Gurski Property
Wildflower Preserve and Bird Sanctuary

Brookfield, Connecticut

Red Trillium

King's Mark Environmental Review Team Report

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

Gurski Property

Brookfield, Connecticut

Environmental Review Team Report

Prepared by the
King's Mark Environmental Review Team
of the
King's Mark
Resource Conservation and Development Area, Inc.

for the
Conservation Commission
Brookfield Connecticut

September 1997

CT Environmental Review Teams
1066 Saybrook Road
P.O. Box 70
Haddam, CT 06438
(860) 345-3977

Acknowledgments

This report is an outgrowth of a request from the Brookfield Conservation to the Fairfield County Soil and Water Conservation District (SWCD). The SWCD 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 Thursday, June 5, 1997.

Steve Fish	Environmental Education Specialist DEP - Division of Environmental Education (860) 424-3542
Norman Gray	Geologist UCONN - Dept. of Geology and Geophysics (860)486-4434
Doug Hoskins	Environmental Analyst III DEP - Inland Water Resources Division (860) 424-3903
Deborah Lee	Ecologist Eastern CT Resource Conservation & Development Area, Inc. (860) 974-2300
Dawn McKay	Biologist DEP - Natural Resources Center (860) 424-3592
Peter Picone	Wildlife Biologist DEP - Wildlife Division (860)675-8130
Larry Rousseau	Service Forester DEP - Western Headquarters (860) 485-0226

Frank Schaub Supervising Sanitary Engineer
DOH - Environmental Engineering Section
(860) 509-7296

I would also like to thank Chris Schappert and Stephanie Landis of the Brookfield Conservation Commission and William Paskey, the Brookfield land use officer 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 additional information. 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. This report identifies the existing resource base and evaluates its significance to the proposed development, and also suggests considerations that should be of concern to the 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 developing a management and master plan for the Gurski Property.

If you require additional information please contact:

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

Summary

Planning

- Start a planning committee made up of interested citizens and town officials/staff/commissions.
- Invite teachers and students interested in learning and participating in the planning process.
- Begin by discusses various uses and determining the desired outcome (i.e. bird sanctuary/wildflower preserve/nature center.
- The property needs a long term habitat management plan encompassing the goals and objectives for increasing and maintaining biodiversity as well as utilizing the property for education and passive recreation.
- Contact organizations and agencies that can assist in the planning and implementation such as:
    - Environmental Review Team (done!)
    - DEP - Team Wildlife Biologist (Peter Picone)
    - DEP - Environmental Education (Steve Fish)
    - DEP - Inland Water Resources (Doug Hoskins)
    - State Certified Forester
    - Local Boy Scouts/Girl Scouts
    - Garden Club
    - Audubon Society
- A "phased development" approach should be used.

Environmental Education/Nature Center

- A very impressive parcel of land with quite a diversity of vegetation and terrain.
- The property, along with the house and outbuildings has great potential to be developed as a nature center.
- The large field has several locations that would be appropriate for an amphitheater that would allow for large gatherings.
- The "family picnic grove" is an excellent site for an outdoor classroom
- The parking will need to be improved to provide spaces for buses and/or vans if a nature/environmental education center is planned.
- Good location for local school access.

- Nature trails should not criss-cross the property but allow for areas that will not be disturbed. Pets should not be allowed on the property, especially during the nesting season. A strict leash law should be in place and enforced.
- A trail system can be devised that will point out varying habitat types and other points of interest on the property. A trail guide can be developed that would correspond to numbers along the trail. This would reduce signage maintenance and require trail users to pick up a guide at a trailhead, nature center or town hall.

Sewage Disposal and Water Supply

- The Brookfield Health Department has no record on file for the locations of either the well or the septic system.
- Individuals familiar with the property report that the septic tank is located in front of the property with some type of system located on the low side of the driveway adjacent to the wetlands.
- The water supply is reportedly provided via a natural spring which is located upgradient of the stone wall just southerly from the house in the rear.
- It is highly probable that the existing well and septic system could be considered for the relatively low flows associated with the operation of a nature center on the property.
- If continued use of the well is considered the town can hire a water service company to investigate the construction and yield of the existing well and the town sanitarian could take samples to determine the water quality. There is adequate space to drill a new well if that is required. If large volumes of water are needed for plant watering either the well depth could be increased or consideration could be given to installing a subsurface cistern adjacent to the wetland.
- The existing septic tank can be located, cleaned and inspected to determine if it is serviceable and functioning properly. The area south of the house could be tested and would most likely be found suitable for construction of a new on-site septic system.

Topography and Geology

- The property has considerable topographic diversity and has three distinct terrains: steep slopes on the flank of a till covered bedrock ridge on the eastern edge, flat wetland underlain by swamp deposits and glacial sand in

the north and a small till covered bedrock knoll in the southwestern portion.

- The bedrock underlying the site is predominantly sandstone and shales of the Ratlum Mountain Schist and Brookfield Gneiss Formations.
- The bedrock surface is overlain by a thick deposit of compact sandy till that is derived from the Brookfield Gneiss.
- The elliptical streamlined hill just north of Route 133 that is visible from the Gurski property is a classic example of a glacial drumlin.

Wetland Resources

- Most of the wetlands on the property can be classified as "palustrine forested broadleaf deciduous," commonly referred to as a wooded swamp.
- Small areas where Merwins Brook crosses the property can be considered "palustrine emergent persistent", which is a marsh.
- Merwin's Brook is classified as "riverine."
- Parking lot construction: there should be adequate treatment of stormwater runoff from impervious surfaces.
- Out Building Restoration: the garage and shed are located very close to wetlands containing an impressive assemblage of wetland plants and great care should be taken in any restorations or renovations so that they do not negatively impact the wetlands.
- Nature/Hiking Trails: an intermittent watercourse will need to be crossed to access the forested area in the southern portion of the property. To minimize disturbance it is recommended that this be accomplished as far to the east as possible. This small crossing should most likely be a constructed single span bridge that extends beyond the rocky banks of the stream. To access the very poorly drained wetlands in the northern portion of the site it is recommended that a low impact boardwalk be constructed to enable study and observation of as many wetland habitats as possible.
- An excellent opportunity for wetland enhancement exists in the northern wetland area. In an area that appears to have had fill deposited it may be possible of construct a small open water habitat which would serve to diversify the overall wetland system.
- The DEP - Inland Water Resource Division is available to assist with more detailed comments on the above recommendations as the plans progress for this site.

Vegetational Resources 1

- The project site is approximately 81% tree covered, with the remainder comprised of an old hayfield and the buildings and grounds of the Gurski home.
- The vegetative cover types may be broken down into seven categories: wetland forest, old field, softwood plantation, mixed hardwood sawtimber, old hayfield, mixed hardwood poletimber, and residence and grounds.
- The economic value of the wood products are low to moderate with the forest playing a large role in the aesthetics, stormwater capacity, wildlife habitat diversity and recreational opportunities of the site.
- A large yellow poplar in the northwestern portion of the site may qualify for listing as a *Big Tree of Connecticut.*
- A second tree of interest is a yellow poplar located in the southern portion of the property which has an unusual growth at its base giving it the appearance of an elephants foot.
- The wetland forest type may benefit from light thinnings to help improve the stability of remaining trees.
- Trees in the other types which are unhealthy and exhibit low vigor should be removed which will benefit the healthier trees. Properly implemented thinnings can improve the health, vigor, quality and stability of the remaining trees, along with the area's aesthetics, wildlife habitat and public safety.
- Softwood growth should be encouraged in Types B & C because it is lacking and will aid in the area's habitat diversity.
- In Type D the trees along the walking path and in the old picnic grove should be evaluated for hazards.
- Trees of unique shape and size should be released from competition from other trees and open to visitors.
- In Type F the abundant vine growth is negatively impacting the health of trees and limiting development. The vines should be severed at ground level and the stumps treated to prevent re-sprouting.
- A state certified forester should be consulted and any manipulation of forest vegetation should be done under his guidance.
- There should be a boundary maintenance program to mark and maintain the boundaries of the property.

