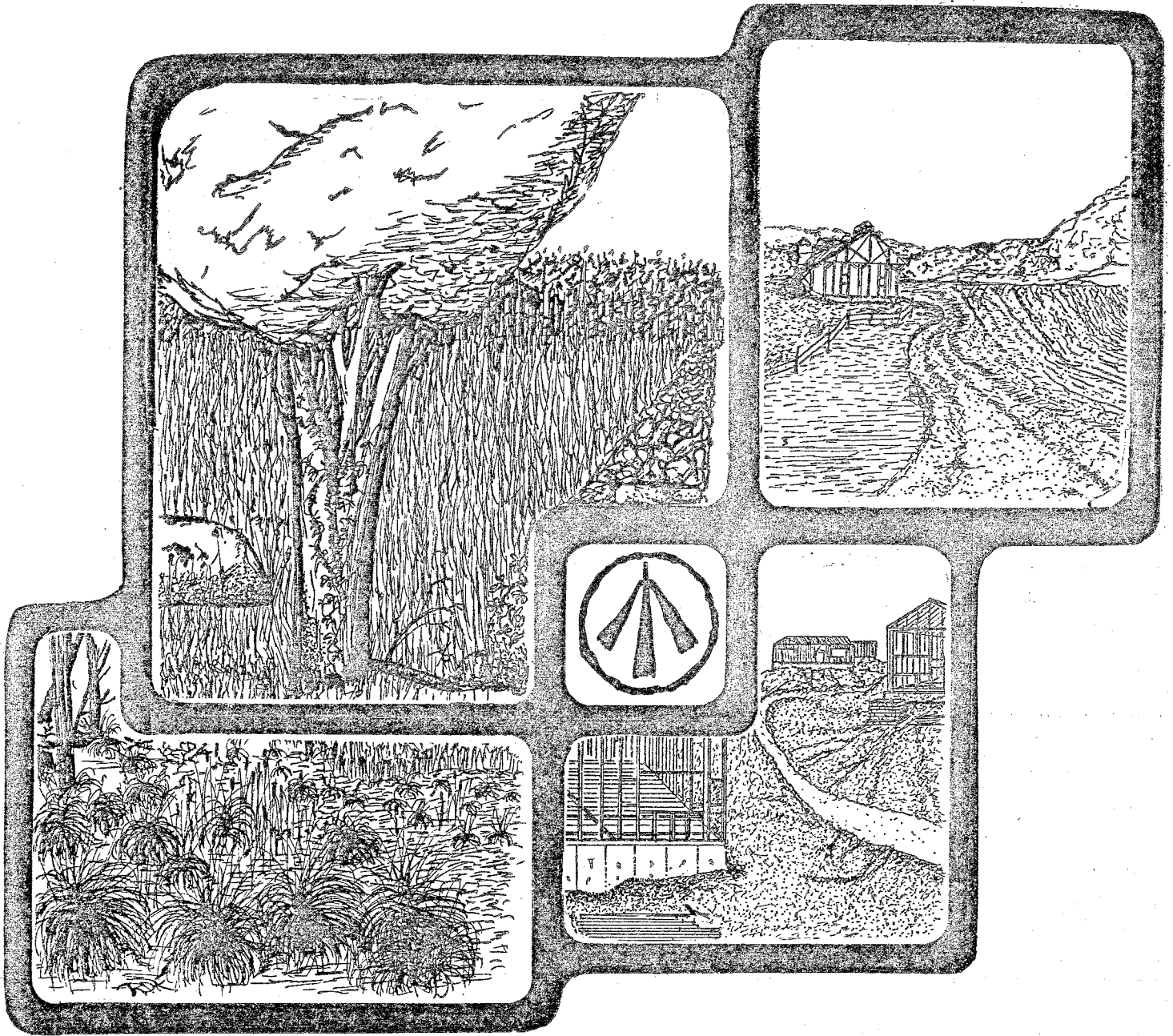


ENVIRONMENTAL REVIEW TEAM REPORT



ROLLWOOD PLANNED RESIDENTIAL DEVELOPMENT GUILFORD, CONNECTICUT

KING'S MARK
RESOURCE CONSERVATION & DEVELOPMENT AREA

KING'S MARK ENVIRONMENTAL REVIEW TEAM REPORT

ON

ROLLWOOD PLANNED RESIDENTIAL DEVELOPMENT GUILFORD, CONNECTICUT



MARCH 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

x x x x x x

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KING'S MARK RESOURCE CONSERVATION AND DEVELOPMENT AREA

Victor Allan, Chairman, Executive Committee

Stephen Driver, ERT Committee Chairman

Moses Taylor, Coordinator

Staff Administration Provided By

NORTHWESTERN CONNECTICUT REGIONAL PLANNING AGENCY

Leicester H. Handsfield, Chairman

Charles A. Boster, Director

Richard Lynn, ERT Coordinator

Rebecca West, ERT Cartographer

Irene Nadig, Secretary

Brenda Lloyd, Secretary

LOCATION OF STUDY SITE

ROLLWOOD PLANNED RESIDENTIAL DEVELOPMENT GUILFORD, CONNECTICUT

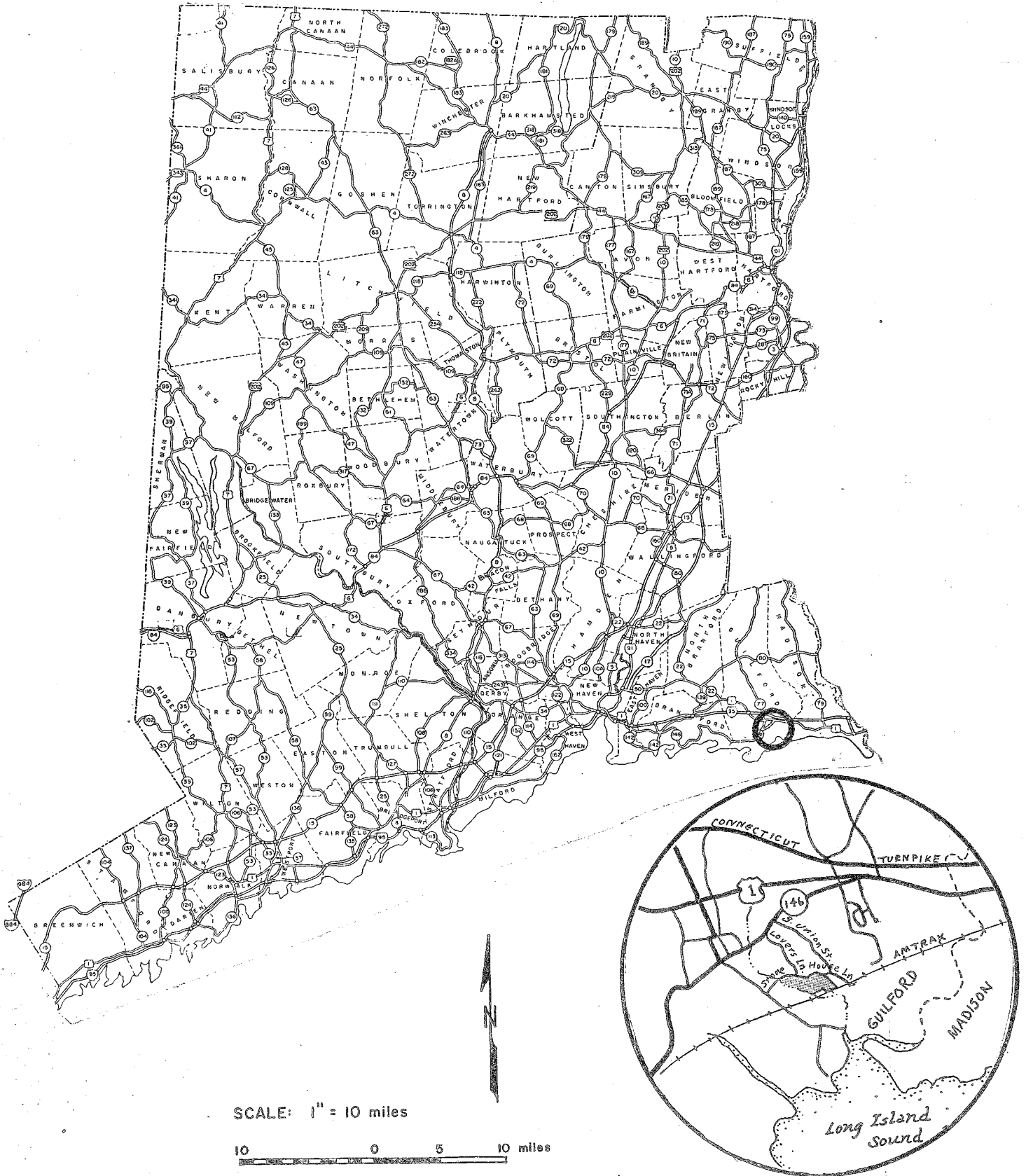


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ENVIRONMENTAL REVIEW TEAM REPORT
ON
ROLLWOOD PLANNED RESIDENTIAL DEVELOPMENT
GUILFORD, CT

I. INTRODUCTION

The Guilford Planning and Zoning Commission is presently considering a special permit application for a new planned residential development. The subject site is ± 21 acres in size and located in the southeastern corner of town.

The proposed project, known as "Rollwood Planned Residential Development", calls for 64 condominium units. Of these 64 units, 42 would be two-bedroom units and 22 would be one-bedroom units. A total of 106 bedrooms are therefore proposed. The units would be served by public water and on-site sub-surface sewage disposal facilities. A 0.7 acre pond is also proposed under the plan together with a few recreational facilities. Two access points, both from Stone House Lane, are proposed to service the project. Figure 1 presents a simplified site plan of the development proposal.

