

**Gottier Farm East Subdivision  
Phase I and Concept Plan  
Tolland, Connecticut**



**Eastern Connecticut  
Environmental Review Team  
Report**

Eastern Connecticut  
Resource Conservation and Development Area, Inc.

# Gottier Farm East Subdivision Phase I and Concept Plan

Tolland, Connecticut



Environmental Review Team Report

Prepared by the  
Eastern Connecticut Environmental Review Team  
of the Eastern Connecticut  
Resource Conservation and Development Area, Inc.

for the  
Inland Wetlands Commission  
Tolland, Connecticut

September 2003

CT Environmental Review Teams  
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# ACKNOWLEDGMENTS

This report is an outgrowth of a request from the Tolland Inland Wetlands Commission to the North Central Conservation District (NCCD). The NCCD referred this request to the Eastern Connecticut Resource Conservation and Development Area (RC&D) Executive Council for their consideration and approval. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The Eastern Connecticut 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, August 13, 2003.

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I would also like to thank Stephen Lowrey, wetland agent, Ralph Duell, inland wetland commission member, other town staff, Greg Pinto, applicant, Russell Waldo, engineer, Robert Sonnichsen, environmental consultant, Edward Pawlak, soil scientist and Dory Reiser, attorney 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 maps and information. Some Team members made site visits on September 8, 2003. 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 potential and existing development, and also suggests considerations that should be of concern to the town and landowner. The results of this Team action are oriented toward the development of better environmental quality and the long term economics of land use.

The Eastern Connecticut RC&D Executive Council hopes you will find this report of value and assistance in the reviewing Phase I of the subdivision and the overall concept plan.

If you require additional information please contact:

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# **INTRODUCTION**

## **Introduction**

The Tolland Inland Wetlands Commission has requested assistance from the Eastern Connecticut Environmental Review Team in conducting a review of a proposed residential subdivision.

Gottier Farm East Section I is a proposal for a ten (10) lot subdivision on  $\pm 15$  acres. This is the first phase of a potential 73 lot subdivision on a total of  $\pm 115$  acres. The site is located on the east side of Sugar Hill Road south of Johnson Road. The property includes a large wetland and Charter Brook. The site is a former dairy farm and several barn structures still exist on the property.

Section I proposes a  $\pm 800$  foot cul-de-sac with ten house lots. The lots are approximately .92 acres in size and will include on-site sewage disposal and on-site individual water supply wells.

The remaining land is shown on the concept plan to be subdivided into 63 lots. The preliminary plan shows several roads and cul-de-sacs. Detailed soil testing and design plans have not yet been prepared for this acreage.

## **Objectives of the ERT Study**

The Town of Tolland has requested assistance in evaluating the detailed plans for Phase I and evaluating the preliminary concept plan for the total acreage. Major concerns include: impacts to the wetland system, soil suitability for the intensity of development, hydrology, stormwater management, open space suitability, and site design compatibility.

## The ERT Process

Through the efforts of the inland wetlands commission this environmental review and report was prepared for the Town of Tolland.

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

The review process consisted of four phases:

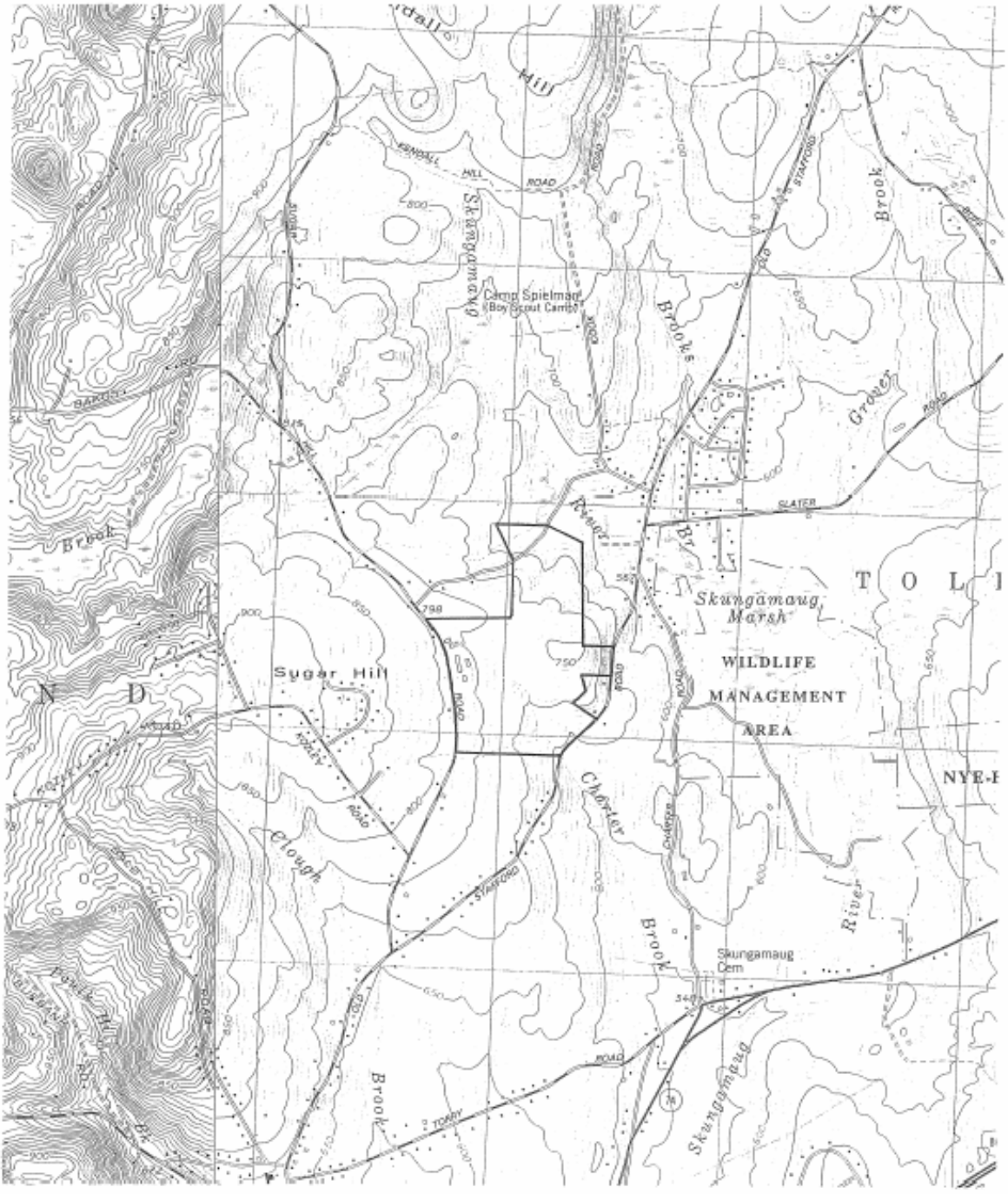
1. Inventory of the site's natural resources;
2. Assessment of these resources;
3. Identification of resource areas and review of plans; and
4. Presentation of education, management and land use guidelines.

