandoned town landfill abuts the southern boundary of the site.

The proposed project calls for the regrading of about half the site to provide for in-ground burial, and the construction of a mausoleum, interior loop road, detention pond, and office/chapel complex(seeFigure 2). Plans also call for the removal of existing vegetation in the area to be regraded with subsequent landscaping. Approximately one acre of inland wetland is proposed for filling under the project.

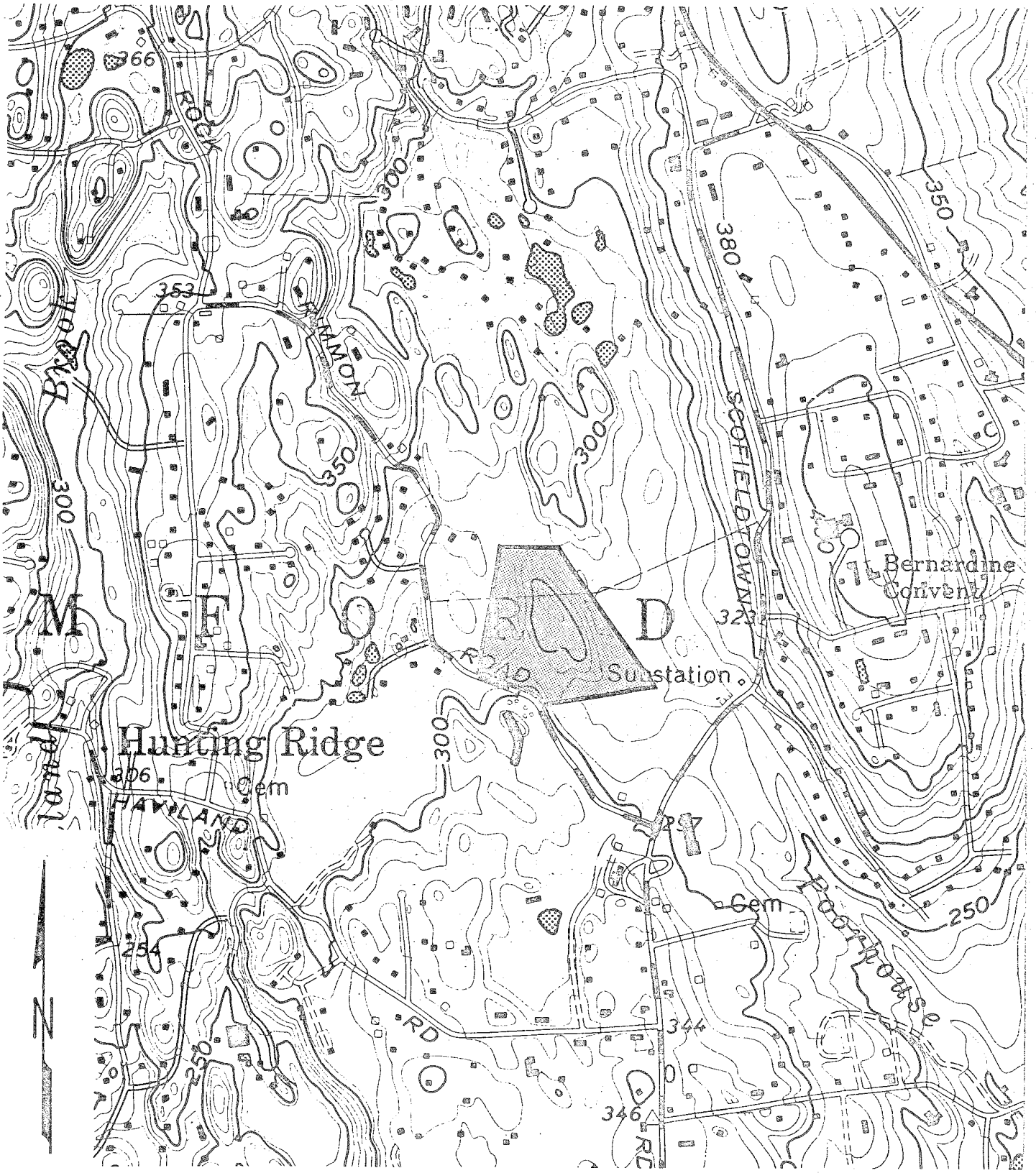
The applicant (Diocese of Bridgeport) has prepared a site plan, soils map, grading and drainage plan, soil erosion control plan, landscape plan, and construction details for the proposed project. The applicant has also had an environmental evaluation of the proposed cemetery prepared by Eco-Tech Associates of Stratford.

The Stamford Environmental Protection Board requested the assistance of the King's Mark Environmental Review Team to help the Board in analyzing the proposed project. The Team was asked to discuss the natural resource base of the subject site, to comment on the suitability of the land for the proposed project, and to provide an objective evaluation of the potential development impact. The Team was specifically asked to address the following:

1) the adequacy of the proposed erosion and sediment control plan,
2) the impact of the project on local hydrology and the appropriateness of the proposed detention basin,
3) the suitability of the proposed landscaping plan,
4) the impact of the project on wildlife, and
5) the impact of the project on leachate movement and renovation in the adjacent landfill (via blasting or wetland filling).

FIGURE 1.