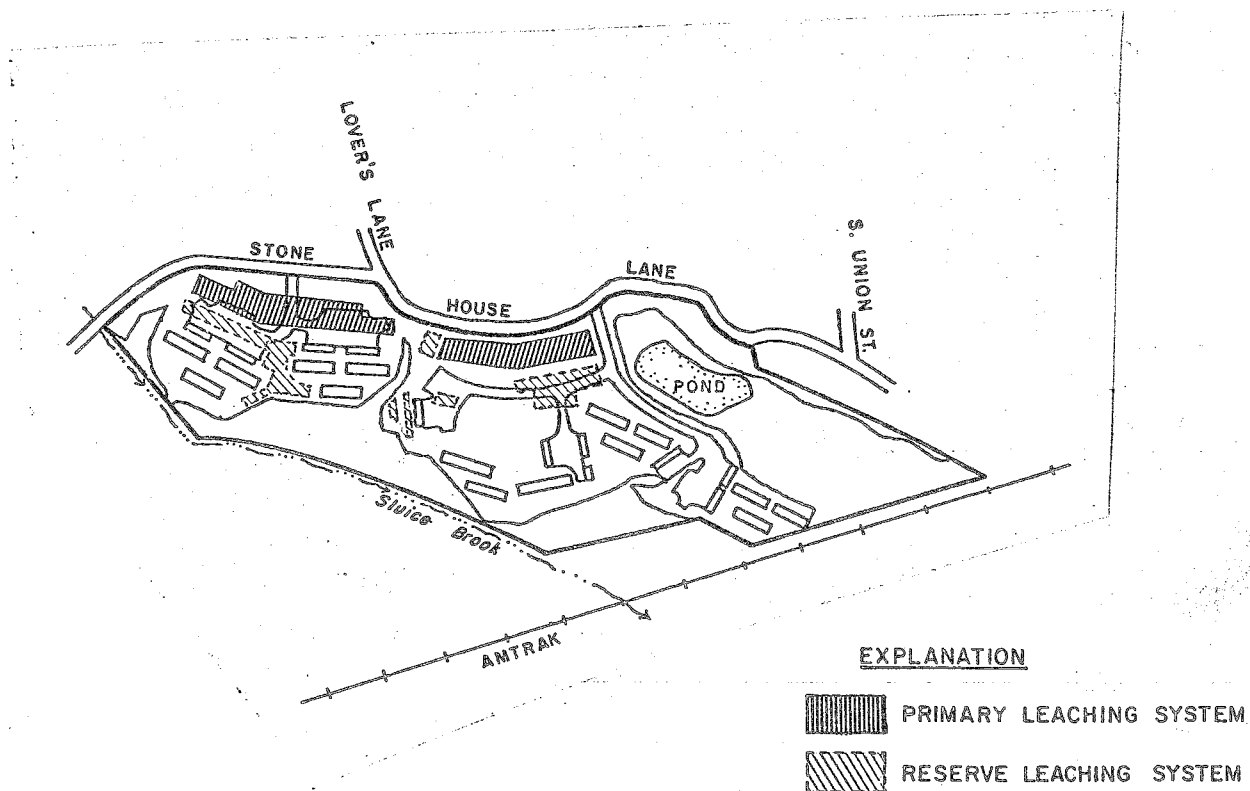
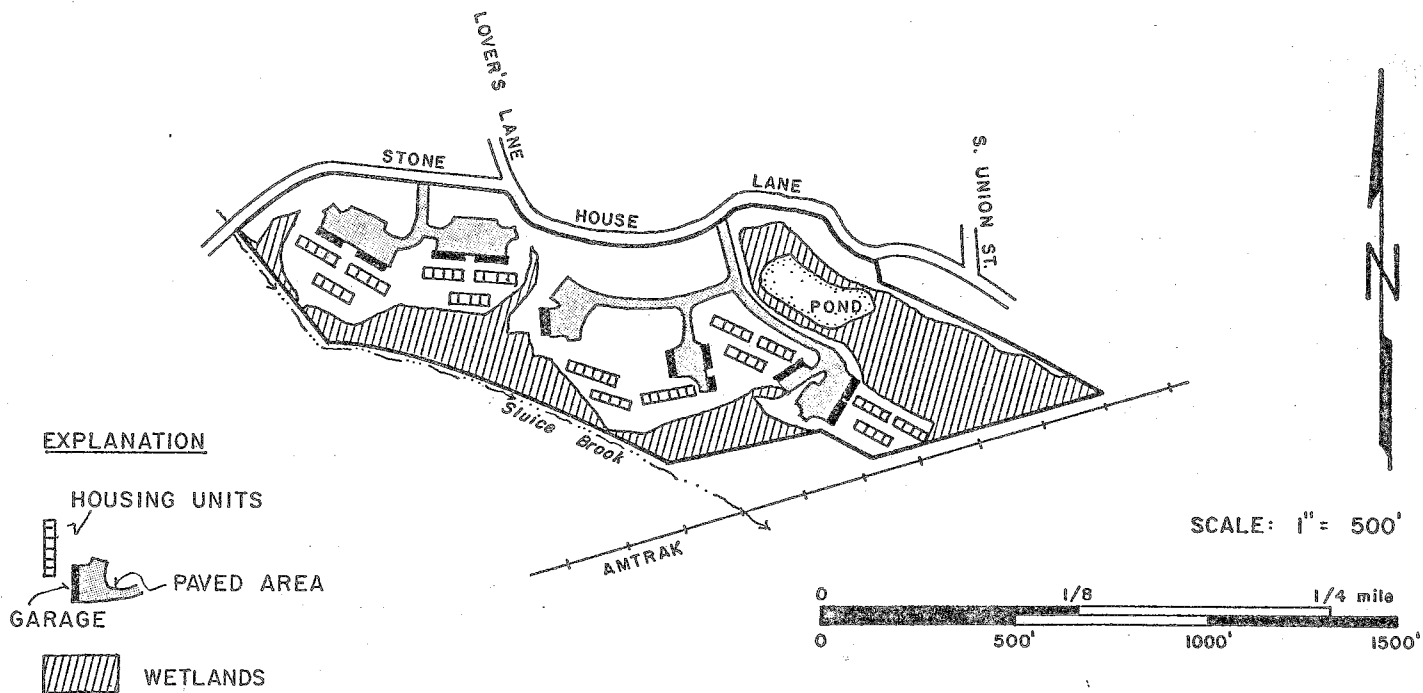
The Rollwood site is characterized by pasture land with patches of wooded land. Nearly half of the site (10.4 acres) is wetland and most of the site falls within the 100-year floodplain as defined by the HUD flood insurance rate maps. Sluice Creek abuts the southern border of the property as does an Amtrak line. Figure 2 shows the nearly level topography of the site and the surrounding land use characteristics.

The Planning and Zoning Commission from the Town of Guilford requested the assistance of the King's Mark Environmental Review Team to help the town in evaluating the special permit application for the planned residential development. Specifically, the team was asked to describe the natural resource characteristics of the site and to comment on the opportunities and limitations of the land for the proposed planned residential development. Major concerns raised by the town in requesting this review included the effect of the project on adjacent wetlands; and the suitability of the site for the proposed septic systems.

The ERT met and field reviewed the site on February 11, 1981. Team members for this review consisted of the following:

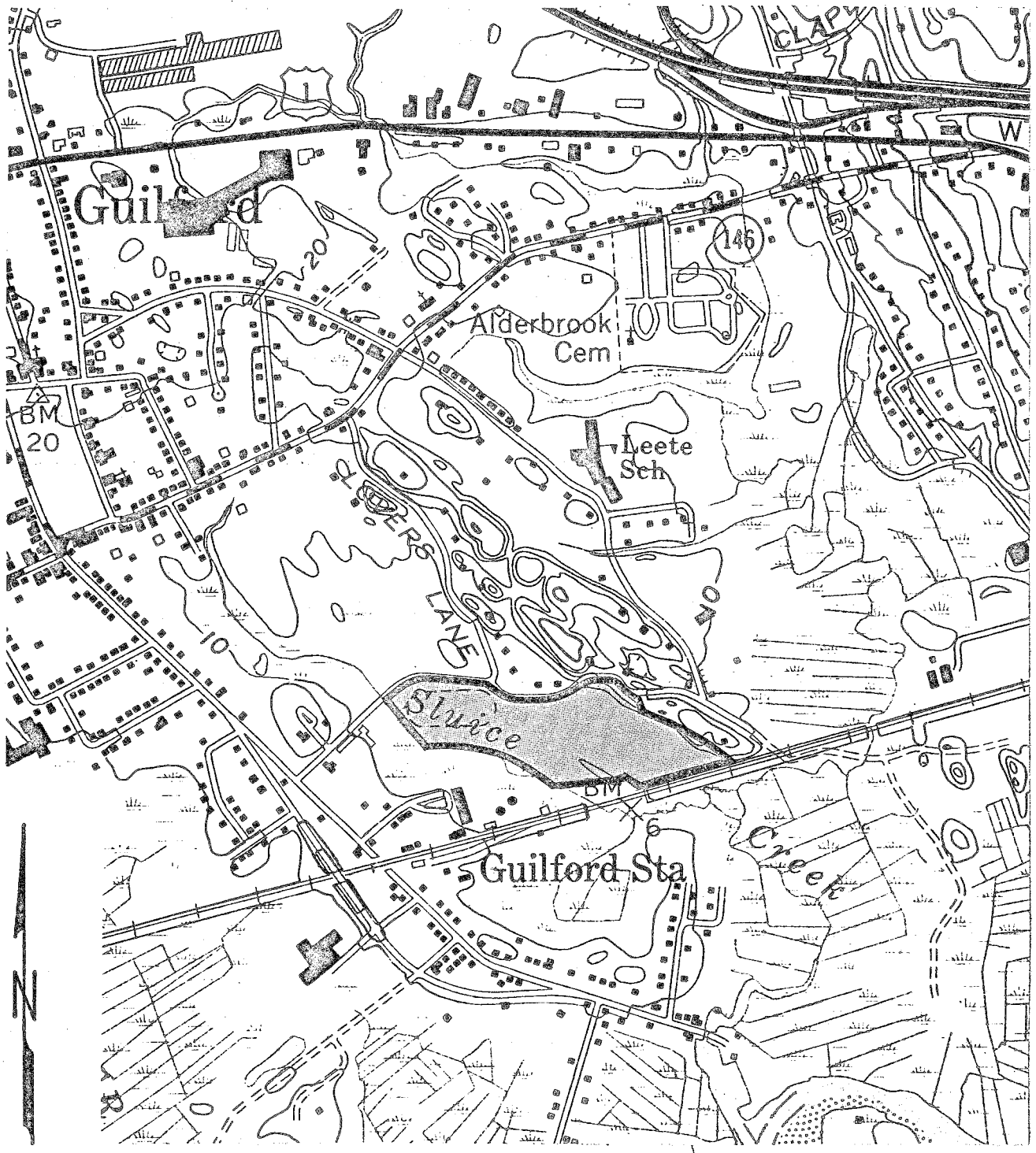
Norris Andrews.....	Regional Planner.....	Regional Planning Agency of Southcentral Connecticut
Brian Curtis.....	Sanitary Engineer.....	Ct. Department of Environ- mental Protection
Frank Indorf.....	District Conservationist....	U.S.D.A. Soil Conservation Service
Chuck Phillips.....	Fisheries Biologist.....	Ct. Department of Environ- mental Protection
Robert Rocks.....	Forester.....	Ct. Department of Environ- mental Protection