Vegetational Resources 2 - Herbaceous Plants and Shrubs

- The property has a wide variety of vegetation which will allow for the development of different areas of the preserve to serve as examples of specific vegetation/habitat types. Examples would be: fern glen, old field successional area, drier upland area, cooler shady slopes, shrub wetland, forested wetland, wet meadow and open grassland.
- The site can be used to develop a natural vegetation education center to teach children, adults and members of town commissions about vegetation, habitats and problems with invasive non-native plants.
- There is a need to control the extensive poison ivy on the site.
- A preliminary inventory of herbaceous plants and shrubs has been compiled and closer study over the entire growing season is expected to yield a much larger list.
- No endangered, threatened or species of special concern were identified for the site. Once a preserve is established it is possible to add to the collection from other sources.

Wildlife Resources

- The following wildlife were observed either directly or indirectly by identifying scat, calls, tracks or other sign: white-tailed deer, Eastern coyote, red fox, chipmunk, ovenbird, red-eyed vireo, Rufous-sided towhee, yellow warbler and red-winged blackbird. It is expected that with more thorough field investigations that the species list would be quite large for the property.
- The property's habitats are varied but there is a distinct deer "browse line." Deer over-browsing leads to poor understory development, lower plant diversity and survival of plant species less palatable to deer. Maintaining plant diversity is critical to biodiversity.
- The following non-native invasive plants are found throughout the property: winged euonymous, autumn olive, tartarian honeysuckle, multiflora rose and Japanese barberry. These species are invasive and compete with native species for growing space and may become monocultures which lead to a decline in biodiversity. Controlling non-native invasive species will require mechanical removal by hand, pick and shovel and tractor/backhoe. An application of a herbicide may be necessary to prevent re-sprouting of stumps.
- Planting various trees, shrubs and wildflowers will enhance the seasonal food sources and improve habitat conditions. Plant species that restore and enhance the natural habitat should be utilized and non-native invasive species avoided. A list of non-native invasive plants that should not be

planted is included in the report as well as a list of existing native vegetation and native plants that could be planted to enhance the property.

- Dead or dying trees (snags) are an important habitat component and should be present or created. Types of trees and technique information is available from the Team forester or wildlife biologist.
- Many fun and educational techniques can be used to count and document the presence or absence of wildlife on the property. More information and technical help is available from the Team wildlife biologist.

Table of Contents

List of Figures

Introduction

Introduction

The Brookfield Conservation Commission has requested assistance from the King's Mark Environmental Review Team in conducting an environmental review of the Gurski Property.

The 16 acre town owned parcel is located on Obtuse Hill Road (Route 133) just east of Brookfield Center. The site contains a house, small barn/outbuilding and a garage. The site is a mix of fields, forest, and wetlands. The Conservation Commission is interested in developing a plan for property to be used as a wildflower/nature preserve.

Objectives of the ERT Study

The Conservation Commission has asked for assistance in their planning process by having the ERT provide a natural resource inventory for the site, highlight any concerns or limitations and to make recommendations and suggest guidelines for development. Special areas of interest to the Commission include existing vegetation and wildlife, management of the resources, ideas on developing a nature/environmental education center, and evaluation of existing water supply and sewage disposal systems.

The ERT Process

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

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 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 June 5, 1997, and various Team members also made separate and/or additional field visits. 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

