

Oxford Commons

Proposed Residential

Mobile Manufactured Housing Community

Oxford, Connecticut



King's Mark Environmental Review Team Report

King's Mark Resource Conservation and Development Area, Inc.

Oxford Commons
A Proposed
Residential Mobile Manufactured Housing Community
Oxford, Connecticut

Environmental Review Team Report

Prepared by the
King's Mark
Environmental Review Team

Of the

King's Mark
Resource Conservation and Development Area, Inc.

For the

Conservation Commission/Inland Wetlands Agency
Oxford, Connecticut

August 2006

Report #340

Acknowledgments

This report is an outgrowth of a request from the Oxford Conservation Commission/ Inland Wetlands Agency to the Southwest Conservation District (SWCD) and the King's Mark Resource Conservation and Development Area (RC&D) Council and ERT Subcommittee for their consideration and approval. The request was approved and the measure reviewed by the King's Mark Environmental Review Team (ERT).

The King's Mark Environmental Review Team Coordinator, Elaine Sych, would like to thank and gratefully acknowledge the following Team members whose professionalism and expertise were invaluable to the completion of this report.

The field review took place on Thursday, July 13, 2006.

Nicholas Bellantoni	Archaeologist Office of State Archeology (860) 486-5248
Alan Levere	Wetland Reviewer DEP – Office of the Commissioner (860) 424-3643
Dawn McKay	Biologist/Environmental Analyst DEP - Environmental and Geographic Information Center (860) 424-3592
Roman Mrozinski	Executive Director Southwest Conservation District (203) 269-7509
Donna Seresin	Sanitary Engineer III DEP – Stormwater Housatonic Watershed (860) 424-3267
Randolph Steinen	Geologist UConn (Emeritus) DEP – State Geological & Natural History Survey (860) 487-0226

I would also like to thank Andy Ferillo, Oxford inlands wetlands officer, David Nafis, town engineer, Steve Trinkaus, project engineer, Tim Hollister and Ryan McKain, Shipman and Goodwin, attorneys for the applicant, Richard Freedman, applicant, and Michael Klein, environmental consultant for the applicant, for their cooperation and assistance during this environmental review.

Prior to the review day, each Team member received a summary of the proposed project with location and soils maps. During the field review Team members were given plans and additional information. Some Team members conducted a map review only and others made additional site visits. Following the review, reports from each Team member were submitted to the ERT coordinator for compilation and editing into this final report.

This report represents the Team's findings. It is not meant to compete with private consultants by providing site plans or detailed solutions to development problems. The Team does not recommend what final action should be taken on a proposed project - all final decisions rest with the town and landowner. This report identifies the existing resource base and evaluates its significance to the proposed use, and also suggests considerations that should be of concern to the town. The results of this Team action are oriented toward the development of better environmental quality and the long term economics of land use.

The King's Mark RC&D Executive Council hopes you will find this report of value and assistance in the review of this proposed residential development.

If you require additional information please contact:

Elaine Sych, ERT Coordinator
CT ERT Program
P. O. Box 70
Haddam, CT 06438
Tel: (860) 345-3977 e-mail: ctert@comcast.net

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Introduction

Introduction

The Oxford Conservation Commission/ Inland Wetlands Agency has requested Environmental Review Team (ERT) assistance in reviewing a proposed residential mobile manufactured housing community..

The project site is located on Hurley Road (to the south), Donovan Road (to the east), Oxford Airport Road (a non-access road to the north) and private property to the west. The parcel is 40.79 acres in size and contains 13.59 acres of wetlands and watercourses. The former land use was a farm with barns and outbuildings. The buildings have been removed. The wetlands are divided into two areas. The wetland in the eastern-central portion contains 13.41 acres and a smaller area of wetlands along Donovan Road contains .18 acres. The development plans a permanent disturbance of the .18 acre area and approximately 2.388 acres of non-wetland area within 50 feet of the wetlands boundary will be disturbed.

The proposal consists of 127 prepared sites or “pads” to which mobile manufactured housing will be permanently affixed. Purchasers will own their individual home but the land will remain under the ownership and management of Third Garden Park and Garden Homes. The roads within the development will be private, and a community building will be constructed. The site will be served by public water and sewer. It is in a Corporate Business Park District zone.

Objectives of the ERT Study

The commission has requested the ERT to assist them in a review because:

- The project appears to be a highly intensive use in close proximity to large wetland areas;
- A high percentage of impervious surfaces will increase runoff and decrease groundwater recharge;
- To insure adequate removal of suspended solids and stormwater management; and
- Possible impacts to wetlands and watercourses.

The ERT Process

Through the efforts of the Oxford Conservation Commission/ Inland Wetlands Agency this environmental review and report was prepared for the Town of Oxford.

This report provides an information base and a series of recommendations and guidelines which cover the topics requested by the town. Team members were able to review maps, plans and supporting documentation provided by the applicant.