TOPOGRAPHIC MAP



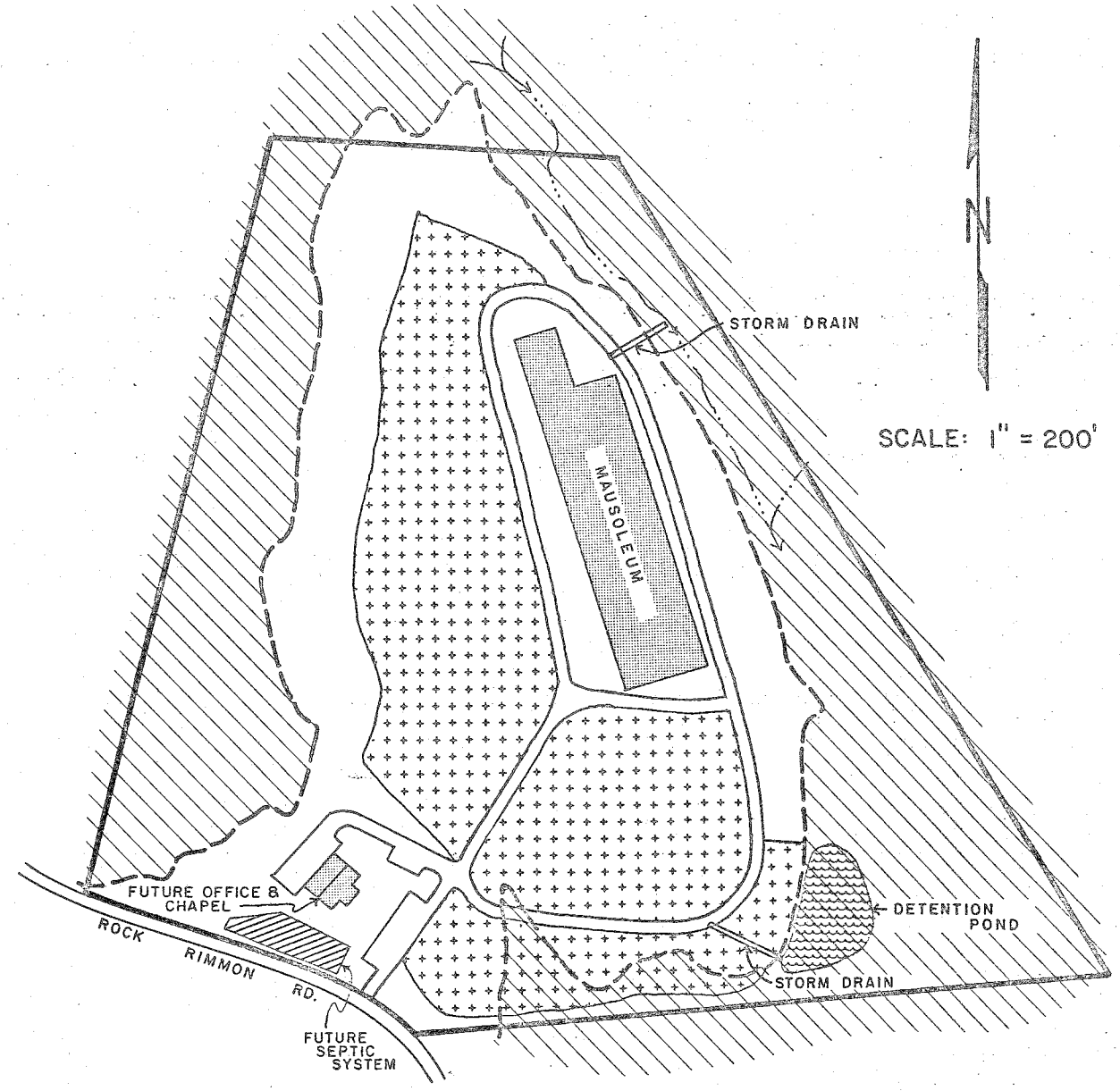
0 1/4 1/2 mile

0' 1000' 2000' 3000'

SCALE: 1" = 1000'

FIGURE 2.

SIMPLIFIED SITE PLAN



EXPLANATION

- WETLAND LIMIT LINE
- WETLAND
- GROUND BURIAL AREA
- ROADS AND PARKING AREAS
- STREAM

* ADAPTED FROM 'SITE PLAN' 6/23/80 BY KASPER ASSOCIATES

The ERT met and field reviewed the site on December 17, 1980. Team members for this review consisted of the following:

John Alexopoulis	Landscape Architect	U. Conn. Cooperative Extension Service
George Brys	Wildlife Biologist	Connecticut Department of Environmental Protection
Brian Curtis	Sanitary Engineer	Connecticut Department of Environmental Protection
Ellen Harrison	Environmental Analyst	Connecticut Department of Environmental Protection
Rob Rocks	Forester	Connecticut Department of Environmental Protection
Dave Thompson	District Conservationist	U.S.D.A. Soil Conservation Service
Mike Zizka	Geohydrologist	Connecticut Department of Environmental Protection

Prior to the review day, each team member was provided with a summary of the proposed project, a checklist of concerns to address, a detailed soil survey map, a soils limitation chart, a topographic map, and a simplified site plan of the development proposal. Detailed plans prepared by the applicant were available for inspection the day of the field review. Following the field review, individual reports were prepared by each team member and forwarded to the ERT Coordinator for compilation and editing into this final report.

This report presents the team's findings. It is important to understand that the ERT is not in competition with private consultants and hence does not perform design work or provide detailed solutions to development problems. Nor does the team recommend what ultimate action should be taken on a proposed project. The ERT concept provides for the presentation of natural resources information and preliminary development considerations--all conclusions and final decisions rest with the town and developer. It is hoped the information contained in this report will assist the Town of Stamford and the landowner/developer in making environmentally sound decisions.

If any additional information is required, please contact Richard Lynn, (868-7342), Environmental Review Team Coordinator, King's Mark RC&D Area, Sackett Hill Road, Warren, Connecticut 06754.

* * * * * *

II. SUMMARY

- *Occasional shallow depths to bedrock will probably be the most significant geologic limitation on the parcel.*

- *Runoff and peak flow increases should not be a major consideration if the proposed drainage system is adopted.*

- *It is apparent that the landfill and salt storage area south of the property is the principal cause of deterioration in the nearby streams and in the groundwater. With the possible exception of blasting during construction, implementation of the project would not influence the movement of leachate from the landfill. New fractures created by blasting will not affect the volume of leachate that moves into the Poorhouse Brook system, but it may affect the route which the groundwater takes to reach the system. Therefore the major consideration would be the possibility of opening channels into nearby water supply wells, particularly those that are downstream of the landfill. The likelihood of this occuring would depend in part on the power of the blast and the distance of the well or wells from the landfill. Another concern with regards to blasting is that if sealed containers of liquid or semi-solid waste are buried in the landfill,it is conceivable that a shifting or settling of the fill, as a result of blasting, could break open the containers and release the wastes. For these reasons, blasting on this site should be avoided if at all possible; if not, the developer should use the smallest charges necessary to get the job done.*

- *Water quality analysis conducted by the Connecticut DEP in June 1980 showed no significant leachate impact from the landfill either above, adjacent to, or below the landfill, which has been closed now for 12 years. No hydrocarbons were detected in the analysis, and the only exceptionally high chemical parameter was chlorides. The source of the chlorides is most likely not the refuse, but the uncovered salt/sand pile on top of the closed landfill. This salt pile should be covered to prevent continued leaching of the salt.*

