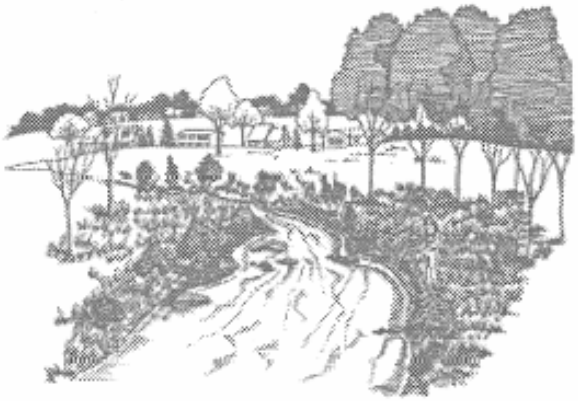
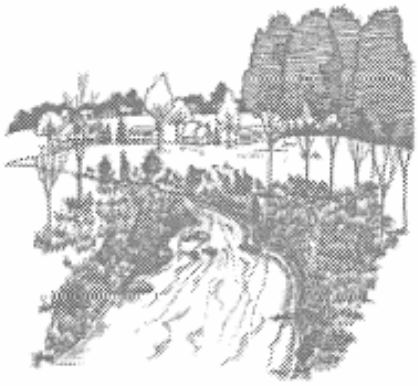
Highland Estates
Section 2

Southbury, Connecticut



King's Mark Environmental Review Team Report

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



Highland Estates - Section 2

Southbury, 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
Inland Wetlands Commission
Southbury, Connecticut

June 2004

CT Environmental Review Teams
1066 Saybrook Road, P.O. Box 70
Haddam, CT 06442
(860) 345-3977

Acknowledgments

This report is an outgrowth of a request from the Southbury Inland Wetlands Commission to the Northwest Conservation District (NWCD). The NWCD referred this request to the King's Mark Resource Conservation and Development Area (RC&D) Executive Council 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, Wednesday, April 21, 2004.

Nicholas Bellantoni	State Archaeologist UCONN-CT State Museum of Natural History (860) 486-5248
Michael Flood	Regional Planner Council of Governments Central Naugatuck Valley (203) 757-0535
Sean Hayden	Resource Conservationist Certified Soil Scientist, Certified Wetlands Soil Delineator, and Certified Professional in Erosion and Sediment Control Northwest Conservation District (860) 626-7222
Kenneth Metzler	Ecologist/Environmental Analyst III DEP - Natural Resources Center (860) 424-3585
Donald Mysling	Senior Fisheries Biologist DEP - Inland Fisheries Division Habitat Conservation and Management Program (860) 567-8998
Matthew Pawlik	Sanitary Engineer II DOH - Environmental Engineering Section (860) 509-7296
David Poirier	Archaeologist CT Historical Commission (860) 566-3005

Donna Seresin	Stormwater Permit Engineer DEP - Stormwater Section (860) 424-3267
Randolph Steinen	Emeritus Professor UCONN - Department of Geology and Geophysics (860) 486-4435

I would also like to thank Deborah Seavey, inland wetland enforcement officer, John Longstreth and Bill Spencer, inland wetland commission members, Stan Esposito, applicant's representative, Curtis Titus, attorney for the applicant, Curt Smith and Mark Rieferhause, Smith & Co., engineers, George Logan and Jim McManus, environmental consultants 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 and after Team members were given plans, reports and related documents. Some Team members made follow-up visits to the site, while others conducted a plan review only. 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/applicant. 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 the proposed subdivision.

If you require additional information please contact:

Elaine Sych, ERT Coordinator
CT ERT Program
P. O. Box 70
Haddam, CT 06438
(860) 345-3977

Table of Contents

Figures

Tables

Introduction

Introduction

The Southbury Inland Wetlands Commission has requested Environmental Review Team (ERT) assistance in reviewing an application for a proposed residential subdivision.

The 145.91 acre stie is located between Bucks Hill Road and Stongtown Road (Route 188) and bounded on the north by I-84 near Interchange 16. The site is wooded and contains a brook, wetlands and some steep slopes and bedrock outcrops. Thirty lots are proposed with on-site wells and sewage disposal systems. Access will be provided by extending Vista View Drive (which is currently being constructed) to Bucks Hill Road. Two bridges are proposed to cross over two separate wetland areas, one direct road crossing of wetlands, associated drainage outlets and one common driveway will result in the loss of approximately 4572 square feet of wetland area. Five parcels of open space are proposed for a total of 42.1 acres.

Objectives of the ERT Study

The Southbury Inland Wetlands Commission has requested that the ERT Team assist them by examining the impact on natural resources associated with the development of the property. Specific concerns include: soils, topography, wetlands, hydrology, stormwater management, wildlife habitat, sewage disposal, open space, site design, and traffic and access.

The ERT Process

Through the efforts of the Southbury Inland Wetlands Commission this environmental review and report was prepared for the Town of Southbury.

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 on Wednesday, April 21, 2004. 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.