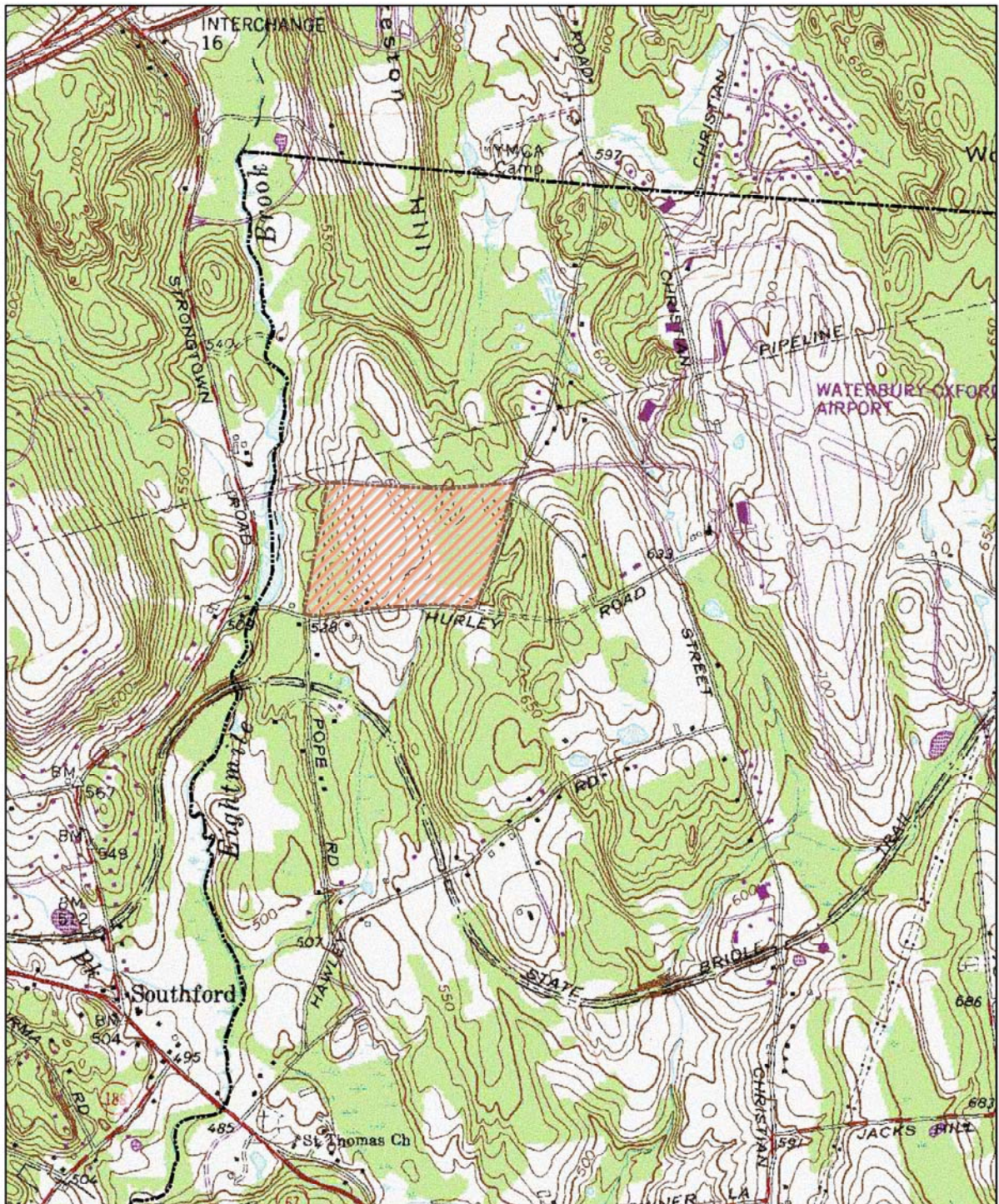
The review process consisted of four phases:

1. Inventory of the site's natural resources;
2. Assessment of these resources;
3. Identification of resource areas and review of plans; and
4. Presentation of education, management and land use guidelines.

The data collection phase involved both literature and field research. The field review was conducted Thursday, July 13, 2006. The emphasis of the field review was on the exchange of ideas, concerns and recommendations. Being on site allowed Team members to verify information and to identify other resources.

Once Team members had assimilated an adequate data base, they were able to analyze and interpret their findings. Individual Team members then prepared and submitted their reports to the ERT coordinator for compilation into this final ERT report.

ERT Project Location Map



The Connecticut Environmental



Review Team



This map was prepared by Amanda Fargo-Johnson for the Connecticut Environmental Review Team. This map is for educational use only. It contains no authoritative data. July 2006.



Approx. Site Location

0 0.1 0.2 0.4 0.6 Miles



Oxford, CT

ERT Project Aerial Map



The Connecticut Environmental
Review Team



This map was prepared by Amanda Fargo-Johnson for
the Connecticut Environmental Review Team.
This map is for educational use only.
It contains no authoritative data.
July 2006.

Oxford, CT

0 0.05 0.1 0.2 0.3
Miles



Topography and Geology

The central part of western Connecticut contains numerous rather smooth contoured hills that are elongate in a north-northwest/south-southeast direction (Figure 1). The proposed Oxford Commons lies across one such streamlined hill that has a maximum relief of about 100 feet. The slopes are gentle in all directions. The hilltop elevation drops about 50 feet to the east into a wetland and shallow water impoundment; it drops about 100 feet to the west into the valley of Eight Mile Brook. The hill was cleared farmland until recently. Today, numerous open grassy areas are found between pioneer bushes and trees (Fig. 2).

Bedrock that underlies the hills is thinly covered by a veneer of glacial till that is so thin in the northeast corner of the parcel that bedrock crops out. Although no outcrops were found around the main hill in the parcel, it is likely that the till veneer is thin also. Grading deeper than 4-5 feet or excavating for utilities, foundations and basements may encounter ledge in some places.

The hill was formed by glacial action during the last Ice Age. It was mapped as a drumlin by Pessl, 1975 (see Figure 3). Till is deposited in a sculpted shape beneath glacial ice in some drumlins. Such till is compact and of low permeability and when encountered is usually referred to as “hard-pan.” Hard-pan may be encountered in some places on the parcel. Till may also be deposited as the ice melts at the end of an ice age. “Melt-out” till is usually sandy and not very compact. Most of the area is covered by melt-out till which may be underlain by bedrock or in some locations, hard-pan. The melting glaciers at the end of the last Ice Age created meltwater streams that transported and locally deposited enormous quantities of sand and gravel. Some of the streams flowed in channels on top of the glacial ice. Most, however, flowed in cracks, crevasses and tunnels under the ice onto the major valleys. Eight Mile Brook has such deposits of sand and gravel lining its valley.

Bedrock crops out (Figure 4) as low exposures in the northeastern quadrant of the parcel where the till is very thin. Bedrock in this area is composed of gneiss and schist and

schistose gneiss (Scott, 1974). These rocks are composed of varying proportions of quartz, plagioclase feldspar, biotite, and muscovite with small amounts of several other minerals. Some of the rocks are rusty weathering which seems to be caused by the iron in biotite weathering. The rusty weathering was superficial (outer inch or so) in the outcrop seen on the field trip. Rusty weathering in some rocks in Connecticut is caused by sulfide minerals that produce iron oxides and acid drainage during their weathering. No sulfide minerals were spotted on the field trip but they should be more thoroughly checked, especially if the material to be excavated is used for fill. Acid drainage could move off-site through streams and wetlands.

References

Pessl, Fred, Jr., 1975, Surficial geologic map of the Southbury Quadrangle, CT. U.S. Geol. Survey Open File #75-172.

Scott, R.B., 1974, Bedrock geology of the Southbury Quadrangle, CT. Geol. and Nat. Hist Surv. Quad. Rpt. #30.



Figure 1. Geologic map of parcel and surrounding area. Parcel is located on Hurley Road near the center of the map. Note topography also. From Scott, 1974.



Figure 2. Pasture at top of drumlin that is reverting to forest. Pioneer invasive trees and bushes are filling in the pasture area. Note smooth contour of the land, typical of a drumlin.