- *No significant impact on wetland values or functions is foreseen with implementation of the project. With filling of the narrow strip of wetland between the cemetery and the landfill, care should be taken to adequately stabilize the newly created swale in this area. This is particularly important in that the existing swale receives drainage from the vicinity of the Smith House via a culvert under Rock Rimmon Road. During periods of heavy precipitation, the concentrated flows from the culvert could present a possible source of erosion if the newly created swale were not properly stabilized.*

- *The Soil Erosion Control Plan, as presented in the application, will not provide a significant degree of protection in the opinion of the ERT. Suggestions for improving the plan are provided in the text of this report.*

- *Vegetation clearing,with proper controls, should have very little impact on area water quality. It would be desirable to preserve wherever possible the large healthy trees on this tract and incorporate them into the overall landscaping plan. If selected trees are to be saved, it would be wise to identify those trees on the plan and to discuss how they are to be protected during the construction stage.*

- *The proposed action will probably have a beneficial effect overall on the diversity of wildlife habitat in the immediate area.*

- *In the opinion of the ERT's landscape architect, the proposed plan seems "forced" and out of character with the surrounding landscapes. Modifications of the proposed planting plan (discussed in the text of this report) are encouraged both with respect to the kinds of plants used and their placement.*

III. GEOLOGY

The proposed cemetery has a relatively simple geological structure. The central part of the tract is composed of bedrock and till, which form a discrete knoll. There is, unfortunately, little data available to indicate what the nature of the bedrock is. A general survey of the state's bedrock indicates that the property is located in a zone that is dominated by granite and granite gneisses. These rocks are typically coarse-grained and are composed primarily of the minerals quartz, feldspar, muscovite, and biotite. Lesser amounts of many other minerals, such as garnet, hornblende, and sillimanite, are locally common. The topography of the area suggests that the rock has a north-south structural lineation, possibly divided by major north-south fractures. The knoll on the site is one of many that are located in the relatively flat lowland of Poorhouse Brook. Most of the knolls appear to be bedrock-controlled; that is, bedrock is primarily responsible for their shape. However, the knolls generally have an elliptical form with the direction of elongation being south-southeast. This form may in part be a result of glacial molding and streamlining.

Till is a glacial sediment composed of rock particles ranging in size from clay to boulders. The particles were scraped, abraded, and gouged from soil and rock surfaces over which glacier ice passed as it moved southward into Connecticut. The sediment was deposited directly from the ice and was not substantially reworked by meltwater. As a result, the till is not sorted (i.e. all grain sizes are mixed together) and it is usually not stratified. Deep till is often silty and very compact, particularly below the upper few feet. On this site, however, the depth to bedrock is probably less than 10 feet in most places. Where rock is at particularly shallow depths (less than five feet), as it appears to be on the northeastern slope, the till may tend to be sandy and relatively loose. In view of the nature of the proposed land use, occasional shallow depths to bedrock will probably be the most significant geologic limitation on the parcel.

Wetland soils almost entirely surround the till-bedrock knoll. These soils are composed largely of silt, sand, and clay, but in the wetter areas they tend to be rich in organic material. The depth of the soils is unknown but it may exceed 10 feet in the central portion of the wetland at the eastern boundary of the property. The surficial geology of the site is shown in Figure 3.

IV. HYDROLOGY

A. Runoff and Peak Flow Considerations

The parcel may be regarded as a near-island surrounded by a "moat". The "moat" is really a complex hydrologic system of swamps and long and short stream channels. Streamflow directions are shown in Figure 4. All surface drainage ultimately flows into a stream (Poorhouse Brook) at the eastern edge of the site. The total watershed of the stream at a point near the southeastern corner of the property is approximately 750 acres. In contrast, the total developed area under the proposal would be less than 10 acres. The effect of any runoff increases generated by the cemetery development would therefore be negligible as regards peak flow rates of Poorhouse Brook. In addition, the developer's consultants have submitted plans for a storm drainage system that would mitigate runoff and flow increases from the site itself. The plans include a retention pond for one section of the cemetery. The "pond" would actually be dry except during periods of precipitation at which time it would collect runoff from most of the eastern half

FIGURE 3.