FIGURE 1. SIMPLIFIED SITE PLAN

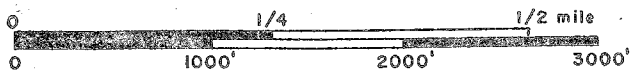


• ADAPTED FROM DEVELOPER'S
SITE PLAN OF 12/1/80

FIGURE 2.
TOPOGRAPHIC MAP



SCALE: 1" = 1000'



Ron Rozsa.....Ecologist.....Ct. Department of Environ-
mental Protection
Dwight Southwick.....Civil Engineer.....U.S.D.A. Soil Conservation
Service
Carolyn Westerfield.....Regional Planner.....Regional Planning Agency of
Southcentral Connecticut
Michael Zizka.....Geohydrologist.....Ct. Department of Environ-
mental 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. 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 Guilford and the 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

- . High groundwater levels will be a major consideration in the use of the western section of the property. Test pits and on-site inspections indicate that the water table rises to the surface seasonally. It is questionable whether this limitation can be satisfactorily overcome on this site to accommodate the proposed project.
- . The change in land use from open space to residential will cause moderate increases in runoff during periods of precipitation. Because the site is relatively flat, the increases by themselves should have little practical effects in terms of soil erosion. Erosion problems would relate more to construction activities and to post-development concentrations of runoff in certain areas than to runoff increases. If Sluice Creek has flooded portions of the site in the past, the increased runoff will add to the problem. If there has not been a historical flooding problem from the creek, then it is unlikely that a problem would develop as a result of this development alone. Coastal flooding is more likely to be a problem on this site, with virtually all of the property inundated by a 100-year flood according to HUD flood maps.
- . The Hinkley soils in the central portion of this site are generally suitable for residential development, however care must be taken to ensure that septic systems do not pollute groundwater. These droughty soils may also present problems in landscaping. The remainder of the Rollwood site is characterized by wet soils or soils shallow to bedrock which present severe limitations for residential development.
- . Consideration should be given to eliminating the pond from this proposal or else relocating the pond in a more suitable location (i.e. a non-tidal area).
- . Six vegetation types are present on the Rollwood site. It would be desirable from an aesthetic standpoint to retain as many of the trees in the mixed hardwood stand as possible. Development of an earthen berm between the railroad tracks and the proposed buildings in the southeast corner, and planting that berm with evergreens, would help to reduce the impact of passing trains on future residents.
- . Sluice Creek drains a small watershed and would be expected to support small numbers of freshwater fish as well as larger numbers of estuarine fish. The proposed development could have a very negative impact on this small stream if construction procedures and drainage planning are not carefully carried out. From a fisheries viewpoint, an on-site pond would have limited value as a recreational resource.
- . It appears that the eastern section of the proposal (66 bedrooms) has adequate land area, and the soils have sufficient hydraulic capacity, to accommodate sewage flows generated by 66 bedrooms. Additional information will need to be submitted by the applicant, however, prior to DEP taking a firm position on this eastern section of the project. Test pit data on the western section of the site, which is being proposed for 40 bedrooms, indicates that the soils in this area are unsuitable for subsurface sewage disposal.

- . The proposed project is in accordance with town, regional, and state plans and would be compatible with surrounding land use and traffic patterns.
- . A coastal site plan application has been prepared and submitted by the applicant. The application is generally complete in identifying coastal resources, but there are a number of deficiencies in the policy identification and potential adverse impact evaluation components.

III. GEOLOGY

The Rollwood planned residential development is located in an area encompassed by the Guilford topographic quadrangle. R. F. Flint prepared a surficial geologic map of the quadrangle which has been published by the Connecticut Geological and Natural History Survey (Quadrangle Report No. 28). A preliminary bedrock map of the quadrangle, by Stanley Bernold, is open filed at the Natural Resources Center, State Office Building, Hartford.

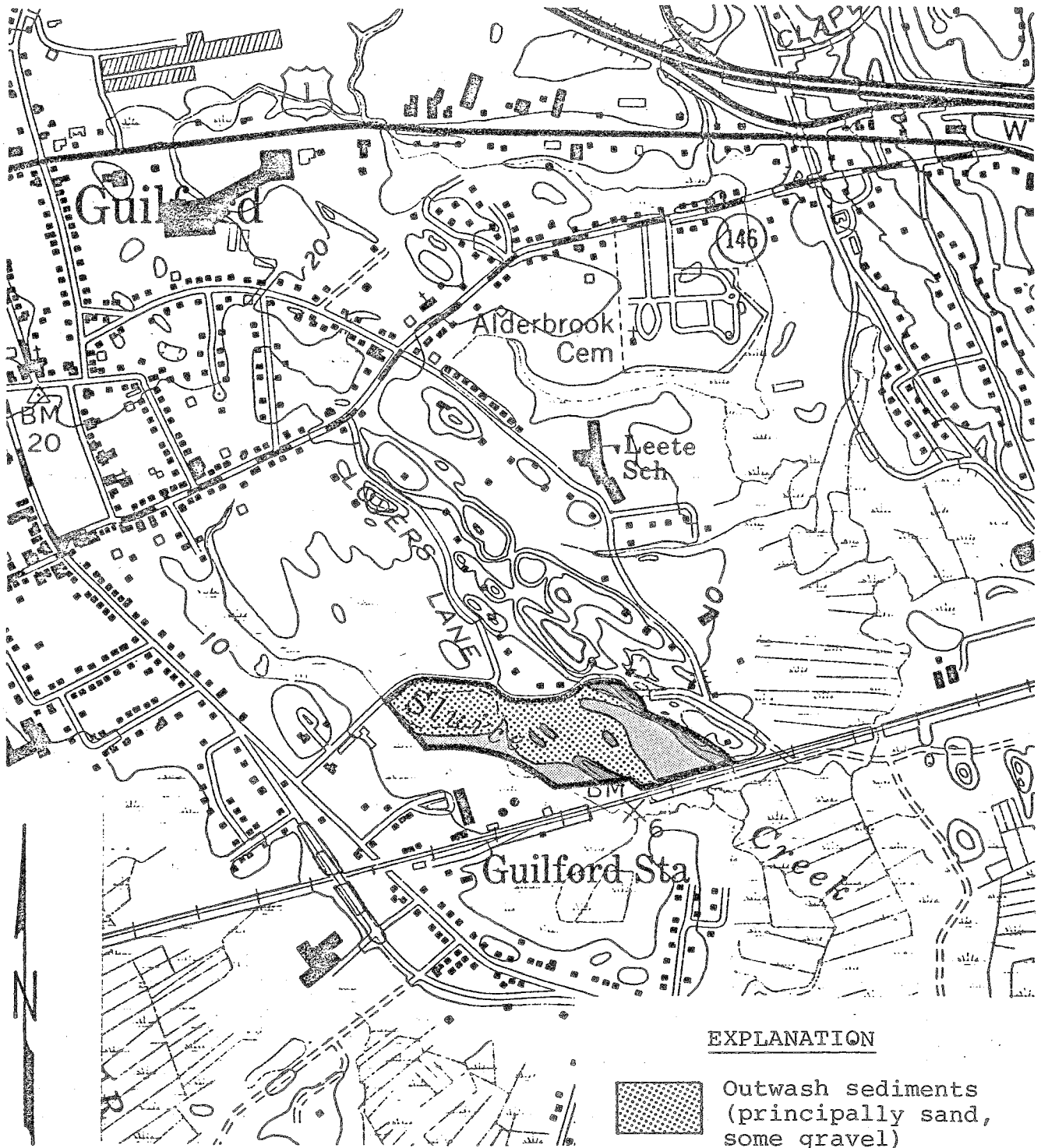
Several bedrock outcrops composed of pegmatite and gneiss are present on the site. Bernold classified the bedrock on the property as part of the Monson Formation, a rock unit that is dominated by gneisses. Gneisses are metamorphic rocks (rocks which have been noticeably altered by high pressures and/or temperatures) in which thin bands of elongate minerals alternate with layers of more rounded minerals. The major mineral constituents are typically plagioclase, quartz, biotite, garnet, and hornblende in the gneisses on the site, but other minerals may be present in small amounts. Pegmatites are coarse-grained rocks, usually of granitic composition (i.e. rich in quartz and potash feldspar), that have intruded some of the older rocks in the area (the gneisses). The bedrock outcrops on the site stand out as linear, rounded hummocks or ridges. The outcrops are aligned in a manner consistent with the general bedrock structures of southern Guilford. The eastern boundary of the property abuts a massive rock exposure.