The data collection phase involved both literature and field research. The field review was conducted on Wednesday, August 13, 2003. Some Team members made a site visit on a different day. 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.



Topographic/Location Map  
Scale 1" = 2000'



# Soils Map



Scale: 1:15,840 0 5000 Feet

## GEOLOGY

The proposed Gottier Farm Subdivision is located on a rounded knob on the side of Sugar Hill in Tolland. Hill slopes are mostly gentle over most of the proposed development but the lower most slopes at the eastern edge of the property are moderate. Terrain does not present a significant problem to development. A brook (Charter Brook) runs through the property.

Surface material is mainly glacial till that may locally be several tens of feet thick. On the steep eastern slopes, however, the till is thin and several bedrock outcrops are exposed. Much of the till is compact and hence less well drained. This may be a factor in the operation of septic systems. Several boulders are concentrated in Charter Brook. This may be coincidence, but it may be evidence that glacial meltwater once cascaded through the Charter Brook drainage. If this is the case, extremely localized sand and gravel deposits may be present on the parcel (indeed, personnel of Capstone Builders reported uncovering a local sand deposit on the adjacent subdivision).

The area is underlain by grey foliated "granitic" gneiss with local lenses or layers of amphibolite, referred to as the Middletown Formation by Rodgers (1985). The gneiss has prominent foliation-parallel fractures at outcrops seen on the lower eastern slopes of the property. Fractures perpendicular to the foliation were weakly developed. The fractures act as conduits for groundwater transport from the surface recharge area to wells that may encounter them. They may also rapidly transport contaminants to wells.

# **CONSERVATION DISTRICT REVIEW**

Site visits were made on August 13th and September 8th, 2003. The 115 acre site is located on the east side of Sugar Hill Road, just south of Johnson Road. It was formerly a dairy farm. The development plan was prepared in accordance with Tolland's open space development regulations. Plans for the first phase, a 10 lot cul-de-sac subdivision, on 16 acres, at the southwest corner of the property, are detailed. Plans for the balance of the property are conceptual. Comments are based on plans submitted with the ERT request, with dates/revisions ranging from 9/27/02 to 8/10/03.

## **Plan Description**

Lots proposed in the plan are at least 40,000 square feet, which is 7,000 square feet more than the 33,000 required under Town of Tolland open space regulations. There are two major areas of open space:

1. Wetlands associated with Charter Brook and adjacent uplands are part of the larger designated open space. The area, located to the north and east of the proposed cul-de-sac, provides mixed habitat, a wildlife corridor, and water quality protection. The relatively narrow area along the stream on the southern site boundary is supplemented by a 50 foot wide conservation easement along the rear of lots #64 through #69.
2. Most of the wetland at the northeast corner of the parcel is included in the smaller designated open space. Johnson Road bisects this open space. A 50 foot wide conservation easement along the rear of lots #70 through #73 supplements this open space.

A conservation easement protects steep slopes on lots #32 through #35.

Inconsistencies exist between plan documents prepared at different times. Some typically available components of a plan, i.e. E&S plan and hydrologic calculations, were not included.

## **Recommendation**

- Request a complete updated set of plans, including an updated conceptual plan. The plans should reflect the current proposal and include additional information itemized in recommendations below.

## **Open Space**

The conceptual plan contains a table that breaks proposed development, and associated open space conveyance, into sections, or phases. The sections/phases listed do not match up with the plans provided for the first phase of development. The 25 foot width of the conservation easement, at the rear of lots #64 through #69, shown on the conceptual plan does not match the 50 foot width shown on the plan sheets. Acreage located within conservation easements on private lots (secondary open space) is calculated into the total open space figures. The acreage total in the table on the conceptual plan is 121.93 + 3 acres, or 124.93 acres. The Town's review request refers to 115 acres.

Very few invasive plants were noted during site walks. The proposed open space contained diverse vegetation and habitat. Connecticut DEP diversity database maps indicate the presence of the American Bittern and the Box Turtle in an area that includes the project site. The proposed open space provides corridors that connect with Skungamaug Swamp and Charter Brook.

The owner indicates his intention is to transfer title of open space and conservation easements to Joshua's Trust, as well as to establish an endowment and loan equipment for maintenance. The Trust has agreed to accept the properties.

## **Recommendations**

- To avoid confusion over the proposal's size (125 vs. 115 acres) and corresponding open space requirement, clarify the overall boundaries of the site and the location of the acreage to be incorporated into the open space. Ensure that the mix of primary and secondary open space is in accordance with definitions and provisions in town regulations.
- Determine whether or not the species listed on the diversity maps are found on the site.
- Commit verbal intentions for managing open space to writing. Update plans to clearly describe current conditions and proposed work, such as mowing.

## **Soils**

Soils on the site are unstratified glacial tills. The Woodbridge/Paxton upland soils in the proposed subdivision are moderately well drained. The erosion hazard ranges from medium to high. Leicester soils are the predominant wetland soil on the site. They are poorly to somewhat poorly drained and have a low erosion hazard.