Location Map

● Approximate Site

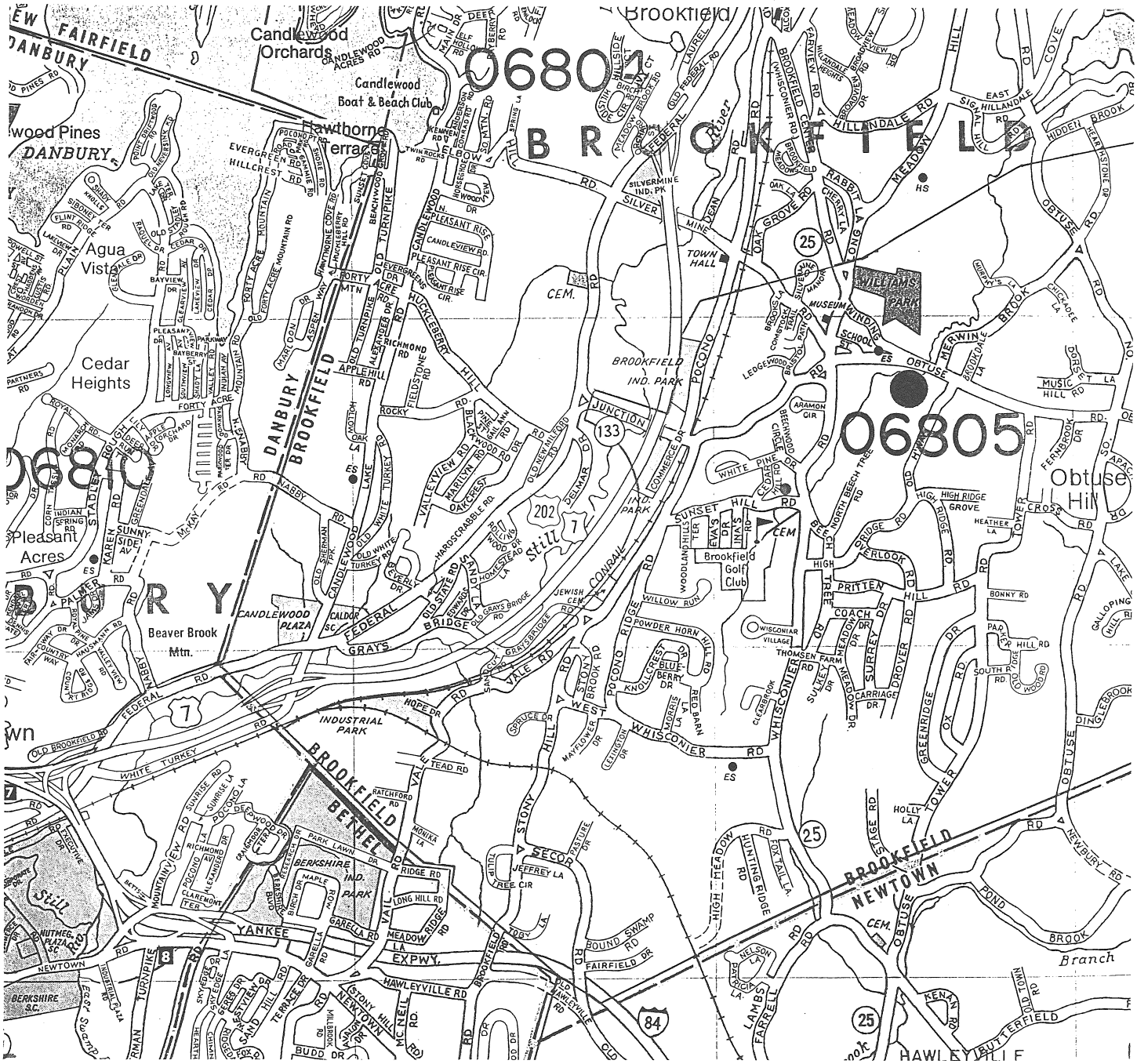


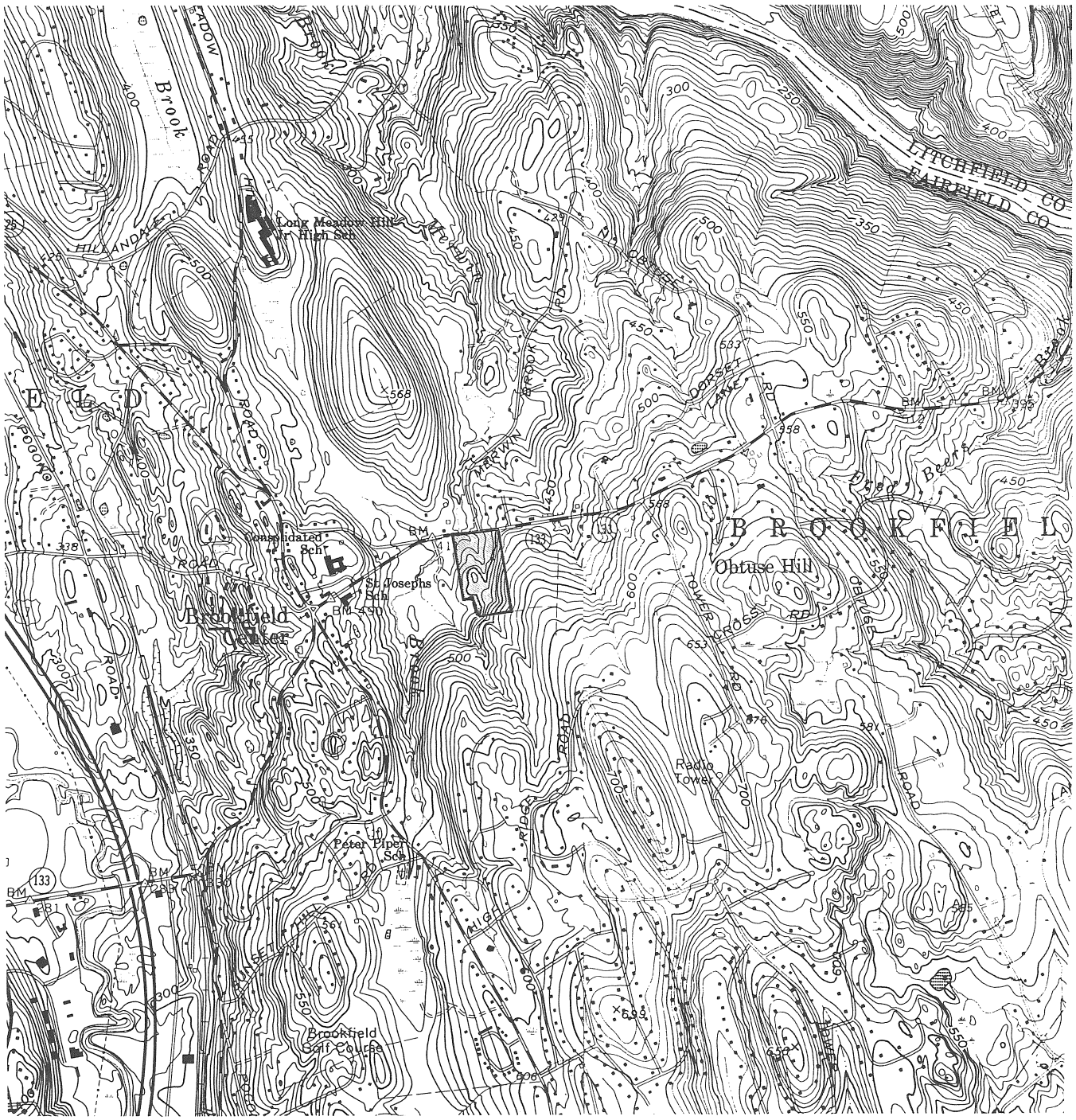
Figure 2

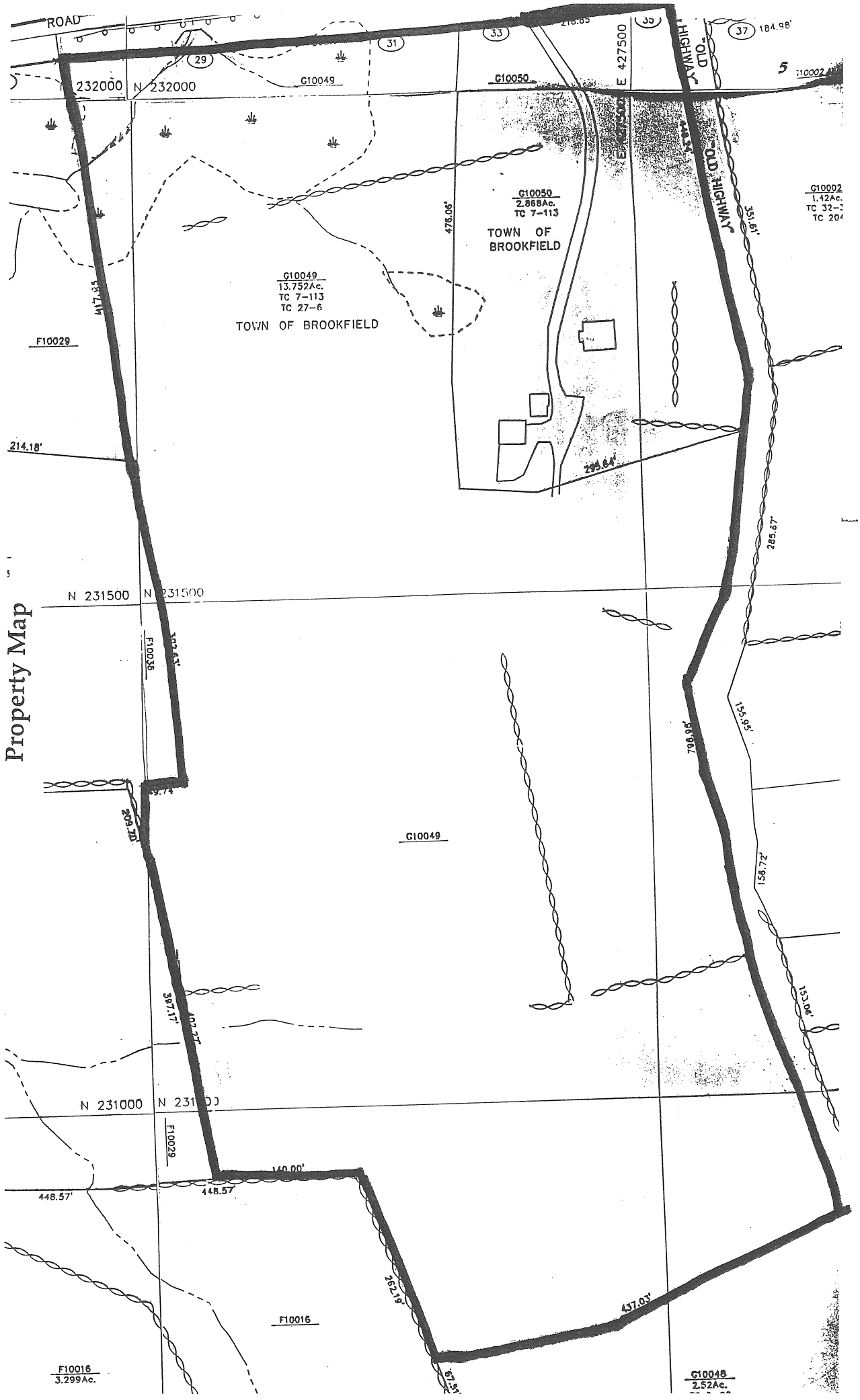
⇑
N

Topographic Map

Scale 1″ = 2000′

Approximate site





Property Map

Figure 3

Environmental Education

This small parcel of land, at 16 acres, was immediately impressive because of the diversity of the vegetation and terrain. There is a striking mix of old fields, upland woods, wetlands and stands of spruce mixed with large specimen trees such as tulip and white oak.