SURFICIAL GEOLOGY

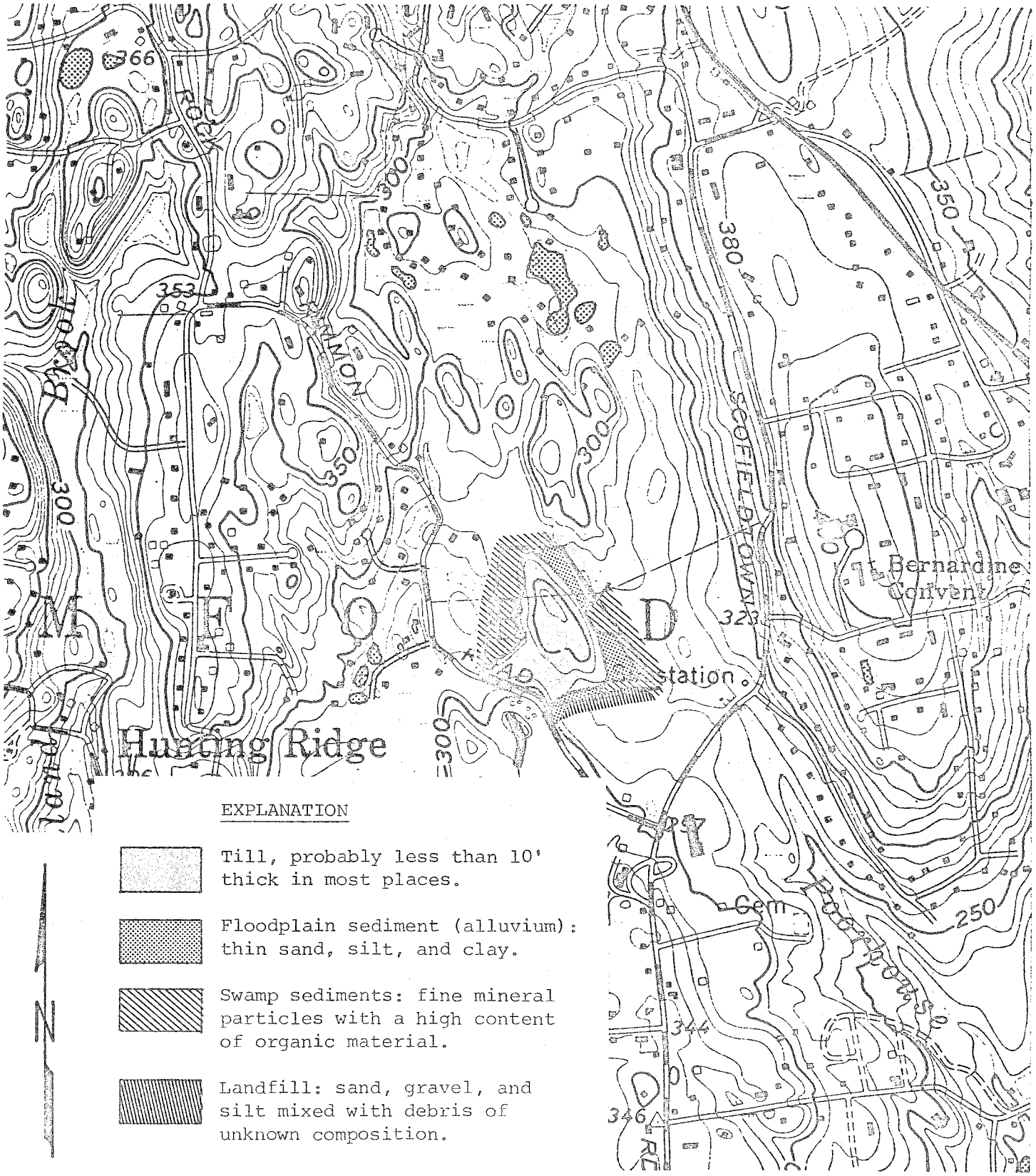


FIGURE 4.

SURFACE WATER FLOW DIRECTIONS

of the cemetery, including roof drainage from the mausoleum. The pond is designed for a 25-year-frequency storm. The Team geohydrologist believes that, with all things considered, runoff and peak flow increases should not be a major consideration if the proposed drainage system is adopted.

B. Water Quality and Landfill Considerations

Particular concern was voiced at the ERT pre-review meeting in regard to the potential effects of the cemetery development on local water quality. For the most part, the project should have little or no direct impact. The major concern is the need for stabilizing graded portions of the site, particularly where considerable amounts of fill will be placed. Without proper stabilization, erosion of the hillsides may cause increased siltation of the nearby streamcourses (note: this issue is discussed in more detail in the Soils portion of this report). The actual usage of the site, however, involves no substantial threat to water quality.

It is apparent that leachate from the landfill and salt storage area south of the property is the principal cause of deterioration in the nearby streams and in the groundwater. With the possible exception of blasting during construction, implementation of the project would not influence the movement of leachate from the landfill. Unfortuately, the potential effects of blasting on this site are very difficult to assess. It is clear that blasting may cause additional fracturing in the bedrock, thereby providing new paths for groundwater movement. On the other hand, the overall natural groundwater flow regime would not be changed.

The major direction of groundwater flow from beneath the landfill is towards Poorhouse Brook and not northerly towards the small wetland/watercourse which would be filled under the proposed development. It should also be noted that the closed dump appears to have been placed in what was once a wetland area and not on bedrock. It can be expected therefore that the water table is generally above bedrock in this area and that leachate from the landfill would tend to flow along the surface of the water table towards Poorhouse Brook. Under these conditions, the leachate would never reach the water in the underlying bedrock. It is conceivable however that during particularly dry periods, the water table in the area may dip below the bedrock surface. This would, of course, allow leachate to enter the bedrock water regime.

If leachate does enter the bedrock,its tendency will still be to flow towards and ultimately into Poorhouse Brook and its wetlands. New fractures will not affect the volume of leachate that moves into the Poorhouse Brook system, but it may affect the route which the groundwater takes to reach the system. Therefore, the major consideration would be the possibility of opening channels into nearby water supply wells, particularly those that are downstream of the landfill. The likelihood of this occuring would depend in part on the power of the blast and the distance of the well or wells from the landfill. It seems doubtful that wells supplying homes north of the proposed cemetery would face the contamination risk from new fracturing. Apart from this problem, however, is the possibility that such fracturing could affect the volume of supply in some wells by rerouting groundwater from those fractures presently supplying the wells into new fractures. This risk would be greatest for shallow wells and remote for wells whose source of supply is deep in the bedrock.

Whereas blasting of bedrock to implement the project may fracture rock by setting up vibration stresses, the unconsolidated material in the landfill should effectively dampen the shock waves; the only noticeable result may be a minor settling of the fill. If, however, sealed containers of liquid or semi-solid waste are buried in the landfill, it is conceivable that a shifting or settling of the fill could break open the containers and release the wastes. Therefore, with implementation of the project, the developer should use the smallest charges necessary to get the job done. If blasting can be avoided, it should be.

It should be noted that water quality analysis conducted by the Connecticut DEP in June 1980, showed no significant leachate impact from the landfill either above, adjacent to, or below the landfill, which has been closed now for 12 years. No hydrocarbons were detected in the analysis, and the only exceptionally high chemical parameter was chlorides. The source of the chlorides is most likely not the refuse, but the uncovered salt/sand pile on top of the closed landfill. This salt pile should be covered to prevent continued leaching of the salt.

C. Wetland Values and Functions

No significant impact on wetland values or functions is foreseen with implementation of the project. The major attribute of the wetlands from a purely hydrologic standpoint is the floodwater-storage capacity that they have. The valley of Poorhouse Brook has a relatively high storage capacity because of its flatness and its numerous upstream basins. The project would disturb the wetlands in two ways: The narrow wetland strip between the cemetery and the landfill would be filled, and about two-tenths of an acre of wetlands would be used for the retention pond. Filling of wetlands is generally discouraged because of the loss of storage capacity and the potential loss of biologic values. In this case, however, the loss of capacity would be partly offset by the retention pond itself (i.e. the runoff retention ability of the wetland strip would be replaced by the pond for storms up to a 25-year-frequency event). In addition, the remaining wetland area is large enough to accommodate the shift in flood storage without a noticeable increase in flood elevations. The developers have maintained that the fill might provide an incidental benefit by providing additional filtration for leachate flowing from the landfill. This may be true, but it is not likely to be a substantial benefit, particularly if the fill is coarse-grained. Although the fill could remove suspended materials, the major leachate concern is dissolved material or liquid chemical residues, which the fill may not be able to remove effectively. On the other hand, it the fill is clean mineral matter, no harm to the water quality should come from the fill itself.