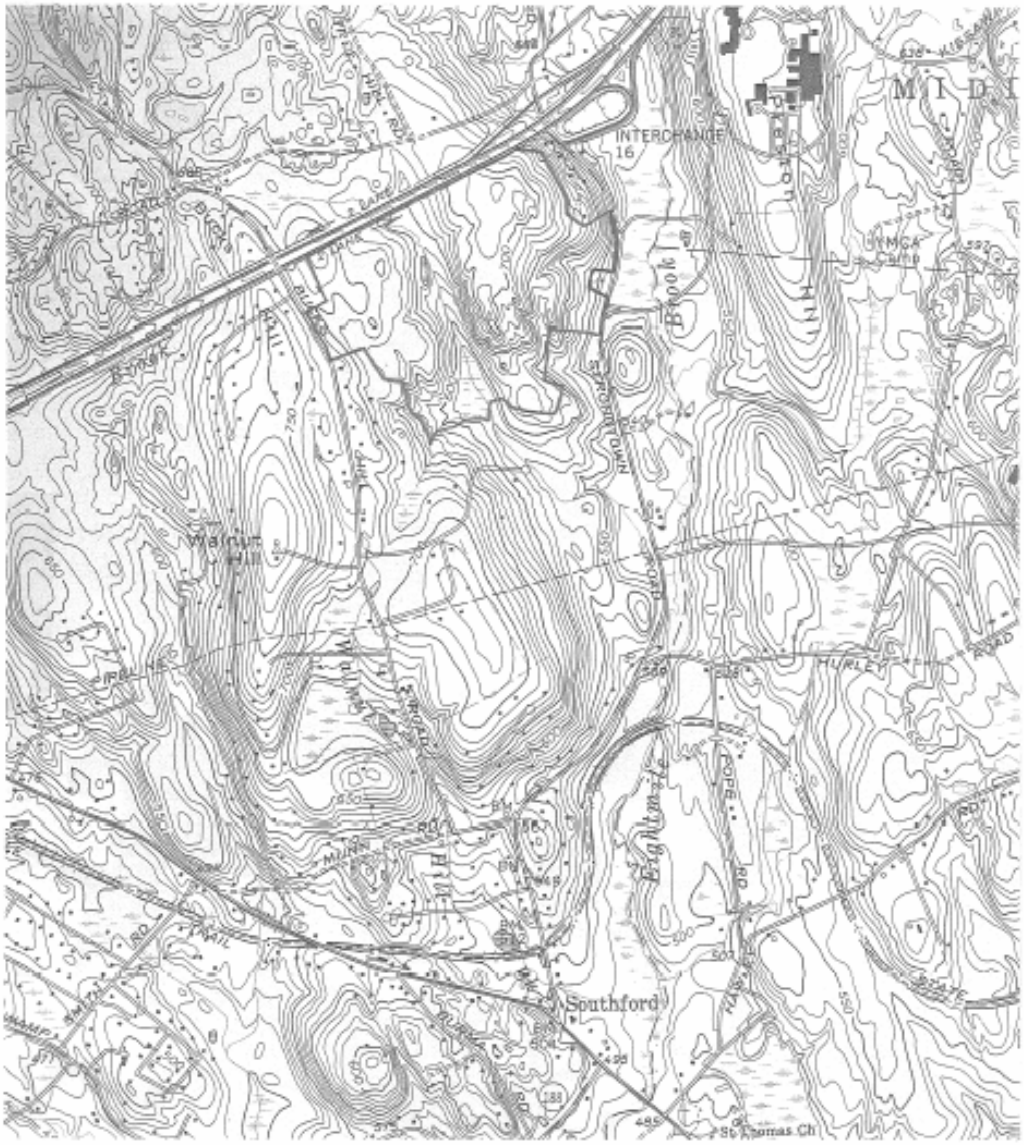
Once Team members had assimilated an adequate data base, they were able to analyze and interpret their findings. Individual Team members then prepared and submitted their reports to the ERT coordinator for compilation into this final ERT report.