Figure 3. Surficial geologic map of the parcel and surrounding area. From Pessl, 1975.



Figure 4. Low outcrops of rusty weathering schist and schistose gneiss in the northeastern quadrant of parcel.

Southwest Conservation District Review

Soils Resources

This soils report applies to the 40+-acre parcel referred to as the Oxford Commons Project, which is bounded by Oxford Airport Rd. to the north, Hurley Rd to the south, Donovan Rd. to the east and private landowners to the west. The information in this report is based on the historical soils series descriptions and the new digital mapping unit descriptions as presented in the Soil Survey of Connecticut, remote survey interpretations plus field observations.

The historical reference for soils regarding this region can be found in sheet number 25 of the 1979 New Haven County Survey. Exhibit #1 - CT Soils Mapping is derived from the new digital survey (Soil Survey of Connecticut). The soil survey utilizes recent aerial photographic base with one soil legend, which employs the numbering convention used by the USD A.

Mapping Units

I-Wetland Soils

1) USDA Soil #17 - Timakwa and Natchaug - aka: Map Unit AA - Adrian & Palm soils

This map unit consists primarily of Adrian and Palm soils on 0 to 3 percent slopes. Adrian soils are very deep and very poorly drained. Typically, these soils have an organic layer 16 to 51 inches thick. The underlying layer is of a sandy or loamy texture to a depth of 60 inches or more. These soils have a watertable within 12 inches of the soil surface.

2) USDA Soy #3 - Map Unit RN - Ridgebury, Leicester and Whitman extremely stony fine sandy loams. Consists of nearly level to gently sloping, poorly drained soils in drainageways and depressions on glacial uplands. Ridgebury soils are very deep and derived mainly from gneiss and schist. Typically, they have a friable loam or fine sandy loam surface layer and subsoil over a firm fine sandy loam or sandy loam dense till substratum. Ridgebury soils have a perched watertable within 1.5 feet of the surface much of the year.

Concerns

A) Land Use - Allowing high density residential into this industrial region of town defeats the Town's planning and purpose of its overall Conservation and Development Plan. This type of sprawl brings added stressors and risks to remaining sensitive terrestrial and aquatic environments this region. In the past, these wetlands have been encroached upon by agricultural influences and industrial development, which has filled and utilized them as environmental sinks to perform convenient stormwater conveyance, served as raw-water renovation and have been the recipient of an array of NFS pollutants directly related to land use and the impervious roadways which bisect them.

Introducing this new concentrated NFS pollutant source in close proximity to a high quality wetland system, which serves, as a significant tributary to Eightmile Brook is not sound in its approach for natural resource conservation and watershed management.

Secondly, subjecting a segregated high density residential pocket of towns people to increased risks from industrial and commercial contaminants, high commercial traffic and potential mosquito born diseases does not seem prudent; even for the sake of providing affordable housing.

B) Loss of Wetlands - The interruption of drainage patterns due to the proximity of proposed roadways, dwellings and their expansive impervious surface would alter the hydrologic regime of the upland soils and have an adverse impact to water quality plus wildlife dependent on these wetlands.

C) Buffering of Wetlands - Most of the upland soils in close proximity to these wetlands have moderate to severe erosion hazards that relate to their composition and their topographic relief. Establishing well defined limits of disturbance and preserving the majority of the natural landscape reduces the risk of erosion and siltation to the wetlands and off-site environments.

DI) Wetland Encroachment within the 50' Upland Review Area - The following proposed building lots, roadways, support facilities and associated landscaping create land disturbances within a 50' upland review area designated on the plans (the Team was informed that the town has a 100' upland review area).

This reflects the limits of disturbance relative to the placement of the GSF & HB erosion and sedimentation controls and the close proximity of the aforementioned features. This would seem to be the logical landscape limit due to the fact that no final grades are shown around the dwellings to demonstrate otherwise.

Sheet 5& 6 of 18

- Building Lots 4, 5 & 46 plus finish grades within 10' of flagging.
- Approx. 440' of proposed wetland system with vegetated swale.

Sheet 4 of 18 - Proposed Oxford Commons East

- Approx. 240' of Retaining Wall
- 400' of Proposed Roadway
- 320' of Vegetated Level Spreaders
- Buildings Lots 109-113 and 118-126 (final grades not shown, but GSF placement ranges from 5' to 20' from the wetland flagging.
- Proposed filling of 7,880 sq. ft. of wetlands (WF 1x-19x). Army Corps Permitting required after 5,000 sq ft threshold.
- 4" wide "Leak Off" impervious surface approx. 80' long is within 10' of the wetland flagging and is a direct discharge of NFS pollutants from associated landscaping and roadway runoff to the wetlands.

Note:

Citing the consultant's report finding of moderate to high quality of the wetlands and soils limitations, it would be prudent to utilize the 100' Upland Review Area supported by the CT DEP. If implemented, the following additional dwellings and constructed features should be further scrutinized.

D2) Wetland Encroachment within the 100' Upland Review Area - The following proposed building lots, roadways, support facilities and associated landscaping create land disturbances within the 100' upland review. This area is not exclusionary, but proposed disturbances on soils with the severe erosion hazards, steep slopes and non-existent buffering will have an impact to the waters of the state, wetlands and all habitats.

- Building Lots 4, 7, 46, 45, 37, 36, 25, 24, 15, 14, 5, 4, constructed wetland system #1 and related parking and roadways.
- All of Oxford Commons East except for Bldg 115.

Non-wetland Soils**3) USDA Soil # 29 B - AfB - Agawam fine sandy loam, 3-8 percent slopes.**

This map unit consists of Agawam soils. These soils are very deep, well drained soils formed in loamy over sandy and gravelly glacial outwash deposits. Typically, they have a fine sandy loam surface layer and subsoil over a stratified sand and gravel substratum that extends to a depth of 60 inches or more.

This soil has good potential for development. Permeability is moderately rapid in the surface layer and subsoil and rapid in the substratum. Runoff is medium. Conservation measures are needed to prevent excessive runoff, erosion and siltation during construction.

Concern

- The rapid permeability in the substratum requires that caution be taken to prevent ground water contamination.
- These soils have been developed residually and many acres are currently in agricultural use with orchards.
- The aforementioned land uses employ a wide array of fertilizers and pesticides, which can be introduced to the hydrologic regime of the area. The substratum can act as a conduit to the riverine environment and ultimately LIS.

