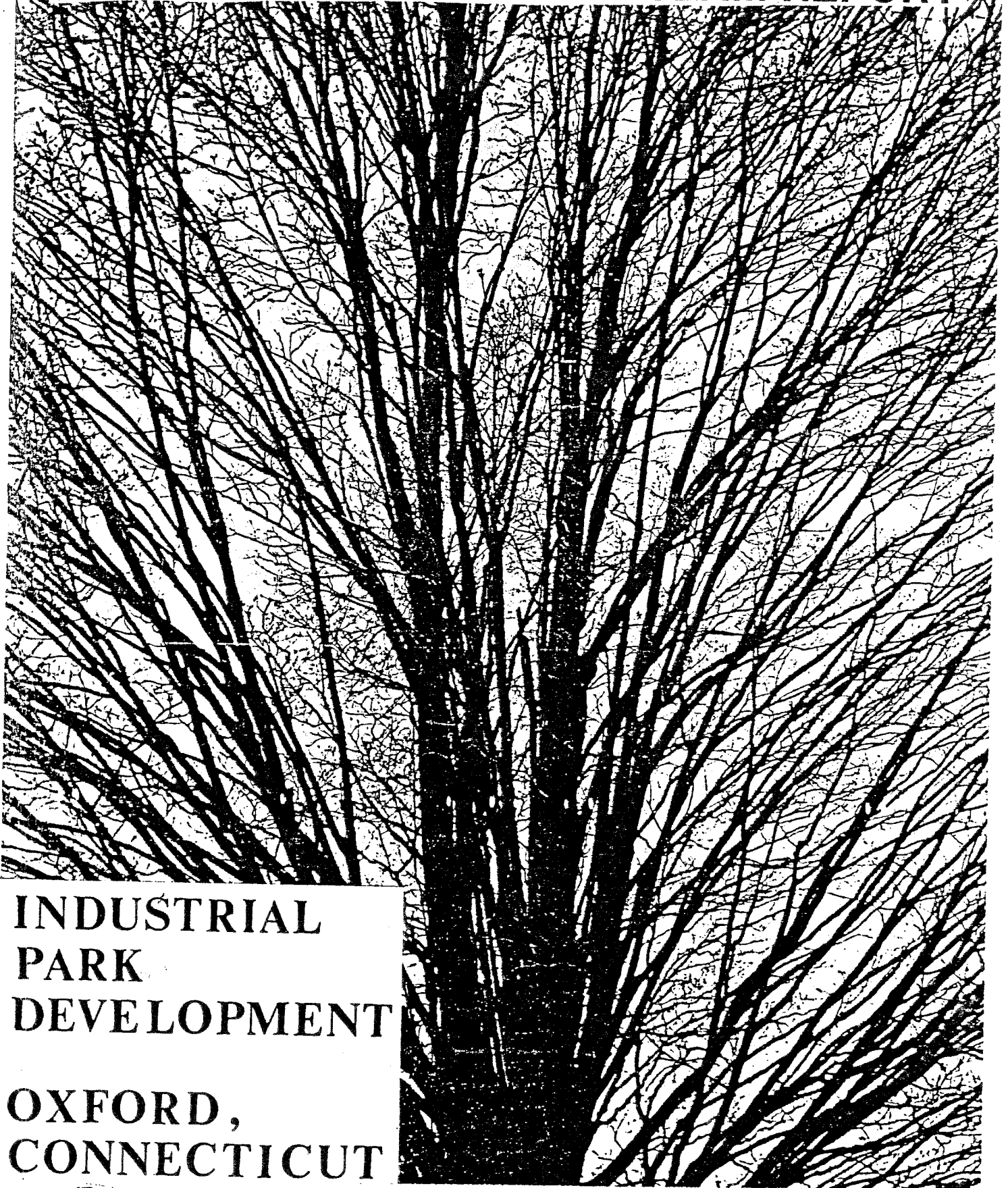


ENVIRONMENTAL REVIEW TEAM REPORT



**INDUSTRIAL
PARK
DEVELOPMENT**

**OXFORD,
CONNECTICUT**



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

INDUSTRIAL PARK DEVELOPMENT

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

Oxford Office of the Selectman

This report is not meant to compete with private consultants by supplying site designs or detailed solutions to development problems. This report identifies the existing resource base and evaluates its significance to the proposed development and also suggests considerations that should be of concern to the developer and the Town of Oxford. 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.

JUNE 1986

ACKNOWLEDGEMENTS

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

- * William Warzecha, Geohydrologist
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- * Donald Smith, Forester
Department of Environmental Protection
- * Marc Beroz, Soil Resource Specialist
USDA - Soil Conservation Service
- * Duncan Graham, Executive Director
Council of Governments of the Central
Naugatuck Valley

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

Finally, special thanks to Ms. Nancy Murray, Biologist for the Department of Environmental Protection for providing information on endangered plant and animal species, Mr. William Stakum, First Selectman, Ms. Julia Fuller, Town Planner, and Mr. Fred Johnson, Chairperson, and Mr. Fred Pommer, Member, of the Economic Development Commission for their cooperation and assistance during this environmental review.



EXECUTIVE SUMMARY

The Oxford First Selectman requested that an environmental review be conducted on a town-owned site being considered for industrial park development, preferably a campus-like facility. The 130-acre site is located on Riggs Street. Access is provided via an unimproved road off Riggs Street. Briefly, an ERT Report was prepared for this site in 1976. The report assessed the suitability of this site for a sanitary landfill. The site was never developed into a sanitary landfill. This report primarily describes the site's capability to support industrial development.

The site is characterized by openland, woodland, and wetland communities. A small seasonal brook flows north through the eastern section of the site toward Towantic Pond. The site is topographically diverse with slopes ranging from zero to greater than 15 percent. The site provides good wildlife habitat. Numerous stone walls traverse the site as well. Finally, the site is served by a 16-inch water main, but there are no sewer facilities. The Town is investigating the possibility of tying into Naugatuck's wastewater treatment system.

* * * * *

In order to develop this site, the Town is requiring "Request for Proposals" (RFP) from interested developers. Although a site plan has not been submitted, the Town is interested in acquiring natural resource and planning information to determine whether it will promote industrial development of this site. If the Town moves

foward with this concept, the information generated by the ERT will be used to design the RFP package and evaluate subsequent submissions.

Therefore, the primary goal of this environmental review was to determine the suitability of this site for industrial development and identify areas of development limitations and opportunities.

Specific objectives included:

- (1) assess the physical capabilities of existing soil, geological, and hydrological resources;
- (2) delineate existing forest and vegetative attributes of the site;
- (3) identify natural resource and land use constraints, and;
- (4) present development alternatives or guidelines.

* * * * *

The Environmental Review Team process consisted of four phases: (1) inventory of the study sites's natural resources; (2) assessment of these resources; (3) identification of natural resource capabilities, and; (4) presentation of planning and development guidelines. The review process enabled the Team members to arrive at an informed assessment of the site's natural resource development opportunities and limitations.

Through the inventory and review process, specific resources, areas of special concern, and development limitations and opportunities were identified. They fall into the three broad categories: (1) physical characteristics; (2) biological resources'

and; (3) land use and planning considerations. They are summarized below.

* * * * *

PHYSICAL CHARACTERISTICS

Geologic Development Concerns

From a geologic standpoint, it appeared that the most limiting factors with respect to developing the site as an industrial park included the following: (1) moderate to steep slopes flanking the east and west side of Towantic Hill and the eastern limits of the site; (2) the presence of seasonally wet soils, and; (3) an isolated shallow to bedrock area behind the residence in the western parts of the site.

Soil conditions and slopes appear to be most favorable for industrial development on the tableland (i.e., flat areas) of Towantic Hill and in the east-central portions of the site. It seems likely that these areas could support low density industrial development, particularly if a potential industry only requires a small-sized leaching system.

It is suggested that if the site is developed as an industrial park, all potential users be screened to determine the type(s) of industrial wastes generated, regardless if the site is served by on-site septic systems or public sewers.