Figure 1

⇑
N

Topographic/Location Map

Scale 1″ = 2000′



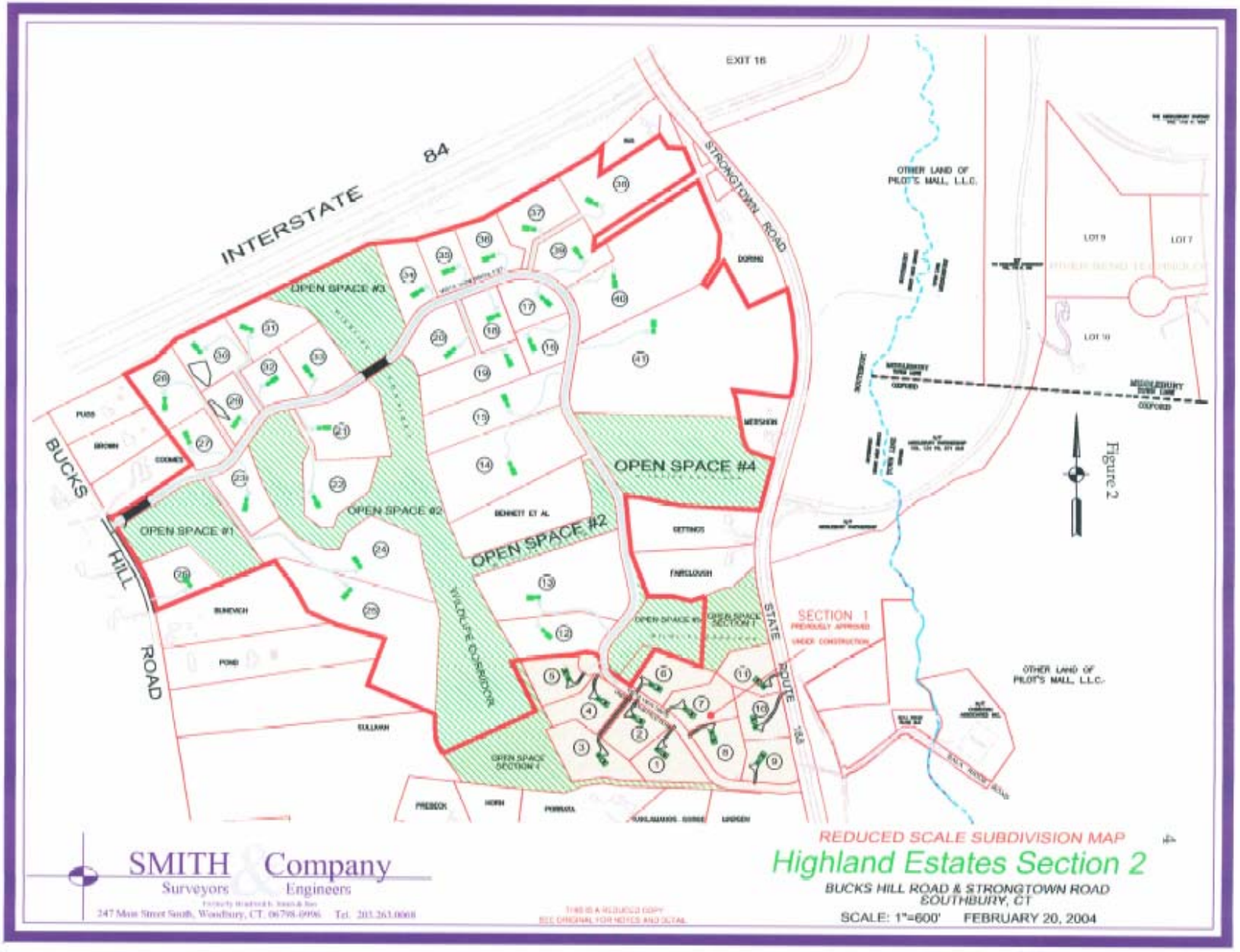
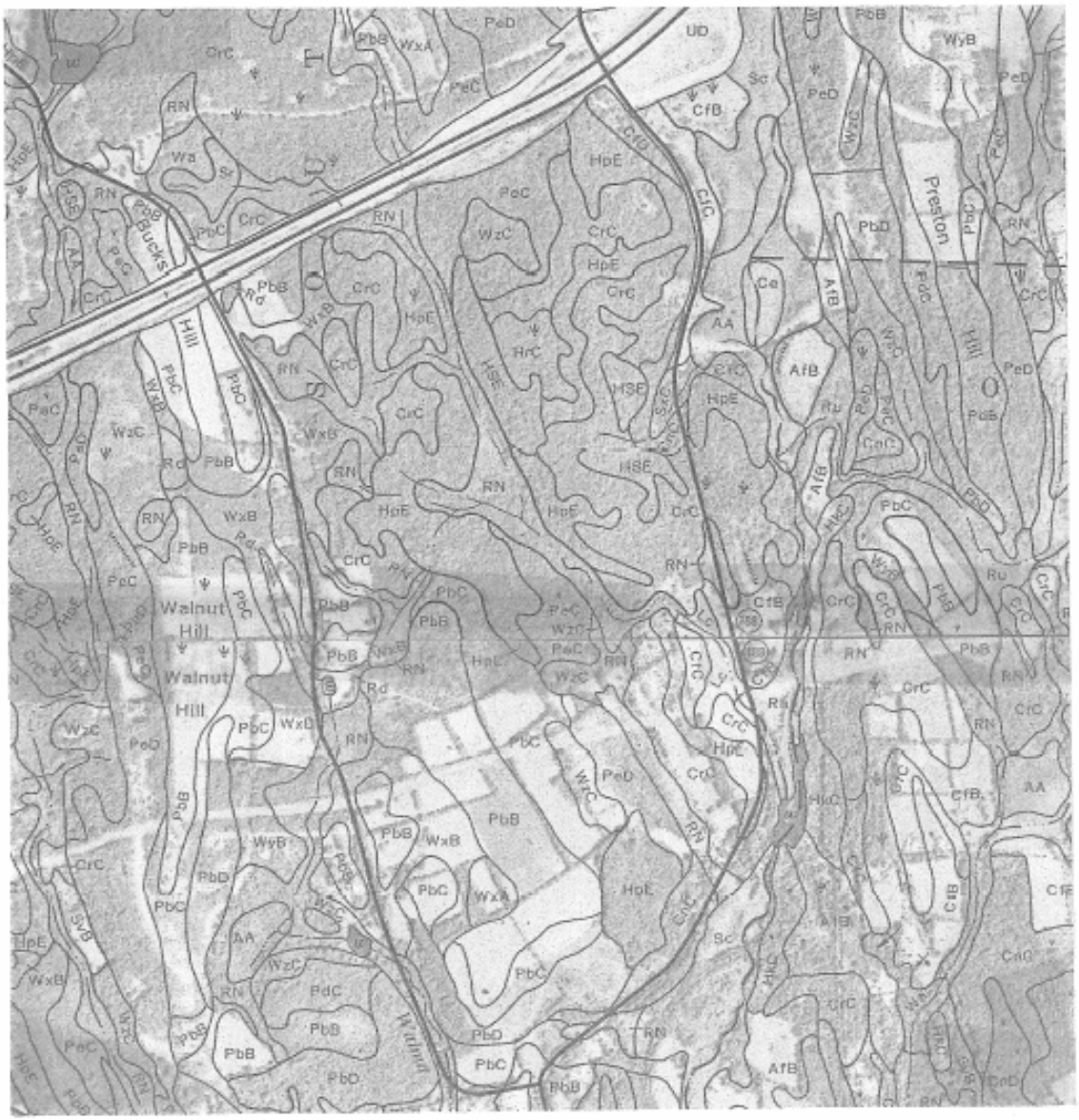

INTERSTATE 84
EXIT 16
STRONGTOWN ROAD
BUCKS HILL ROAD
OPEN SPACE #1
OPEN SPACE #2
OPEN SPACE #3
OPEN SPACE #4
WILDLIFE CORRIDOR
STATE ROUTE 64
SECTION 1
PREVIOUSLY APPROVED
UNDER CONSTRUCTION
OTHER LAND OF PILOT'S MALL, L.L.C.
LOT 9
LOT 7
LOT 10
Figure 2
SMITH & Company
Surveyors Engineers
247 Main Street South, Woodbury, CT. 06798-0996 Tel. 203.263.0068
REDUCED SCALE SUBDIVISION MAP
Highland Estates Section 2
BUCKS HILL ROAD & STRONGTOWN ROAD
SOUTHBURY, CT
SCALE: 1"=600' FEBRUARY 20, 2004

Figure 3

Soils Map

Scale 1" = 1320'



Topography and Geology

The topography of Highland Estates development in Southbury consists of relatively gentle sloping uplands cut by a small brook in a rather steep-sided valley; the uplands fall off steeply to the west into a larger stream with similar valley walls. The parcel is characterized (by the applicant's consultants) as containing some rugged topography (18% of area) with slopes greater than 25% (14°). Most of the steep slopes contain bedrock exposures; some of the bedrock exposures form cliffs. There is a strong north-northwest/south-southeast grain to the topography.