The surficial geologic materials on the site are largely outwash sediments. These are sediments that were deposited by temporary streams of meltwater flowing away from wasting masses of glacier ice. The meltwater streams sorted the sediments, separating fines from coarse particles. Some pebble gravel is included in the local outwash, but most of the outwash consists of fine to medium sands. The thickness of the outwash is variable, ranging from zero at the bedrock outcrops to perhaps 10 feet or more in the areas between outcrops. Fine sediments rich in organic material overlie the outwash in a narrow strip of land bordering Sluice Creek and in the wetland in the eastern corner of the property. These sediments are post-glacial, having formed as a result of occasional, relatively recent flooding and a continuous production and decay of vegetation.

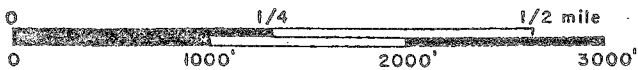
IV. HYDROLOGY

High groundwater levels will be a major consideration in the use of the western section of the property (racetrack area). Test pits and on-site inspections indicate that the water table rises to the surface seasonally. In view of the large volumes of wastewater that would have to be discharged to the ground under the current proposal, it is not clear whether this limitation could be satisfactorily overcome. Even if a solution were technically feasible, it may be too costly to implement. It may be presumed that groundwater flow under the racetrack is generally to the south. Since the leaching trenches for septic systems serving the condominiums in the western section would be placed near Stone House Road, along the northern boundary of the site, effluent could break out at the surface around the new building unless most of the western section were filled. In other words, it probably would not be sufficient to fill the area of the leaching trenches alone; at a minimum the fill would have to be extended well to the south. Effluent breakout would also be possible in the swale that separates the western and central sections of the parcel. The swale serves as an intermittent drainage channel and should not be filled unless artificial drainage provisions of a satisfactory nature can be substituted.

FIGURE 3.
SURFICIAL GEOLOGY



SCALE: 1" = 1000'



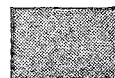
EXPLANATION



Outwash sediments
(principally sand,
some gravel)



Thin or thick organic-
rich, fine-grained sedi-
ments overlying outwash



Bedrock outcrops

The change in land use from open space to residential will cause increases in runoff during periods of precipitation. For the site as a whole, it may be estimated that total runoff from the parcel would increase by 29 percent for a 10-year storm, 23 percent for a 25-year storm, and 21 percent for a 50-year storm. Because the site is relatively flat, the increases by themselves should have little practical effect in terms of soil erosion. Erosion problems would relate more to construction activities and to post-development concentrations of runoff in certain areas than to runoff increases.

The increases in runoff would have a secondary effect of augmenting peak flows in receiving streams (notably Sluice Creek). It is difficult to estimate the actual peak flows in Sluice Creek under present conditions; for major storms, the culvert under Stone House Road may control flows into the site. However, it is possible to predict that peak flow increases for the larger storms (e.g. a 50-year event) would not be greater than 10 percent. As long as the culvert under the Amtrak railroad is sized adequately to pass the higher flows, there should be no adverse effects from the flows. The area downstream from the railroad is mostly undeveloped tidal wetland, which would disperse the extra flows without any observable changes in water levels. If the railroad culvert is too small, the additional water would have to be stored temporarily on the land adjoining Sluice Creek. It is not known whether Sluice Creek by itself has ever flooded any portions of the site that are proposed for construction, but if it has, then the increased runoff will add to the problem. If there has not been a historical flooding problem from the creek, then it is unlikely that a problem would develop as a result of this development alone. Coastal flooding is more likely to be a problem on this site. Flood Boundary Maps for the Town of Guilford have been prepared by the U.S. Department of Housing and Urban Development. The maps show that virtually all of the property would be inundated by the 100-year flood. Although the buildings could be elevated to avoid flooding during the 100-year event, it should be realized that access to and from the site would be effectively cut off and that septic systems could temporarily fail to function.

V. SOILS

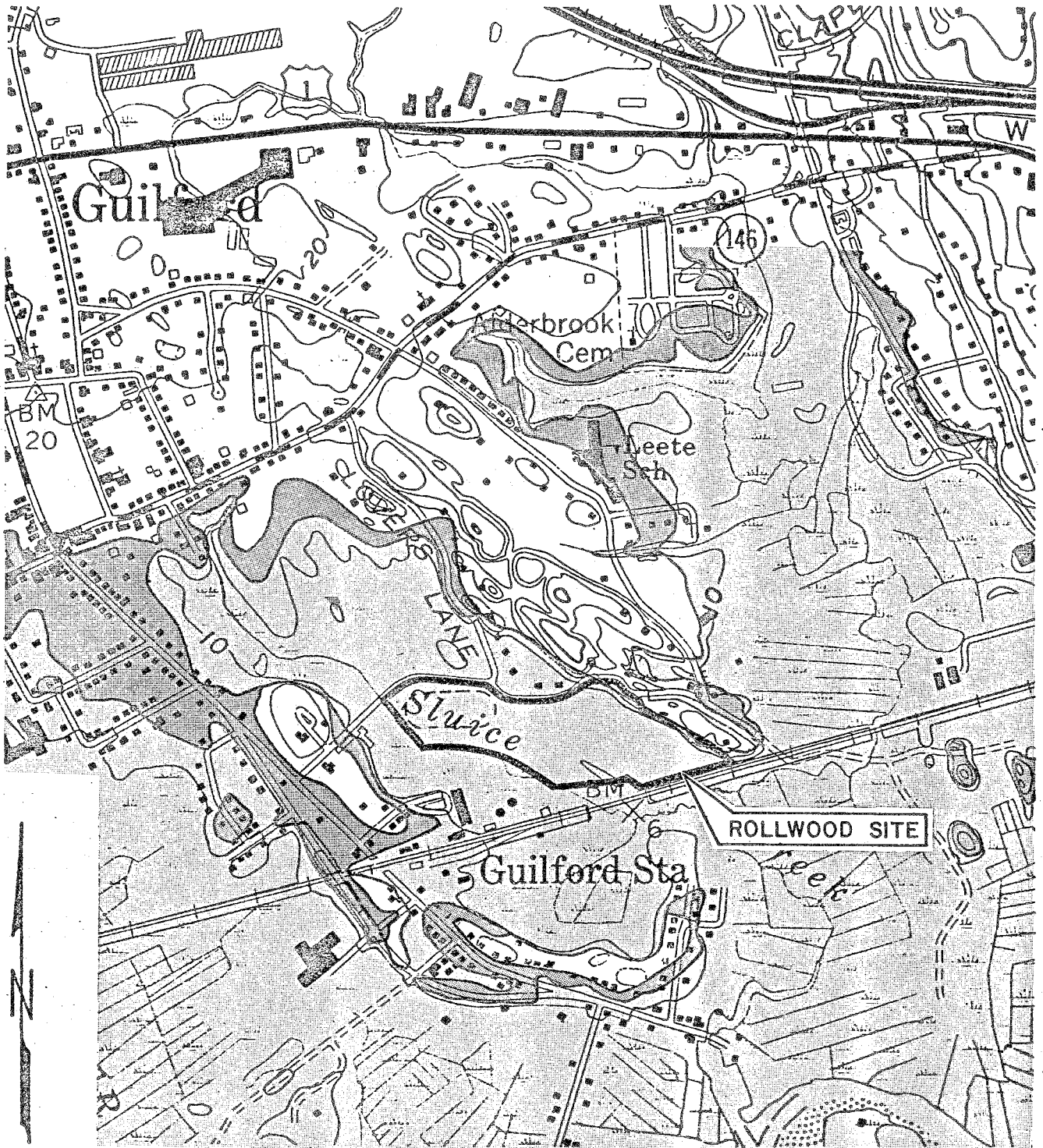
A Soils Map of the Rollwood site is presented in the Appendix of this report. The Appendix also contains a Soils Limitation Chart which identifies limiting factors for various land uses on individual soil types. By comparing the Soils Map with the Soils Limitation Chart, one can gain an appreciation of the suitability of the various soils for alternate land uses.

According to USDA Soil Conservation Service mapping, six soil types underlie the property. Each of these soil types is discussed below.

1. Hinckley gravelly sandy loam 3-8% slopes (HkB)
Approximately 40-50% of this site consists of this soil. Hinckley soil is gently sloping, excessively drained, sandy, gravelly soil found on the outwash terraces of stream valleys. Typically, the surface layer is dark brown gravelly sandy loam. The substratum consists of gravel or sand and gravel.

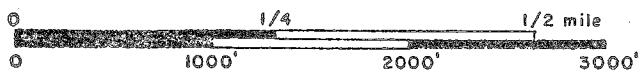
Included within this soil mapping unit are small intermingled areas, generally less than 1 acre in size, of the well drained Agawam and Haven soils and the moderately well drained Ninigret soils.



FIGURE 4.
FLOOD PLAIN MAP



ADAPTED FROM HUD FLOOD BOUNDARY & FLOODWAY MAP
TOWN OF GUILFORD, CT EFFECTIVE MAY 1, 1978

SCALE: 1" = 1000'



-  100 - YEAR FLOOD ZONE
-  500 - YEAR FLOOD ZONE

Permeability is rapid in the surface layer and very rapid in the subsoil. This soil has a low available water holding capacity. Runoff is medium. The soil dries out and warms up rapidly in the spring. It has a low shrink-swell potential. Unless limed, this soil is medium acid to very strongly acid.