Hydrology

Surface runoff in the western parts of the site flows downslope towards Riggs Street. It ultimately discharges to Riggs Street Brook or Jacks Brook. Surface runoff in the central portions of the site flows downslope to an unnamed, seasonal watercourse. Surface water flows in the east-central parts of the site drains generally to the north. Finally, most of the surface runoff in the eastern limits flows downslope to the unnamed inlet stream to Chanko Pond.

Development of this site can be expected to lead to increases in stormwater runoff. The amount of increased runoff will depend on the extent of development, amount of vegetation removed, impervious surfaces created, and the timing of development on each lot. Industrial uses tend to require more impervious surface area (i.e., for parking lots and bigger buildings). As a result, runoff increases for industrial development tend to be quite high compared to, for example, moderate density residential development.

The groundwater in the site is classified as GA. This classification means that groundwater is suitable for private drinking water supplies without treatment. Any discharge of industrial wastewaters, cooling waters, residuals, or sludges into ground or surface waters would generally not be consistent with a GA area.

Soils

On-site sewage disposal should not be a problem in Charlton soils (CfB, CfC, CfD) since the slowly permeable dense till occurs below the depth of most septic system installations.

Stones found in Charlton soils (ChC, CnC, CnD) are generally less than two feet in diameter and should not present any significant problems in site development.

The Charlton soils found in the Charlton-Hollis soil complex are both easy to excavate and suitable for septic tank absorption fields; however, only absorption fields with low flows should be constructed here. Large quantities of effluent loaded into the Charlton soils may seep out of the ground in areas of Hollis soils. Careful site investigations and hydraulic analysis should be carried out before utilizing this area for absorption fields.

Curtain drains should be used around structures built on Sutton soils. Septic systems will require special design due to the high water table.

* * * * *

BIOLOGICAL RESOURCES

Forests

Consideration should be given to implementing a definite sequence of forest management. A professional forester should be employed to mark and manage a forest thinning. Aesthetics should be the major concern, and the thinning should, therefore, be designed to remove the poorest quality trees.

Scattered throughout much of the property can be found several large, apparently healthy, trees which would make ideal specimen trees. As these trees have high aesthetic and shade value, they should be incorporated into the landscape plans for the development, where feasible.

* * * * *

LAND USE AND PLANNING CONSIDERATIONS

Existing Zoning/Subdivision Regulations

The town-owned property is presently zoned Industrial District #2 (ID 2) (formerly Industrial Park) which requires a minimum lot area of five acres. This definition is somewhat more restrictive in permitted uses than the Industrial District #1 which requires 2.5 acre minimums, and specifically provides for corporate headquarters and research laboratories.

Subdivision regulations restrict permanent dead end streets to only 750 feet. According to those regulations the 750 maximum "...may not be waived or modified by the Commission."

In addition to this site, there are 633 additional acres south of this parcel on the east side of Riggs Street also zoned ID 2. As determined in a recent study by the Oxford Town Planner and COGCNV staff, there are over 2,000 acres zoned and potentially developable as industrial in Oxford.

Access

Riggs Street is a passable rural road with adequate horizontal alignment and some relatively minor vertical alignment problems. Traffic volume is very low and has the capacity to handle any additional traffic generated by the industrial development of the property. Access from the northeast and the western side of Naugatuck is circuitous and potentially dangerous for any amount of truck traffic over Guntown and Towantic Hill Roads.

It is concluded that for industrial development to take place on the subject parcel significant circulation improvements will have to be considered and constructed.

Utilities

The single positive factor in the utilization of the subject property for industrial development is the existence of a 16-inch water main in Riggs Street.

It is rather improbable that any significant industrial development can be encouraged to locate here unless a municipal sewage system is available.

* * * * *

CONTENTS

ACKNOWLEDGEMENTS	ii
EXECUTIVE SUMMARY	iii
LIST OF FIGURES	ix

Introduction

Introduction	1
Goals and Objectives of the ERT Study	2
The ERT Process	4

Physical

Introduction	5
Geologic Development Concerns	5
Hydrology	8
Soil Characteristics	12

Biological

Forest Resources	16
Management Considerations	20
Protective Measures	22

Planning

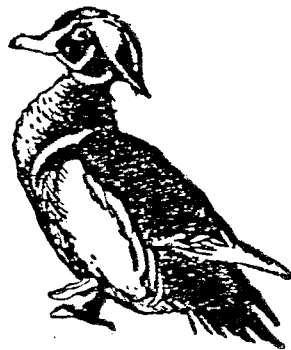
Surrounding Land Use	24
State Plan	24
Regional Plan	24
Town Plan	25
Existing Zoning/Subdivision Regulations	25
Access	27
Utilities	27
Conclusions/Summary	29

APPENDIX A: Jones Property Study Committee Report	30
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Figures

1. Location of Study Site	3
2. Topography	7
3. Watershed Boundary	10
4. Distribution of Soils	14
5. Forest Resources	18

INTRODUCTION



INTRODUCTION

Introduction

The Oxford First Selectman requested that an environmental review be conducted on a town-owned site being considered for industrial park development. The 130-acre site is on Riggs Street, located in the northeast corner of Oxford, near the Middlebury, Naugatuck and Beacon Falls town lines. Access is provided via an unimproved road off of Riggs Street (Figure 1).

Before discussing the proposed development, some historical information concerning the site may be useful. In 1976, the Town had an environmental review conducted on this site to determine its potential for supporting a sanitary landfill (see Sanitary Landfill, Town of Oxford, King's Mark ERT, 1976). At that time, the Town was in an immediate need for a suitable landfill site. The existing landfill, which is across the street from the proposed industrial development site on Riggs Street was ordered by the Solid Waste Management Unit of DEP to be closed. The Town, however was granted an extension to continue operating its present landfill. Subsequently, the Riggs Street property was never developed as a landfill site.

Therefore, the Town is presently considering the development of the Riggs Street site into an industrial park, preferably a campus-like facility. The Town would require "Request for Proposals" (RFP) from interested developers. Although a site plan has not been submitted, the Town is interested in acquiring natural resource and planning information in order to determine whether it will promote

Industrial development of this site. If the Town moves forward with this concept, the information generated by the ERT will be used to design the RFP package and evaluate subsequent submissions.