Bedrock in the area consists of layered granofels composed of quartz, plagioclase feldspar, biotite and muscovite mica. It is referred to as the Hartland Formation by Scott (1973) and Taine Mountain Formation by Rodgers (1985), of Ordovician age. Foliation of the rock forms compositional banding or lamination and dips toward the northeast. Hence, the rock is older toward the west. Rodgers map distinguishes a basal member (oldest) of the Taine Formation: it's upper contact with the rest of the formation is located in the steep-sided stream valley on the parcel (Scott mapped this as "the laminated member" of the Hartland Formation). Field inspection indicated that the basal member was rusty weathering, probably due to included iron sulfide minerals. Scott mapped pods of kyanite-bearing rusty weathering schist within the Hartland Formation.

The rocks display a well developed Northwest/Southeast, high-angle fracture set that has 1-2 meter spacing. It is intersected by a poorly developed foliation-parallel fracture set. These fractures should allow for the infiltration and rather even distribution of ground-water over the entire parcel. Springs,

probably seasonal, were noted at the base of one of the steep-sided valley walls where fractures were particularly prominent.

During more recent geologic history (Pleistocene) the area was covered one or more times by thick masses of glacial ice that expanded southward from high northern latitudes. The ice slowly moved toward the south-southeast and eroded the land as it did. Numerous elongate, streamlined-hills can be found surrounding the Highland Estates parcel with pronounced NNW/SSE orientation to their long axis. The long axis of the streamlined hills is presumed to parallel the direction of glacier movement. The debris eroded by the moving glacier was ground-up under the weight of the glacier and deposited under the glacier when it started melting at the end of the last Ice Age. The debris left by the glacier is called till. In general till is non-sorted debris (i.e. composed of a spectrum of sizes of material ranging from clay to boulders) and in this area the till is light olive gray and friable or olive-brown and compact (Pessel, 1975). Till is thin or absent on the parcel.

Geologic Concerns

There are two geologic concerns in the proposed development. First is the thin till (translate = thin soil). Much construction will require blasting rather than grading and possibly the importation of large quantities of fill.

The second geologic concern is the rusty weathering rocks. Rusty weathering is usually caused by the presence of iron-sulfide minerals such as pyrite (FeS_2). When fresh, non-weathered sulfide bearing rocks are exposed at the surface, such as by being broken up by blasting and being used as fill, they will not be rusty inside. The sulfide minerals oxidize in the weathering environment. Iron combines with O_2 (or OH ions) to form rust (Fe_20_3). When the sulfur is weathered it is oxidized and combines with water to form sulfuric acid (H_2SO_4). The rust precipitates, staining the rock (i.e. rusty weathering) but the

sulfuric acid is released to the environment and will result in more acidic ground water, stream water, and swamp water. The rusty weathering rocks on the parcel do not contain a large percent of sulfide minerals. Nonetheless, if sulfide bearing rocks are excavated by blasting, care must be taken in the placement of broken-up rocks so that acid waters do not seep into acid sensitive environments.

References

Pessel, Fred, Jr., 1975, Surficial geologic map of the Southbury Quadrangle. Connecticut.U.S. Geol. Surv. Open File Rpt. 75-172.

Rodgers, John, 1985, Bedrock Geologic Map of Connecticut. Connecticut Geol. And Nat. Hist. Survey, Atlas Series: Bedrock Geologic Map

Scott, R.B., 1973, Bedrock Geology of the Southbury Quadrangle, Connecticut. CT Geol. and Nat. Hist Surv. Quad. Rpt. #30.

Figure 4

⇑

Bedrock Geology

Ot - Taines Fm (Rodgers '85)
K: Kyanite bearing (Scott '73)

Otb - Basal member, Taines Fm.

Northwest Conservation District Review

The Northwest Conservation District (NCD) appreciates this opportunity to comment on the wetland and environmental issues associated with the development of Highland Estates Section II. Given the large scope of this proposal there appears to be relatively few direct wetland impacts. These will be briefly discussed, as well as some indirect impacts that can be easily mitigated.

Crossing the upper wetlands on site with bridge spans will go a long way toward minimizing impacts to what appears to be valuable functioning wetlands. First discussed is the bridge that spans the wetland connecting Open Space Parcel #2 and #3. The road sloping down to the wetland from the east has an adequate detention basin (Detention Basin # 3), paired with a plunge pool, filter berm and bio-filter. These structures will greatly improve the water quality of the road runoff entering the wetland. However, storm water runoff from the road sloping in from the west does not have the same measures to renovate the quality of water entering the wetland. It is understood that the west-side storm sewer outlet services half the road length that the east site does. However, there is an opportunity to divert some of the road runoff into a sediment control structure and then it could be allowed to feed the wetlands on lot #21. Accomplishing this would minimize the pressure on the energy dissipater located on the east end of the bridge and keep an intermittent supply of water to the wetland to keep it viable. If this is accomplished the energy dissipater at the east end of the bridge will be adequate to handle the runoff from the short stretch of road between the wetland on lot #21 and the bride (including the bridge span).