This soil has good potential for community development. It is easily excavated; however, the steep and deep excavations are unstable and cave-ins are a good possibility unless precautionary measures are taken. These soils dry out in the late spring and throughout the summer months and this is a major concern with landscaping. Usually, irrigation is necessary if good lawns and other landscaping is to be maintained through the summer months. Also, because of the rapid permeability of these soils, nutrients leach very readily and a good maintenance program is necessary to maintain grass and shrubs used for landscaping purposes on these soils.

Waste disposal systems, such as on-site sewage disposal systems (leaching areas), will function satisfactorily with normal design and installation; however, because of the rapid permeability characteristics inherent to this soil, some caution is advisable to insure that pollution of the ground water regime does not occur especially in areas where wells are nearby.

During construction, simple conservation measures generally are adequate to prevent excessive runoff, erosion and siltation and sedimentation.

This soil is considered as prime agricultural land in New Haven County.

2. Haven silt loam, 0-3% slopes (HcA)

There is only a very small amount of this soil on this site and it is found in the area where Lovers Lane joins Stone House Lane.

This is a nearly level, well drained soil. The surface layer or topsoil is typically a dark grayish brown silt loam. The subsoil to a depth of approximately 24 inches or less is a strong brown and yellowish brown silt loam. The substratum usually is yellowish brown stratified sand and gravel.

Included in this mapping unit are small intermingled areas usually less than 1 acre in size, of the well drained Agawam and the moderately well drained Ninigret.

Permeability is moderate in the surface layer and the subsoil, and very rapid in the substratum. This soil has a high available water capacity. Runoff is slow. This soil tends to dry out and warms up early in the spring.

It has a low shrink-swell potential. Unless limed, it is very strongly acid. However, the nutrient holding capacity of this soil is fairly high and nutrients do not leach as rapidly as with the Hinkley soils.

This soil has good potential for community development. It is easily excavated; however, as with the Hinkley soils, excavations are unstable and precautionary measures are necessary to prevent cave-ins.

Waste disposal systems, such as on-site disposal systems (leaching fields), function satisfactorily with normal design and installation; however, the very rapidly permeable substratum requires that caution be taken not to pollute the ground water regime. This soil has a good potential for landscaping. However, some irrigation is necessary during the summer months if good grass and landscaping shrub growth is to be maintained. Annual application of nutrients is necessary to maintain good growth of landscaping materials including grass. This soil has a slight erosion hazard, and simple conservation measures are adequate to control runoff and erosion.

Haven silt loam is considered as prime agricultural land in New Haven County.

3. Ninigret fine sandy loam, 0-3% slopes (Nn)

Approximately 25-30% of this site consists of Ninigret soil. This soil is nearly level, moderately well drained and located in slightly depressional areas of outwash terraces and along stream valleys.

Ninigret soils have a high water table at a depth of approximately 20 inches from late fall to mid-spring. Permeability is moderately rapid in the surface layer and subsoil and rapid in the substratum. This soil has a moderate available water holding capacity. Runoff is slow. Ninigret soils dry out and warm up rather slowly in the spring. It has a low shrink-swell potential. Unless limed, this soil is usually very strongly acid through medium acid.

Ninigret soil has fair to poor potential for community development. It is easily excavated; however, deep excavations are very unstable and precautionary measures are necessary.

This soil has a poor potential for waste disposal systems because of the seasonal high water table which floods out the system and causes them to become inoperable. This results in pollution to the ground water regime.

Also, foundations and basements need to be properly designed and constructed to insure foundation stability, and to prevent wet basements. This soil is well suited to landscaping. However, during dry summers some irrigation may be necessary to maintain good lawns and other landscaping. Ninigret soils have a fair nutrient holding capacity. However, they need to be fertilized annually if good lawns and other landscaping is to be maintained in good condition.

Included in the Ninigret mapping unit are small intermingled areas, generally less than 1 acre in size of the well drained Agawam soils and the poorly drained Walpole and Raypol soils. From the ERT field examinations it was noted that such areas exist on the Rollwood subdivision area. Of particular concern were areas where standing water on the surface was noted. These areas are not necessarily wetlands. However, they will present special problems in the development of this area as planned. In some areas fill will need to be added. In other areas surface or subsurface drainage may be necessary to prevent roads, parking areas and paved recreation areas from heaving and cracking due to hydrostatic pressure and frost heaving.

Ninigret soils are considered as prime agricultural land in New Haven County.

4. Hollis-rock outcrop complex 15-35% slopes (HSE)

Hollis-rock outcrop complex soils are found along the easterly boundary of the property and comprise only a small percentage of the total area of the site. This soil mapping unit consists of moderately steep and steep, somewhat excessively drained soils on uplands and areas of rock outcrop. Areas of this soil have bedrock outcrops, a few narrow intermittent drainageways and small wet depressions. Approximately 50% of this unit is Hollis fine sandy loam, about 30% is rock outcrop and 20% other soils.

This soil has poor potential for community development. It is limited mainly by shallowness to bedrock, steep slopes and rock outcrops. Excavation is extremely difficult and for the most part requires blasting. Waste disposal systems generally require very unusual design and installation, and there is a hazard that they will fail or that effluent may seep into cracks in the bedrock and pollute ground water.

No development is planned for this area and the soils are not considered as prime agricultural land.

5. Walpole sandy loam (Wa)

The Walpole soils on this site are found along Sluice Creek, drainageways through the site, and low depressions on the site.

Walpole is a poorly drained soil found along streams and in low depressions on broad outwash terraces. From late fall until late spring, this soil has a water table at a depth of approximately 8 inches. Permeability is moderately rapid in the surface layer and subsoil and rapid to very rapid in the sub-stratum. The water holding capacity of this soil is moderate. Runoff is slow. This soil dries out and warms up slowly in the spring. It has a low shrink-swell potential. If not limed, it is very strongly acid to medium acid.

This soil has a poor potential for community development because of high water table conditions and is regulated under Public Law 155, as amended, The Connecticut Inland Wetland and Water Courses Act.

Walpole soils are easily excavated, but deep excavations are unstable due to slaughting. This soil has poor potential for waste disposal systems, such as on-site septic systems, because of high water table conditions. Septic systems installed in this soil will pollute the ground water system. It is not recommended that community development take place in areas of this soil without extensive filling being done. Drainage work done on this soil is usually not too successful in areas to be used for homesite or other community development projects.

Walpole soils qualify as additional farmland of state wide importance.

6. Westbrook mucky peat (We)

This soil makes up about 10% of the total area of this site and is found along the easterly portion of the site.

Westbrook mucky peat is a very poorly drained organic soil found in tidal marshes along the coast of Long Island Sound. This soil is subject to tidal

flooding twice daily and is covered with salt marsh vegetation. This soil has poor potential for community development.

Additional Comments or Concerns

1. The proposed pond as described on the site plans extends into the tidal marsh area. Unless the pond is properly diked, it could be subject to tidal flooding in which case the water in the pond would be brackish (part salt and part fresh).

It should also be noted that steep side slopes excavated in the Westbrook and Ninigret soils (those soils in the area of the pond) tend to be unstable.

Consideration should be given to eliminating the pond from this proposal or else relocating the pond in a more suitable location (i.e. a non-tidal area).

2. In reviewing the latest "Flood Boundary and Floodway Map" for the Town of Guilford as prepared by the U.S. Department of Housing and Urban Development, Federal Insurance Administration, it was found that the entire area of this proposal is subject to flooding under a 1% (100 year storm) frequency storm, due to tidal flooding. The HUD study indicates that the 100 year flood level in the Rollwood area would be at a "National Geodetic Vertical Datum" level of 11.6 feet (mean Sea Level). This would mean that all first floor levels would have to be sited above this elevation, or buildings and any basements would have to be flood proofed in order to qualify for flood insurance. Without such insurance, loan money to construct the project would not be available, nor would mortgage money. To properly protect buildings from flooding, extensive filling appears to be necessary on this site.
3. Wetland boundaries as flagged in the field and described on the site plans by the applicant appear to be substantially correct.
4. Roads, walks and parking areas on the Ninigret soils and the lower Hinckley soils will need to have subsurface drains to eliminate excess water and, therefore, reduce frost heaving in the winter months.
5. Storm drainage from the site should not be a serious problem unless it is collected and discharged at a concentrated point.
6. It should be noted that a considerable amount of paving is proposed over the areas for the septic systems.
7. If development of this site is allowed, an erosion and sediment control plan should be prepared for the entire site.
8. Should this proposal not be allowed, an alternative to the landowner would be to offer the development rights of this property to the state to perpetuate the area for agricultural use.

VI. VEGETATION

The 21+ acre site proposed for development into the "Rollwood P.R.D." may be divided into six vegetation types. These include Openfield, 10+ acres; tidal wetlands/marsh, 8+ acres; mixed hardwoods, 3+ acres; plantation, 2+ acres; stream-belt/wetland, 2+ acres, and hardwood swamp, 1+ acre.

It would be desirable from an aesthetic stand point to retain as many of the trees in vegetation type C as possible (see Figure 5).

Development of an earthen berm between the proposed buildings and the railroad track, and planting that berm with evergreens, would help to reduce the impact of passing trains on future residents (see Figure 5).

A. VEGETATION TYPE DESCRIPTIONS (refer to Figure 5)

TYPE A. OPEN FIELD. The vegetation on this 10+ acre open field is dominated by grasses and goldenrod. Milkweed, queen ann's lace, spreading dogbane, raspberry, wild strawberry, multiflora rose and barberry are also present. At the present time much of this field is being utilized as pasture land.