Soil boundaries taken from the 1966 Tolland County Soil Survey are reflected on the plans. Field delineated wetland lines are also reflected on the plans. In areas where field delineation and the Survey differ, the field delineation appears to accurately describe current conditions on the site. For example, sediment from the gravel road appears to have altered characteristics of the area at the east side of lot 70, which had been a wetland in 1966.

## **Comment**

- Additional soils information, taken from the DEP database, follows.

## **Erosion Control**

This first 10-lot phase is planned along each side of a 600 foot cul-de-sac, that runs directly down a 10% slope. Six house lots are located on the south side of the cul-de-sac and four house lots are located on the north side, creating a potential for lot to lot drainage and erosion. The Plan & Profile sheet reflects E&S measures for road construction. House lots are not addressed. The plan shows an anti-tracking pad at the top, and a single run of silt fence below the 600 foot cul-de-sac road, which has an 8% - 12% slope. The owner and engineer both indicated that the road would be cleared and completed, but house lots would only be cleared as permits were issued. E&S Details (B. Schedule, item #2) indicate that road and structure locations would be cleared at once.

The owner/developer of this proposal will be the only builder on the property.

## **Recommendations**

- Disturbance of five or more total acres of land area requires compliance with the State of Connecticut "General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities." Compliance requires preparation of stormwater pollution control and erosion and sedimentation control plans. These plans must be in compliance with the 2002 Connecticut Guidelines for Erosion and Sediment Control. A complete engineered E&S plan is required, and should be submitted with the updated plans.
- Stockpiles should be located on plans and associated E&S measures noted.

- The proposed detention basin should be used as a sediment basin during construction. A similar structure is necessary to capture sediment at the south side of the proposed cul-de-sac. The basin should be stabilized before clearing the drainage area above.
- Diversions, waterbars, stone check dams and stone-lined swales should be used in addition to the proposed silt fence to control erosion from road construction.
- When a lot is cleared, construct barriers (berms or silt fence) are needed to prevent lot to lot erosion and sedimentation. Permanent berms should be considered to control lot to lot drainage. At a minimum, short berms along the lot lines may be used to protect houses from runoff generated by upslope lots.

## **Stormwater**

Stormwater from Zoey Place will flow through catch basins into a detention basin with a 4 inch pipe outlet. Plans call for discharge to a 25' level spreader that is not shown on the plan. No protection is shown for the slope below the riprap overflow. Per the plans, the inside height of the catch basins varies. Given the steep slope and length of the cul-de sac, seasonal sanding of the road will be required. Stormwater that falls on lots on each side of the road will flow downslope, from lot to lot.

## **Recommendations**

- Require 4 foot sumps in catch basins to capture expected sediment and allow for a reasonable maintenance schedule.
- Incorporate a forebay in detention basin, to facilitate removal of accumulated sediments.
- Slope stabilization in the area below the rip rap overflow should be reviewed by an engineer.



- Consider plantings in areas disturbed by construction of stormwater structures. Planting desirable species will minimize the potential for invasive plants to take hold. Species that will enhance water quality could be utilized in the disturbed area surrounding the level spreader. Species that support wildlife could be utilized in other areas.
- Consider use of swales or berms, along the contours between the houses, to eliminate or slow lot to lot drainage.

## **Wetlands**

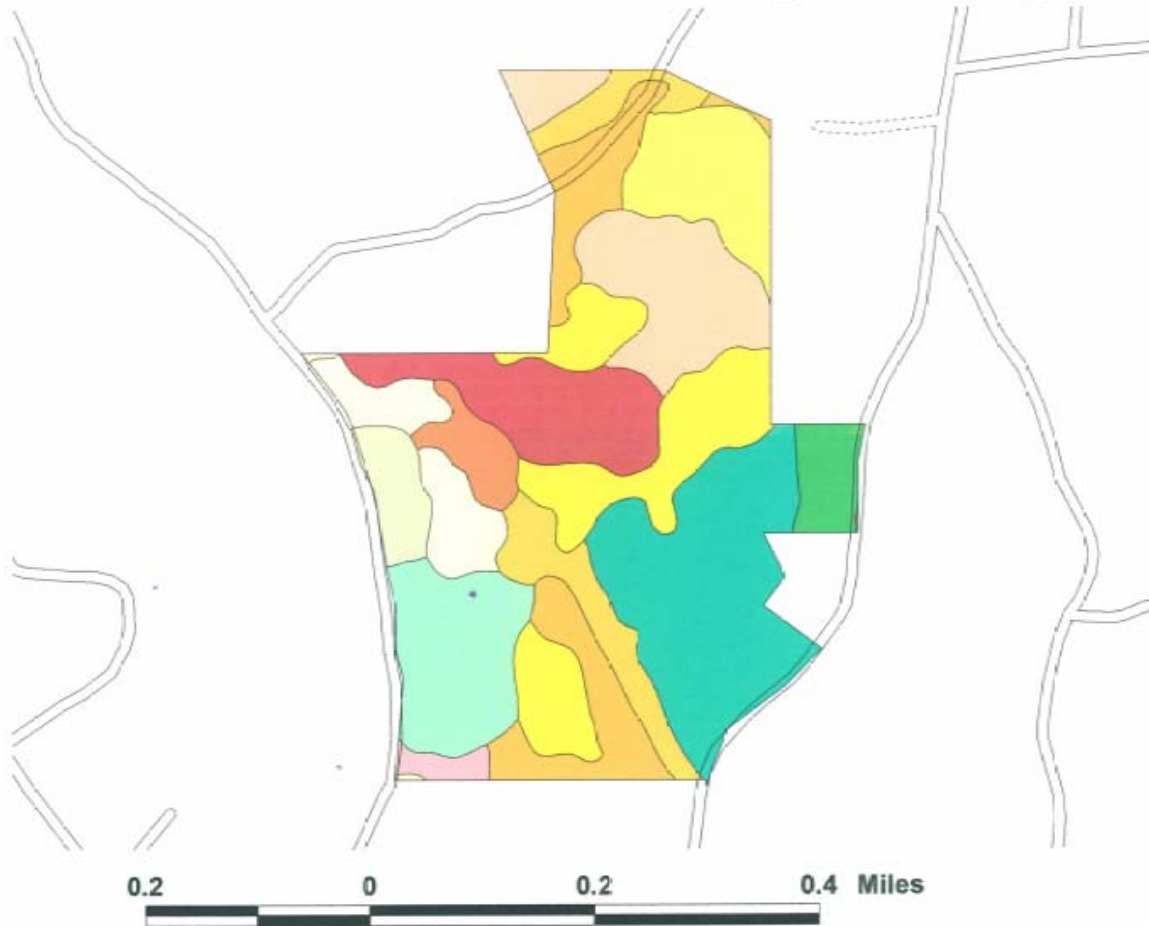
Open space provisions for the site generally protect wetlands and associated uplands. About 1/3 of lot 70 is wetlands, and very little of the wetlands is protected in the conservation easement.