Goals and Objectives of the ERT

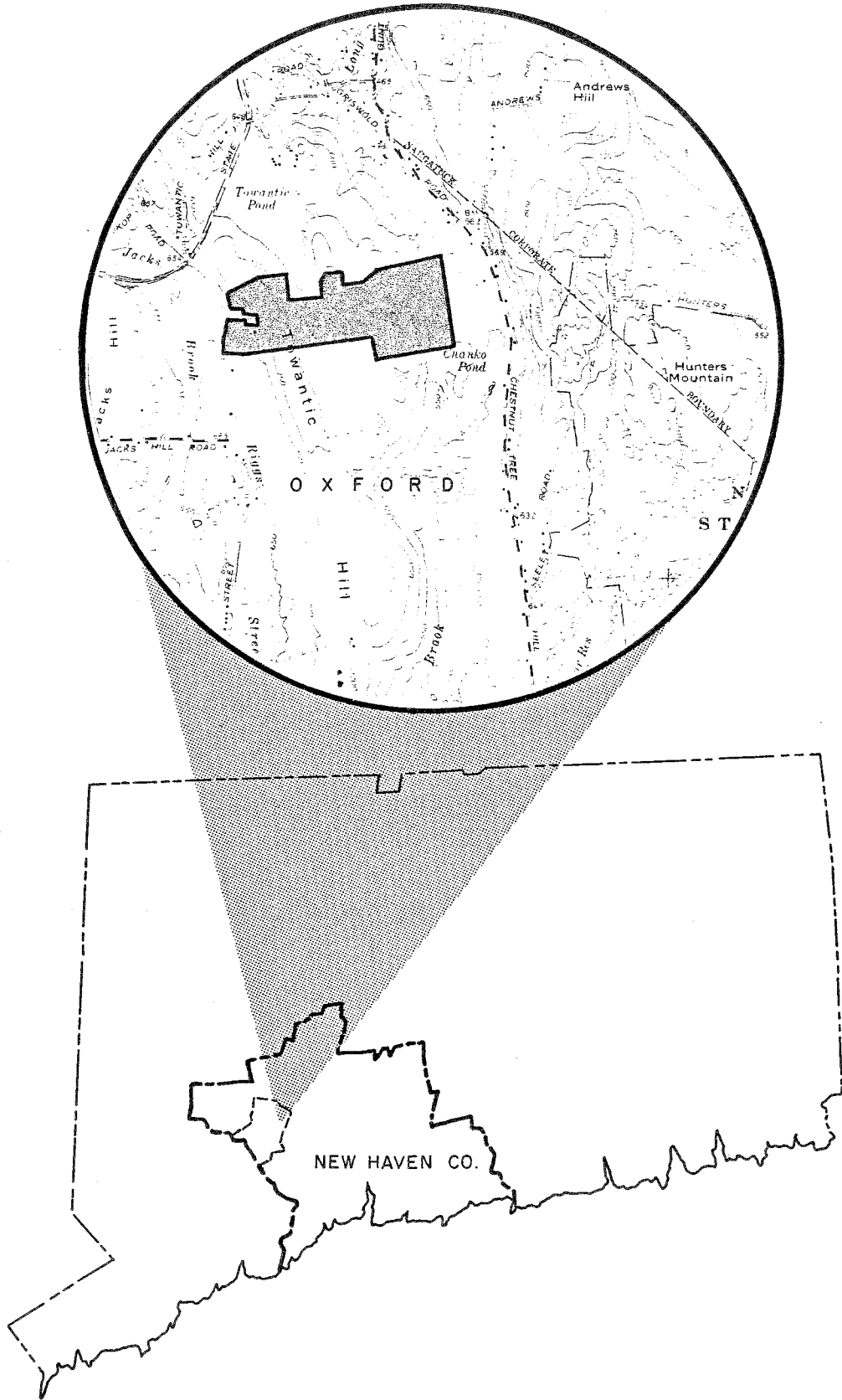
The primary goal of this environmental review was to determine the suitability of this site for industrial development and identify areas of development limitations and opportunities. Specific objectives included:

- (1) assess the physical capabilities of existing soil, geological, and hydrological resources;
- (2) delineate existing forest and vegetative attributes of the site;
- (3) identify natural resource and land use constraints, and;
- (4) present development alternatives or guidelines.

The site is characterized by openland, woodland, and wetland communities. A small seasonal brook flows north through the eastern section of the site toward Towantic Pond. The site is topographically diverse with slopes ranging from zero to greater than 15 percent. The site provides good wildlife habitat. Numerous stone walls traverse the site as well. Finally, the site is served by a 16-inch water main, but there are no sewer facilities. The Town is investigating the possibility of tying into Naugatuck's wastewater treatment system.

Figure 1

LOCATION OF STUDY SITE



The ERI Process

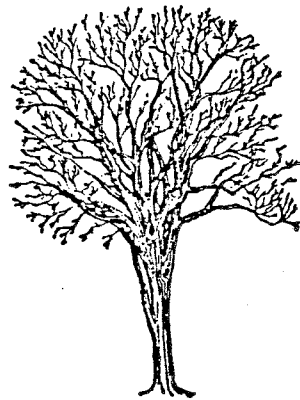
Through the efforts of the Town of Oxford and the King's Mark Environmental Review Team, this Environmental Review Team Report was prepared for the Town. This report is not designed or intended to compete with private consultant's proposals or plans for this site. Rather, it provides a natural resource data base allowing the Town and potential developers make informed decisions concerning the use of the proposed site.

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

The data collection phase involved both literature and field research. Mapped data, technical reports or town plans were perused and specific information concerning the site was collected. Field review and inspection of the site proved to be a most valuable component of this phase. The emphasis of the field review was on the exchange of ideas, concerns, and alternatives. Being on site also allowed Team members to check and confirm mapped information and identify other resources.

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

PHYSICAL CHARACTERISTICS



PHYSICAL CHARACTERISTICS

Introduction

As previously mentioned, the King's Mark Environmental Review Team prepared a report on this site (see Sanitary Landfill Site, King's Mark ERT, 1976). This ERT report discussed the topographic, bedrock and surficial geologic conditions as well as the hydrologic aspects of the site. It also discussed the general suitability of the site for a sanitary landfill.

The surface and subsurface conditions have not changed dramatically on the site since the 1976 report. The Team's geologist also generally concurs with the topographic, geologic, and hydrologic information supplied in the 1976 report. Therefore, a discussion of the topographic and geologic characteristics of the site will not be repeated in this report. It is recommended that interested persons refer to the 1976 ERT report for topographic and geologic conditions of the site. This section of the report will focus on specific concerns as it pertains to the site's suitability for an industrial park. Also, the Team's geologist will elaborate further on the hydrologic impacts of an industrial park on the site.

Geologic Development Concerns

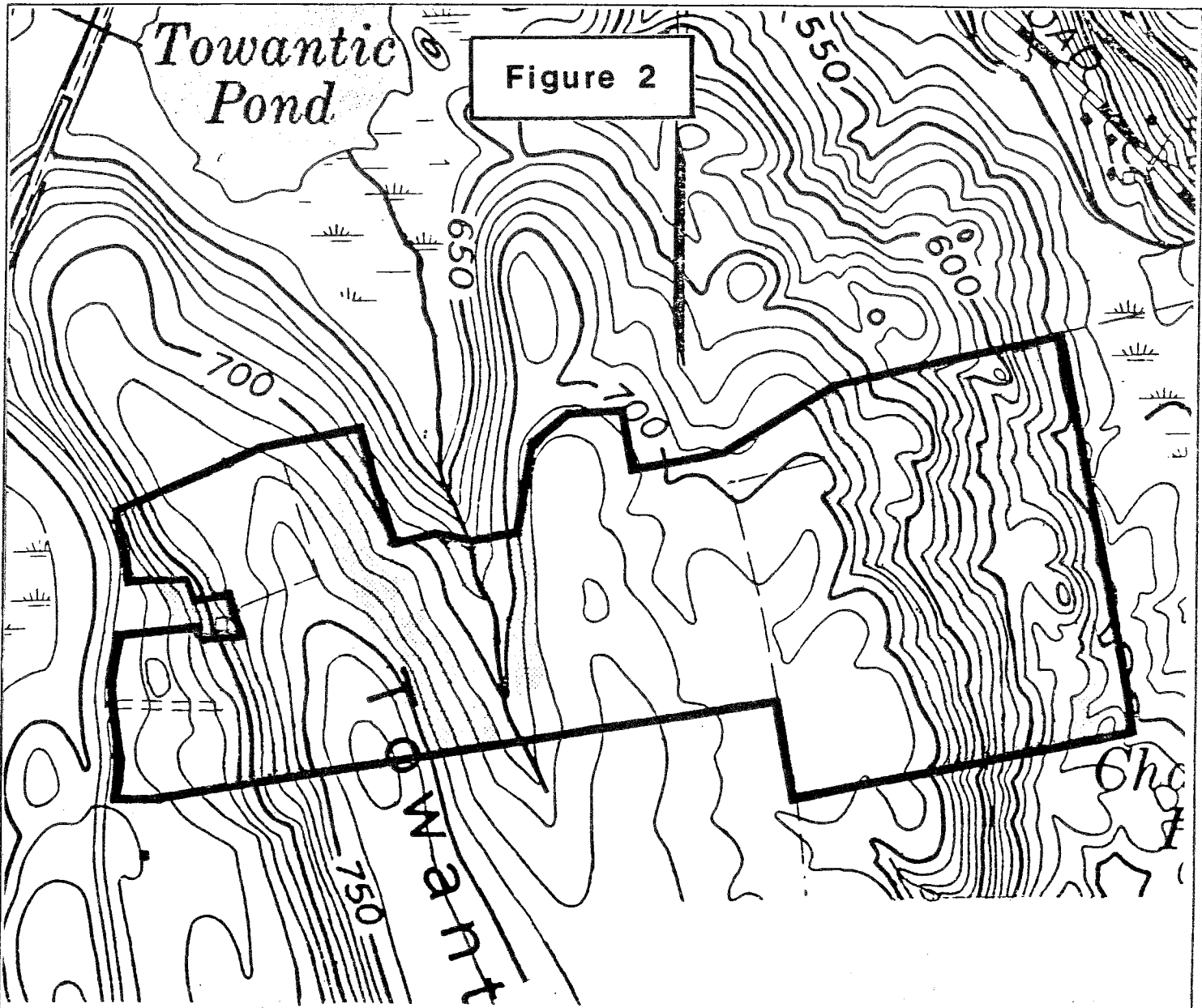
Town officials stated on the review day that the site would be served by a 16-inch public water supply line. Heritage Village Water Company will provide the water supply. Potential users of the industrial park would need to rely on individual on-site sewage disposal systems at the present time. Town officials noted on the

review day that they are investigating the possibility of tying into Naugatuck's public sewer system.