This property, along with the small house and adjoining outbuildings, has great potential as a nature center. Trail development would be minimal since several currently maintained mown pathways traverse most of the property at the present time; there may be the necessity of better defining the trails through signage or markers.

In the large field there were several locations that would provide an excellent amphitheater location. This would allow for small group talks or larger gatherings that might even include small concerts (not uncommon in many nature centers as fund raisers). It is strongly recommended that the field not be mowed on any regular basis - but rather one or two mowings at specific times during the growing season will help maintain wildflowers and also allow for the least disturbance of field/meadow nesting birds. (Call the DEP's Kellogg Environmental Center at 203-734-2513 to obtain a copy of *"The Meadow Management Guide,"* written by Will Stoddard.) Other references that will assist with site development can be obtained by calling the DEP's Education Office (ask for Steve Fish) at 860-424-3542. Those references include:

- School Yard Habitat Guides
    - (WILD/PLT(Project Learning Tree)
- Funding Sources/Ideas
    - PEP Grants, etc.

It is recommended that a "Phased Development" approach be used to begin the process of defining and developing the property into an educational facility/bird and wildflower sanctuary - once that is determined to be the desired outcome. This means starting with a planning committee of interested citizens and perhaps town staff/commission members that can look at alternative uses and plan a single course of action. Contact local schools, teachers and perhaps some students that might want to learn about the planning process. Finally, contact organizations and agencies that can assist with your planning and implementation (the ERT is a good start).

Finally, some specific notes about the property:

- It does not have a pond or good water body for stream/pond studies. The Wetland Resources section of this report recommends an area in the northrn wetland area.

- The Upland - Overlook Area (the old picnic site) would be an excellent area for an outdoor classroom location.

- If a center is to be the final result, consider better parking - enough to accommodate school buses, vans, etc.

Sewage Disposal and Water Supply

A site visit was conducted by the Team sanitarian on June 4, 1997 together with town sanitarian Michael McCarthy. A second brief visit was also made on June 9.

The Brookfield Health Department has no records on file concerning location of either the on-site sewage disposal system or the private well. Individuals familiar with the property report the septic tank is located in the front of the property with some type of system located on the low side of the driveway adjacent to the wetlands. The water supply is reportedly provided via a naturally flowing spring which is located upgradient from the stone wall just southerly from the house in the rear.

The house is currently occupied by a single resident and there are no reported problems with either the well or the septic system. It is highly probable that continued use of both the well and septic tank could be considered for the relatively low estimated flows associated with operation of a nature center on this property. It is assumed that the facility would be staffed on a part time basis, mostly likely with volunteers, and the building would be opened for scheduled events or on weekends. Assuming on any peak day as many as 50 visitors elected to use the restroom in the existing home, 50 x 5 gallons per toilet use = 250 gallon per day generation of domestic sewage which would equal or be less than the flows normally associated with a two or three bedroom home.

If continued use of the well and sewage disposal system are to be considered, the town could hire a water service company to investigate the construction and yield of

the existing well. The town sanitarian could take water samples to determine water quality.

The existing septic tank could also be located, cleaned and inspected to determine if it is serviceable. Dye could be placed into the septic tank and the system stressed with short term water use to determine whether the existing leaching system is functioning properly or somehow short circuiting and causing nuisance conditions.

The large open pastures and wooded slopes located south of the house could be tested and most likely would be found suitable for construction of a new on-site sewage disposal system should that be required. Based upon review of the Soil Survey (USDA-NRCS) maps for Fairfield County, it is most likely a sewage disposal system meeting all public health code requirements could be constructed. Similarly, more than adequate area exists to locate a well spaced 75' feet away from the sewage disposal system but installation of a well, perhaps north of the existing house would most likely require temporary construction of an access driveway for the well drilling rig should that area on the east side of the driveway be considered for well location. If large volumes of water were required to plant watering, either the well depth would have to be increased or consideration could be given to installing a subsurface cistern adjacent to the wetlands to take advantage of naturally occurring surface and subsurface flows which migrate toward the wetlands.

Figure 4

⇑
N

Soils Map

Scale 1″ = 1320′

Topography and Geology

Topography

The 16 acre Gurski property possesses considerable topographic diversity. Three topographically distinct terrains cover roughly equal areas of the site. Steep slopes on the flank of a till-covered bedrock ridge are found the eastern edge, the northwestern area is a flat wetland underlain by swamp and glacial sand deposits and a small till covered bedrock knoll occupies five (5) acres in the southwestern portion of the property.

Bedrock Geology

The bedrock underlying the site is predominantly rusty-weathering metamorphosed sandstone and shales. In addition to the mineral quartz the rock also contains garnet sillimanite and biotite. Clarke (1958) refers to these metamorphic quartzites and schists as the "Hartland Formation." The more recent 1985 compilation of the bedrock geology of Connecticut has redefined the formation names and refers to the same group of rocks as the "Ratlum Mountain Schist." The schists are cut by centimeter to meter sized intrusions of granite, pegmatite and quartz-diorites of the so-called "Brookville Gneiss." The contact of the Ratlum Schist with the main body of the Brookfield Gneiss runs just along Rte. 133 at the northern edge of the property. The Brookfield gneiss is a fine-grained (mm grains), massive, gray colored quartz feldspar -biotite rock with a very distinctive "blotchy" appearance due to the presence of 5mm sized white feldspar phenocrysts. All of the rocks are roughly 400 million years old and originated on island arcs and small continental fragments in the Iapetos Ocean thousands of miles from their present location. These rocks were caught-up in the collision of North America and the ancient Avalon continent, some 300 million years ago and were "plastered" onto the edge of North America.

The actual boundary between Proto-North American and the Iapetos crust lies less than one mile to the west along a major fault locally referred to as "Cameron's Line."

Surficial Geology

The very irregular bedrock surface is blanketed by a thick deposit of gray colored compact sandy till. Till is the material scored, abraded and dragged along at the base of the continental ice sheet that covered the area to a depth of several thousand feet 20,000-14,000 years ago. The gray color of the till reflects its derivation from the Brookfield Gneiss to the north. The elliptical streamlined hill (marked by a 568 foot point elevation on the topographic map) just north of Rte. 133 is a classic example of a glacial drumlin. Drumlins are unusually thick mounds of glacial till molded by flowing ice at the base of a thick ice sheet. In some ways they are the glacial equivalent of wind formed sand-dunes. The drumlin stands out prominently on the topographic map partly because it is encircled by a broad y flat area with very few contour lines at the 400 foot elevation. Judging from the distribution of glacial outwash sand and gravel indicated on the Surficial Geology map by Thompson (1975), this flat area was probably graded to its present level by glacial meltwaters draining into streams running along the edge of a remnant tongue of stagnant ice as it continued to occupy the Housatonic River Valley even after the ice covering in the adjacent highlands had melted away. Although several feet of organic swamp deposits which have accumulated during the last 14,000 years now cover the northern third of the site it is quite reasonable to assume that several feet of sand and gravel may underlie much of that area.

References

Clarke, James W., 1958. Geologic Map of the Danbury Quadrangle, Connecticut, Connecticut Geologic and Natural History Survey, QR-1.

Thompson, Woodrow, 1975. Surficial Geologic Map of the Danbury Quadrangle, Connecticut. USGS Open File Map 75-547

Rodgers, J. 1985. Bedrock Geological Map of Connecticut, 1:125,000. Connecticut Geological and Natural History Survey.