Depending upon the type of material used, filling of the wetland area as proposed may cause the underlying groundwater to mound up within the fill. If the basal fill is fairly coarse (i.e. sand size or larger),little or no mounding should occur and the impact on the proposed project would be negligible. If, however, the fill material is composed of fine grained material (i.e. silts and clays), the water table could possibly rise several feet. Coarse grained fill material is therefore preferable in this instance.

One other consideration needs to be addressed with regards to the proposed filling. The site plans indicate that the drainage swale running along the southern boundary of the parcel would be partially filled. However, a swale would be

created, upon final grading, between the toe of the existing landfill and the edge of the property as reshaped. In essence, the drainage swale would be raised under the proposed plan by as much as eight feet. The present swale receives drainage from the vicinity of Smith House via a culvert under Rock Rimmon Road. The culvert is located south of the property near the point of access to the landfill. During periods of heavy precipitation, the concentrated flows from the culvert would present a possible source of erosion if the swale were filled and regraded as planned. A complete drainage program should therefore include specific measures to stabilize the fill in the new swale. The developer's soil-erosion-control plan did not address this issue in detail. On the other hand, the suggested landscaping plan indicated that trees would be planted in or near the center of the swale. It is not clear whether such placement was actually intended or whether the plan was conceptual in nature. In any event, with implementation of the project, trees should be kept out of the relocated swale to permit an uninterrupted flow of runoff.

V. SOILS

As shown by the soils map in the Appendix of this report, there are four soil types on the designated site. However only two are intimately involved with the execution of the development proposal. Major excavation and earth moving will drastically alter the predominant Charlton soil (32MD) ,and eliminate the band of Leicester soil (43M) paralleling the land fill area.

The reshaping will be of such magnitude that inherent limitations and suitability characteristics of these soils are not relevant in evaluating their adaptability or in predicting their response to the proposed use. There is no reason to believe there will be any problem. However, earthmoving, unstable earth surfaces, and operation phasing are critical elements to be considered in planning effective erosion and sediment control. For this site, the objective of the plan should be to limit the impacts initiated by these elements. The Soil Erosion Control Plan, as presented in the application (sheet SP-5) ,will not provide a significant degree of protection.

To enhance the effectiveness of the Erosion and Sediment Control Plan, the following comments and recommendations are offered for consideration. Additional assistance in erosion and sediment control planning is available from the Fairfield County office of the Soil Conservation Service in Bethel.

- Perimeter sediment barriers for this site should be sediment fences - not hay bales. Baled hay barriers are inefficient and too vulnerable for such an intensive and confined operation. In this regard, "Soil Erosion and Sediment Control Guidelines" number 6 (of sheet SR-5), should be eliminated, and guideline number 7 should be revised to require sediment fences and to require that the fences remain in place until all disturbed areas are completely stabilized.

- Additional, temporary control measures will be needed to control runoff from the site during the initial phase of road construction. These measures should consist of drainage dips, leak offs, and sediment traps at critical slope breaks along the road system. Runoff from Rock Rimmon Road should be diverted from the access road entrance at least temporarily.

- The detention basin as designed will not control sediment discharge into the wetland during construction, but could be modified to do so if the outlet pipe were sealed to allow the basin to flood to the spillway elevation.

- Consideration should be given to planting a more adaptable species than switchgrass on the fill embankments adjacent to the wetlands. At the very least, the seeding mixture recommended in guideline number 12 should be modified to read "Blackwell" Switchgrass and Redtop at the rate of 15 pounds and 2 pounds per acre respectively. In addition, this guideline should state the seedbed preparation should include liming to a PH of 6.0 - 6.5 and a liberal application of fertilizer to insure high phosphate and potash.

- Although the switchgrass has been selected to mitigate the loss of wildlife cover, the spring seeding requirement is a distinct drawback. Over winter, 1.5/1 slopes will require intensive management and additional expense.

- One additional guideline should be added. It should state that some individual will be assigned the responsibility for implementing the erosion and sediment control plan. This responsibility includes the installation and maintenance of control measures, informing all parties engaged on the construction site of the requirements and objectives of the plan, notifying the Planning and Zoning office of any transfer of this responsibility, and for conveying a copy of the Erosion and Sediment Control Plan if the title to the land is transferred.

- Finally, a construction staging plan and an operations sequence plan should be developed to coordinate the logistics of the proposed work and to establish standards and procedures to be employed during the implementation period. If the proposal is done in piecemeal fashion, the overall erosion and sediment control plan will need adjustment. This type of revision requirement should be specified in the permit.

VI. VEGETATION

The property proposed for development into the Diocese of Bridgeport's Cemetery may be divided into three vegetation types. These include mixed hardwoods, 12± acres; hardwood swamps, 6± acres; and open swamp, 1/2 ± acres (see Figure 5 and the vegetation type descriptions below).

It would be desirable to retain several of the large healthy trees in the mixed hardwood stand for their value as specimen trees. These trees should be worked into the overall landscape plan.