Construction of the first phase will increase impervious coverage in the area above the Charter Brook wetland. The 16 acre project impacts a relatively small proportion of a large watershed. Water for houses in the development will be drawn from deep bedrock wells. On site septic systems are proposed for each lot. Information to assess the hydrologic impacts on the wetlands is not provided with the plans.

## **Recommendations**

- The engineer should provide standard hydrologic calculations, which will address discharge rates and volumes. To address infiltration, additional calculations must be requested. A water budget can be developed for each watershed, addressing all withdrawals and inputs.
- Town questions relating to hydrologic issues would be most effectively addressed by requesting the information, itemized above, for review.

# Gottier Property



- Roads**  
 - - Dashed  
 - - Solid
- Property Boundary**  
 - - Solid
- CANTON AND CHARLTON SOILS, 3 TO 8 PERCENT SLOPES
  - CANTON AND CHARLTON SOILS, 8 TO 15 PERCENT SLOPES
  - CANTON AND CHARLTON SOILS, 8 TO 15 PERCENT SLOPES, VERY STONY
  - CHARLTON-CHATFIELD COMPLEX, 15 TO 45 PERCENT SLOPES, VERY ROCKY
  - CHARLTON-CHATFIELD COMPLEX, 3 TO 15 PERCENT SLOPES, VERY ROCKY
  - DUMPS
  - HOLLIS-CHATFIELD ROCK OUTCROP COMPLEX, 15 TO 45 PERCENT SLOPES
  - HOLLIS-CHATFIELD ROCK OUTCROP COMPLEX, 3 TO 15 PERCENT SLOPES
  - PAXTON AND MONTAUK SOILS, 3 TO 8 PERCENT SLOPES
  - PAXTON AND MONTAUK SOILS, 8 TO 15 PERCENT SLOPES
  - PAXTON AND MONTAUK SOILS, 8 TO 15 PERCENT SLOPES, VERY STONY
  - RIDGEBURY FINE SANDY LOAM
  - RIDGEBURY, LEICESTER AND WHITMAN SOILS, EXTREMELY STONY
  - WOODBRIDGE FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES



# Gottier Property



- Roads
  - Dashed
  - Solid
- Property Boundary
  - NON-WETLAND SOILS
  - POORLY DRAINED AND VERY POORLY DRAINED SOILS
  - POORLY DRAINED SOILS



# Gottier Property



## Roads

 Dashed

 Solid

## Surficial Materials

 TILL



## **WETLAND REVIEW**

The Team wetland reviewer made his site visit on September 8, 2003.

### **Comments on Phase I**

The initial phase of the proposed development consists of a cul-de-sac and ten individual house lots. The proposed road (Zoey Place) will run east off of Sugar Hill Road with four lots proposed to the north and six to the south. This phase is the only one for which the Team received detailed plans

Open space will be the northern boundary of the four north lots as well as the southern boundary for the five southernmost lots. The final lot at the east end of the cul-de-sac will have the open space boundary as its eastern boundary.

Zoey Road leaves Sugar Hill Road at approximately elevation 780 feet and passes downhill approximately 720 feet ending at the cul-de-sac at elevation 720 feet. This represents an 8-9% slope. The 22 foot wide road will be paved and curbed. It will be drained by a series of six storm drains.

This storm drain system directs the runoff to a basin east of lot 30/63. From here it is ultimately dispersed over energy dissipaters and discharged into the wetland/open space. This system reroutes surface water runoff from the to-be-built impermeable areas into the wetland that would have previously flowed downhill into the wetland directly.

## Issues

The wetlands, watercourses and conservation areas are well buffered by the appropriate setbacks.

Charter Brook and its headwaters are the central (wetland) reasons for the open space conservation area. The Connecticut Department of Environmental Protection has mapped the stream and its headwaters as at least Class "A" in a ranking system that measures water quality from "AA," "A," "B," "C," and "D." In all, the brook, its tributaries and the pond which exists in the conservation area are well protected from over-land flow of surface water runoff by virtue of the width of this wide buffer area. Indeed, the makeup of the buffering area is just as important as its width with the grasses and scrub-shrub combining to provide some of the best filtering vegetation there is.

Historically, however, it is reported that the dairy barns were cleaned regularly and the waste products from the dairy herd were directed downhill directly to the pond. Thus, while it is more than three to four years since its use as a dairy farm, it is likely that the nutrient loading in the pond is still quite elevated. The surface algae growth supports this fact, making the pond a great candidate for water quality restoration.

The plans call for diverting the downhill flow of ground water around the house foundations to avoid wet basements, etc. There was concern voiced about the impact to the groundwater flows as it relates to the nearby wetlands.

This procedure is typical of subdivisions in potentially high groundwater areas. Since the movement of groundwater generally mimics that of surface water, the groundwater in this ten lot subdivision is flowing downhill at the same gradient mentioned above for the roadway. The rerouting of groundwater around houses is typical in home construction and frequently used. The recovery of the groundwater

flow is realized within yards of the diversion with no overall effect to the local wetlands and watercourses.

The issue of *bedrock* ground water depletion through well use and the reciprocal recharging of the used water into the unconsolidated materials (till) *above* the bedrock has been raised as a long-term concern.