The following lot numbers have wetland and wetland setback areas within 80 feet of the proposed house Lot #22, 23, 24, 26, 31 and 34. The reason these lots are identified is to inform the wetland commission that the new homeowners will most likely want to create lawns, sheds, pools and extra yard space, horse barns

and paddocks well beyond the developers "limit of construction." The new property owners may want to clear and/or construct well into the wetland setback buffers and in some cases into the wetlands. Consider requiring the applicant or developer to permanently delineate the wetland line with its associated setback by using the following methods. (1) Place permanent markers or monuments in the field (2) Draft the delineation lines onto the tax parcel maps submitted to the town for permanent record (3) Require that a map be included with an explanation of what needs to happen if the new land owner decides to perform an activity beyond the delineation (4) Require that each real-estate disclosure have the above information included when the property is placed on the market and (5) If possible include the wetland boundary in the parcel's deed These actions will save the wetland commission many future headaches, because it will minimize re-occurring wetland application and wetland violations within the development.

Lot #14 has a 200 foot long section of driveway that will be cut into the topography. An additional 300 feet of driveway will be feeding stormwater down to the driveway cut from above. However there is no stormwater transport measure for the entire driveway. During construction, this cut will collect and concentrate stormwater flow and shoot water and suspended sediments out onto the Vista View Drive Extension. There should be a stormwater control measure designed along the driveway corridor with an associated energy dissipater at the outlet, or possibly it could be tied into the Detention Basin #2 network. Some of the stormwater that collects on the upper portion of the driveway could be channeled into the reverse slope bench associated with road cut bank. To a lesser degree lot #41 is a similar situation.

This reviewer believes the stormwater treatment train proposed for Detention Basins #1, #2 and #3 will be very effective at renovating the quality of stormwater runoff. If this has not been accomplished already please consider having the applicant illustrate a typical detail of a detention basins with proposed

vegetation plantings. This would include the species sizes, numbers and locations. It is realized that there is a "Wet Mix" proposed at the end of the stormwater treatment stream, which is appropriate. However, consider having the applicant detail how the reset of the stormwater treatment train will be vegetated.

Given the scope of the project the Southbury Land Use Department may consider assigning a certified professional in erosion and sediment control to inspect the site bi-weekly during the construction season. The cost of the inspector should be passed through to the developer or applicant.

The Southbury Land Use Commission should consider requiring the applicant to superimpose a soil classification map somewhere within the design sheet package. If the applicant needs the digitized soil data set, have them contact the Northwest Conservation District. One possibility is to place the soil classification polygons on design sheets SE-1 through SE-4. Soils information is extremely valuable when deciding the intensity of erosion and sediment control measure placement in specific areas of the project. Soils information clearly details soil capabilities, limitations and potential for erosion when a construction activity is proposed in a specific area.

Stormwater Permitting

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").

Due to the size and potential impacts on natural resources of this project, the Department has recommended to the developer that the pollution control plan be submitted 180 days prior to the start construction. If the Department finds that the Plan is inadequate, Connecticut General Statutes Section 22a-430b and general permit Section 7(c) allow the Commissioner to require an individual permit, a process that could delay approval of the project for several months. In order to prevent this and to ensure adequate review time, the Department has requested early submittal of the plan.

Please note that while this review is based primarily on the state Permit, many of the erosion 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. It should also be noted that the permit requires compliance with the guidelines. The developer must register for the permit, and the contractor and any subcontractors involved in grading must sign the contractor certification statement in the permit. Any registration submitted by anyone other than the developer will be rejected.

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 is approved by the Town may be included in the Plan. This plan and site map must include specifics on controls that will be used during each phase of construction. Specific site maps and controls must be described in the Plan, as well construction details for each control used. The permit requires that "the plan shall ensure and demonstrate compliance with" the guidelines.

Due to the large amount of soil disturbance, one of the best ways to minimize erosion potential is to phase construction in order to minimize unstable areas. The Plan must be flexible to account for adjustment of controls as necessary to meet field conditions. At a minimum, the plan must include interior controls appropriate to different phases of construction.

This project has severe slopes, a large amount of wetlands, poorly drained soils, and sensitive surface waters that must be protected, which will make weekly inspections and modifications to erosion controls an important part of this project. The permit (Section 6(b)(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 and the end of construction. Due to the scope and potential wetland and stream impacts of this project, there must be someone available to design and adjust E&S controls for changing site conditions, who has the authority and resources to ensure that such necessary changes are implemented.

Since there are six drainage areas each one must be evaluated to determine which structural practice will be required. 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. At a minimum, for discharge points that serve an area with between 2 and 5 disturbed acres at one time, a sediment basin, sediment trap, or other control as may be defined in the guidelines for such drainage area, designed in accordance with the guidelines, shall be designed and installed. All sediment traps or basins shall provide a minimum of 134 cubic yards of water storage per acre drained and shall be maintained until final stabilization of the contributing area. Outlet structures from sedimentation basins shall not encroach upon a wetland. The commissioner must approve any exceptions in writing. Silt fence installation must comply with the guidelines, and may be used only in drainage areas of one acre or less. Maintenance of all structural practices shall be performed in accordance with the guidelines, provided that if additional maintenance is required to protect the waters of the state from pollution, the Plan shall include a description of the procedures to maintain in good and effective operating conditions.

Section 6(b)(6)((C)(ii) of the permit requires the plan to address dewatering wastewaters that this site may generate. A description of the operational and structural practices which will be used to ensure that all dewatering wastewaters will not cause scouring or erosion or contain suspended solids in amounts which could reasonably be expected to cause pollution of waters of the State. Dewatering wastewaters shall be discharged in a manner, which minimizes the discoloration of the receiving waters.

Particular attention must be paid to the areas during construction that will drain towards Eight Mile Brook and any intermittent watercourses. Specific details for construction control during installation of all wetland crossings must be provided.

Post-construction Stormwater Treatment

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. Although swirl concentrators are effective at removing sediment, they require a long-term maintenance commitment from the town or a homeowners association greater than that required for a basin once it is fully grown-in and stabilized. If an in-ground, "black-box" solution is used, swirl concentrator technology is a minimum requirement. Some newer generation swirl concentrators also incorporate filtration systems to address other pollutant issues, but these also require long-term maintenance plans.