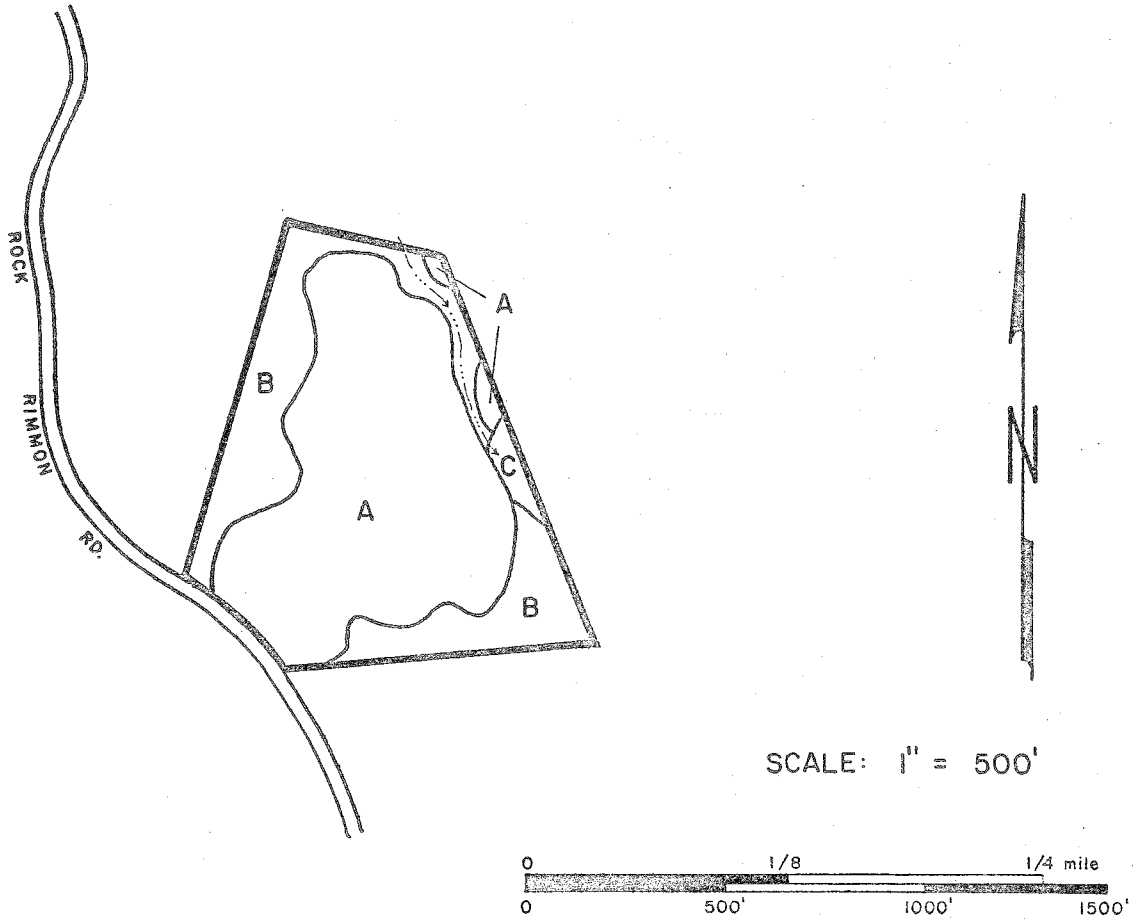
The larger trees which are to be removed should be utilized as sawlogs, the tops and smaller trees as fuelwood. With proper controls, vegetation clearing should have very little impact on area water quality.

A. Vegetation Type Descriptions

TYPE A. MIXED HARDWOODS. This 12± acre fully-stocked stand is made up of medium to high quality sawtimber-size red oak, black oak, white oak, tuliptree and red maple along with occasional black birch, yellow birch, shagbark hickory, white ash and American beech. The understory is dominated by American chestnut sprouts, hardwood tree seedlings, maple leaved viburnum, witch-hazel, flowering dogwood, alternate leaved dogwood and scattered high bush blueberry. Ground cover vegetation in this stand is composed of club moss, canada mayflower, low bush blueberry, huckleberry and grasses.

FIGURE 5.

VEGETATION TYPE MAP



LEGEND

- ROAD
- PROPERTY BOUNDARY
- VEGETATION TYPE BOUNDARY
- STREAM

VEGETATION TYPE DESCRIPTION*

TYPE A — Mixed hardwoods. 12± acres fully-stocked, sawtimber size.

TYPE B — Hardwood swamp. 6½ acres variable stocking, under to over-stocked, pole to sawtimber size.

TYPE C — Open swamp.

*Seeding size = trees less than 1 inch in diameter at 4½ feet above the ground (D.B.H.)
Sapling size = trees 1 to 5 inches in D.B.H.
Pole size = trees 5 to 11 inches in D.B.H.
Sawtimber size = trees 11 inches and greater in D.B.H.

TYPE B. HARDWOOD SWAMP. Poor quality pole to sawtimber size red maple dominate this 6+ acre stand. Occasional black gum and yellow birch are scattered throughout this area. The stocking in this stand is quite variable, ranging from understocked to over stocked. The trees along the stream are somewhat higher in quality. Sweet pepper bush, highbush blueberry, swamp azalea, arrowwood viburnum and maple leaved viburnum are present in the understory. The ground cover vegetation found within this area is made up of sedges, skunk cabbage, cinnamon fern, and club moss in areas which are somewhat drier. Vine species which are present include oriental bittersweet and greenbrier.

TYPE C. OPEN SWAMP. Open swamp makes up approximately 1/2 acre of this tract. This area is vegetated with cattail, common reed, buttonbush, purple loose strife, skunk cabbage, tussock sedge, sweet pepperbush, sphagnum moss and assorted wild flower and weed species.

B. Aesthetics and Preservation

The proposed development of this tract calls for clearing and grading approximately 67% of the mixed hardwood stand (vegetation type A). Located throughout this stand are several large healthy trees which would make ideal specimen trees. These trees have extremely high aesthetic and shade value. Many of these trees were marked for retention prior to the ERT field investigation. They should be worked into the landscape plan for this proposal.

It should be noted, especially with the wide spread excavating and grading that is proposed for this area, that trees are very sensitive to soil disturbances within their root zones. This zone corresponds to the entire area under a trees crown. Practices (such as filling and excavating) which disrupt the balance between soil aeration, soil moisture level and soil composition in this zone may cause a decline in tree health and vigor, potentially resulting in tree mortality within three to five years. Mechanical injury to trees may have the same results. Trees which are to be retained should be clearly (but temporarily) marked so that they may be more easily avoided during clearing and bulldozing operations.

Buffer strips of natural vegetation could be left around wetland areas to help protect and maintain water quality. These buffer strips should be at least 50 to 100 feet wide. The natural vegetation will help to filter and trap silt and sediments which might otherwise reach the wetland areas.

As discussed in the preceeding section of this report, proper erosion and sediment controls are essential to prevent water quality degradation during grading and development of this parcel. All disturbed areas should be revegetated with grasses as soon as possible after the areas have been brought to finished grade.