Wetland Resources

Wetland types can be categorized using many different classification systems. The U.S. Fish and Wildlife Service utilizes a classification system based on ecological associations of plant communities present in the wetland. This system separates wetlands into the major categories of Palustrine (marsh/swamp), Riverine (watercourses), Lacustrine (lakes) and Marine (coastal). Based on this system, most of the wetlands on this property belong to the category of "palustrine forested broad-leaved deciduous", commonly referred to as a wooded swamp. Small areas where the Merwin Brook cuts across the northwest corner of the property could be considered "palustrine emergent persistent." These are the non-treed wetlands commonly referred to as a marsh comprised of cattails, sweetflag, various grasses, sedges and rushes. And finally, the Merwin Brook itself can be classified as "riverine."

Preservation of the wetland areas should be relatively simple since this is town-owned land dedicated for the purpose of nature preservation and education. Of course some development of the area may be necessary in order to utilize it as such. Some of these activities could include:

Parking lot construction

Adequate treatment of stormwater runoff from the impervious area of the parking lot should be considered as part of any development plan.

Restoration of out-buildings

The garage and shed are located very close to an area of wetlands which could be impacted during restoration of these buildings. This area contained an impressive

assemblage of wetland plants and could serve as a very visible, impressive wetland area for the visitors of the nature center.

Nature observation/hiking trails

In order to utilize the beautifully forested area in the southern portion of the lot, a crossing of an intermittent watercourse would be necessary. To minimize disturbance of water resources, it is recommended that this be accomplished as far to the east as possible since the amount of wetlands associated with the intermittent watercourse increases as the watercourse flows down off the hill to the flatter portions of the west. This small crossing should most likely be a constructed single-span bridge that, for safety reasons, would extend beyond the rocky banks of the stream. The construction of a minimally intrusive, low-impact boardwalk is highly recommended to access the very-poorly drained wetlands in the northern portion of the property for educational purposes. The board walk or series of them should try to include as many of the wetland habitats discussed above.

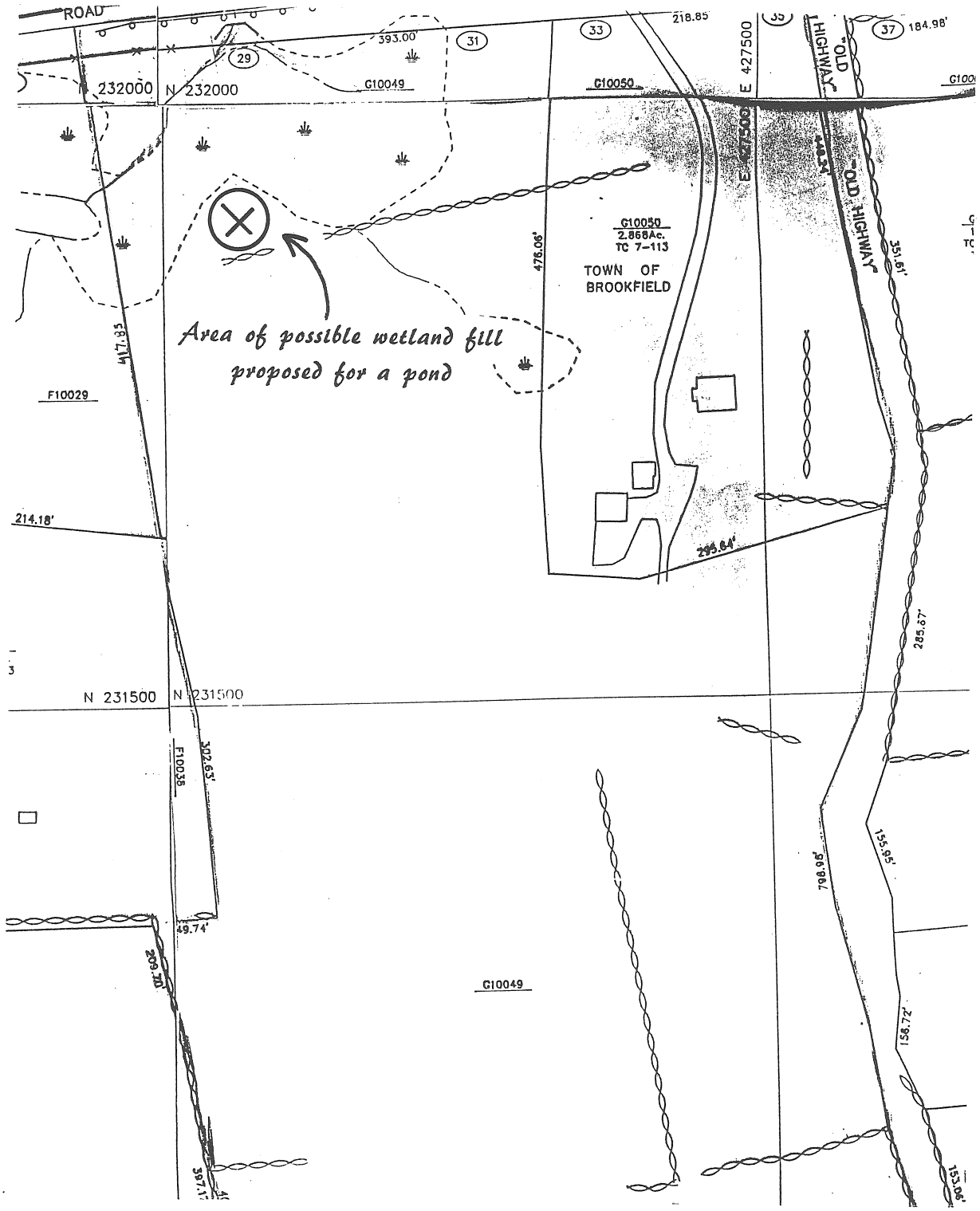
Finally, their appears to be an excellent opportunity for wetland enhancement in this same northern wetland area. In the middle southern boundary of this wetland area, their appears to have been some fill deposited on wetland soils. The creation of a small area of open water habitat here would serve to add diversity to the overall wetland system at this location (see Figure 5). The incorporation of a shallow-marsh shelf along the margins of this waterbody will provide further habitat diversification.

Should the Town of Brookfield progress in their plan of development for this facility, the DEP -Inland Water Resource division would be available to assist them with more detailed comments concerning the above recommendations.

Figure 5

⇑
N

Potential Pond Site



Vegetational Resources 1

The review area is approximately 16 acres of which 13 acres or 81% is tree covered. The remaining three acres or 19% is comprised of an old hayfield and the buildings and grounds of the Gurski property. The past use of the site was agricultural and residential. The surrounding properties appear to be residential lots of varying sizes. The acreage of the study area and the vegetative cover types were scaled from aerial photographs. The vegetation description for the site can be divided into seven cover types (see Vegetative Cover Type Map - Figure 6).

- Type A
  - Wetland Forest
  - 3.5 acres
- Type B
  - Old Field
  - 0.5 acres
- Type C
  - Softwood Plantation
  - 0.5 acres
- Type D
  - Mixed Hardwood Sawtimber
  - 7.0 acres
- Type E
  - Old Hayfield
  - 2.5 acres
- Type F
  - Mixed Hardwood Poletimber
  - 1.5 acres

- Type G
    - Residence and Grounds
    - 1.0 acres

These types are described in detail under the heading Vegetative Type Description.

The economic value of the wood products from the property are low to moderate. Of greater value is the role the forest plays in the aesthetics, the storm water storage capacity of the landscape, the wildlife habitat diversity, and the dispersed recreational opportunities of the area.

Vegetative Type Description

Type A - Wetland Forest

This type is comprised of two parcels, one in the north along Obtuse Hill Road and the other in the southwest corner of the property. These mixed hardwood poletimber stands occur on poorly drained soils with a high water table. The predominate species are white ash, elm, and red maple. Other species present in fewer numbers are, black birch, yellow birch, red cedar, sugar maple, white pine, yellow popular, Norway spruce and weeping willow.