Erosion and Sediment Control Notes

General permit stabilization requirements include the following: "where construction activities have permanently ceased or have temporarily been suspended for more than seven days or where final grades are reached in any portion of the site, stabilization practices shall be implemented within three days." Stabilization of cuts and fills will be critical during construction of this project.

Other Issues

It is strongly recommended that the local wetland and zoning commissions ensure that the bond required for this project be adequate to remediate all wetlands and watercourses in the event of control failures on this site. The developer should be aware that regardless of the storm event size, they would be responsible for remediation of any impacts. The developer must also be aware

that if lots are sold of to individual homeowners, the developer is still responsible for maintenance of all control structures for three months after final stabilization of the site.

The best protection for wetlands and watercourses is vegetative buffer zones. Making these areas part of the lots does not ensure their future protection, or ensure that there is adequate space in each lot for septic systems and wells that will not have future impacts on these resources. The Department recommends careful placement of houses on lots. There should be a large enough buffer from wetlands and watercourses to prevent a discharge of sediment during construction even if it means reducing the number of lots in the subdivision.

This report addresses some of the major issues concerning the project and does not constitute a complete review of the Plans for permitting purposes.

Sewage Disposal Review

This Team member was unable to attend the April 21, 2004 ERT meeting regarding this project, however, he did a cursory review of the Smith & Company plans dated March 5, 2004.

The following are his technical comments from his cursory review of the plans:

- This office has provided local health departments with recommendations on siting new private wells to assure reasonable protection of the source of supply. A May 7,1998 DPH memorandum contains the recommendation that includes striving for having most or all of the well's protective radius to be within the property bounds of the lot served.

- All foundation drains for the dwellings must discharge at a distance of at least 25 feet from the proposed subsurface sewage disposal systems.

- Locating subsurface sewage disposal systems within 50 feet up gradient of roads that require soil cuts or drainage must be avoided. Lots 18, 27 and 39 have subsurface sewage disposal systems that are proposed to be installed less than 50 feet up gradient of roads. Therefore soil cuts or drainage piping not specified on Table 2C of the Technical Standards must be avoided.

- Any existing stone walls that act as drainage must be removed or relocated if located within 50 feet down gradient of a proposed subsurface sewage disposal system.

- Lot 32 has a proposed leaching system that is located 45 feet up gradient of a possible foundation drain for the dwelling. A minimum of a 50 foot

separation is required. In addition the septic tank and pump chamber must be tested for watertightness since they are also located within 50 feet up gradient of the foundation drain.

- The design calculations for the lot 15 system contains a typographical error where the system spread provided is 88 L.F. and not 80 L.F.

- The length of individual leaching rows must not exceed 75 feet measured from the inlet in systems without intermittent dosing. This should be addressed in the final design plans for the proposed leaching systems on lots 17, 18, and 19.

The plans submitted demonstrate feasible locations for the subsurface sewage disposal systems provided that all comments and concerns from both the CTDOH office and the Pomperaug Health District are addressed.

The DOH - Environmental Engineering Section office is available to discuss any of the above comments or any other sewage disposal concerns.

Planning Comments

Regional Plan of Conservation and Development for the Central Naugatuck Valley

The Regional Plan of Conservation and Development of the Central Naugatuck Valley was adopted December of 1998. The Regional Plan serves as a guide for the prudent conservation and development of the Region. A key objective of the plan is to encourage settlement patterns that reduce the rate of land consumption in the region.

Based on the Future Land Use map (Figure 5) the proposed development site is recommended for conservation as a Rural Area. The Regional Plan states that any development in a Rural Area should respect natural resource and environmental constraints and preserve the rural character of the area. Intensity of development should be determined by the availability of infrastructure and other appropriate support services. The Highland Estates development site also contains several areas indicated as having severe environmental constraints according to the Future Land Use map. The proposal includes these areas within the five open space areas proposed for the site.

Natural Resource Constraints

The Regional Plan lists four natural resource constraint classifications. Classification is based on the soil composition, slope, presence of wetlands and floodplains, and the presence of significant other natural resources. Based on guidelines listed in Table 2, approximately 14% of the proposed site contains land classified as having natural resource constraints prohibitive to development, 40% is severely constrained, 45% is moderately constrained, and less than 1% is minimally constrained. The majority of areas with prohibitive and severe natural resource constraints are contained within the proposed open space areas. The thirty lots contain primarily moderately constrained land (Figure 6). The

proposed Vista View Drive extension will pass through two areas classified as having prohibitive natural resource constraints. The road will have to cross a large area, located at the Bucks Hill Road entrance, classified as having a prohibitive natural resource constraint. The brook at proposed Open Space Area #3 is within a much smaller area with a prohibitive constraint, and can be more easily crossed with little disturbance.

On-site water supply wells and sewage disposal systems are proposed for the Highland Estates development. The Regional Plan recommends a maximum density of 0.5 units per acre for severely constrained areas and 0.7 units per acre for moderately constrained areas. This would equate to lot sizes of 2.0 and 1.5 acres, respectively. The proposed lot #26, which has direct access from Bucks Hill Road, may not be consistent with the guidelines for natural resource constraints listed in the Regional Plan. The lot contains prohibitive and severely constrained land and a further review of this lot is recommended.

The proposal includes individual on-site water supply wells and subsurface sewage disposal systems for the thirty lots. The Regional Plan supports the use of private water and sewer systems for rural areas, and encourages efforts to reduce the impacts of sewer discharges. The Regional Plan also encourages settlement patterns that reduce the rate of land consumption in the region and that preserve open space. The proposed development, with lots ranging from 1.3 to 14.6 acres, would have a low-density of development on the site. The proposal also designates a considerable amount of land as open space. A majority of the open space is contiguous and is adjacent to open space planned for the development currently underway on Vista View Drive accessed from Strongtown Road (Route 188).