TYPE B. TIDAL WETLAND/MARSH. Phragmites, cattail, rose mallow and several species of sedges and marsh grasses are present in this 3+ acre marsh. Construction of the railroad cut this area off from the salt marshes to the south.

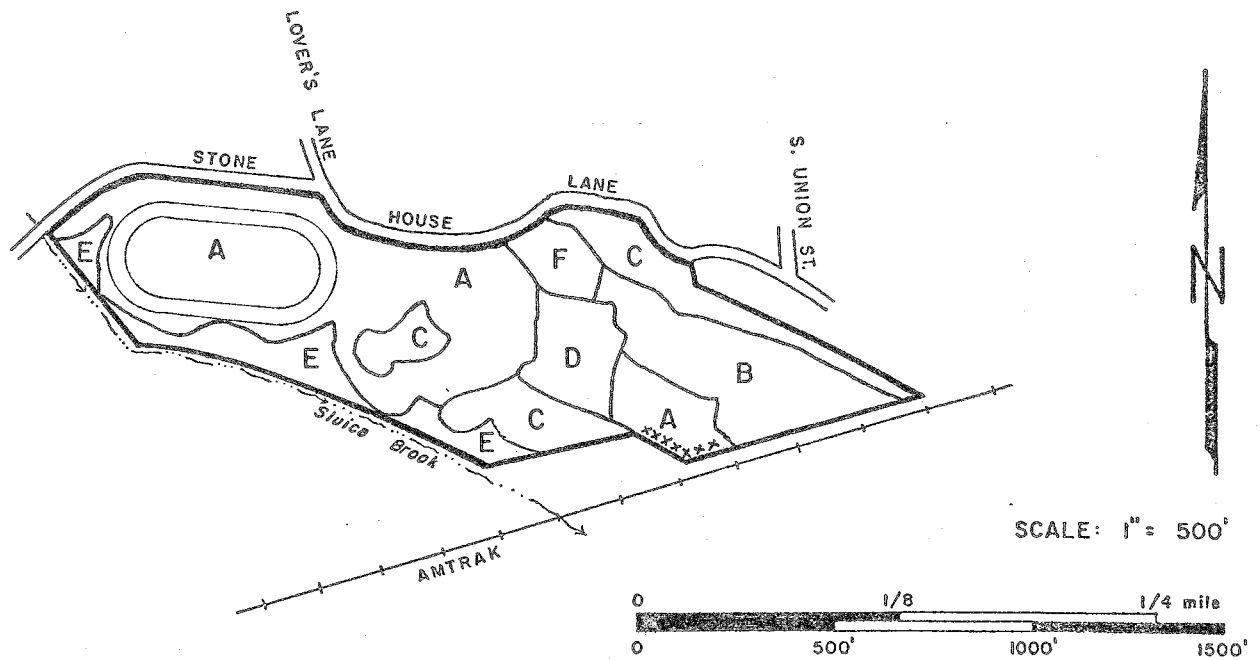
TYPE C. MIXED HARDWOODS. This 3+ acre fully stocked stand is made up of medium quality pole size black cherry, sugar maple, red oak, white oak, chestnut oak, black birch, bitternut hickory, red maple and occasional american beech. The understory in this area is dominated by flowering dogwood, hophornbean, graybirch and maple leaved viburnum. Raspberry, multiflora rose and barberry are also present, but only in well scattered patches. Ground cover is made up of japanese honeysuckle, grasses and poison ivy.

TYPE D. PLANTATION. Poor quality sapling to pole size scotch pine are present in this over stocked 2+ acre stand. For the most part understory vegetation is sparse, however pokeweed, japanese honeysuckle, wisteria, club moss and grasses are present.







TYPE E. STREAM BELT/WETLAND. Approximately two acres of stream belt/wetlands are present within this property. Sapling size red maple, cottonwood and american elm are the tree species present. Shrub species observed in this area include multiflora rose, highbush blueberry and arrowwood. Phragmites, cattail, sedges, japanese honeysuckle, poison ivy, grasses and sensitive fern are also present.

TYPE F. HARDWOOD SWAMP. This 1+ acre over-stocked stand is made up of poor quality sawtimber-size red maple, cottonwood, white ash and swamp white oak, with occasional high quality red oak located around its perimeter. The understory is made up of black willow, highbush blueberry, arrowwood, multiflora rose and sassafras. Other vegetation present includes, catgreen brier, poison ivy, japanese honeysuckle, fox grape and sensitive fern.

FIGURE 5.
VEGETATION TYPE MAP



LEGEND

-  Road
-  Property boundary
-  Vegetation type boundary
-  Stream
-  Abandoned racetrack
-  Planting for noise abatement and visual barrier.

VEGETATION TYPE DESCRIPTION*

- TYPE A Open field, 10± acres.
- TYPE B Tidal wetland/marsh, 3± acres.
- TYPE C Mixed hardwoods. Fully stocked, pole-size. 3± acres.
- TYPE D Plantation. Over stocked, sapling to pole-size. 2± acres.
- TYPE E Streambelt/wetland. Sapling-size. 2± acres.
- TYPE F Hardwood swamp. Over stocked, sawlog-size. 1± acre.

*Seedling-size - trees less than 1" in diameter at 4½" above the ground (d.b.h.)
 Sapling-size - trees 1" to 5" in d.b.h.
 Pole-size - trees 5" to 11" in d.b.h.
 Sawtimber-size - trees 11" and greater in d.b.h.

B. CONSIDERATIONS FOR AESTHETICS

It should be recognized that there are trees present in vegetation type C (mixed hardwoods) which have high aesthetic value. These trees, and perhaps the entire area of vegetation type C should be retained as is, with the possible exception of the removal of a few dead and severely damaged trees. These areas provide a natural barrier which will block to some extent the view of passing trains. These areas left almost as is will provide the future residents of this area with a small but natural and useable open space area.

The buildings which are proposed for the south eastern section of this parcel will be most impacted by the passing of the Amtrak trains. This impact can be reduced by mounding of soil and plantings designed to form a barrier between the proposed buildings and the railroad track (see Vegetation Type Map for berm and planting location). A solid earthen barrier constructed high enough to screen the passing trains from view, planted with a dense strip of salt tolerant evergreens would help to soften the trains impact on residents. White spruce, eastern red cedar and yews should be considered for this planting. These species have dense evergreen foliage and are somewhat tolerant of salt spray.

Preliminary site plans show that buildings and roadways will be constructed in the area which is presently vegetated with scotch pine (vegetation type D). Such construction will probably result in the complete removal of the trees in this area. If not all of this area is developed, a thinning in this stand would be desirable. At present the trees in this stand are crowded and not extremely healthy. A thinning which removes approximately 1/3 of the total number of trees would reduce competition between residual trees, eventually improving their health and vigor. If this thinning is feasible, it should focus on the removal of the unhealthiest and poorest one third of the trees.

A specific question was raised at the ERT's field review concerning the impact of a new drainage system on several willow trees on the north side of Stone House Lane. It is very unlikely that any changes in drainage occurring on the "Rollwood P.R.D." property would negatively affect the health of these willows. Adequate moisture will be available to these trees even after drainage improvements are made.

VII. FISHERIES

Sluice Creek drains a small watershed and would be expected to support small numbers of freshwater fish (dace and sunfish) as well as larger numbers of estuarine fish (mummichogs, silversides, and sheepshead minnows). Additionally, fish larvae and fry of marine fish, which spawn in the estuarine environment, might be present on a seasonal basis.

The proposed development could have a very negative impact on this small stream if construction procedures and drainage planning are not carefully carried out. The stream-bed is composed primarily of very fine material indicating that the brook has only a gentle flushing action and would easily be adversely impacted by siltation.

From a fisheries viewpoint an on-site pond would have limited value as a recreational resource. Salt water intrusion and periodic salinity fluctuation can be anticipated in a pond so close to Long Island Sound. The only "catchable" fish which could be expected to inhabit the pond and survive such a salinity regime would be white perch. Stunted populations of white perch are common in ponds located similarly in this area (Rhode Island Pond Surveys (Block Island)).

VIII. SEWAGE DISPOSAL

The proposed project calls for on-site subsurface sewage disposal. For a discharge of this magnitude in which the sewage flows are expected to be in excess of 5,000 gallons per day, a State Discharge Permit is required from DEP pursuant to Section 25-54i of the Connecticut General Statutes. Approval is also needed from the local and State Departments of Health under the provisions of the Public Health Code of the State of Connecticut.

The following comments regarding the proposed sub-surface sewage disposal systems are divided between the eastern (66 bedroom) and western (40 bedroom) sections of the project.

A. EASTERN SECTION (66 bedrooms)

Site testing conducted in the central area of this section of the project revealed sandy well drained soils with a maximum water table elevation estimated at 4 and 5 feet below ground surface. Based upon preliminary calculations it is felt that:

- a) The land in this area has sufficient hydraulic capacity to transmit anticipated sewage flows generated by 66 bedrooms within the existing soil profile.
- b) Sufficient land area is available to accommodate a primary leaching field and reserve area for 66 bedrooms.

Prior to DEP taking any firm position on this eastern section of the project the applicant would be required to prepare an engineering report addressing system sizing, high groundwater conditions and hydraulic capacity in greater detail. It would also be necessary to demonstrate adequate renovation of the effluent prior to its eventual discharge to surrounding wetland areas. The critical factor with regards to renovation of the effluent in this area would be the amount of time it takes for the effluent to travel from the leachfield to the wetland areas. Further deep test pits would also be necessary in the proposed reserve areas to determine soil suitability. The sewage collection system serving the proposed residential units would be required to have the integrity of a municipal sewerage system.