The proposed combination of well and septic to serve the water and sewer needs of the proposed homes is typical of nearly every non-water company served home in the state. Generally, it is accepted that at least one third of the state's population (over one million people) is served in this fashion.

In a home, water use is calculated at the rate of 150 gallons per bedroom per day. If the proposed homes have three bedrooms each, they would have an estimated use of 450 gallons of water per day. There are ten homes proposed giving the total extraction of bedrock well water for this proposed initial phase of 4,500 gallons per day. This amount is deemed insignificant - especially when most of the total will be recharged into the groundwater through the septic system. The effect of groundwater use on the wetlands is nil. A DEP Staff groundwater hydrologist commented for the purpose of this report that: "in essence, 95-99% of the water used in the household recharges . . . the groundwater via the on-site septic system which is why it is important that septic systems are properly designed and installed."

### **Comments on Overall Plan**

- The balance of the plan appears visually crowded with lots. This may be the result of the smaller lot size allowed with the conservation zoning of the parcel. On the day of the field walk the developer discussed the possibility of not building on lots 70 and 71 as depicted on the conceptual plan due to steepness

of slope and shallow to bedrock (large boulders appear on site.) Hopefully these lots will be added to the open space.

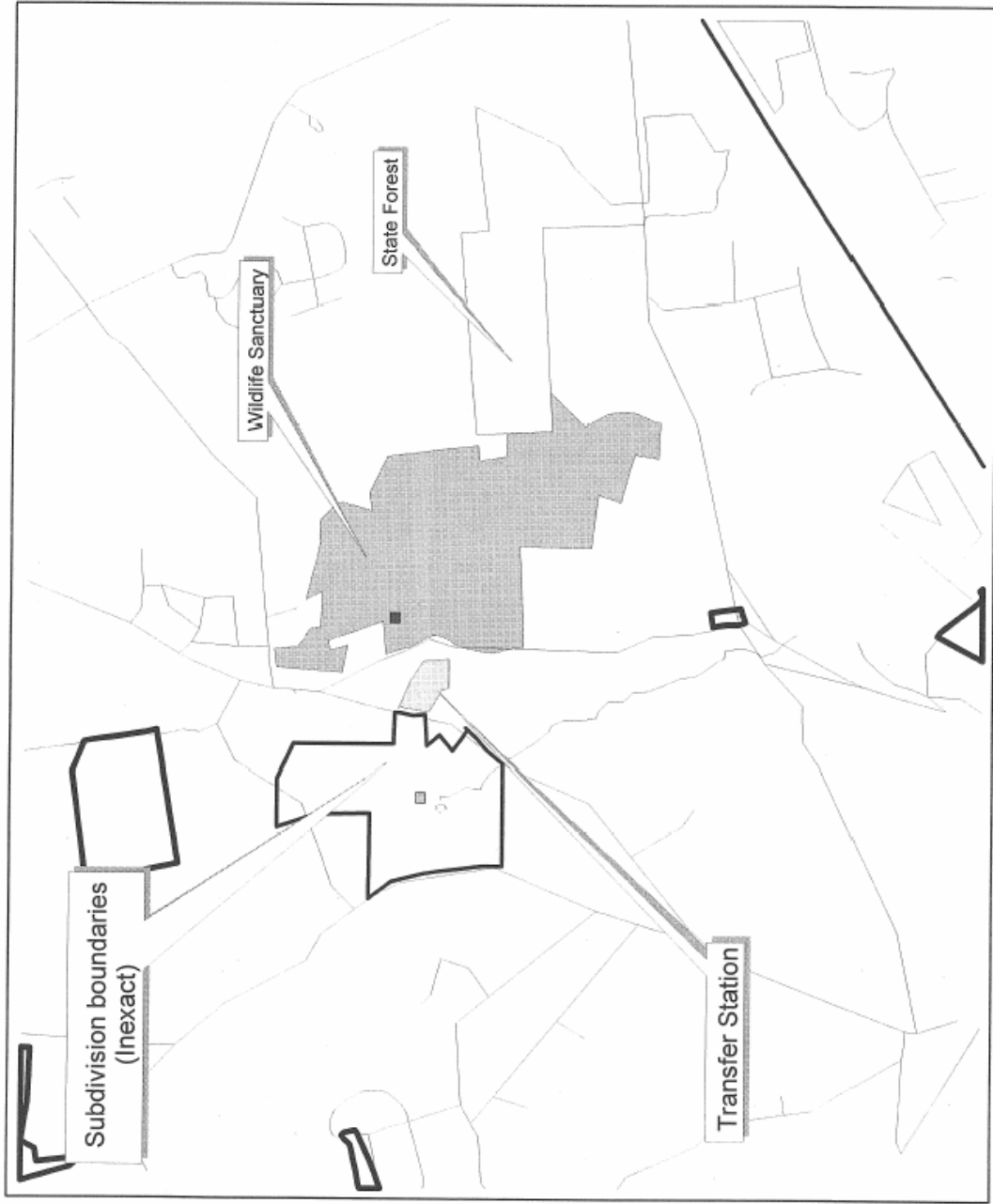
- The Connecticut DEP has mapped an inactive/closed mixed waste landfill effecting the groundwater about 350 feet north/northwest of the quarter acre pond. This should be investigated and dealt with if possible.
- Care regarding soil erosion and sediment control should be taken as this is the headwater drainage area for Charter Brook. Charter Brook flows south out of this area about 1 1/8 miles to its confluence with the Skungamaug River.
- There is a great deal of open space to be deeded here. From the mapping provided it is difficult to tell how much of the open space that has been set aside is wetlands - and thus unbuildable, regardless of the set aside. Still, it is the Team's understanding that Joshua's Tract Land Trust will administer this open space and allow the public to benefit from this set aside as is typical of their holdings.
- One of the functions of a healthy wetland system is to provide wildlife habitat. This proposed open space set aside provides both protection and habitat for the wildlife that makes use of the area. However, compared to the acres of open space existing now, the proposed open space will become an isolated island. With that segmentation in mind, an eye towards segment connectivity is always a goal to maximize the value of the preserved area. In this case, directly across Old Stafford Road from the proposed Conservation Easement Area is the town transfer station - about 8 acres. Nearly abutting this to the east is the 242 acre Charter Marsh Wildlife Sanctuary and immediately abutting that to the east is the 161 acre Nye-Holman State Forest. ( see following map.) Thus, the only gap in this potential +450 acre east-west pathway is a +250 foot long swath that passes through lots 37, 38, 45, and 46 on the revised plan. If there is flexibility



in the proposal of the layout, this long range goal may be something to work towards.