Town of Southbury Zoning Regulations

The developers must ensure that Southbury's zoning regulations are adhered to. The proposed development site is with an area zoned R-60 under Southbury's current zoning regulations. Minimum lot area under the regulations is 60,000 square feet (1.38 acres). For interior lots, the minimum lot area is 90,000 square feet (2.07 acres) for areas zoned R-60. Structures must be set back at least fifty feet from any road and at least thirty feet from the property line.

Transportation: Traffic Generation

The Regional Plan recommends that land use development be coordinated with transportation planning actions. The Regional Plan as well as the State Plan recommends that intersections be as close to 90-degree angles as is possible. There appears to be no obstructions or curves along Bucks Hill Road that would prevent the intersection of Vista View Drive extension and Bucks Hill Road from being designed for a 90-degree angle. The connection of the proposed Vista View Drive extension with Vista View Drive (under construction) will allow access to the development from Strongtown Road (Route 188). A large area north of Interchange 16, along Strongtown Road (Route 188) is recommended in the Regional Plan as a Growth Area.

The Institute for Transportation Engineers (ITE) compiles traffic generation statistics for a large database of land uses in *Trip Generation 7th Edition*. ITE found that dwelling units that were large in size, more expensive, and further away from the central business district had a higher rate of trip distribution. The Highland Estates development would include homes of over 3,000 square feet selling at prices well above the median home sales price for the region and for Southbury. More trips would be expected than smaller, less expensive, single family detached units.

According to ITE statistics, the average detached single-family housing unit generates 10 trips per day. The proposed 30-unit Highland Estates development could be expected to generate at least 288 trips per day. The trips would be divided between the two exits at Strongtown Road and Bucks Hill Road. A greater share of traffic would enter and exit at Strongtown Road because of direct access to I-84 at Interchange 16.

Using ITE statistics, the development would generate 23 trips during the morning weekday peak on Strongtown Road and 31 trips during the evening peak. The peak hour for single family detached housing generally coincides with the peak hour of the adjacent street traffic. Morning peak hour is between 7 a.m. and 9 a.m. and evening peak is between 4 p.m. and 6 p.m.

The greatest number of trips can be expected on Saturdays. 304 trips can be expected on Saturday compared to 264 on Sunday. The following table provides a breakdown, using ITE figures, of the directional distribution of expected trips generated for the proposed 30-lot Highland Estates development.

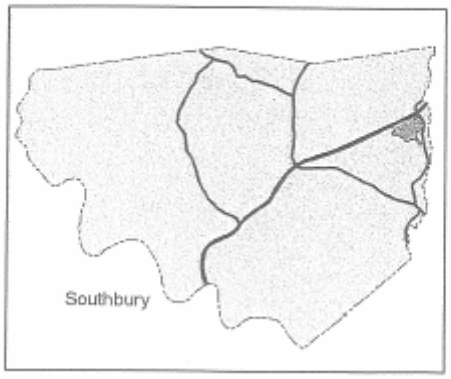
Table 1 - Trip Generation

Time Period and Day	Expected Trips Generated	Expected Trips Entering	Expected Trips Exiting
Entire Day, Weekday	288	144	144
Entire Day, Saturday	304	152	152
Entire Day, Sunday	264	132	132
AM Peak Hour, Weekday	23	6	17
PM Peak Hour, Weekday	31	20	11
Peak Hour, Saturday	28	15	13
Peak Hour, Sunday	26	14	12

The statistics indicate that the highest expected rate of traffic entering and exiting Highland Estates would be 31 vehicles per hour, which would occur during the weekday PM peak hour. The likelihood that the proposed development would create congestion along Bucks Hill road or Strongtown Road is minimal.

Figure 5

Future Land Use



Highland Estates

Town Boundary

0 250 500 1,000 Feet

Development Areas

- Growth Areas
- Major Economic Areas
- Community Centers
- Regional Core

Conservation Areas

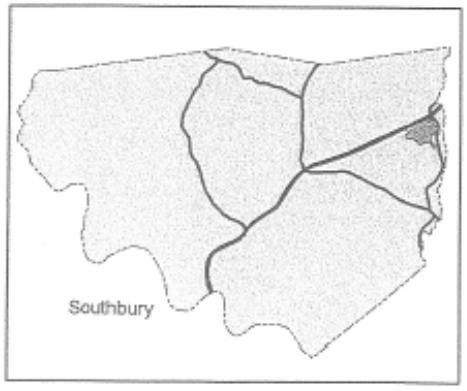
- Rural Areas
- Severe Environmental Constraints
- Public and Proposed Open Space

For general planning purposes only. Delineations may not be exact.

Council of Governments of the Central Naugatuck Valley

Figure 6

Natural Resource Constraints



Highland Estates

Town Boundary

Constraints

Minimal

Moderate

Severe

Prohibitive

N W E S

0 250 500 1,000 Feet

Council of Governments of the Central Naugatuck Valley

For general planning purposes only. Delineations may not be exact.

Table 2 - Natural Resource Summary Table

Development Constraint	Conservation Opportunity	Definition	Resource Condition
Minimal	Low	Having only few or slight environmental constraints on development. Most difficult to conserve from development.	• Excessively drained soils • Well drained soils, less than 15% slopes
Moderate	Modest	Having moderate or localized severe restrictions on development which may be overcome with environmental planning and mitigation. Difficult to conserve from development.	• Well drained soils, 15-25% slopes • Well drained soils, high seasonal water table • Hardpan soils, less than 15% slopes • Shallow or rocky soils, less than 15% slopes • Floodplain (500-year, 0.2% probability)
Severe	Important	Having some severe or very severe limitations on development which may be difficult to overcome with environmental planning and mitigation. Present many opportunities to conserve important natural resources and functions.	• Any soil with slopes in excess of 25% • Shallow or rocky soils, 15 to 25% slopes • Hardpan soils, 15 to 25% slopes • Hardpan soils, high seasonal water table
Prohibitive	Significant	Having only severe or very severe limitations on development. Represent areas where it is most important to conserve natural resources and functions.	• Watercourses and waterbodies • Poorly drained soils (wetlands) • Floodplain (100-year, 1.0% probability)

Archaeological Review

The Office of State Archaeology (OSA) and the State Historic Preservation Office (SHPO) have reviewed the State of Connecticut Archaeological Site Files and Maps, which show no known archaeological sites within the proposed project area. However, well-drained soils adjacent to the wetland systems within the project area suggest a moderate-to-high sensitivity for undiscovered prehistoric Native American sites. In addition, the steep slopes of the central and eastern portions of the project area have the potential for rockshelter sites. This settlement type is associated with prehistoric Native Americans utilizing outcrops of bedrock as natural shelters during economic rounds of hunting and gathering. Blasting of ledge areas could have an adverse effect on these potential cultural resources.