From a geologic standpoint, it appeared that the most limiting factors with respect to developing the site as an industrial park included the following: (1) moderate to steep slopes flanking the east and west side of Towantic Hill and the eastern limits of the site (Figure 2); (2) the presence of seasonally wet soils denoted as SxC (Sutton) and Rn (Ridgebury) -- the latter soil unit comprises regulated inland wetland soils), and; (3) an isolated shallow to bedrock area behind the residence in the western parts of the site.

These geologic limitations will weigh heaviest on the ability to provide adequate on-site sewage disposal for potential users of the proposed industrial park. The moderate to steep slopes on the site may also pose a hindrance with regard to constructing the interior road system.

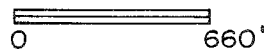
Soil conditions and slopes appear to be most favorable for industrial development on the tableland (i.e., flat areas) of Towantic Hill and in the east-central portions of the site. It seems likely that these areas could support low density industrial development, particularly if a potential industry only requires a small-sized leaching system. However, in order to determine the feasibility of the soils for on-site sewage disposal systems, detailed soil testing would need to be conducted throughout the area. The aforementioned geologic limitations would be considerably minimized if sanitary sewers are extended to the site. Along the same line, industrial uses requiring large septic systems or which



**INDUSTRIAL PARK
DEVELOPMENT
OXFORD, CONNECTICUT**

TOPOGRAPHY

King's Mark Environmental Review Team



would generate toxic wastes would probably not be suitable on the site unless sanitary sewers were made available. Although on-site sewage disposal should not be a problem in Chariton soil areas due to slowly permeable dense till occurring below the depth of most septic system installations, septic systems discharging 2,000 gallons or more of effluent per day, generally require large land areas and extensive soil testing to determine feasibility. It seems likely that all septic systems serving potential users of the industrial park would require engineered designs. Also, if flows exceed 5,000 gallons or more per day, approvals by the local health department, the Department of Health Services, and Department of Environmental Protection would be required.

It is suggested that if the site is developed as an industrial park, all potential users be screened to determine the type(s) of industrial wastes generated, regardless if the site is served by on-site septic systems or public sewers.

Hydrology

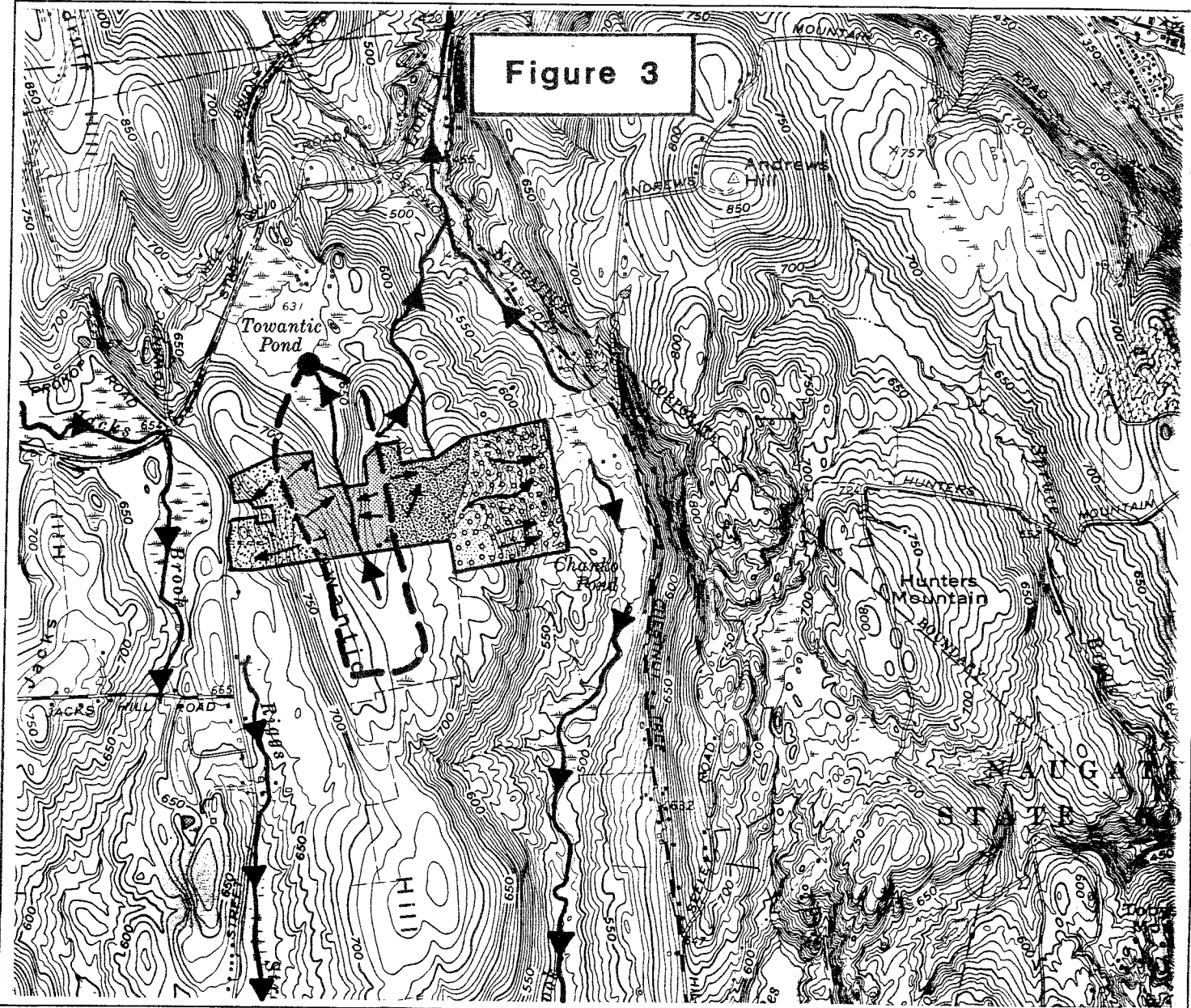
The drainage pattern was described briefly in the 1976 ERT report. It does not appear that it has changed since then. Figure 3 depicts surface water flow patterns on the site, which are based on natural topographic conditions. Surface drainage within the site can be divided into four subwatershed areas. Based on subsurface geologic conditions, it seems likely that groundwater flows generally parallel surface water flows to a large extent on the site.

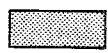





Surface runoff in the western parts of the site flows downslope towards Riggs Street. It ultimately discharges to Riggs Street Brook or Jacks Brook. Surface runoff in the central portions of the site flows downslope to an unnamed, seasonal watercourse. This

watercourse flows north into Towantic Pond. Surface water flows in the east-central parts of the site drains generally to the north. Water is routed into an unnamed watercourse which transports the surface water into Long Meadow Pond Brook to the north. Finally, most of the surface runoff in the eastern limits flows downslope to the unnamed inlet stream to Chanko Pond. A small southern piece of the land in the eastern section drains southeastward into Towantic Brook, which is the outlet stream for Chanko Pond.