- It is generous that the open space proposal includes an endowment to pay for the maintenance of the area in a fashion deemed best for wildlife perpetuation.
- Locations of stock piles should be depicted on all plans. With the likelihood of much earth moving taking place, careful planning as to where the stockpiles are located and what specific types of erosion and sediment controls will be in place are of special concern.
- All information is not included on the maps making it difficult to review the plans. Oversights include: conflicting lot number designations, wetland boundary delineations that are numbered on the map and flagged in the field, lack of or difficult to find north arrow on some sheets, and professional seal of the developer's engineer.
- There are few invasive plants on this property. One area of multi-flora rose exists due east of where lots 28 & 29 (64 & 65) intersect with the open space near the brook at the broken pipe crossing, a few bushes of Japanese barberry were on the wetland edge of Lot 30 on the Conceptual Plan map and Phragmites has invaded the cattail and red maple swamp north of Johnson Road. These areas can be kept in check thereby reducing the opportunity for these plants to spread around the site. It will be important to establish vegetative cover promptly on disturbed soil to minimize these opportunistic invaders.

# Area Open Space in Tolland, CT



# **STORMWATER MANAGEMENT**

The proposal is for a 10 lot residential subdivision on approximately 15 acres as Phase I of a possible 73-lot subdivision on 115 acres.

## **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 Associated with Construction Activities* ("general permit") will cover the project. The general permit requires that the developer registers with the Department of Environmental Protection (CTDEP) and submits a Stormwater Pollution Control Plan (the "Plan") *at least* thirty days before the start of 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. The permit requires that the "Plan shall ensure and demonstrate compliance with the Connecticut Guidelines for Soil Erosion and Sediment Control (the "guidelines"). Also, the Plan must be flexible to account for adjustment of controls as necessary to meet field conditions. Please note that many erosion, sediment control, and stormwater detention issues must be dealt with on a local level before being included in the Plan.

The Plan must include a site map as described in Section 6(b)(6) of the permit and a copy of the erosion and sediment (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 Soil and Water Conservation District may be included. The Plan must include a description of the E & S controls that will be used during each phase of construction, construction details for each control used, details of all outlet structures and velocity dissipation controls, and a description of

procedures to maintain all erosion and sediment control measures. Specific dewatering procedures must be addressed. Section 6(b)(6)(C)(ii) requires that dewatering wastewater be infiltrated into the ground unless otherwise approved by the commissioner in writing. The locations of all stockpiled materials must be shown along with necessary erosion control measures. The permit requires inspections by qualified personnel provided by the permittee at least once every seven calendar days and after every storm of 0.1 inches or greater. In addition, the Plan must include monthly inspections of stabilized areas for at least three months *following* stabilization. The Plan should note the qualifications of personnel doing the inspections and must allow for the inspector to require additional measures as necessary.

The permittee shall provide a copy of the Plan to all contractors or developers conducting construction activities on individual lots or buildings within the overall plan of development, regardless of ownership. These additional contractors and developers must sign the contractor certification (Section 6(b)(6)(E)).

The Plan must be maintained on site during construction and updated as necessary.

### **Erosion and Sediment Control Notes**

Section 6(b)(6)(C)(i)(2) of the permit requires the installation of sediment traps or basins which will provide a minimum of 134 cubic yards of water storage per acre drained from a disturbed area during construction activities. This section further states that the installation of a sediment basin designed in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control is required for any discharge points that serve an area with more than 5 disturbed acres at one time. The Plan must clarify how this requirement will be met and provide the locations of any sediment basins.

The permittee should note that the use of silt fence and/or a hay bale barrier at a detention basin outlet is not sufficient to convert a detention basin to a sediment trap during construction. The Department recommends a fabric-wrapped perforated riser pipe and gravel cone, or an alternative outlet that conforms to the guidelines. Also, outlet structures from sedimentation basins must not encroach upon a wetland as stated in Section 6(b)(6)(C) of the general permit. As noted above, a detail all outlet structures must be included in the plan.

### **Post-construction Stormwater Treatment**

Section 6(b)(6)(C)(iii) of the general permit contains three post-construction stormwater treatment requirements, two of which apply to this project. Subsection 1 states that the Plan must include a design for treatment that achieves a goal of 80% removal of suspended solids from stormwater discharges. The Plan must indicate how this requirement will be met. The proposal shows a detention basin without any detail of the inlet or the outlet structure. Such details must be provided. A permanent sediment forebay in the detention basin is recommended to help settle out coarse particles and to minimize the maintenance burden of the pond. The outlet must be non-clogging and prevent the discharge of floating debris.

Subsection 2 requires that velocity dissipation devices be placed at stormwater discharge locations and along the length of any outfall channel as necessary to provide non-erosive flow. The plans show the detention basin discharging within 10 feet of the wetlands. The permittee must provide details of the controls to be used to prevent erosion into the wetlands, and should consider alternate designs to allow the outlet pipe to be placed further away from the wetlands boundary.

## **Conclusion**

The plans provided for the ERT review must be expanded to incorporate all of the elements required by the permit prior to submittal to the CTDEP. This review does not constitute a complete review of the Plans for permitting purposes.