Type B - Old Field

This type is a former hay field which is reverting back to forest by natural and artificial means. The natural reforestation is in the form of seedlings and saplings of apple, white ash, black birch, red cedar, hickory, red maple, sugar maple, black oak, red oak, white oak, white pine, yellow poplar and Norway spruce. The artificial means are planted seedlings of Norway spruce and white spruce. Shrubs present are barberry, highbush blueberry, brambles, winged euyonomus, honeysuckle, autumn olive and multiflora rose. Vines of

bittersweet, Virginia creeper, grape and poison ivy are found along the edges. A mowed walking path is maintained through this type.

Type C - Softwood Plantation

The pole and sawtimber sized trees include red cedar, hemlock, Scotch pine, white pine and Norway spruce. The understory growth is limited by the dense shade cast by the overstory.

Type D - Mixed Hardwood Sawtimber

This type consists of three stands bordering the old field types (Types B and E). The largest stand, located in the center of the property, has large trees with spreading crowns and a open grassy understory. This area was used by the Gurski Family as a picnic grove. The trees present here are white ash, beech, black birch, red cedar, hemlock, hickory, red maple, sugar maple, black oak, red oak, white oak, yellow poplar and Norway spruce. One tree of interest is a yellow poplar with a large diameter and crown spread. It's location is indicated on the Vegetative Cover Type Map as number one. This tree may qualify for listing as a Big Tree of Connecticut. Information on how to submit the tree for listing is included. The two remaining stands are occupied by an overstory of white ash, beech, black birch, yellow birch, hickory, red maple, sugar maple, black oak, red oak, white oak and yellow poplar. The understory contains mainly beech and sugar maple seedling and saplings. A second tree of interest is another yellow poplar indicated on the map by number two. This tree has a unusual growth at it's base giving it the appearance of a elephant's foot. This growth is a gall caused by some unknown organism which may be contributing to the tree's poor health.

Type E - Old Hayfield

This type is located in the center of the property and appears to be in agricultural use longer than Type B. The predominant cover are grasses, forbs

and poison ivy. Along the edges are seedlings of the hardwood and softwood species found in the Types A, D and F.

Type F - Mixed Hardwood Poletimber

This type has two stands along the eastern side of the property. The trees present are black birch, red cedar, red maple, sugar maple and yellow poplar. There is an abundant growth of vines including bittersweet, Virginia creeper, grape and poison ivy.

Type G - Residence and Grounds

This type includes the structures, driveway, lawns and gardens of the Gurski residence. Yard trees present here are silver maple, Scotch pine and Norway spruce. Flowering and fruiting shrubs are also present here.

Management Considerations

Several factors have to be considered in the maintenance of a forest. The potential for windthrow of trees growing on wetland soils, as in Type A, is greater due to the shallow root penetration into such soils. Light thinnings of trees may help to improve the stability of the remaining trees. Alterations in the wetlands which permanently change the water table height and or restricts the natural drainage may have a negative impact on the health of the vegetation in and around these sensitive areas.

Trees in the other types which are presently unhealthy and exhibit low vigor due to crowded conditions, old age and or past land use are more susceptible to further degradation from the stresses of development and environmental factors. The removal of these trees would benefit the healthier trees by reducing the competition for sunlight, water and nutrients. Properly implemented these thinnings would improve the health, vigor, quality and

stability of the remaining trees, along with the area's aesthetics, wildlife habitat and safety to the public.

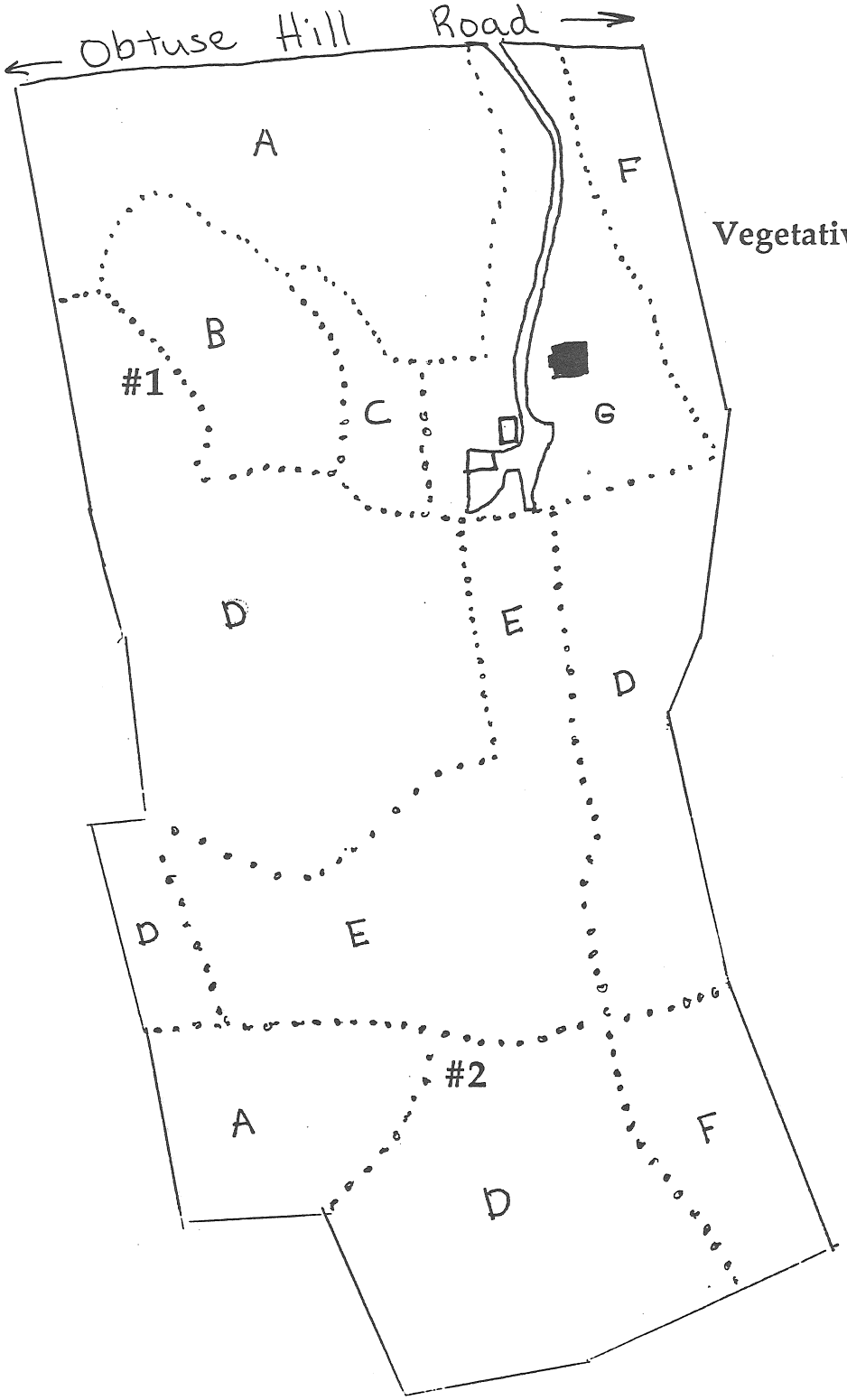
In Types B and C the softwood growth should be favored since this tree cover is lacking and would add to the area's habitat diversity. In Type D the trees within the former picnic grove and along the walking path should be evaluated for hazards they may pose to visitors. Trees of unique size and form should be released from the competition of other trees and opened to public viewing. In Type F the abundant vine growth is negatively impacting the health of the trees and limiting their development. The vines should be severed at ground level and the stumps treated to prevent resprouting. Any manipulation of the forest vegetation should be done under the guidance of State certified forester. A listing of these professionals is included in a separate packet of resource information given to the Town. A management consideration which doesn't have to do with cutting of trees is a property boundary maintenance program. Information on this subject, hazard tree reduction and Crop Tree Management are also included in the resource information packet.