Development of this site can be expected to lead to increases in stormwater runoff. The amount of increased runoff will depend on the extent of development, amount of vegetation removed, impervious surfaces created and the timing of development on each lot. It should be pointed out that industrial uses tend to require more impervious surface area (i.e., for parking lots and bigger buildings). As a result, runoff increases for industrial development tend to be quite high compared to, for example, moderate density residential development. Each of the subwatersheds described above will need to be analyzed individually from a hydrologic standpoint. For this reason, once plans become more finalized, the Town should require that a stormwater management plan be formulated. This plan should include runoff calculations for pre- and postdevelopment conditions. Also, because of the moderate to steep slopes present in certain areas of the site, a sound sediment and erosion control plan should be incorporated with the stormwater management plan. In this regard, every effort should be made to protect Towantic Pond, Chanko Pond, and all stream courses from sand and other road or parking lot debris. In addition, depending upon the runoff increases generated

Figure 3

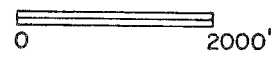


-  PORTION OF PROPERTY WHICH DRAINS TO TOWANTIC POND
-  PORTION OF PROPERTY WHICH DRAINS EITHER TO JACK'S BROOK OR RIGGS STREET BROOK
-  PORTION OF PROPERTY WHICH DRAINS TO LONG MEADOW POND BROOK
-  PORTION OF PROPERTY WHICH DRAINS TO THE INLET STREAM OF CHANKO POND AND ITS OUTLET STREAM (TOWANTIC BROOK)
-  WATERCOURSES SHOWING DIRECTION OF FLOW
-  DIRECTION OF SURFACE FLOW

**INDUSTRIAL PARK
DEVELOPMENT
OXFORD, CONNECTICUT**

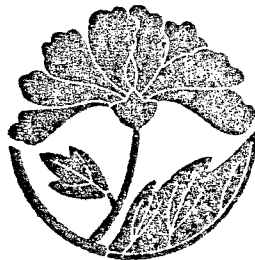
**WATERSHED
BOUNDARY**

King's Mark Environmental Review Team



from the potential industrial park, there may be a need to consider stormwater detention basins. There is a possibility that the small pond in the western part of the study area could be utilized for this purpose, or in any of the seasonally wet, topographic depressions on the site.

According to Water Quality Classifications for the Lower Housatonic River Basin, which includes the study site, groundwater in the site is classified as GA. This classification means that groundwater is suitable for private drinking water supplies without treatment. Any discharge of industrial wastewaters, cooling waters, residuals or sludges into ground or surface waters would generally not be consistent with a GA area. DEP's Water Compliance Unit should be contacted in regards to groundwater or surface water discharges from potential industrial park users, especially if they need to rely on individual on-site subsurface septic systems.



Soil Characteristics

The soil map and narrative are a revision of materials contained in the Soil Survey of New Haven County, Connecticut. The symbols on the map identify map units. Each map unit has a unique combination of soils. Areas with the same symbol have the same composition.

Soil Map Units

Charlton Soils - CfB, CfC and CfD

These map units are composed primarily of Charlton soils. Charlton soils are very deep and well-drained (Figure 4). They formed in loose glacial till overlying dense basal till. Depth to the dense till is generally greater than 5.5 feet (noted in the 1976 ERT report). These soils have fine sandy loam textures in the topsoil and subsoil, and fine sandy loam to loamy sand textures in the substratum. Depth to the high water table is generally greater than five feet.

Slopes are 3 to 8 percent on map unit CfB, 8 to 15 percent on CfC and 15 to 25 percent on CfD.

These map units have good potential for site development. On-site sewage disposal should not be a problem in these areas since the slowly permeable dense till occurs below the depth of most septic system installations.

Charlton Soils - ChC, CnC and CnD

These map units are composed primarily of Charlton soils, with very to extremely stony surface layers. The stones generally extend

throughout the soil profile. Aside from the presence of the stones, these soils are the same as the Charlton soil described above for map units CfB, CfC and CfD (see Figure 4).

The CnC and ChC map units have slopes of less than 15 percent. The CnD unit has slopes of 15 to 35 percent.

The size of the stones in the soil are generally less than two feet in diameter. Stones of this size should not present any significant problems in site development. The cost of site development will increase on the steeper slopes due to the need for deeper cuts and fills.

Charlton-Hollis Complex - CrC

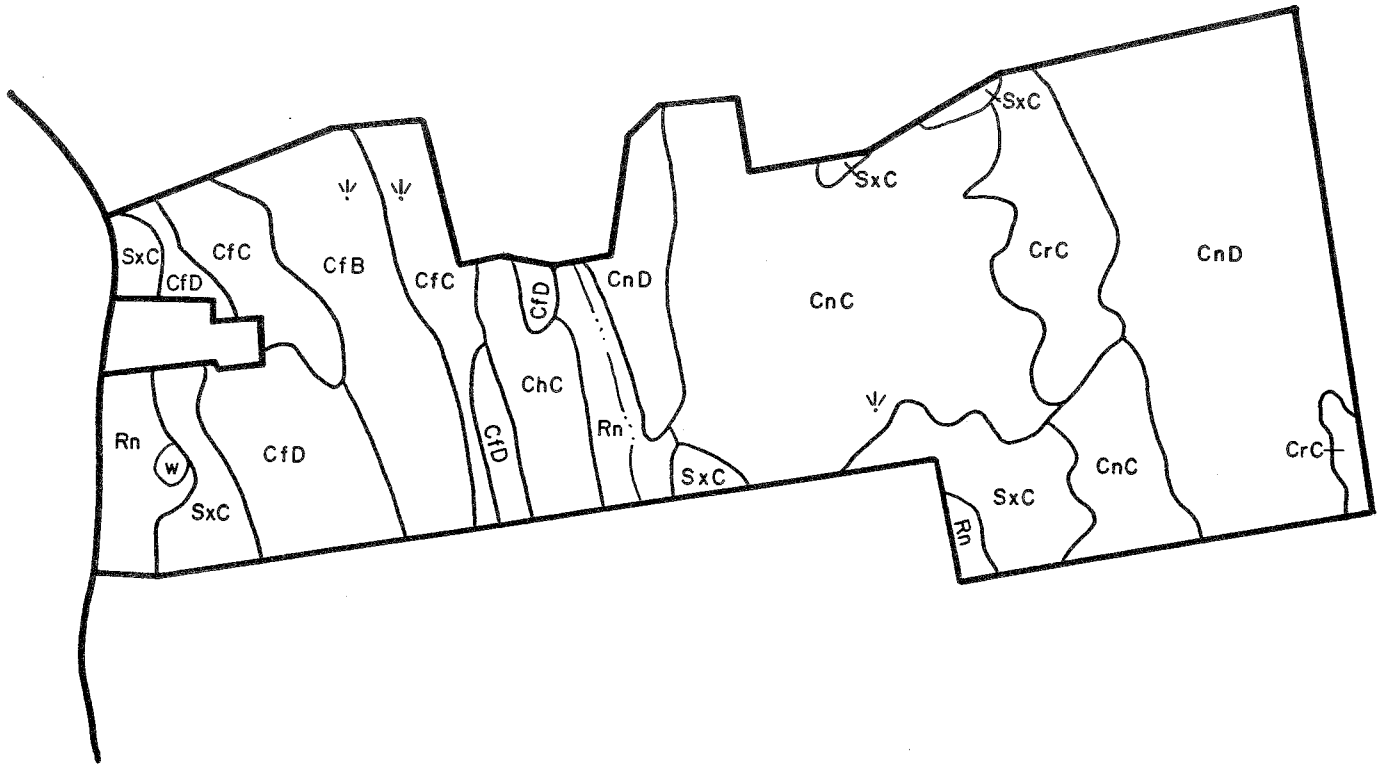
This map unit is composed of two soils so intermingled on the ground that they could not be separated on the map. One soil is named Charlton. Charlton soils are very deep and well-drained. They have fine sandy loam textures to a depth of 60 inches or more.

The other soil is named Hollis. Hollis soils are shallow and well-drained. They have fine sandy loam textures overlying hard bedrock at a depth of 10 to 20 inches. The Hollis soils comprise about 30 percent of this map unit (see Figure 4).

The shallow depth to bedrock of the Hollis soils will increase construction costs. Digging excavations may require blasting.