4) USDA Soil # 60B - CfB - Canton-Charlton fine sandy loam, 3 to 8 percent slopes.**USDA Soil # 60C - CfC - Canton-Charlton fine sandy loam, 3 to 8 percent slopes.**

This mapping unit is a well drained soil on the side of slopes of hills and ridges and at the foot slopes of steep slopes. Permeability is moderate or moderately rapid. Runoff is medium to rapid. This soil has fair potential for community development. It is limited mainly by the steepness of slopes. However, it does have a severe erosion hazard associated with it. Intensive conservation measures are needed to prevent excessive runoff, erosion and siltation during construction.

5) USDA Soil #73C - CrC - Charlton-Hollis soil 3 to 15 percent slopes.

This complex consists of well drained soils located on uplands where the relief is affected by underlying bedrock. The Charlton component has moderate or moderately rapid permeability. Runoff is medium to rapid. The Hollis component has moderate to moderately rapid permeability above the bedrock.

This complex has **fair to poor potential** for community development. **The Charlton component has fair potential** for development and the **Hollis has poor potential** for development due to its shallowness to bedrock.

Intensive enhanced conservation measures such as temporary vegetation and siltation basins are frequently needed to prevent excessive runoff, erosion and siltation.

Concerns

The included Paxton and Hollis soils are even less suitable for development:

- Paxton soils have slow permeability in the substratum. A dense lense of Paxton soils within the Charlton soil can cause down slope seeps and affect the structural integrity of proposed service infrastructures and dwellings.
- Hollis soils are limited by their shallowness to bedrock, which is approx. 10 to 20 inches in depth.
- The fine particulates of schist and gneiss associated with these soils stay in suspension for extended periods. This characteristic demands adequately sized temporary and permanent sedimentation basins to assure runoff pretreatment and minimize the potential for transport of solids and turbid water off-site.
- All of the aforementioned non-wetland soils (10-15) are easily suspended and transported by surface runoff. The minimization of land disturbance, avoiding or limiting exposure of steep slopes is important during all phases of construction.

6) USDA Soil #38C - HkC - Hinckley gravelly sandy loam, 8 to 15 percent slopes.

These very deep excessively drained soils formed in sandy and gravelly glacial fluvial deposits derived mainly from granite, gneiss or schist. Typically, Hinckley soils have a gravelly sandy loam or gravelly fine sandy loam surface layer over a stratified gravelly to extremely gravelly loamy sand-to-sand subsoil and substratum. The substratum extends to a depth of 60 inches or more.

7) USDA Soil # 84B - PbB - Paxton fine sandy loam, 3-8 percent slopes.

This PbB map unit consists primarily of Paxton soils that are very deep, well drained soils formed in compact glacial till, derived mainly from gneiss and schist. Typically, they have a friable fine sandy loam or loam surface layer and subsoil over a firm fine sandy loam or sandy loam dense till substratum. Commonly referred to as hardpan.

This soil has **fair potential** for community development. Permeability is moderate in the surface layer and subsoil and slow in the substratum. It is limited mainly by the slowly permeable substratum and the steepness of slopes. **Runoff is rapid. Erosion hazard is severe** and fairly intensive conservation measures are needed to prevent excessive runoff, erosion and siltation during periods of construction,

8) USDA Soil # SOB - SvB - Sutton fine sandy loam, 3 to 8 percent slopes.

These soils are very deep and moderately well-drained. Typically, Sutton soils have fine sandy loam textures to a depth of 60 inches or more. Depths to the seasonally high watertable range from 1.5 to 2.5 feet during the months of November through April. Redoxamorphic features occur within a depth of 24 inches.

This soil has a **fair potential** for community development. Proposed structures with basements require careful design due to the basements being below the depth of the watertable. If not constructed properly, the structures integrity can be compromised. Waste disposal systems, such as on-site septic systems generally will not function satisfactorily with normal design and installation because of the seasonal high watertable. This soil will remain wet and soggy for several days after moderate to heavy rain events.

9) USDA Soil#306 & 308 -Map Unit UD - Udorthent Map Unit

This mapping unit is comprised of cut and borrows areas where the surface layer and subsoil has been modified or removed. In many places, the landscape has been smoothed, and the cut and fill areas occur in a complex pattern. While this soil type is modified, the existing partial subsoil and substratum exhibit attributes linked to the Canton-Charlton **soil type (CfB & CFC)**.

II - Test Pit Data & Borings - None Provided

III – Erosion and Sediment Controls / Measures

The E&S Plan and Narrative should be developed so they can be separated from the overall site plan (which includes the construction drawings.) E&S plans can be integral with the site plans in smaller projects with limited natural resource issues. This unfortunately is not the case with this project. The proposed disturbance of so much highly erodable land in such close proximity to wetlands and waterbodies warrants a more detailed E&S plan.

Note: There was no attempt to minimize land disturbance and work within the physical constraints and limiting attributes of the site. See Section 3-7 - Principles of Site Planning for Erosion and Sediment Control, Plan Development to Fit Environmental Conditions and Keep Land Disturbance to a Minimum from the 2002 CT E&S manual.

Construction Sequence

- The timing of the revegetation of these slopes is critical. These soils are **extremely droughty** and have a severe erosion hazard associated with their disturbance. These soils do not have a deep surface layer that can be stockpiled and readily applied to final grades. Temporary mulching of all disturbed or exposed soils should be implemented.

- Diversions - Temporary diversions should be utilized and located on the drawing to convey runoff to TSB. These measures should be in place prior to grubbing of any site. Locate on field of drawing.

- **Sedimentation Basins** - Temporary sedimentation basins need to be adequately sized for 134 sq/ft of storage for every acre disturbed and detailed on the field of the drawing. Drainage calculations of the subbasins should quantify the sizing of the basins. **Section 5-11-1 of the CT 2002 E&S Guidelines**

Erosion Control Blankets - Slopes 2:1 and steeper with soil characteristics such as this should be stabilized with erosion control blankets or suitable hydro seeding with soil tactifier. The utilization of bioengineering products can provide immediate stabilization of slopes, which also promote quicker germination of seeds to establish vegetative cover. **See section on use and installation of Erosion Control Blankets (ECB) pages 5-4-10 & 11.**

Note: The use of erosion mats will require longer stapling pins to secure into these fine sandy loams.

IV - Stormwater Management

The proposed stormwater infrastructure should provide a higher level of raw water renovation prior to discharge to the wetlands, aquifer and the watercourse. Minimum design criteria should be increased to a 25 year storm event. The proposed stormwater infrastructure utilizes standard catch basins with 2' – 0" sumps conveying runoff to standard manholes with no ability to sequester solids before discharging to vegetated swales. See Sheet 14 of 18 Detail 4 for Typical MH and Sheet 12 of 18 for Typical CB configuration.