Figure 6

Vegetative Cover Map

Scale 1" = ±160'

⇑
N



Cover Types

A - Wetland Forest
B - Old Field
C - Softwood Plantation
D - Mixed Hardwood Sawtimber
E - Old Hay Field
F - Mixed Hardwood Poletimber
G - Residence and Grounds

Vegetational Resources 2

Herbaceous Plants and Shrubs

Due to its complex topography, this property contains a wide diversity of vegetation (see preliminary list below) in a relatively small area (16 acres). Around the existing house and outbuildings are horticultural varieties of plants and trees in what was once the gardens surrounding the house area. This comprises about 20% of the property. About 30% of the site is wetlands. There are two separate wetland areas on the site. A wooded wetland area surrounding an intermittent stream is located at the back of the property (south side). A more open, shrubby wetland surrounding Merwin Brook, a small, but permanent stream, is located at the front of the property (northwest corner). Adjacent to this wetland is a small wet meadow/marsh area. About 25% of the property consists of rolling pastures and old fields. The remaining 25% of the property consists of steep slopes and rocky outcrops. Along the eastern boundary of the property there is a steep forested slope. In the center of the property, toward the west side there are raised rocky areas that have vegetation distinct from the surrounding fields.

The Gurski property could make an excellent site for a nature preserve because of existing vegetational resources and the variety of habitats available, as well as the proximity of the site to town schools. The varying topography and existing vegetational cover will allow for the development of different areas of the preserve as examples of specific vegetation/habitat types. Examples of such habitats are a fern glen, an old field successional area, drier upland areas, cooler shady slopes, shrub wetland, forested wetland, wet meadows, and open grassland.

The site has a lot of potential for use as a natural vegetation education center. For example, a number of species of exotic invasive plants are present which can be used to demonstrate the dangers of introduction of exotic species. The site could be used not only for the education of school children, but also for adults, especially for members of inland wetland and zoning commissions, as well as the general public. However, control of the extensive poison ivy growth will be imperative before the site can be used by the public.

The list below contains the plants recognized during the ERT field walk (most trees and garden plants have been excluded from this list). Closer study of the site over the entire growing season will undoubtedly reveal many more species. Although there is a great variety of vegetation on the site, no endangered, threatened, or species of special concern were detected. Once the preserve is established rarer species can be added to the collection from sources such as the New England Wildflower Society.

Preliminary Inventory of Herbaceous Plants and Shrubs

Lichens

- a variety of spp. on rocks, trees and on the ground

Mosses

- a variety of species

Club Mosses

- Tree clubmoss (*Lycopodium obsurum* L.)

Horse Tails

- at least one species of *Equisetum*

Ferns

- Cinnamon Fern (*Osmunda cinnamomea* L.)
- Interrupted Fern (*O. claytonia* L.)
- Royal Fern (*O. regalis* L.)

- Hayscented Fern (*Dennstaedtia punctilobula* (Mich.) Moore)
- Lady Fern (*Anthyrium Filex-femina* (L.) Roth)
- Marsh Fern (*Thelypteris* palustris Schott)
- New York Fern (*T. novebiracensis* (L.) Nieuwl.)
- Rock Polypody (*Polypodium virginianum* L.)
- Sensitive Fern (*Onoclea sensibilis* L.)

Shrubs

- Alder (*Alnus* sp.)
- Azalea (*Rhodora* sp.)
- Barberry (*Berberis* sp.)
- Bittersweet (*Solanum* sp.)
- Chestnut (*Castanea dentata* (Marsh.) Borkh.)
- Juniper (*Juniperus virginiana* L.)
- Nannyberry (*Vibernum lentago* L.)
- Red-osier dogwood (*Cornus stolonifera*)
- Sassafras (*Sassafras albidum* (Nutt.) Nees)
- Spice Bush (*Lindera Benzoin* (L.) Blume)
- Steeple Bush (*Spirea* sp.)
- Tartarian honeysuckle (*Lonicera tartarium*)
- Wild Rose (*Rosa multiflora* Thunb.)

Flowering Herbaceous Plants

- Bloodroot (*Sanguinaria canadensis* L.)
- Bugle (*Ajuga reptans* L.)
- Common Cinquefoil (*Potentilla simplex* (Michx.))
- Common Speedwell (*Veronica officinalis* L.)
- Early Blue Violet (*Viola palmata* L.)
- Dwarf Ginseng (*Panax trifolium* L.)
- Foam Flower (*Tiarella cordifolia* L.)
- Goat's Beard (*Tragopogan pratensis* L.)
- Golden Ragwort (*Senecio aureus* L.)
- Hawkweed (*Hieracium* sp.)
- Indian Poke (False Hellebore) (*Veratrum viridie* Ait.)
- Jack-in-the-Pulpit (*Arisaema triphyllum* L.)
- Jewelweed (*Impatiens capensis* Meerb.)
- Meadow Rue (*Thalictrum* sp.)
- Moneywort (*Lysimachia Nummularia* L.)

- Poison Ivy (*Rhus radicans* L.)
- Povery Grass (*Danthonia spicata* (L.) Beauv.)
- Pilea (*Pilea pumila* (L.) Gray)
- Red Trillium (*Trillium erectum* L.)
- Robin's Plantain (*Erigeron pulchellus* Michx.)
- Rough Bedstraw (*Galium asprellum* Michx.)
- Rue Anemone (*Anemonella thalictroides* (L.) Spach)
- Skunk Cabbage (*symplocarpus foetidus* (L.) Nutt.)
- Tussock Sedge (*Carex stricta* Lam.)
- Virginia Creeper (*Parthenocissus quinquefolia* (L.) Planch.)
- Whorled Loosestrife (*Lysimachia quadrifolia* L.)
- Wild Geranium (*Geranium maculatum* L.)

References

____. 1993. Connecticut's endangered, threatened, and special concern species. CT D.E.P.

Dowhan, Joseph J. 1979. Preliminary checklist of the vascular flora of Connecticut. State Geological and Natural History Survey of Connecticut, CT D.E.P.

Fernald, M. L. 1970. Gray's manual of botany., 8th ed. D. Van Nostrand, Co., N. Y.

The Natural Diversity Data Base

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

Natural Diversity Data Base 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 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 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.

Also 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.

Wildlife Resources

This section will address the following: current conditions for wildlife, recommendations for management and enhancement, planning for wildlife, nature trail potential and other considerations.

Current Conditions

The following wildlife were observed during the site visit either directly or indirectly by identifying calls, tracks, scat or other sign: whitetailed deer *(Odocoileus virginianus)*, Eastern coyote *(Canis latrans)*, Red fox *(Vulpes vulpes)*, chipmunk *(Tamias striatus)*, Ovenbird *(Seiurus aurocapillus)*, Red-eyed vireo *(Vireo olivaceus)*, Rufous-sided Towhee *(Pipilo erythrophthalmus)*, Yellow warbler *(Dendroica petechia)*, and Red winged blackbird *(Agelaius phoeniceus)*. These are just a few examples of the types of wildlife that utilize the property's habitats. It can be expected, with more thorough field investigations, that the species list will be large for the property.

Habitat Conditions

Collectively, the property's habitats are varied, however a distinct deer "browse line" is detectable throughout. Deer over-browsing leads to poor understory development, lower plant diversity and survival of plant species less palatable to the deer. Maintaining plant diversity is critical to biodiversity.