## SEWAGE DISPOSAL AND WATER SUPPLY

This section is to provide technical comments on the proposed 10-lot Gottier Farms East Phase I. The 15-acre residential subdivision is Phase I of a potential 73-lot subdivision on 115 acres of land. Plans for the subdivision have been prepared by Russell Waldo, P.E. The CTDPH - Environmental Engineering Section participated in the environmental review of the subject property on August 13, 2003 and has performed a cursory review of the preliminary plans. The following general comments are offered:

- Sewage disposal systems must be designed in accordance with the Public Health Code (PHC) Section 19-13-B103 and its Technical Standards. Based on a preliminary review of the proposed plans, insufficient data has been provided to show compliance with the minimum PHC regulations. Several of the test pits contained mottling less than 18 inches from the ground surface that is indicative of seasonal high ground water level. One of the proposed lots revealed a substantial amount of fill on the property, without demonstrating a sufficient amount of suitable soil.
- Groundwater data collected from the standpipes on the proposed lots for the year 2003 was not taken throughout the entire wet season, which begins February 1.
- Test pits are required in the primary and reserve areas, and in some cases up to 50 feet downgradient from the proposed system if existing soil conditions warrant it. Sufficient soil testing has not been provided.

- Minimum spread requirements have been determined using a 10 minute per inch percolation rate. The percolation data submitted shows that the testing was performed during the dry season, and further more some of the perc rates are shown to be 13 minutes per inch. The CTDPH - Environmental Engineering Section would not consider this data acceptable.
- The lots will require that engineered plans be designed due to the classification as an "area of special concern" in accordance with PHC Section 19-13-B103d(e).
- Numerous lots have a substantial portion of their potable water well protective sanitary radius off the lot. This does not afford the best protection from possible sources of pollution. The CTDPH - Environmental Engineering Section has recommended that new lots be laid out so that all or substantially most of the protective well radius is within the bounds of the lot. Wells within 25 feet of town roads can create conflicts with the separation distances to drainage systems.

The plan does not indicate if the Eastern Highlands Health District (EHHD) has been involved with or witnessed any of the soil testing, percolation testing, or wet season groundwater monitoring. Furthermore, it has been determined that the EHHD has not received a copy of the plans for their review. As stated in past review letters from the CTDPH - Environmental Engineering Section, they strongly recommend that ERT reviews be conducted following the local health department's plan review.



## **WILDLIFE RESOURCES**

The following information is provided to assist the Town in addressing its concerns regarding the configuration of the open space and its value to wildlife.

### **Wildlife Impacts**

A high diversity and abundance of wildlife can be expected to use the Gottier Farm property. The property provides a diversity of habitats, including shrubland, dry and wet meadow, mixed hardwood and softwood forest, agricultural land, and tributary streams and wetlands associated with the Charter Brook and Skungamaug River systems. In addition, the property lies within a corridor of land extending to the north and east that is largely undeveloped. This corridor contains some large blocks of unfragmented forest and includes over 1,000 acres of permanently protected open space (including Charter Marsh Wildlife Sanctuary and Nye Holman State Forest to the east; map attached).

The proposed open space should provide a good buffer to protect water quality in Charter Brook post-construction. However, wildlife use of the open space likely will be reduced due to the intensity of development within the surrounding uplands. The proposed 73-lot subdivision design will restrict movements of some wildlife species through the property as the existing habitats will be divided, replaced, or significantly reduced in size by house lots (i.e., buildings, driveways, manicured lawns) and roads. Roads can fragment or isolate wildlife habitat, are a source of chemicals and pollutants (e.g., heavy metals, salts, noise, light), may result in direct mortality of wildlife, and may disrupt wildlife dispersal patterns (e.g., where they intersect amphibian migration routes). The conversion of natural habitat to manicured lawn and other disturbances associated with human activity (e.g., noise and light pollution, the introduction of invasive plants, free-roaming cats and dogs) can impact native plant populations and affect wildlife that require large patches of

undisturbed habitat for breeding or feeding. Common, generalist species (e.g., skunks, raccoons, deer) that adapt well to human development will increase. Increased numbers of predators (i.e., skunks, raccoons, house cats) can significantly impact wildlife populations, especially songbirds and amphibians.

## **Recommendations**

The following recommendations are provided to reduce impacts to existing plant and animal communities during site development and to maintain and enhance the value of the proposed open space for wildlife:

1) Minimize the extent to which natural habitat is disturbed by clearing and grading a limited area for house and lawn space (i.e., retain existing woodlands and shrub/meadow habitat wherever possible). An effort should be made to preserve any old, large-diameter trees (especially the oaks) along the edges or in the middle of the open fields. Conduct land clearing habitat disturbance activities outside of the peak breeding and dispersal periods for wildlife (March through August) when possible. Consideration should be given to encumbering the wooded lots with a conservation easement that restricts the creation of manicured lawn and use of chemical applications, and promotes the retention of wooded habitat. The purpose of the conservation easement area and associated restrictions should be clearly defined and incorporated into the deed of record, and the boundaries of the restricted areas marked in the field.

2) To optimally protect amphibian populations in a given area, an investigation would be required in the spring and fall to identify breeding sites (e.g., vernal pools) and migration and dispersal routes so roads and development could be directed away from these critical areas. In the absence of site-specific wildlife survey information, effects on amphibians and reptiles can be reduced by:

a) avoiding direct impacts to wetlands and watercourses (e.g., filling and hydrologic changes) and maintaining habitat corridors between wetlands;

b) maintaining water quality through a reduction of impervious surfaces, implementation of aggressive sediment and erosion control plans, and eliminating direct discharges of stormwater into wetlands, watercourses or potential breeding pools;

c) reducing barriers to migration by 1) staggering haybales and silt fences in shorter lengths during site construction and removing them immediately following site stabilization, 2) refilling to grade any perc test holes and ruts created during site construction, and 3) eliminating the use of hard 90 degree vertical curbing (where necessary, use Cape Cod-style curbs, i.e., curbs at 45 degree angle); and

d) using oversized, square box culverts (2 feet wide x 3 feet high) or similar designs at wetland crossings to maintain natural stream bottom conditions and facilitate animal movement.

3) Preserve wildlife travel corridors (min. 300-foot wide areas of natural vegetation), particularly those that link wetlands to undeveloped uplands and permanently protected open spaces. At a minimum, consideration should be given to adding the area encompassing lots 34, 35, 37, 38, 44, 45 and 46 (Conceptual Plan, revised 9-27/02) to the open space to maintain a corridor of undisturbed habitat between the proposed open space, the Town property and Charter Marsh Wildlife Sanctuary.