- 1) Minimum catch basin design prior to discharge should be designed to have a 4' - 0" minimum sump and hooded outlets. This will increase sediment-trapping capacity and sequester floatables.

Stormwater Enhancement - Swirl separator such as an adequately sized Downstream Defender, Vortech Unit or similar best available technological unit could be used. These units generally are quite costly.

- Optional engineered, dual baffle catch basin with adequate storage capacity can be designed and produced at a quarter of the price of the aforementioned units.

- 2) Stormwater Facility Performance is dependent on maintenance and access.

- Access points are not evident on the field of the drawing.
- Energy dissipater pads introducing untreated runoff into forebays will interfere with the removal of any solids trapped by the forebay.

- 3) The stormwater Infrastructures lack of capacity to sequester solids and floatables brings to light the issue of the systems ability to sequester any hazardous spills from home heating fuels, private and service vehicles, such as fuel trucks.

- Proposed stormwater treatment facilities are too close to these wetlands and headwaters of Eightmile Brook.

Note: These types of facilities only function properly if the regularly scheduled inspection and maintenance procedures are adhered to.

V - Wildlife / Environmental Report - A wetlands evaluation report was provided.

However, a more comprehensive report that investigates aquatic and terrestrial habitats on-site should be conducted qualify and quantify potentially sensitive ecosystems such as vernal pool areas, habitats for endangered plant species or Eastern Box Turtles to name a few.

The proposed project becomes an impediment to any established wildlife migration on and off-site. This sub-basin is virtually unmolested and provides a wide array of habitats for wildlife, amphibians and flora within the wetlands and up-slope communities. For further assessment and evaluation of this site regarding wildlife and their habitats, it is suggested contacting Mr. Peter Picone of CT DEP, Wildlife Division.

VI - Federal & State Administered Programs

A general permit for the discharge of stormwater under the National Pollution Discharge Elimination (NPDES) is required for Commercial and Construction Activities. This permit has three components to it. They are: 1) Registration with DEP, 2) A Stormwater Pollution Prevention Plan (SWPPP), and a Post Construction - 80% Solids Settling requirement. For further information on this program contact Christopher Stone of the CT DEP Permitting Enforcement and Remediation Division at (860) 424-3850.

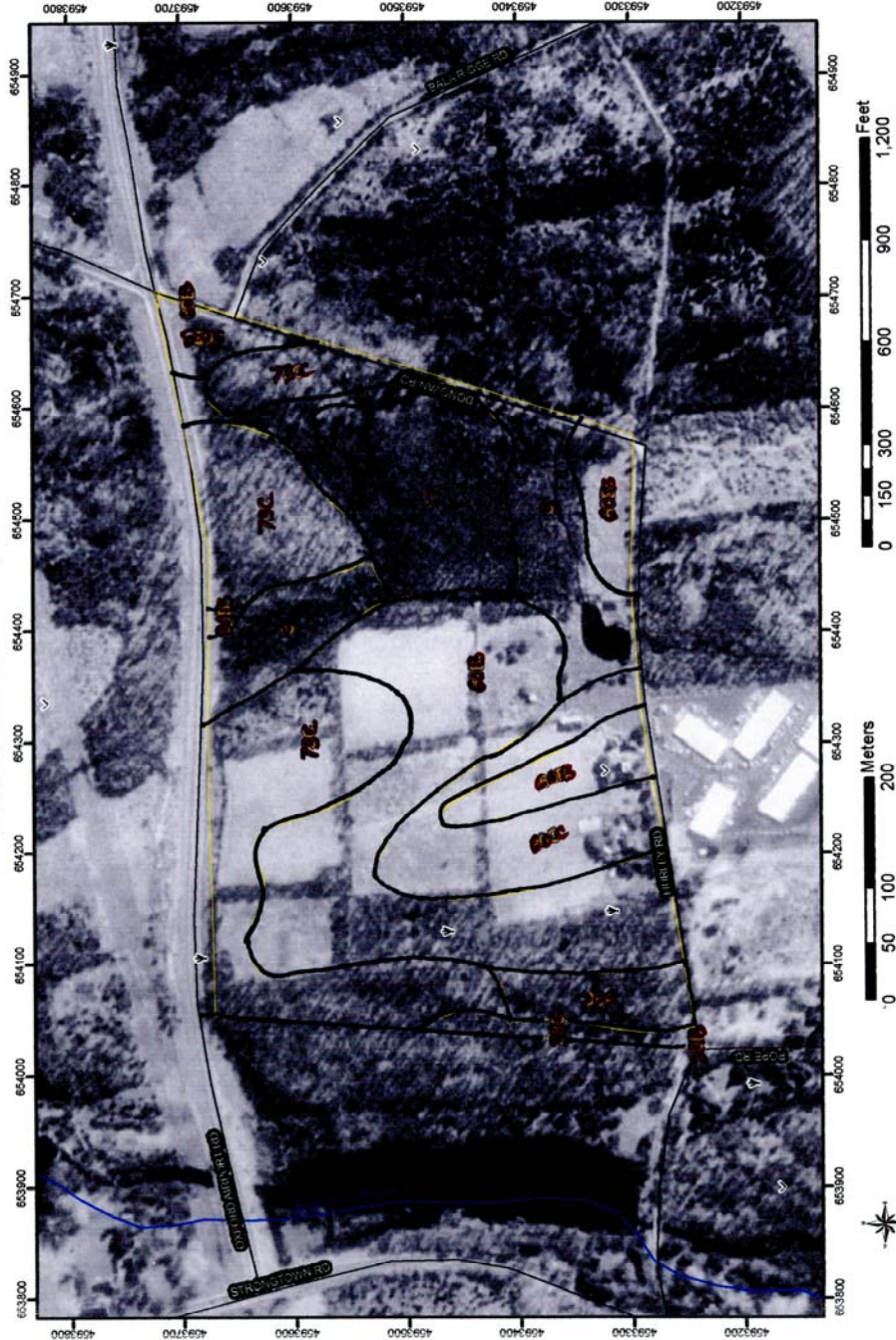
A permit for the filling of over 5,000 sq ft of wetlands and altering the hydrology of a subbasin may be required from the Army Corps. The state permitting process will ascertain these needs and direct the applicant to the appropriate agency or division.