The following non-native invasive plants are found throughout the property, especially the old hayfield cover type: winged euonymus *(Euonymus alatus)*, autumn olive *(Eleagnus umbellata)*, tartarian honeysuckle *(Lonicera tartarica)*, multiflora rose *(Rosa multiflora)*, and Japanese barberry *(Berberis thunbergii)*. These

species are introduced plants which were not part of Connecticut's landscape prior to European settlement. These are particularly invasive and compete with many native species for growing space. Some may develop into monocultures which leads to a decline in biodiversity.

Habitat Management and Planning Considerations

The property needs to have a long term habitat management plan which encompasses the goals and objectives for increasing and maintaining biodiversity. Also, in concert, with the habitat management, a plan is needed for utilizing the property for recreation. As properties are developed, natural areas are divided into smaller, isolated pieces. Land that is in public ownership can be managed for wildlife habitat for the long term. In contrast, private land, which consists of 88 percent of the land in Connecticut, usually changes ownership and is not managed for wildlife for the long term. This publically-owned property can be a place where habitat is improved and managed for wildlife for the enjoyment and learning experience of area citizens.

Controlling invasive non-native plants will require a diligent application of mechanical removal by hand, pick and shovel, and tractor (back-hoe). Also, application of herbicides may be necessary for some invasives to prevent resprouting of cut stumps (if herbicide use is a major concern - least environmentally sensitive compounds can be used). The need for controlling invasive non-natives outweighs the risks of utilizing herbicides.

Planting various trees, shrubs and wildflowers will enhance the seasonal food sources and improve habitat conditions. Plant materials should be of native sources as much as possible. Plant species which restore and enhance natural habitat conditions should be utilized and invasive non-native species avoided. The following is a partial list of non-native plants which should not be planted:

Non-Native Trees

- Norway Maple *(Acer platanoides)*
- Tree of Heaven *(Ailanthus altissima)*
- Catalpa *(Catalpa spp.)*

Non-Native Shrubs

- Autumn Olive *(Elaeagnus umbellata)*
- Russian Olive *(Elaeagnus angustifolia)*
- Winged Euonymus *(Euonymus alatus)*
- Burning bush *(Euonymus atropurpureus)*
- Privet *(Lignustrum spp.)*
- Tartarian honeysuckle *(Lonicera tatarica)*
- Common buckthorn *(Rhamnus cathartica)*
- Glossy buckthorn *(Rhamnus frangula)*
- Multiflora rose *(Rosa multiflora)*

Non-Native Vines

- Asiatic bittersweet (*Celastrus orbiculatus*)
- Japanese honeysuckle (*Lonicera japonica*)

Plantings of native trees, shrubs and wildflowers can enhance conditions for wildlife in the area. Diversifying the seasonal availability of food sources such as planting Spring and Summer berry producers, fall food sources and winter persistent food sources.

The following native plants can be used to enhance the property (all the species are currently found on the property):

Native Shrubs

- Gray dogwood *(Cornus racemosa)*
- Silky dogwood *(Cornus amomum)*
- Arrowwood viburnum *(Viburnum recognitum)*
- Nannyberry viburnum (*Viburnum lentago)*
- Common Elderberry *(Sambucus canadensis)*
- American Cranberry Bush *(Viburnum trilobum)*
- Winterberry *(Ilex verticillata)*

Native Trees

- Flowering dogwood *(Cornus florida)*
- Black Cherry *(Prunus serotina)*
- Pin Cherry *(Prunus pensylvanica)*
- White pine *(Pinus strobus)*
- Eastern Red Cedar *(Juniperus virginiana)*

Additional Native Plants (not currently found on property)

- American Holly *(Ilex opaca)*
- Bayberry *(Myrica pensylvanica)*
- Sweet pepperbush *(Clethra alnifolia)*
- Hackberry *(Celtis occidentalis)*

Meadow Environment Plantings

Encourage native wildflowers through selective mowing. Maintain herbaceous environment by mowing fields at least once a year to prevent woody plant invasion. Plant/seed native wildflowers throughout the open meadow areas.

Native Plant Sources

New England Wildflower Society, Inc.
Garden in the Woods
Hemenway Road
Framingham, MA 01701 -2699
Tel.617-237-4924 or 877-7630

DEP Forestry Division
Seedling Program
Pachaug State Nursery
Box 23A, 190 Sheldon Road
Voluntown, CT 06384
Tel.860-376-2513

Connecticut Native Trees
Availability List.16 pp.
Peter M. Picone
DEP Wildlife Division
P.O. Box 1550
Burlington, CT 06013
Tel.860-675-8130

Connecticut Native Shrubs
Availability List.12 pp.
Peter M. Picone
DEP Wildlife Division
P.O. Box 1550
Burlington, CT 06013
Tel.860-675-8130

Nature Trail Development and Planning

Wildlife habitat is made up of all the existing and managed components of the property. It is the collective summation of all the environmental factors which provide food, water, cover and their spatial arrangement. The property can be utilized to teach residents how to recognize the various habitat components and also have some "take home" messages or ideas on how to manage their own properties; big or small. Nature trails, however, should not be allowed to criss-cross the entire property. Trails should allow some parts of the property to remain as refugia where wildlife remain undisturbed by large volumes of foot traffic. Pets should not be allowed on the property especially during the nesting seasons. A strict leash law should be in place and enforced.

The trail system can serve to point out the varying habitat types and other points of interest on the property. The various habitat components such as:

- Spring foods
- Summer foods
- Fall berries
- Winter persistent berries
- Conifers and evergreens
- Nut sources
- Herbaceous plants and wildflowers
- Nectar plants
- Dead or dying trees
- Artificial nest boxes
- Man-made brushpiles/rock piles
- Water sources

Each habitat component contributes, in some way, to the ecology of the property. The various components can be identified by trail markers or signs. Also, a trail guide can be developed which corresponds to numbers along the trail. This can

reduce the maintenance of signage and requires trail users to pick up a guide from a centralized trail head, nature center or town hall.

Other Habitat Improvements

Dead or dying wood is part of habitat for wildlife, especially woodpeckers and a whole host of secondary users such as screech owls *(Otus asio),* bluebirds *(Sialia sialis)* and flying squirrels. A minimum of 3 - 5 snags (dead or dying trees) per acre should be present or created per acre of forested area. Larger snags are more valuable, although snags a small as 3 inches in diameter are utilized by wildlife. Snags can be created by cutting two complete bands through the bark with a chainsaw or ax (type of trees and technique information is available from Team DEP forester or wildlife biologist).

Practical Wildlife Censusing Techniques

Counting or documenting the presence or absence of wildlife along the trail can be both fun and educational for the trail users. It also teaches the importance of record keeping and identification of wildlife (directly or indirectly).

- Locate nests and other wildlife occurences
    - Seasonally locate nests and plot locations on maps
    - Find den trees and natural cavities in trees and find out what animal isusing it
- Owl hooting survey
    - play an owl hooting tape and listen for response
- Bird Count
    - document their seasonal presence
- Snow tracking
    - following a light snowfall (2-3 inches), animal tracks can be identified and followed to see where they are travelling to and from. Also, they may detect what the animal is doing or eating.

Conclusions

The Gurski property provides the town of Brookfield a unique opportunity to bring its citizens closer to nature and, at the same time, show them practical habitat management techniques that are "take home" messages. This report provides only a handful of ideas for the property. For more information and further technical help please contact the Team Wildlife Biologist at DEP Wildlife Division, Sessions Woods Wildlife Management Area, Route 69, Burlington, CT 06013, Tel. (860) 675-8130.

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 Soil and Water 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 Soil and Water 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.