The Connecticut State Historic Preservation Office and Office of State Archaeology recommends that a reconnaissance survey be professionally undertaken in order to locate, evaluate and responsibly consider all archaeological resources as an integral component of the local decision-making processes. All archaeological studies must be carried out pursuant to the *Environmental Review Primer for Connecticut's Archaeological Resources.*

The OAS and SHPO Offices are prepared to offer the Town of Southbury and the applicant any technical assistance in conducting the recommended survey. In addition, we would be pleased to provide a list of qualified archeological consultants.

The Natural Diversity Data Base

The Natural Diversity Data Base maps and Files regarding the project area 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 Bast information includes all information regarding critical biologic 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.

Aquatic Resources

Site Description

The 30 lot *Highland Estates-Section 2* residential subdivision is proposed for development on a 145.9-acre parcel located between Bucks Hill Road and Strongtown Road; the site is bounded northerly be Interstate 84. The parcel is bisected by a 2,700± foot segment of an unnamed stream that is a tributary to the Eight Mile Brook (Basin#: 6023). The unnamed stream is contained in a channel that is roughly 15 feet in top of bank width and has normal flow depths that average approximately 9 inches. The channel is of a moderate grade with surface flow predominated by shallow riffle interspersed by deep moving pool. Stream substrate is composed of small boulder, cobble, gravel, coarse sand, and sand-silt fines. Wetlands and several minor (possibly intermittent) watercourses supplement flow to the unnamed stream.

Hardwoods and woody shrubs predominate as riparian vegetation along the stream on the *Highland Estates-Section 2* site. The vegetation provides the stream with a nearly complete overhead cover. Physical in-stream habitat is provided by the water depth in pools, undercut banks, boulder groupings and fallen or overhanging riparian vegetation. The watershed of the unnamed stream remains primarily forested with limited residential housing. The limited development to date provides a means of maintaining the streams' water quality. The Department of Environmental Protection classifies the unnamed stream as *Class A* surface waters. Designated uses for surface water of this classification are potential public drinking water supply, fish and wildlife habitat, recreational use, agricultural and industrial supply, and other purposes.

Aquatic Habitats and Resources

The unnamed stream would be classified as coldwater based upon its physical characteristics. The Inland Fisheries Division has never conducted fish surveys of the stream however, streams of similar physical characteristics in the immediate area that had been surveyed were found to contain fish populations composed of brook trout *(Salvelinus fontinalus)* and blacknose dace *(Rhinichthys atratulus).*

The unnamed stream had a clear, low flow during the April 21, 2004 field review; this offered an ideal condition for a visual assay of both instream habitat and living resources. Neither brook trout, blacknose dace nor any other fish species were apparent. Macroinvertebrate sampling conducted by George Logan (Rema Ecological Services, LLC) and reported May 3, 2004 in *Preliminary Environmental Assessment - Proposed Subdivision at Highland Estates, Section 2* revealed an aquatic insect community only of those species tolerant of impaired water quality; the total number of individuals in the entire community was reported to be "relatively low". It is theorized that the limited (or completely absent) fish community and the poor species richness of the macroinvertebrate community may be caused by stormwater runoff directed to the stream from Interstate 84. Additional investigations are warranted to refute or support this hypothesis.

Impacts

Although there will be a marked change in land use on the *Highland Estates-Section 2* site, the unnamed stream will be afforded protection given the following measures:

- A total of 42.1 acres in five areas of the site will remain as open space. Plot plans indicate the largest open space will be two contiguous area *(Open Space #2* and *Open Space #3)* along the corridor of the unnamed stream. Within these two

areas, a riparian buffer in excess of 150 feet will be maintained along both streambanks. The preservation of the stream's riparian corridor will best maintain its ability to act as a "filter" to prevent off-site discharge of sediments, nutrients, fertilizers, and other non-point source pollutants from the proposed house lots and access ways to the unnamed stream. Such non-point source pollutants can degrade habitat and water quality.

- A 138-foot long, clear span bridge is proposed to cross the unnamed stream to provide roadway access to a portion of the site. The span is to be installed in close proximity to an existing woods road crossing. The span abutments will be constructed in uplands along the stream; this will allow the wetland corridor along the stream to remain intact. The Inland Fisheries Division routinely recommends the installation of span bridges for the crossing of perennial watercourses. These structures best preserve physical aquatic habitat and do not create barriers to fish migration.

Recommendations

In effort to further eliminate the potential for impacts to the unnamed stream, it is recommended that the following measures be incorporated into the design of the proposed *Highland Estates-Section 2* residential subdivision:

1. Institute a phased development of the site with the access road, bridge, and completely functional stormwater management system installed initially.

2. Establish comprehensive erosion and sediment control plans with mitigative measures (detention-infiltration/water quality basins, haybales, silt fence, etc.) to be installed prior to and maintained through all phases of site development. Land clearing and other disturbance should be kept to a minimum with all disturbed areas being protected from storm events and be restabilized in a timely manner.

3. Limit regulated activities adjacent to riparian buffer zones to historic low precipitation periods of the year. Reduced precipitation periods of summer to early fall provide the least hazardous conditions when working near aquatic environments.

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.