This parcel's industrial/commercial location, soil characteristics coupled with its close proximity to a significant wetlands and Eightmile Brook should weigh heavily in whether this parcel's proposed residential use deviates from the Conservation Plan of Development and sound watershed planning. The higher non-point source threat to sensitive habitats and down stream environments should also be a major factor in this decision making process.

EXHIBIT #1

SOIL SURVEY OF STATE OF CONNECTICUT

Proposed Oxford Commons Project



8/17/2006
Page 1 of 3

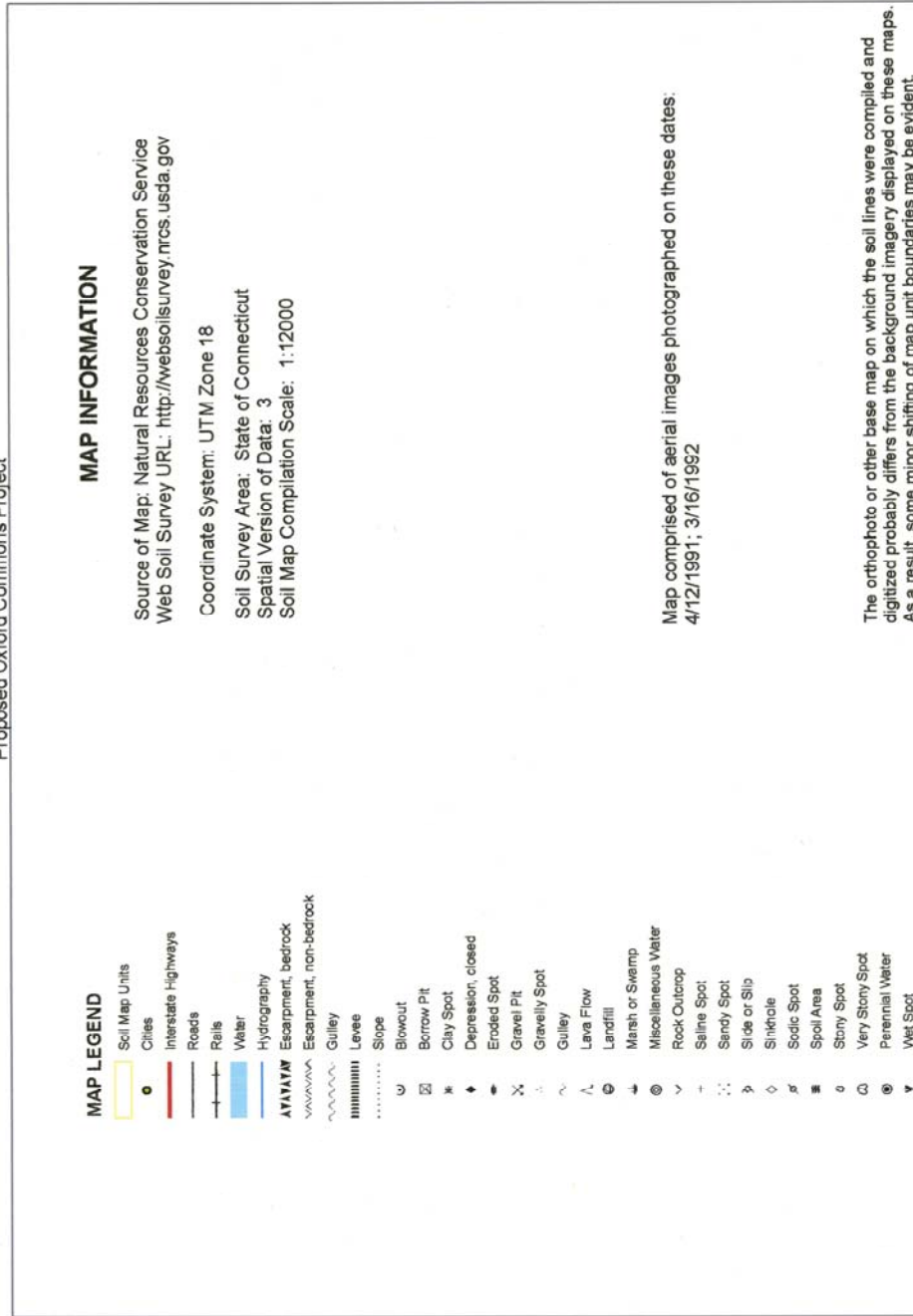
Web Soil Survey 1.1
National Cooperative Soil Survey



Soil Survey Legend

SOIL SURVEY OF STATE OF CONNECTICUT

Proposed Oxford Commons Project



Map Unit Legend Summary

Soil Survey of State of Connecticut

Proposed Oxford Commons Project

Map Unit Legend Summary

State of Connecticut

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, extremely stony	8.7	14.7
17 <i>aka AA</i>	Timakwa and Natchaug soils	6.1	10.4
29B	Agawam fine sandy loam, 3 to 8 percent slopes	0.0	0.0
38C	Hinckley gravelly sandy loam, 3 to 15 percent slopes	0.9	1.5
50B	Sutton fine sandy loam, 3 to 8 percent slopes	1.2	2.1
60B	Canton and Charlton soils, 3 to 8 percent slopes	19.1	32.3
60C	Canton and Charlton soils, 8 to 15 percent slopes	7.7	13.0
73C	Charlton-Chatfield complex, 3 to 15 percent slopes, very rocky	15.3	25.8
84B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes	0.1	0.2

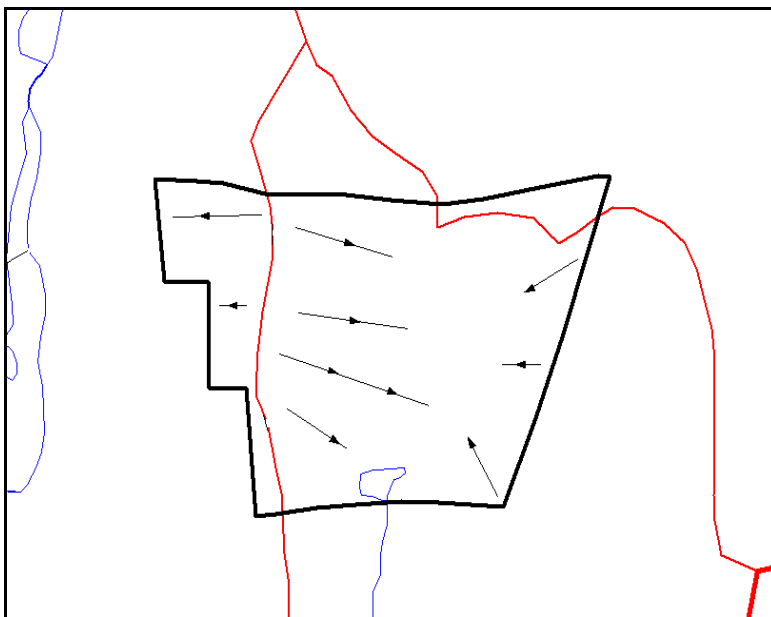
Wetland Review

Background

The proposed project is located north of Hurley Road, west of Donovan Road, and south of Oxford Airport Road. There is private property to the west. The site is 40.79 acres in size. There are 13.59 acres of wetlands and watercourses or almost exactly one third of the parcel.