The larger trees which are removed during the clearing operation should be utilized as sawlogs. The tops and smaller trees which remain should be utilized as fuelwood. Bids from several mills should be solicited to assure a competitive price for the timber.

With proper controls, the clearing of vegetation should have an insignificant impact on water quality, especially when compared to the proposed excavation and grading of the area. It is recommended that: 1) the harvest not take place during the spring season when heavy rains are expected, 2) skid roads (used for moving trees once felled) generally follow contours and avoid slopes greater than 10%, and 3) the yarding area (where trees are brought to be loaded onto logging trucks) should be located on well drained soils with a slight slope for proper drainage. These simple practices, combined most importantly with common sense will help reduce erosion problems during the harvest operation.

VII. WILDLIFE

The major habitat type on site is deciduous hardwood forest with a fairly sparse understory on the upland portions. A dense shrub understory is present on many of the wetland areas. Open fields exist to the southeast on the old dump site, and a small marshy area abuts the eastern side of the site.

Wildlife species in evidence during the field inspection included gray squirrel, cottontail rabbit, raccoon, woodchuck, whitetail deer, hairy woodpecker, and several other songbirds.

The proposed action will probably have a beneficial effect overall on the diversity of wildlife habitat in the immediate area. Cemeteries often provide ideal habitat for songbird and small mammal populations. The open lawns interspersed with the ornamental plantings proposed will provide a much more diverse habitat and increased source of food and cover than the existing woodland habitat type. Those species of wildlife requiring forest habitat will be provided for by the surrounding unaffected forest.

One suggestion toward improving the beneficial effect of the proposed action on wildlife habitat would be an effort at creating wherever possible an "edge effect" to ease the transition from the forest into the cemetery. This can be accomplished by allowing natural plant succession to occur along the edge of the clearcut. By not mowing a strip thirty feet wide at the forest edge, a good growth of native shrubs and brush can be encouraged.

VIII. LANDSCAPING CONSIDERATIONS

In the opinion of the ERT landscape architect, the overall presence of the cemetery will be out of character with the surrounding landscapes, based on the manner in which trees and shrubs have been placed and in the kinds of plants used. The planting design of the rows of trees with hedges is contrary to the curving slope of the proposed grading. This type of layout is better suited to a flat site. Also, the use of several tree and shrub species is done in a spotty manner. The result of juxtaposing the widely different tree forms is a lack of coherence in the landscape appearance; the cemetery would have no discernible design concept and would not be sympathetic with existing vegetation.

From the view of the ERT's landscape architect, the proposed plan seems "forced". The project will necessitate the removal of mature trees of significant value, the grading and alteration of a substantial part of the site, and the construction of a very sharp and artificial slope. Although some reference has been made to incorporating specimen trees in the landscaping plan, there is no specific reference to this on the submitted plans. If selected trees are to be saved, it would be desirable to identify those trees on the plan and to discuss on the plan how the trees will be saved (e.g. fencing, limiting excavation under the tree crown, use of tree wells, marking trees at chest level and ground level, etc.).

The following additional comments are offered for consideration:

- 2:1 gradients proposed for this site were said to be mowable by machine. At best, these would require hand mowing and would not present a particularly good appearance with the planned grass type.

- There is no screen planting between the dump and the cemetery. Screening in this area would be desirable.

- Hedges are high maintenance plantings and would require knowledgeable personnel to maintain them correctly. It should be noted that excessive pruning of the hedges may reduce fruiting in the 'wildlife' plantings and thus decrease their wildlife value.

- Switchgrass is a warm climate grass and is not particularly suitable for this site. Its appearance will be poorer than other more suitable species (e.g. the fescues) and its late greening will be more of a fire hazard in the spring.

- Some of the proposed plantings are very closely spaced which will affect plant health and appearance. Examples of this may be found for the following species: White pine, Rhododendron, Doublefile Viburnum, Clethra. More "normal" spacing is encouraged.

- Shade intolerant shrubs beneath shade trees will grow poorly. This is an important consideration with respect to the Viburnums, Honeysuckle, and Euonymus.

IX. SEWAGE DISPOSAL AND WATER SUPPLY

Long-range plans for the site include the development of an office and chapel. Subsurface sewage disposal facilities would be required. Plans for the property presently show the future septic system as being located near the cemetery entrance along Rock Rimmon Road (See Figure 2). Soil mapping indicates that a Charlton very stony fine sandy loam is present in that area. Texturally, this soil is suitable for septic systems, although the presence of numerous large stones may be a technical nuisance during installation. Major constraints may be the slope and the potential for a relatively shallow water table, especially at the western end. At this time, it is possible to say that a septic system in the proposed location seems feasible but that it may require careful engineering to overcome the slope and possibly high water-table limitations. More detailed soil testing and evaluation will, of course, be required before final plans for the office and chapel are presented.