B. WESTERN SECTION (40 bedrooms)

Several test pits were excavated in the western section of the project in the old race track area. Site testing conducted during September of 1980 observed the groundwater table to be at 2-4 feet from the ground surface with soil mottling ranging from the surface to 18 inches. Based upon these mottling indicators and considering the relative elevation of this flat area compared to

the surrounding wetlands, it is likely that the ground water table is at or approaches the ground surface during the spring season of the year.

Based upon these considerations this western section of the proposed project would be unsuitable for sub-surface sewage disposal.

IX. PLANNING CONSIDERATIONS

A. Town Plan

The proposed development would be consistent with the Town Plan and Town goals which call for higher residential density to be concentrated within the Guilford Town Center District. The site is just southeast of the Town Center and within walking distance to local shops, schools and recreational facilities. The area is zoned R-3 in Development Area A where avoidance of scattered conventional dwellings and encouragement of cluster dwellings is a growth policy of the Comprehensive Plan of Development and Conservation. The proposed development calls for 64 condominium units providing a total of 106 bedrooms, a density below the number allowed by regulation. The developer has met the objectives of Section 39.3 of the Zoning Regulations in providing for the preservation of Inland Wetlands. Care should be taken to ensure that the project is in conformance with local building and flood-plain management regulations.

B. The Regional Plan

The Proposed Land Use Plan - 2000, South Central Connecticut Planning Region, adopted 1968, recommends the area in question as a residential area (2-8 families/acre). Regional goals stress the desirability of concentrating increased density near existing town centers.

C. The State Plan

The State of Connecticut Conservation and Development Policies Plan - 1979-1982, "Locational Guide Map" indicated the area as a combination of "Urban Conservation and Conservation Areas." The proposed development will meet the criteria set forth in the guidelines for these areas providing adequate flood insurance protection can be obtained and the project is in full compliance with building, excavating and other flood plain management regulations. Architectural and building engineering designs have been considered which are consistent with statewide goals for conservation of energy.

D. Adjacent Land Use and Landscaping Considerations

Directly south of the site are areas zoned for Industry 1 and 2. To the north is an existing low-density single-family residential development. Architectural design of the housing units and landscaping has been planned to enhance the relationship between the development and adjacent areas. A particularly critical landscaping area is the area adjacent to the Amtrack line at the southeastern corner of the property. Housing units are proposed within 200 feet of this line. Vegetative "buffer" planting alone will do little to attenuate the noise levels of passing trains. A solid earth berm constructed adjacent to the tracks and above the height of passing trains

will reduce noise levels to a more acceptable level. Such a berm should be landscaped to stabilize the berm and also to improve its aesthetic appearance.

Existing commercial development, educational, and recreation facilities are all within one-half mile of the proposed development and readily accessible.

E. Transportation/Traffic Considerations

The site is located off Stone House Lane and is readily accessible from this two-way local road, which is connected to other areas of the town and major town roads by Lover's Lane, South Union Street and Whitfield Street. Traffic generated by development of the site would not be detrimental to the carrying capacity of these local arteries. Off-street parking spaces have been provided for, and on-site circulation appears to be adequately designed. Two access points on Stone House Lane are proposed to service the project. The locations of these points permit easy egress to all aforementioned roadways.

X. COASTAL MANAGEMENT CONCERNS

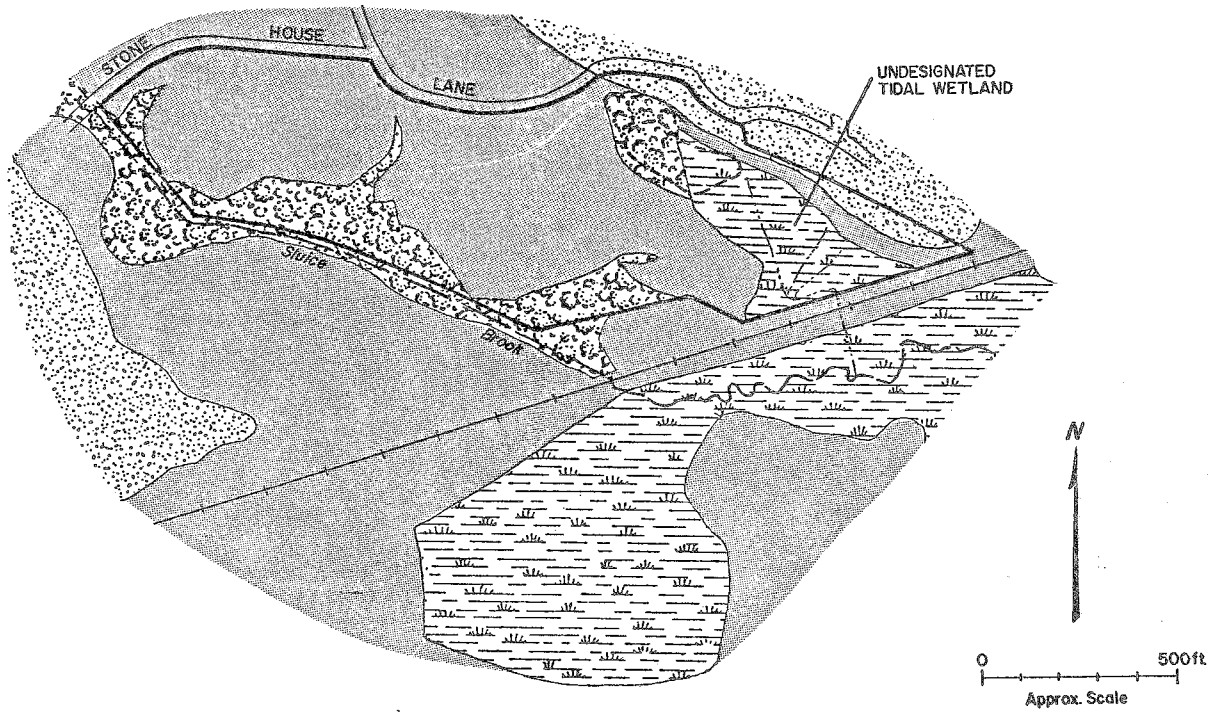
In addition to a special permit application for the Rollwood Planned Residential Development, a coastal site plan application has been prepared and submitted by the applicant to the Guilford Planning & Zoning Commission since the project is located fully within the coastal boundary. The site plan application is generally complete in identifying coastal resources but there are a number of deficiencies in the policy identification and potential adverse impact evaluation components. These aspects are discussed below.

A. COASTAL RESOURCE IDENTIFICATION










The applicant has correctly identified the coastal resources on the site, including the coastal hazard area, and freshwater wetlands and watercourses. Additionally, the undesignated tidal wetland should be depicted on this site (see Figure 6) rather than incorporating it into the freshwater wetlands category. It is difficult to ascertain, on the basis of the project maps, whether or not shorelands bordering the tidal wetland to the east are inside or outside of the property or both. In any event, the project plans should be modified to depict the coastal resources adjacent to the project site, especially the downstream tidal wetlands.

The undesignated tidal wetland, mapped as a tidal wetland in Figure 6, is not a state regulated tidal wetland for it does not appear on the official map of state designated tidal wetland maps. However, undesignated tidal wetlands can be regulated by the local inland wetland commission as an inland wetland. Section 22a-38 of the Connecticut General Statutes defines an inland wetland as "land, including submerged land, not regulated pursuant to sections 22a-28 to 22a-35 (i.e. 'Tidal Wetland' Act), inclusive, which consists of any of the soil types designated as poorly drained, very poorly drained..." Therefore, since this is an unregulated tidal wetland and is composed of a very poorly drained soil type, the Westbrook series, it constitutes a wetland to be regulated by the inland wetland commission. Further, under the provisions of the Coastal Zone Management Act, the Guilford Planning and Zoning Commission could apply the tidal wetland policies (see following paragraph) to such

FIGURE 6.
COASTAL RESOURCES



EXPLANATION

- | | | | |
|---|---------------------|---|-------------------|
|  | COASTAL HAZARD AREA |  | PROPERTY BOUNDARY |
|  | FRESHWATER WETLANDS |  | PROPOSED POND |
|  | TIDAL WETLANDS |  | STREAM |
|  | SHORELANDS |  | MOSQUITO DITCHES |
| | |  | RAILROAD TRACKS |

an undesignated tidal wetland in reviewing the coastal site plan for the proposed project. In addition, given that the wetland does appear to satisfy the requirements for state designation as a tidal wetland, the town could also request that this wetland be regulated by the D.E.P. Water Resources Unit under the tidal wetland statutes.

B. COASTAL POLICIES

The coastal policy identification section of the site plan is essentially complete although a few additional resource and use policies apply. Applicable policies as identified in Planning Report #30¹ are:

- *General Resources IA(A,B,C)
- Tidal Wetlands IF(A,*D)
- *Freshwater Wetlands and Watercourses IG(A)
- *Shorelands IK(A)
- Coastal Hazard Areas IH(A,B)
- General Development IIA(A,*B)

As the site is not located on the waterfront, the water dependant use policies do not apply.

According to the plan, the following activities are proposed in wetland areas: 1) construction of a pond, 2) construction of a paved parking area and 3) service road. Since these activities will either modify or eliminate the natural function of the freshwater or undesignated tidal wetland, the proposal does not appear to be consistent with the freshwater wetland policy. By maintaining these wetland areas or through a reduction of the area of wetland impacted, such as avoiding all impacts to the tidal wetland, the proposal may be considered consistent with this policy. These activities are also subject to review by the inland wetland commission.

Assuming that the final detailed plans are in conformance with the minimum flood hazard regulations and that the concerns addressed under the adverse impacts section of this report are resolved, the project would appear consistent with the policies.