The wetlands are located in two areas on the property. The dominant wetland area in the eastern-central portion contains 13.41 acres. It is the wetland into which 83 percent of the parcel drains. The smaller wetland along Donovan Road is .18 acres in size and drains intermittently into this larger wetland.

The upland review area designated by the town is 100 feet; however the Team received engineering drawings depicting a review area of 50 feet and approximately 2.388 acres of non-wetland area within the 50 feet of the wetlands boundary will be disturbed. It is not known how much acreage of non-wetland disturbance will be within the 100 foot buffer. The proposal calls for the elimination of the .18 acre wetland.



In this graphic the approximate outline of the parcel is in black and the drainage divides are in red. 83% of the area drains into the main wetland that dominates the parcel, which then feeds the pond along Hurley Road and flows south about one mile to the Eight-mile River. The other 17% drains west, more directly into the Eightmile River.

The highest elevations on the site are as follows: along the east border the high point is ~605 feet above sea level. The drainage divide that runs through the western sixth of the parcel peaks at ~625 feet above sea level. The direction of runoff from the high points to the large wetland is depicted above.



These two photographs depict the parcel in 1990 (Top) and 1934. Many of the fields that are overgrowing today were in many ways unchanged for those 56 years. The pond by the road is now larger and an open water pond seen in 1934 in the midst of the large wetland has now been forested over. In addition, the configuration of the buildings (the barnyard) along Hurley Road has changed.

On the ERT visit to the site the walk-through observation of the wetlands revealed a system that appears to be in good health. A diversity of Obligate and Facultative species was present throughout. Each of the herb layer, the shrub layer and the tree layer was diverse and productive. There were no indications of over-browsing and there were very few invasive plants noted.

Watershed: The stream that leaves the pond (which has its headwaters as the large wetland on the parcel) is not named on the USGS Topographic map for this area. So for the purposes of this report it will be referred to it as Pope Road Brook.

Pope Road Brook drains 242.4 acres and flows directly into the Eightmile River three tenths of a mile due north of the intersection of Hawleyville Road and State Route 67.

Within this watershed this parcel covers ~33.4 acres, or about one seventh of the total. The DEP maps the water quality of the Brook as level “A”. This is on a rating scale of “AA” being the best, “A” being next, then “B”, “C”, and finally “D”. The further into the alphabet the letter is, the more degraded the water quality. The full text of the DEP’s *Water Quality Standards and Criteria* can be found on the web at: <http://www.dep.state.ct.us/wtr/wq/wqs.pdf>

Concerns

Elimination of Small Wetland

The elimination of the small wetland in the northeast corner of the parcel is an unacceptable part of the proposal. The makeup of this wetland is such that it most likely has a vernal aspect to it in that it is wet in the spring to the point of issuing runoff at peak flow times. It likely then settles into an infiltration mode. At the time of the ERT visit there was no standing water, though the highly organic bottom was damp. The wetland is totally shaded, so direct evaporation is not an issue. Thus, its short hydroperiod and potentially shallow depth probably limit it as a breeding pool.

But regardless of its breeding pool status, it is not typical that a ~one fifth acre wetland is removed from the landscape, especially when no compensatory wetlands are being created. Certainly it is feasible to plan a road entrance opposite Bala Ridge Road in the northeast corner that would access three or four re-drawn lots.



Here the .18 acre wetland is seen to have a bottom of organic material. The absence of larger tree and shrub growth that is typical of the surrounding area attests to the fact the bottom is a wet moisture regime.

Storm Water Ponds Maintenance and Access

Wetlands at the headwaters of the watershed are, in large measure, responsible for providing clean water downstream. Thus, maintaining the integrity of the water quality of the water that leaves the site is imperative to downstream ecology. In that regard it is imperative that storm water be handled well. While the storm water design is commented on other sections of this report, stabilized access for heavy equipment needs to be provided to maintain the efficiency of the sediment basins. By their nature they will collect sediments making them increasingly less effective with the passing of time. A regular schedule of maintenance should be submitted to the town in plan form and subsequent access for that maintenance should be built into the proposal.

Buffer

The extension of the upland review area from 50 to 100 feet will necessitate a revamping of much of the plan as presented to the Team. As mentioned above, the location of this site being at the top of the watershed puts it in a position to highly impact the downstream waters. Vegetated buffers have a great capacity to filter runoff. The increased buffer will work towards that end. The eastern edges of the main development will double its buffer area from about 1.5 total acres to a little over three acres total. (The wetland boundary is approximately/ \pm 1,360 feet in length x 50 feet width = 1.56 acres; doubling the buffer to 100 feet yields 3.1 acres.) This will be especially helpful with the densities proposed and the resulting high per cent of impervious surface.

Clean the Pond

Part of any project on this property should include a renovation of the open water pond and its immediate environs along Hurley Road. The water quality appears good with no major invasive growth, no algae blooms, healthy growth of duck weed (*Lemna* sp.), lily pads, sunfish, tussock sedge, trees, alders (*Alnus* sp.) and shrub species. It is clear though that large debris is present at the pond surface and likely below the surface.



In addition, in the picture below taken in April, 2000 it appears there was activity near the southeast shoreline of the pond. The possibility exists that if much debris was left in the pond, other debris may have been left on site as well.



In addition to the surface debris, there were questions posed about the subsoil conditions. The Team was told that several automobiles were hauled off the site and buildings were razed in preparation for this project. That information in combination with the aerial photograph above showing at least three autos side by side at the northwest corner of the large barn could raise questions. (The three vehicles are parked rather tightly together - more for storage than use? - and appear to be on an unpaved surface increasing the possibility of infiltration of leaks, spills, etc.) The lack of best management practices in the past allowed farmers to dump old oil, gasoline and solvents 'out behind the barn'. This practice set the future land owners up for the responsibility of removing underground petroleum product. The town will have to make a judgment whether or not there is a potential worth further investigation. Any petroleum product infiltrating into the soil has a good chance of continuing into the groundwater and being released into surface water bodies (ponds, rivers, etc.) The travel time

of pollutants through soil can vary depending on the make-up of the soil. Everything flows more quickly through loose, sandy soil versus denser, clayey soils. Thus, because of the position of the parcel at the headwaters of the watershed, it is important to keep both the stormwater from transporting sediments and pollution to surface water bodies, and equally important to maintain and or renovate the subsurface water quality as well.