The Charlton soils are both easy to excavate and suitable for septic tank absorption fields; however, only absorption fields with low flows should be constructed here. The reason for this is that the bedrock surface is probably undulating. Large quantities of effluent loaded into the Charlton soils may seep out of the ground in

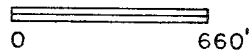
Figure 4



**INDUSTRIAL PARK
DEVELOPMENT
OXFORD, CONNECTICUT**

**DISTRIBUTION
OF SOILS**

King's Mark Environmental Review Team



areas of Hollis soils. Careful site investigations and hydraulic analysis should be carried out before utilizing this area for absorption fields.

Sutton Soils - SxG


This map unit is composed dominantly of Sutton soils on 3 to 15 percent slopes. These soils are very deep and moderately well-drained. Sutton soils have fine sandy loam textures to a depth of 60 inches or more. The high water table ranges in depth from 1.5 to 2.5 feet during the months of November through April.

Certain drains should be used around structures built on these soils. Septic systems will require special design due to the high water table.

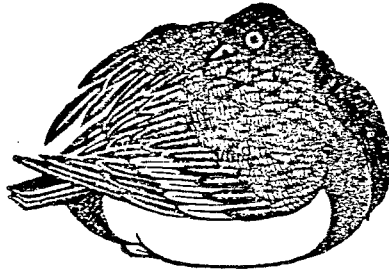
Leicester Soils - Rn

This map unit is composed dominantly of Leicester soils on 0 to 3 percent slopes. These soils are very deep and poorly drained. They have fine sandy loam textures to a depth of 60 inches or more. Leicester soils have a high water table within 1.5 feet of the soil surface for the majority of the year. These soils are inland wetlands.

Special Symbols

In several locations on the map the spot symbol () is used. This symbol identifies small areas of poorly or very poorly drained soils. Locations with this symbol represent small areas of inland wetlands.

BIOLOGICAL RESOURCES



BIOLOGICAL RESOURCES

Forest Resources

The subject property may be divided into seven differing forest stands. The locations of the various stands are shown in Figure 5.

Mixed Hardwoods - Stand_1 (14 Acres)

This old field area is fully-stocked with seedling to sapling-sized black oak, white oak, red oak, red maple, black birch, grey birch, quaking aspen, cherry, eastern red cedar, apple, and sassafras.

The shrub species which are present include grey-stemmed dogwood, red osier dogwood, multiflora rose, and barberry.

Steeplebush, dogbane, aster, goldenrod, wild strawberry, and grasses are also present.

Mixed Hardwoods - Stand_2 (59 Acres)

This fully-stocked stand is composed of fair quality sapling to pole-sized aspen, cherry, grey birch, black birch, red oak, hickory, ash, red maple, and red cedar. These trees are growing at a good rate on a fair to good quality growing site and are 30 to 40 years old.

The understory is variable in density due to variations in the crown cover of the overstory. Species encountered include saplings of the same species, spicebush (in the wetter areas), multiflora rose, barberry, shadbush, mountain laurel, winged euonymus, and highbush blueberry.

Ground cover here includes scattered grasses, lily of the valley, wild geranium, wild strawberry, ground pine, violets, and common cinquefoil.

This area encompasses several areas of distinct age differences. Basically, this stand is checkerboarded with old fields which were abandoned at different times. As the age differs so will the size. Throughout the stand are scattered large, open-grown wolf trees of red oak, hickory, red maple, and white oak in widely divergent states of health and vigor.

Mixed Hardwoods - Stand_3 (37 Acres)

This fully-stocked stand is composed of good quality, pole-sized red maple and black birch stems with a few ash and oak scattered throughout. These trees are growing at a moderate rate on a good growing site and are 40 to 50 years old.

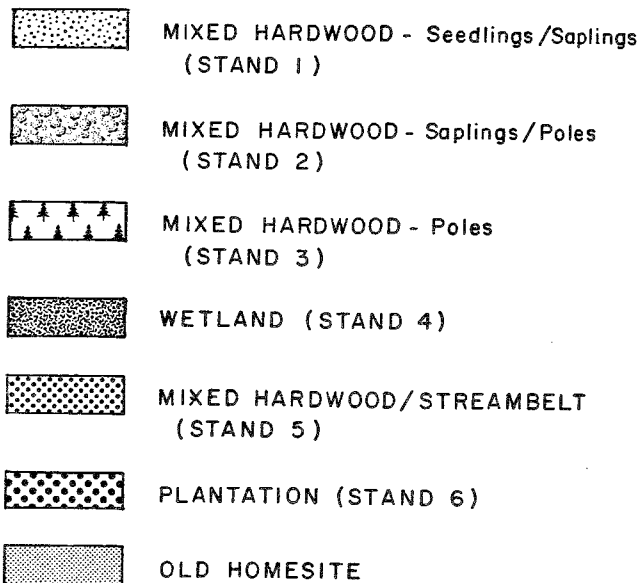
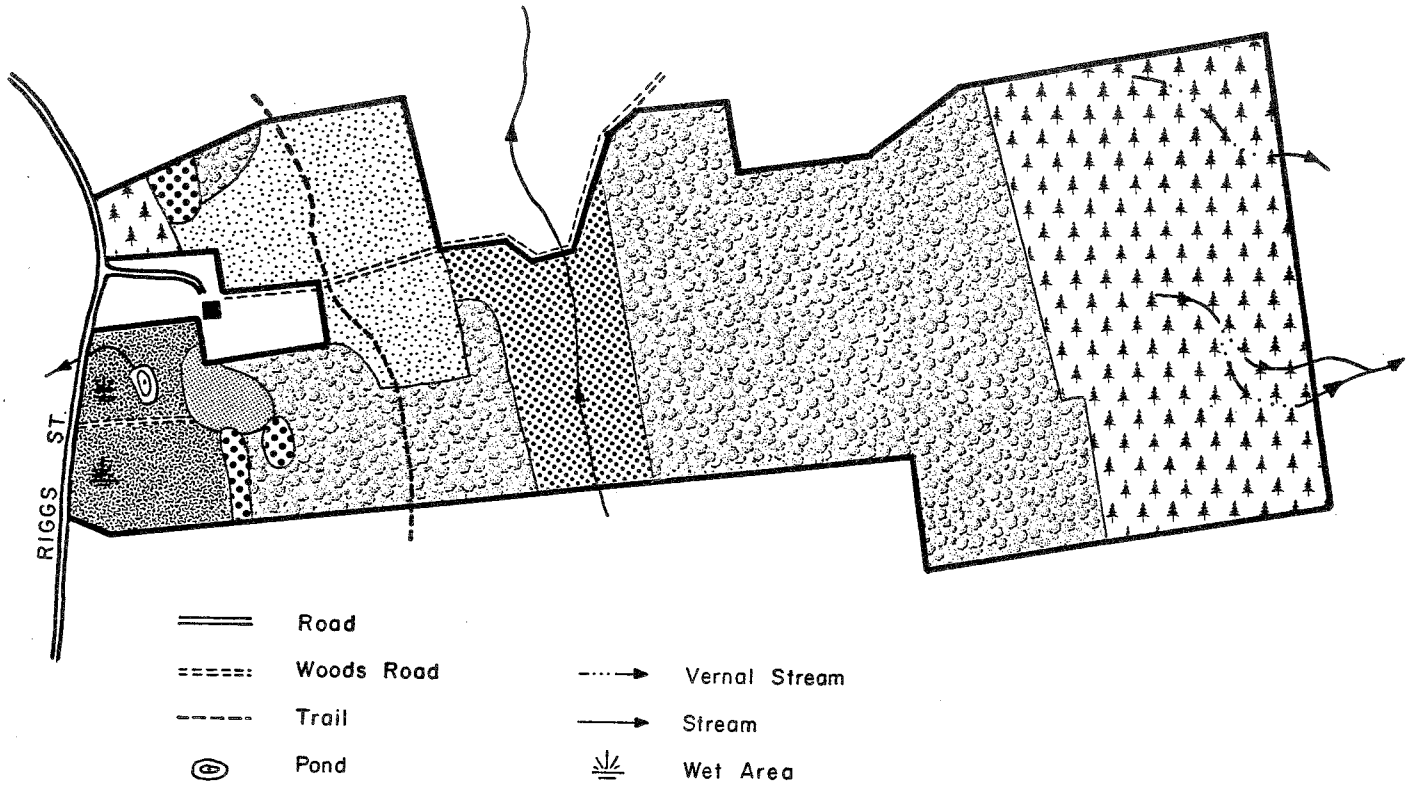
The understory species encountered include maple-leaved viburnum, spicebush in the wetter areas, and scattered sapling growth. In places a dense overstory limits the understory and ground cover vegetation.