C. ADVERSE IMPACT IDENTIFICATION AND ANALYSIS

Potential adverse impacts as specified and defined in the Coastal Management Act are not identified in the plan with the exception of possible siltation in the undesignated tidal wetlands. Potential adverse impacts, according to the Act, which may be created by this project are:

- . Degrading water quality through the significant introduction into either coastal waters or groundwater supplies of suspended solids, nutrients, toxics, heavy metals or pathogens, or through the significant alteration of temperature, pH, dissolved oxygen or salinity.

* Refers to policies not identified in the site plan.

¹ Planning Report #30 Coastal Policies and Use Guidelines 1979. Department of Environmental Protection, Coastal Management Program.

- . Degrading existing circulation patterns of coastal waters through the significant alterations of patterns of tidal exchange or flushing rates, freshwater input, or existing basin characteristics and channel contours.
- . Degrading visual quality through significant alteration of the natural features of vistas and view points.
- . Degrading tidal wetlands, beaches and dunes, rocky shorefronts, and bluffs and escarpments through significant alteration of their natural characteristics or function.

The Table on the following page is an impact matrix which provides a general analysis of potential adverse impacts that may result from specific activities to specific coastal resources. The applicant should demonstrate either why certain potential impacts are not significant or demonstrate the mitigation measures.

With implementation of this project, adverse impacts may specifically result from:

- 1) Uncontrolled sedimentation into the undesignated and designated (off-site) tidal wetlands and freshwater wetlands and watercourses as a result of the proposed earth moving and construction activities.
- 2) Construction of a paved parking area and service road on a freshwater wetland.
- 3) Construction of the pond in a forested wetland and undesignated tidal wetland.
- 4) Degredation of coastal water quality from subsurface leachates from the leaching fields via the on-site natural discharge system (watercourse).
- 5) Degredation of water quality and flooding from stormwater runoff (an intermittent impact).
- 6) Loss of life and property due to inadequate flood protection measures.
- 7) Reduction of visual quality due to either modification or elimination of the undesignated wetland.
- 8) Reduction of wildlife habitats due to loss or modification of the undesignated wetland.

Some, but not all of these impacts are addressed below.

The site plan calls for the utilization of haybales as a mitigation measure to prevent the introduction of major amounts of silt into wetlands. This is particularly necessary and important when construction activities are in close proximity to the wetlands or water courses. A better mitigation measure consists of a double row of alternating haybales behind a single

COASTAL RESOURCES*

ACTIVITY	ON-SITE			ADJACENT	
	CHA	FW & W	UTW	S	TW
Site Preparation Activities	X	X,Q,S	X,Q,S		X,Q,S
Placement of Pipes					
1. Stormwater	X	?	?		
2. Sanitary	X	?			
3. Water Main	X				
Discharge					
1. Stormwater	?	X,Q,S	X,Q,S		X,Q
2. Sanitary	X	X,Q	X,Q		X,Q
Condominiums	X				
Garages	X				
Open Parking	X	X,Q			
Paved Roads	X	X			
Walkways	X				
Pond Excavation	X	X,Q	X,Q,S		
Landscaping	X	X	?		

KEY

X = Potential impact to resource

? = More data needed for determination

Q = Potential impact to water quality

S = Potential impact from sedimentation

*Resources:

CHA = Coastal Hazard Area

FW&W = Freshwater Wetlands & Watercourses

UTW = Undesignated Tidal Wetland

S = Shoreland

TW = Tidal Wetland

row of snow fence. The latter functions as a visual/physical barrier to minimize the possibility of construction equipment inadvertently impacting the wetland. Buffers of natural vegetation should be preserved as a supplemental method to protect wetlands during construction and in the future. In order to assure maximum protection to the undesignated tidal wetlands, the adjoining condominium/garage arrangement to the southwest should be arranged in order to provide a more substantial and effective buffer between wetlands and condominiums and the undesignated tidal wetland.

Construction of the pond will irreversibly alter the natural characteristics and functions of the forested wetland and undesignated tidal wetland. This contradicts the site plan which claims "there will be no activity within the tidal wetland". In light of the natural state of this wetland, it is recommended that the tidal wetland receive maximum protection thereby assuring consistency with the coastal policies and minimizing adverse impacts. Elimination of the pond is an alternative that would assure consistency with the applicable policies and would preserve the tidal wetland.

As it exists now, the combination of tidal wetland and the outcrop of ledge to the east furnishes an attractive and natural scenic vista. The proposed wetland modifications, together with storm water discharges to the wetland, could contribute to the expansion of Reed (Phragmites communis) which would negate this vista and other natural properties.

Since the plans are preliminary, there are no detailed designs for the storm water systems. Some possible considerations in the final design which would minimize impacts to wetlands and flooding are: 1) incorporation of regular cleaning of catch basins, 2) avoiding discharges into the tidal wetland, or for those that must occur here, try to locate the discharge in a mosquito ditch, 3) use energy dissipators as necessary, 4) use a 25-year storm design and 5) provide at least some storm water retention on the site with controlled release.

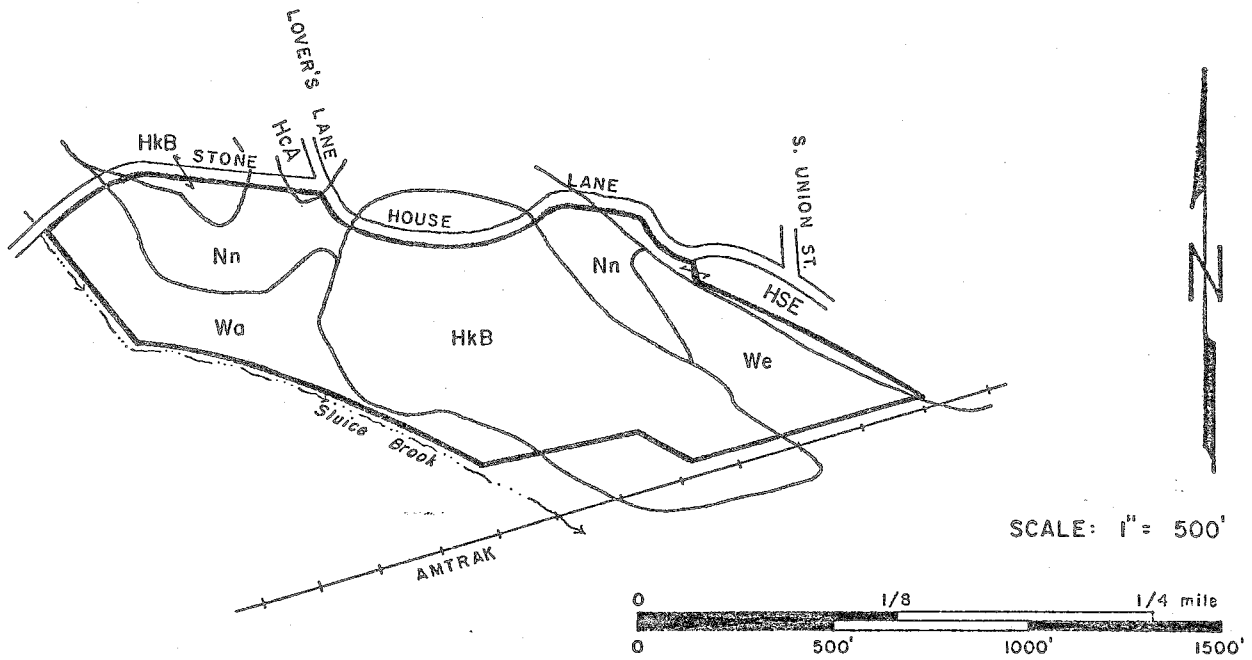
Improper design and location of the subsurface leaching system could potentially degrade coastal water quality through groundwater contamination and ultimate release via areas of discharge (i.e. Sluice Creek). This is a long term potential impact which should be addressed in more detail in the site plan.

Construction of structures on the site in accordance with the minimum flood hazard area regulations would mitigate adverse impacts to life and property and assure consistency with the coastal hazard policies.

* * * * *

XI. APPENDIX

SOILS MAP



• ADAPTED FROM NEW HAVEN COUNTY
SOIL SURVEY, U.S.D.A. - S.C.S.

◦ SOIL BOUNDARY LINES DERIVED FROM
SMALLER SCALE MAP (1" = 1320') AND
SHOULD NOT BE VIEWED AS PRECISE
BOUNDARIES BUT RATHER AS A GUIDE
TO THE DISTRIBUTION OF SOILS ON
THE PROPERTY.

SOILS LIMITATION CHART - ROLLWOOD PLANNED RESIDENTIAL DEVELOPMENT - GUILFORD, CONNECTICUT

MAP SYMBOL	SOIL NAME	SEPTIC SYSTEMS	DWELLINGS W/OUT BASEMENTS	ROADS AND DRIVEWAYS	LAWNS AND LANDSCAPING
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HCA	Haven silt loam, 0-3% slopes	Severe; poor filter, smears	Slight	Slight	Slight
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HkB	Hinckley gravelly sandy loam, 3-8% slopes	Severe; poor filter, slope	Slight	Slight	Severe; small stones droughty
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HsE	Hollis-Rock outcrop complex, 15-35% slopes	Severe; depth to rock slope	Severe; slope, depth to rock large stones	Severe; slope, depth to rock	Severe; slope, depth to rock
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Nn	Ninigret fine sandy loam	Severe; wetness, poor filter	Moderate; wetness	Moderate; frost action	Slight
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Wa*	Walpole sandy loam	Severe; wetness	Severe; wetness frost action	Severe; wetness frost action	Severe; wetness
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We**	Westbrook mucky peat	Severe; tide flooding unstable muck	Severe; wetness floods excess humus	Severe; wetness low strength floods excess humus	Severe; wetness floods excess salt excess humus
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* = inland wetland soil ** = tidal wetland soil

- 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.

NOTE: Limitation Ratings Based Upon U.S.D.A. Soil Conservation Service Criteria.

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 industrial 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.