Stormwater Management Review

Since the site construction involves the disturbance of over five acres, Connecticut's General Permit for the Discharge of Stormwater and Dewatering Wastewaters (the "Permit") will cover the project. The permit requires that the site register with the Department of Environmental Protection (CTDEP) at least 30 days before the start of construction. The registrant must also prepare, submit and keep on site during the construction project a Stormwater Pollution Control Plan (the "Plan"). The Plan must be followed and updated as needed during the course of construction. For example, if the single row of silt fence along the ponds and wetlands is inadequate then the erosion controls should be re-evaluated and updated to prevent pollutants from discharging off site.

Please note that while this review is based primarily on the State Permit, many of the erosion and sedimentation issues are included in the Connecticut Guidelines for Soil Erosion and Sediment Control (the "guidelines"), and are issues that must be dealt with on a local level before being included in the Plan. Silt fence installation must comply with the guidelines, and may be used only in drainage areas of one acre or less.

The Plan must include a site map as described in Section 6(b)(6)(A) of the General Permit and a copy of the erosion and sedimentation (E & S) control plan for the site. The E & S plan that has been approved by the Town in conjunction with the CTDEP Inland Water Resources Division (IWRD) and the local Conservation District may be included in the Plan. This plan and site map must include specifics on controls and limits of disturbance that will be used during each phase of construction. Specific site maps and controls must be described in the Plan, as well as construction details for each control used. Wherever possible, the site shall be phased to avoid the disturbance of over five acres at one time. The permit requires that "the plan shall ensure and demonstrate compliance with" the guidelines.

This project has numerous wetland areas (both on-site and in close proximity off-site) to be protected and it appears that most of the runoff is discharging into the wetlands on site,

which will make ongoing inspections, and adjustments of controls a critical aspect of this project. The permit (Section 6(b)(6)(D)) requires inspections of all areas at least once every seven calendar days and after every storm of 0.1 inches or greater. The plan must also allow for the inspector to require additional control measures if the inspection finds them necessary, and should note the qualifications of personnel doing the inspections.

In addition, the plan must include monthly inspections of stabilized areas for at least three months following stabilization. There must be someone available to design and adjust E&S controls for changing site conditions, which has the authority and resources to ensure that such necessary changes are implemented. Due to the size of the project and the variability and complexity of controls potentially needed, a full time erosion and sediment control inspector, approved by the Department, will be required by the Department during construction.

The permit (Section 6(C)(i)) requires when construction activities have permanently ceased or been temporarily suspended for more than seven days or when final grades are reached at any portion of the site, stabilization must occur within three days.

Structural practices including sedimentation basins are required for any discharge point that serves an area greater than 5 disturbed acres at one time. The basin must be designed in accordance with the guidelines and provide a minimum of 134 cubic yards of water storage per acre drained. A large vegetative buffer should be left between the home sites and the wetlands. Maintenance of all structural controls shall be performed in accordance with guidelines and the Plan must identify these practices.

The permit (Section 6(b)(6)(C)(iii)) requires that the plan include a design for post-construction stormwater treatment of 80% of total suspended solids from the completed site. In order to comply with this requirement, the Department recommends incorporating swirl concentrator technology, which at this time has not been proposed.

For construction activities which result in the disturbance of ten or more acres of land area at one time, the Plan shall be submitted to the commissioner no later than thirty days before the initiation of construction activities.

Other Issues

The previous land use should be investigated to determine if the area was used as a dump, junkyard and/or farm. A review of past aerial photographs would be helpful. Pesticides and/or insecticides may have been used during farming and a former junkyard could have had oil or gasoline spillage. Therefore, a Phase II site assessment may be warranted. Additionally, the on-site pond had old pipes and tires sticking out of it which may be indicative of prior land use.

There is a concern if the onsite pond is to be used for stormwater treatment during and post construction. At the time of this reviewer's site visit the pond was at surface level and it hadn't rained in several days. This reviewer is apprehensive that the site and location of the pond would not be adequate to handle additional runoff from the site.

In areas with a seasonally high water table and poorly drained soil placement of sedimentation and erosion controls must be considered prudently.

Archaeological and Historical Review

The project boundaries appear of moderate to high sensitivity for prehistoric and historic archaeological resources. The State Historic Preservation Office (SHPO) and the Office of State Archaeology (OSA) recommend that a reconnaissance survey be undertaken in order to provide the Oxford Conservation Commission/Inland Wetlands Agency with pertinent information regarding the identification and location of archaeologically sensitive areas within the proposed residential mobile manufactured housing community vis-à-vis town and decision-making. All archaeological studies should be undertaken pursuant to SHPO's *Environmental Review Primer for Connecticut's Archaeological Resources*. SHPO and OSA look forward to providing further technical guidance to the Town of Oxford concerning professional management of Connecticut's archaeological heritage.

The Natural Diversity Data Base

The Natural Diversity Data Base maps and files for the project site have been reviewed. According to our information, there are no known extant populations of Federal or State Endangered, Threatened or Special Concern Species at the site in question.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Environmental and Geographic Information Center's Geological and Natural History Survey and cooperating units of DEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substituted for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

Please be advised that this is a preliminary review and not a final determination. A more detailed review may be conducted as part of any subsequent environmental permit applications submitted to DEP for the proposed site.

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 and 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 - an 83 town area serving western Connecticut.

As a public service activity, the Team is available to serve towns 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 in the review of sites proposed for major land use activities or natural resource inventories for critical areas. 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 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 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 Conservation District and through 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 the purposes of a review and a statement identifying the specific areas of concern the Team members should investigate. When this request is reviewed by the local Conservation District and approved by the King's Mark RC&D Executive Council, the Team will undertake the review. At present, the ERT can undertake approximately two reviews per month depending on scheduling and Team member availability.

For additional information regarding the Environmental Review Team, please contact the King's Mark ERT Coordinator, Connecticut Environmental Review Team, P.O. Box 70, Haddam, CT 06438. The telephone number is 860-345-3977