Ground cover here includes assorted ferns, spicebush reproduction, scattered grasses, and hardwood reproduction.

Wetland - Stand_4 (7 Acres)

This well-stocked wet area is stocked with fair quality, pole to small sawlog-sized red maple, ash, white oak, hickory, and black birch. These trees are growing at a moderate rate on a moderate quality growing site and are 50 to 60 years old.

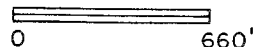
Figure 5



**INDUSTRIAL PARK
DEVELOPMENT
OXFORD, CONNECTICUT**

FOREST COVER

King's Mark Environmental Review Team



The understory encountered includes heavy spicebush growth which, at times, limits ground cover.

Ground cover here includes skunk cabbage, hummocks of grasses and sedge (in the wettest areas), jewelweed, and various ferns, but may be nonexistent under a dense spicebush understory.

Mixed Hardwoods/Streambelt - Stand_5 (10 Acres)

This stand, which represents the forest area associated with the stream feeding Towantic Pond to the north, dominated by good quality, pole to sawlog-sized red oak, white oak, yellow birch, black birch, ash, beech, and hickory.

Red maple saplings, black birch saplings, maple-leaved viburnum, and spicebush comprise the understory.

Ground cover here includes skunk cabbage, sedges, and various ferns. Drier portions also have lily of the valley, cinquefoil, and some ground pine.

Plantation - Stand_6 (2 Acres)

This well-stocked plantation is composed of medium quality, pole to small sawlog-sized white pine. These trees are growing at a fair rate on a good site and are approximately 40 years old.

The understory here is composed primarily of hardwood encroachment in the form of sugar maple saplings.

Ground cover is nonexistent due to heavy shading by the dense crown cover of the overstory.

Old Homesite - Stand 7 (1 Acre) (Nonforest)

This area shows evidence of having been occupied by a house and the manicured lawn associated with same. Aerial photos from as late as 1970 show a structure present on the site. The area is generally open, with large shade tree type sugar maples. These trees have given rise to a new generation of sugar maple saplings and seedlings scattered throughout the area

Management Considerations

With development of the subject property as proposed, consideration should be given to implementing a definite sequence of forest management. In this regard, it should be noted that, depending on the scale of industrial development (light vs. heavy industry), a wooded site typically has considerably more economic value than does an equivalent site which has been cleared. With this in mind, consideration should be given to the following:

(1) As soon as is practicable, a professional forester should be employed to mark and manage a thinning in Stands 3 and 5. Aesthetics should be the major concern, and the thinning should, therefore, be designed to remove the poorest quality stems. The removals would include:

- (*) severely damaged trees;
- (*) trees with very small crowns, large seams in the trunk, obvious disease problems, and;
- (*) trees directly competing with more desirable vigorous, healthy trees.

At the same time, a light thinning and pruning of the plantation in Stand 6 could be undertaken.

Not only will thinning these areas improve their overall health and vigor, as well as aesthetics, but the thinning will also act as a safeguard against large-scale windthrow problem when the site is developed later on.

Through the thinning the crown canopy will be opened up, allowing the wind to penetrate. The thinning will have already removed those stems most susceptible to windthrow. Those trees remaining will develop more widespread root masses and will become more windfirm, minimizing chances for problems in the later development.

It should be pointed out here that several large wolf trees can be found on the property. If examination shows that any of these trees are healthy enough to save, every reasonable effort should be made to retain them in the landscape to maximize aesthetic values.

The products derived from this thinning will be primarily firewood, with a small amount of lower quality sawtimber material. Any such products would best be sold in a premarked, prepaid, bid sale under a written contract enforced with a 10 percent performance bond. Technical advice in this matter can be received from either a state service forester or from a private professional forester.

- (2) With the above thinning accomplished, actual site development involving clearing and grading could best be done some 3 to 5 years hence, from the standpoint of a forest manager. This allows the trees to develop additional root mass necessary for resistance to windthrow. Trees which may have blown over in the intervening years may be cleaned up at this time.

Protective Measures

Development of this tract will necessitate clearing a large portion of the existing vegetation and regrading much of the land surface. Scattered throughout much of the property can be found several large, apparently healthy, trees which would make ideal specimen trees. As these trees have high aesthetic and shade value, they should be incorporated into the landscape plans for the development, where feasible.

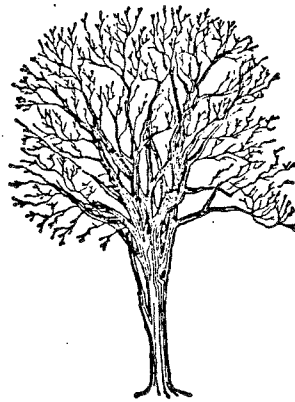
It should be noted, in light of the anticipated widespread excavation and grading, that trees are extremely sensitive to disturbance of the soil within their root zones. This zone corresponds to the entire area under the tree's crown. Practices, (such as filling, excavating, or compaction from heavy traffic), which disrupt the balance between soil aeration, soil moisture, and soil composition in this zone will cause a decline in tree health and vigor, possibly resulting in the death of the tree some 3 to 5 years hence when all memory of construction practices on the site have faded. Mechanical injury to the tree may have the same results, particularly if the damage to the stem covers an area equal to one-third its circumference or more. Trees to be retained should be clearly, but temporarily marked, prior to construction activity so that they may be avoided.

With proper controls, the thinning outlined for Stands 3, 5, and 6 should have an insignificant impact on water quality. It is encouraged that:

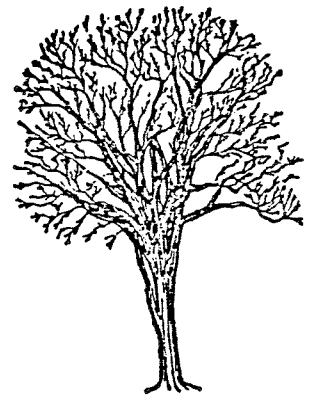
- (1) the thinning not take place in the spring when heavy rains are expected;
- (2) skid roads generally be laid out to follow land contours and avoid slopes of greater than 10 percent;

- (3) the yarding area should be located on well-drained soils with a slight slope to ensure proper drainage, and;
- (4) major skid roads and all yarding areas should be seeded with perennial grass at the end of the operation.

These simple practices, combined with common sense, will minimize erosion problems during the thinning operation.



**LAND USE AND PLANNING
CONSIDERATIONS**



LAND USE AND PLANNING CONSIDERATIONS

Surrounding Land Use

The northeast quadrant of the Town of Oxford where the subject property is located is typically low density, residential development on large lots. The nearby municipal landfill operation is the only significant non-residential use in the area. Some farming/cattle raising activities also characterize the very rural environment. Significantly, although hundreds of acres of land east of the Oxford airfield are zoned for industrial use, no industrial uses were observable. It is quite probable, however, that there may be "cottage" or home occupations of very minor significance within the area.

State Plan

The Locational Guide Map of the State Plan of Conservation and Development proposes the majority of the northeast Oxford quadrant as Rural. "Rural" is defined as a Conservation Priority with a strategy "...avoiding support of structural development forms and intensities which exceed on-site carrying capacity for water supply and sewage disposal on a permanent basis, which are inconsistent with open rural character or conservation values of adjacent uses ..."

Regional Plan

The Plan of Regional Development prepared and adopted by the Council of Governments of the Central Naugatuck Valley (COGCNV), updated to October 1979 recommends the project area for Residentially

Limited Development (0.5 or less dwelling units per acre net). No regionally significant highway improvements have been determined to be needed in the foreseeable future. (See also the section on infrastructure).