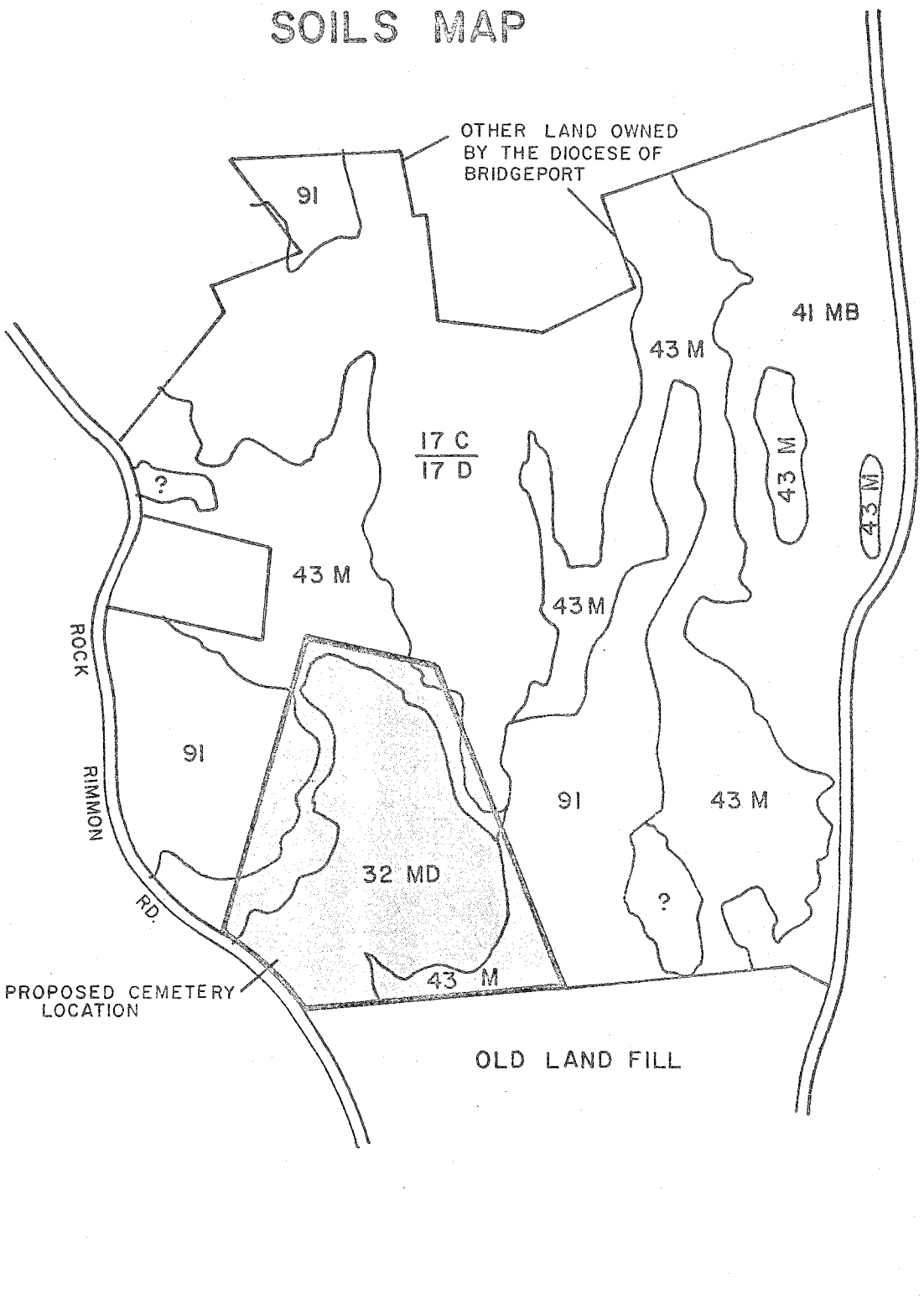
It is anticipated that the proposed chapel/office complex would generate very small sewage flows. The local health department will be the agency responsible for review and approval of the septic system design and installation, so long as sewage flows are less than 5,000 gallons per day as expected.

It should be noted that an on-site well for drinking water purposes at the chapel/office complex would face a risk of contamination, either from the landfill or the septic system. For this reason, extension of public water supply lines to service the site is recommended, if feasible.

* * * * * *

X. APPENDIX

SOILS MAP



* ADAPTED FROM SOILS MAP PREPARED BY J. & D. KASPER & ASSOCIATES · AUGUST 1980

0 1/8 1/4 mile

0 500' 1000' 1500'

SCALE: 1" = 500'

SOILS LIMITATION CHART - PROPOSED CEMETERY - DIOCESE OF BRIDGEPORT - STAMFORD

MAP SYMBOL	SOIL NAME	SOIL SUITABILITY FOR: SHALLOW EXCAVATIONS	BUILDINGS W/ BASEMENTS	ROADS AND PARKING LOTS	LANDSCAPING
17C	Hollis-Charlton rocky complex, 3-15% slopes	Severe; Depth to rock	Severe; Depth to rock	Severe; Depth to rock	Severe; Depth to rock
17D	Hollis-Charlton rocky complex, 15-35% slopes	Severe; Depth to rock	Severe; Depth to rock	Severe; Depth to rock	Severe; Depth to rock
91	Muck, shallow	Severe; Wetness	Severe; Wetness	Severe; Wetness	Severe; Wetness
43M	Leicester, Ridgebury, & Whitman, very stony fine sandy loams	Severe; Wetness	Severe; Wetness	Severe; Wetness	Severe; Wetness
41MB	Sutton very stony fine sandy loam, 3-15% slopes	Severe; Wetness	Moderate; Large stones, Wetness	Moderate; Slope, Frost action	Moderate; Large stones; Slope
32MD	Charlton very stony fine sandy loam, 15-35% slopes	Severe; Slope	Severe; Slope	Severe; Slope	Severe; Slope

EXPLANATION OF RATING SYSTEM:

1. SLIGHT LIMITATION: indicates that any property of the soil affecting use of the soil is relatively unimportant and can be overcome at little expense.
2. MODERATE LIMITATION: indicates that any property of the soil affecting use can be overcome at a somewhat higher expense.
3. SEVERE LIMITATION: indicates that the use of the soil is seriously limited by hazards or restrictions that require extensive and costly measures to overcome.

ABOUT THE TEAM

The King's Mark Environmental Review Team (ERT) is a group of environmental professionals drawn together from a variety of federal, state, and regional agencies. Specialists on the team include geologists, biologists, foresters, climatologists, soil scientists, landscape architects, recreation specialists, engineers, and planners. The ERT operates with state funding under the aegis of the King's Mark Resource Conservation and Development (RC&D) Area - a 47 town area in western Connecticut.

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

PURPOSE OF THE TEAM

The Environmental Review Team is available to help towns and developers in the review of sites proposed for major land use activities. To date, the ERT has been involved in the review of a wide range of significant activities including subdivisions, sanitary landfills, commercial and industrical developments, and recreation/open space projects.

Reviews are conducted in the interest of providing information and analysis that will assist towns and developers in environmentally sound decision-making. This is done through identifying the natural resource base of the project site and highlighting opportunities and limitations for the proposed land use.

REQUESTING A REVIEW

Environmental Reviews may be requested by the chief elected official of a municipality or the chairman of an administration agency such as planning and zoning, conservation, or inland wetlands. Requests for reviews should be directed to the Chairman of your local Soil and Water Conservation District. This request letter must include a summary of the proposed project, a location map of the project site, written permission from the landowner/developer allowing the team to enter the property for purposes of review, and a statement identifying the specific areas of concern the team should address. When this request is approved by the local Soil and Water Conservation District and the King's Mark RC&D Executive Committee, the team will undertake the review. At present, the ERT can undertake two reviews per month.

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