4) Encourage homeowners to use natural landscaping techniques that will protect water quality and enhance wildlife habitat by implementing a community outreach program (facilitated by the Conservation Commission and/or land trust). The house lots in the open field areas could be landscaped with a diversity of native wildflowers and berry producing shrubs and vines. Maintaining these plantings will

attract numerous species of songbirds, small mammals and beneficial insects (e.g., butterflies, dragonflies) and enhance the value of the proposed open space by increasing the amount of continuous shrub/meadow habitat. Nest boxes could be placed on posts in open habitats with scattered trees and short ground cover to provide nest sites for species such as bluebirds and tree swallows. Owners of lots containing primarily forest habitat should be encouraged to maintain woody debris (e.g., logs, branches, stumps) on the forest floor and manage their forest to provide conditions suitable for the development of native understory and ground-layer vegetation.

Written materials on forest stewardship and protecting water quality have been developed through The University of Connecticut Cooperative Extension System's *Nonpoint Education for Municipal Officials* (NEMO) Project and Forest Stewardship Program. Information may be obtained by contacting the Haddam Extension Office at (860) 345-4511. A publication of the Connecticut DEP Wildlife Division entitled, "Enhancing Your Backyard Habitat For Wildlife," provides guidance for assessing wildlife habitat and describes methods for improving habitat and wildlife diversity in both rural and urban landscapes. This publication and information on nest box design and maintenance may be obtained by contacting the Wildlife Division (Public Awareness Program) at 860-675-8130.

5) Stewardship of Open Space - Managing the open space to maintain the current interspersion of shrub and meadow habitat would maintain beneficial insect populations and benefit a variety of wildlife, including the Eastern Box Turtle, a species that has been documented in the vicinity of the property (see section, Natural Diversity Data Base.) Technical advice on maintaining early-successional habitats for wildlife (including the control of invasive plants) may be obtained by contacting the Connecticut DEP Wildlife Division (Habitat Management Program) at 860-295-9523. In addition, the land trust may want to consider contacting the Connecticut DEP Fisheries Division for assistance in assessing the pond's aquatic resource value and restoration potential.

A suitable access for future maintenance of the open space should be determined and its location identified on the site development plans. If the creation of a public use trail through the open space is proposed, a single, passive-use (i.e., walking, wildlife observation) trail is recommended given its relative small size, the high percentage of wetlands on the parcel, and close proximity of the houses to the open space. Prospective buyers should be made aware of the presence of the open space and its resource values. The open space should be clearly marked to facilitate maintenance and monitoring efforts and to reduce potential conflicts with neighboring homeowners (e.g., trespass, lack of privacy).

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# Gottier Farm Subdivision



DEP  
79 Elm Street  
Hartford, CT 06106  
<http://dep.state.ct.us>

Approximate Boundary  
TP Town Property



09-18-2003  
Aerial Photograph

## 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 State Endangered *Botaurus lentiginosus* (American bittern) and Special Concern *Terrapene c. carolina* (eastern box turtle) that occur in the vicinity of this proposed project site.

American bitterns are a secretive wetland species associated with marshes. They are associated with high water quality wetlands. Activities that degrade the water quality in the marsh, wetland or streams that may feed them will affect the bitterns. The Wildlife Division recommends that construction be done outside the breeding season (approximately May-August). If houses are to be constructed near the marsh then a vegetation screen along the marsh should be allowed and encouraged to help the American Bittern nest. Walking paths or activities in the marsh should be discouraged during the nesting season. Please feel free to contact Jenny Dickson (860-675-8130) if you have additional questions relating to the impact of this project on the American bittern.

Eastern box turtles are terrestrial and require old field and deciduous forest habitats, which can include power lines and logged woodlands. They are often found associated with wetlands, the young may be semiaquatic, and hibernate on land by digging down in the soil from October to April. They have an extremely small home range and can usually be found in the same area year after year. This species is dormant from November 1 to April 1. They have been negatively impacted by the loss of suitable habitat. The over-collection and road mortality of these turtles, coupled with their low reproductive potential and success cause this turtle to be susceptible to extirpation. Again, box turtles are slow growing long-lived species with low reproductive capacity. The loss of adult turtles from road mortality



and incidental kill associated with developmental clearing can have significant impacts on the population.

Should state permits be required or should state involvement occur in some other fashion, specific restrictions or conditions relating to the species discussed above may apply. In this situation, additional evaluation of the proposal by the DEP Wildlife Division should be requested. Consultation with the Wildlife Division should not be substituted for site-specific surveys that may be required for environmental assessments.

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 Natural Resources 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 substitutes 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.

# **ABOUT THE TEAM**

The Eastern Connecticut Environmental Review Team (ERT) is a group of professionals in environmental fields drawn together from a variety of federal, state and regional agencies. Specialists on the Team include geologists, biologists, foresters, soil specialists, engineers and planners. The ERT operates with state funding under the supervision of the Eastern Connecticut Resource Conservation and Development (RC&D) Area — an 86 town region.

**The services of the Team are available as a public service  
at no cost to Connecticut towns.**

## **PURPOSE OF THE TEAM**

The Environmental Review Team is available to help towns and developers in the review of sites proposed for major land use activities. To date, the ERT has been involved in reviewing a wide range of projects including subdivisions, landfills, commercial and industrial developments, sand and gravel excavations, elderly housing, recreation/open space projects, watershed studies and resource inventories.

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

## **REQUESTING A REVIEW**

Environmental reviews may be requested by the chief elected official of a municipality or the chairman of town commissions such as planning and zoning, conservation, inland wetlands, parks and recreation or economic development. Requests should be directed to the chairman of your local Soil and Water Conservation District and the ERT Coordinator. A request form should be completely filled out and should include the required materials. When this request is approved by the local Soil and Water Conservation District and the Eastern Connecticut RC&D Executive Council, the Team will undertake the review on a priority basis.

For additional information and request forms regarding the Environmental Review Team please contact the ERT Coordinator: 860-345-3977, Eastern Connecticut RC&D Area, P.O. Box 70, Haddam, Connecticut 06438.