Town Plan

The Comprehensive Plan for the Town of Oxford was prepared in December 1965 by E.H. Lord-Wood Associates. Over twenty years old at this time, that report is seriously outdated, and is of little value in guiding present policy decisions. For what it may be worth, that Plan recommends that predominate areas north of Route 67 for low density residential (1.5 to 3 acres/DU). Approximately 1,400 acres around and including the Oxford Airport (north and west of the State Bridle Trail) are recommended for industrial development.

Given the major differences between this 1965 plan, existing zoning, apparent present thinking on the appropriate use of land and significant land transactions north of Route 67, municipal officials should seriously consider a major update of that basic planning document to assist in guiding them through the inevitable growth years ahead.

Existing Zoning/Subdivision Regulations

The town-owned property is presently zoned Industrial District #2 (ID 2) (formerly Industrial Park) which requires a minimum lot area of five acres. This definition is somewhat more restrictive in permitted uses than the Industrial District #1 which requires 2.5 acre minimums, and specifically provides for corporate headquarters

and research laboratories. However, other industrial uses not listed in the ordinance may be permitted by Special Exception procedures. The property with two frontage sections on Riggs Street (300 feet and 700 feet approximately) has the capability of providing road access into the 4,800 foot depth property in accordance with zoning requirements of Oxford. If the total area were buildable, which it is not (due to wetlands, streams and slopes), the maximum number of five acre lots which could be obtained is 22. Possible interior access roads and cul-de-sacs servicing the lots would have to exceed one mile in length. If a loop road is provided around the existing dwelling to both frontage areas on Riggs Street, an interior dead end road of over 3,600 feet would have to be created to maximally service the area. Subdivision regulations restrict permanent dead end streets to only 750 feet. According to those regulations the 750 maximum "...may not be waived or modified by the Commission."

In addition to this site, there are 633 additional acres south of this parcel on the east side of Riggs Street also zoned ID 2. As determined in a recent study by the Oxford Town Planner and COGCNV staff, there are over 2,000 acres zoned and potentially developable as industrial in Oxford. This calculation excluded "...industrially zoned land which is being used for other purposes (the airport, municipal landfill, and residential), and several large acreages of land physically unsuitable for development." The 1976 ERT report on this same municipal property (evaluated for use as a sanitary landfill) then stated "Oxford currently has more industrially zoned land than can reasonably be expected to develop." That 1976 statement retains its validity.

Access

Parcel frontage on Riggs Street is about 2.5 miles north of Route 67 and Route 42. Riggs Street is a passable rural road with adequate horizontal alignment and some relatively minor vertical alignment problems. Traffic volume is very low and has the capacity to handle any additional traffic generated by the industrial development of the property. Access from the northeast and the western side of Naugatuck is circuitous and potentially dangerous for any amount of truck traffic over Guntown and Towantic Hill Roads. With the construction of the Oxford Airfield, Prokop Road was dead ended east of the airstrip. Access to the airfield from the site is also circuitous over Jacks Hill Road to Christian Street. It is concluded that for industrial development to take place on the subject parcel, and indeed in the total industrially zoned area east of the airfield, significant circulation improvements will have to be considered and constructed. The straight extension (relocation) of Jacks Hill Road has been suggested and would certainly improve airport access to and from the parcel. However, a complete circulation study should be undertaken in order to arrive at a comprehensive and realistic solution of industrial development access to the northeast section of the Town.

Utilities

The single positive factor in the utilization of the subject property for industrial development is the existence of a 16 inch watermain in Riggs Street. Supplied from the Woodbury-Southbury

aquifer by the Heritage Village Water Company, the volume and pressure is probably more than adequate for industrial use and fire protection. Given a municipal water system, without a municipal sewage disposal system would pose limitations on the types of industries which could reasonably be attracted to this rather remote area. In fact, given the physical limitations of this site and observations made by other experts in this report, it is rather improbable that any significant industrial development can be encouraged to locate here unless a municipal sewage system is available.

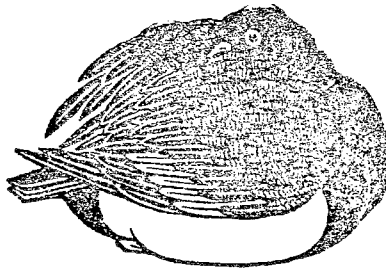
Concerning sewage disposal, an April 20, 1985 study by Malcolm Pirnie, Inc. to the Water Pollution Board of the Borough of Naugatuck concluded that "...it appears that a staged approach to acceptance of sewage from Oxford is reasonable," and "...an average daily flow capacity of up to one MGD could be made available without limiting growth within the Borough..."

That report principally deals with the engineering or capacity feasibility of an extension of the Rubber Avenue Interceptor into Oxford. Still to be determined are the costs for delivery of one MGD into the Naugatuck system, engineering, construction, monitoring facility or pump station. If permission were received from the State to extend the Rubber Avenue trunk line within the right of way of the Bridle Trail, and if it is economically feasible to do so, Oxford is looking at approximately two miles of construction to reach the subject site. It is clear that an economic feasibility study should be undertaken by a capable engineering firm to provide the hard cost side to this equation.

Conclusions/Summary

The Town of Oxford should seriously consider the following actions:

- (*) The comprehensive plan of development is seriously outdated, in a critical period of municipal growth and should be updated in its entirety.
- (*) Particular emphasis under the above statement should be given to the extensive area now zoned for industrial development and the long term impact of that development in terms of infrastructure needs.
- (*) The above statement should be priority one before municipal funds are expended on detailed engineering studies concentrating on a particular infrastructure need (i.e., sewer or access improvements).
- (*) While the Jones Property Study Committee (7/29/85) concluded that a transfer station is the "worst use of [this] land," it appears that a transfer station could be a good interim use that should more thoughtfully be considered.



APPENDIX A

JONES PROPERTY STUDY COMMITTEE REPORT
(RIGGS STREET PROPERTY)

TOWN OF OXFORD

TO: BOARD OF SELECTMAN
TOWN HALL
OXFORD, CONNECTICUT

FROM: JONES PROPERTY STUDY COMMITTEE (RIGGS STREET PROPERTY)

Dear Selectman:

RECOMMENDATION: The Town should pursue a sewer project to connect the site with the Naugatuck Rubber Avenue sewer line, as future sale of industrial land in the area is probably contingent upon prior installation of said sanitary sewer line.

RECOMMENDATION: Best use of land: Eventually, industrial. At present, basically, do nothing with the land until sewer line is installed, unless a good opportunity (for sale) presents itself.

Selling price for the land should be established, based on considerations including, but not limited to: (1) original cost to the Town of the land, plus interest on bonds and lost tax revenues; (2) engineering fees; (3) appreciation, and; (4) any other accrued expenses. Price should then be reviewed periodically to reflect variation in accrued expenses, appreciation and/or inflation.

Site should be surveyed, as existing mapping of site is inadequate, due to lack of topographic details and wetland delineation. On-site boundary delineation is apparently non-existent. Note: Property lines are extremely irregular.

If zoning regulations should change, consideration could be given to alternate uses. However, due to commitment of existing water line which was installed to service this town-owned industrial site, residential use, for example, of the site might necessitate reimbursement for the water line funds which the Town received. Also, residential use of the Jones site might jeopardize industrial use of land south of the Jones site, on the east side of Riggs Street. It should be noted that more houses are currently being constructed on the west side of Riggs Street, opposite of the industrially zoned east side (Healy property).

We believe use of the land as a transfer station (for rubbish, garbage, etc.) would constitute a "least desirable" use of the land. Reason: Use of part of site for a transfer station would have a very detrimental effect on possible sale for industrial use of the remainder of the property. The 130 acres are not needed for a transfer station (i.e., 10 acres probably sufficient).

RECOMMENDATION: Town Planner should make known to industrial developers with whom she comes into contact, that the Town has this parcel for sale.

RECOMMENDATION: Consideration should be given to purchase of Hartmann property (lot 23, block 11) by the Town, to eliminate this incompatible use (i.e., residential) in the front portion of the Jones property, thus making the property more saleable.

The above constitutes the final report from this Committee.

Fred Johnson, Chairman

Miriam Strong, Secretary

September 7, 1985

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.