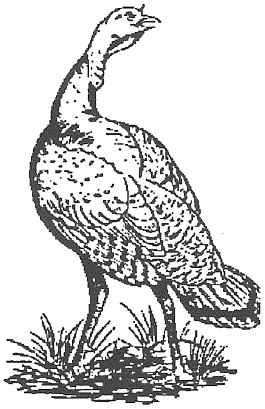

Walnut Tree Village II

Newtown, Connecticut

King's Mark Environmental Review Team Report

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

Walnut Tree Village II

Newtown, 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
First Selectman
Newtown, Connecticut

November 1998

CT Environmental Review Teams
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Acknowledgments

This report is an outgrowth of a request from the Newtown First Selectman 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, September 17, 1998.

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I would also like to thank Steve Driver, conservation official, Herbert Rosenthal, first selectman, Sandra Michaud, conservation commission member, all attending town officials, Louis DeFilio and George Trudell, applicants, Charles Spath, Sr. and William Carboni, project engineers, and Jodie Chase, project environmental consultant, 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 plans and information and in the following weeks were mailed and faxed project updates. Following the review, reports from each Team member were submitted to the ERT coordinator for compilation and editing into this final report.

This report represents the Team's findings. It is not meant to compete with private consultants by providing site plans or detailed solutions to development problems. The Team does not recommend what final action should be taken on a proposed project - all final decisions rest with the town and landowner. This report identifies the existing

resource base and evaluates its significance to the proposed 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 reviewing this proposed senior housing development.

If you require additional information please contact:

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Table of Contents

	Page
Acknowledgments	ii
Table of Contents	v
Introduction	1
Wetland Resource Review	5
Stormwater Management	9
Erosion and Sediment Control	12
Aquatic Resources	13
The Natural Diversity Data Base	18
Wildlife Resources	19
Forest Vegetation	23
Archaeological Resources	28
Transportation Engineer Review	30
Appendix	31

List of Figures and Tables

1. Location Map and Topographic Map	3
2. Display Map	4
3. Forest Cover Type Map	27

1. Invasive Nonnative Plants Table	21
2. Suggested Plants ...	21

Introduction

Introduction

The Newtown First Selectman has requested assistance from the King's Mark Environmental Review Team in conducting a review of the second phase of an elderly housing development.

The ±35 acre site is located on Walnut Tree Hill Road, Church Hill Road and Dayton Road. Phase I is partially completed with many of the units occupied. Phase II will contain a maximum of 133 one and two bedroom units as permitted by the Water Pollution Control Authority.

The Phase II site is wooded and contains the remains of a summer estate (home, outbuildings, pool, drainage work and ponds) dating from the early 20th century. The site contains .45 acres of wetlands. The project abuts Rocky Glen State Park and is within the watershed of the Pootatuck River.

Access will be from the existing entrance to Phase I on Walnut Hill Tree Road and a new access drive to the south, also on Walnut Tree Hill Road.

Objectives of the ERT Study

The Town has asked for assistance and guidance in evaluating the environmental impacts from the proposed development.

The field and plan review took place on September 17, 1998. Subsequently, Team members were informed several weeks later by the applicants of intended changes to those plans. Those changes involved a wetland road crossing which is to be eliminated and a reduction in the total number of units. The Wetland Resource

section discusses the plans reviewed on 9/17/98, and withholds a discussion of the new alternative until engineered plans showing the changes can be reviewed.

The ERT Process

Through the efforts of the selectman this environmental review and report was prepared for the Town of Newtown.

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

The review process consisted of four phases:

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

The data collection phase involved both literature and field research. The field review was conducted on Thursday, September 17, 1998 and some Team members made additional site 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

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Location and Topographic Map

Scale 1" = 2000'

◯ Approximate Site

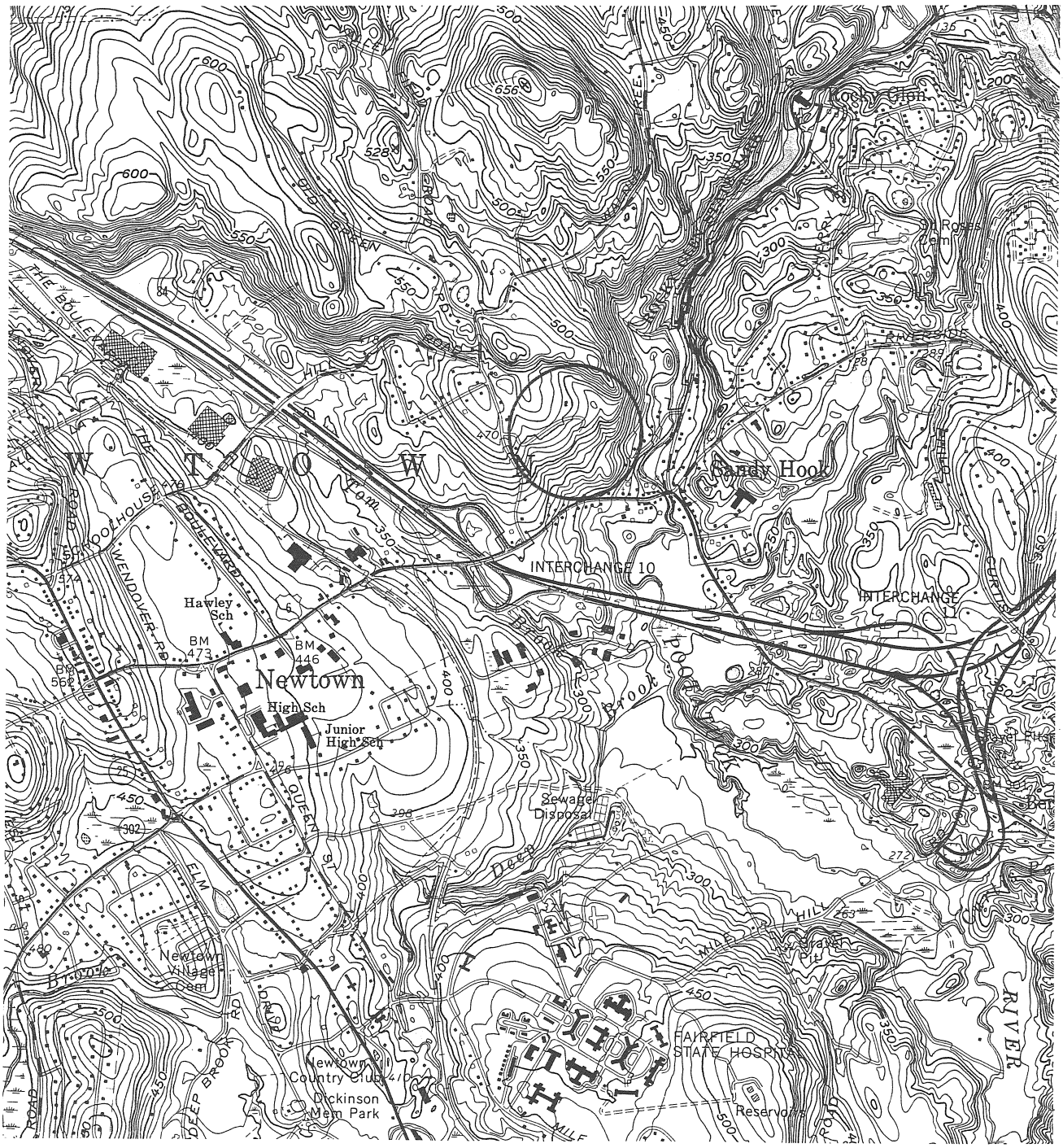
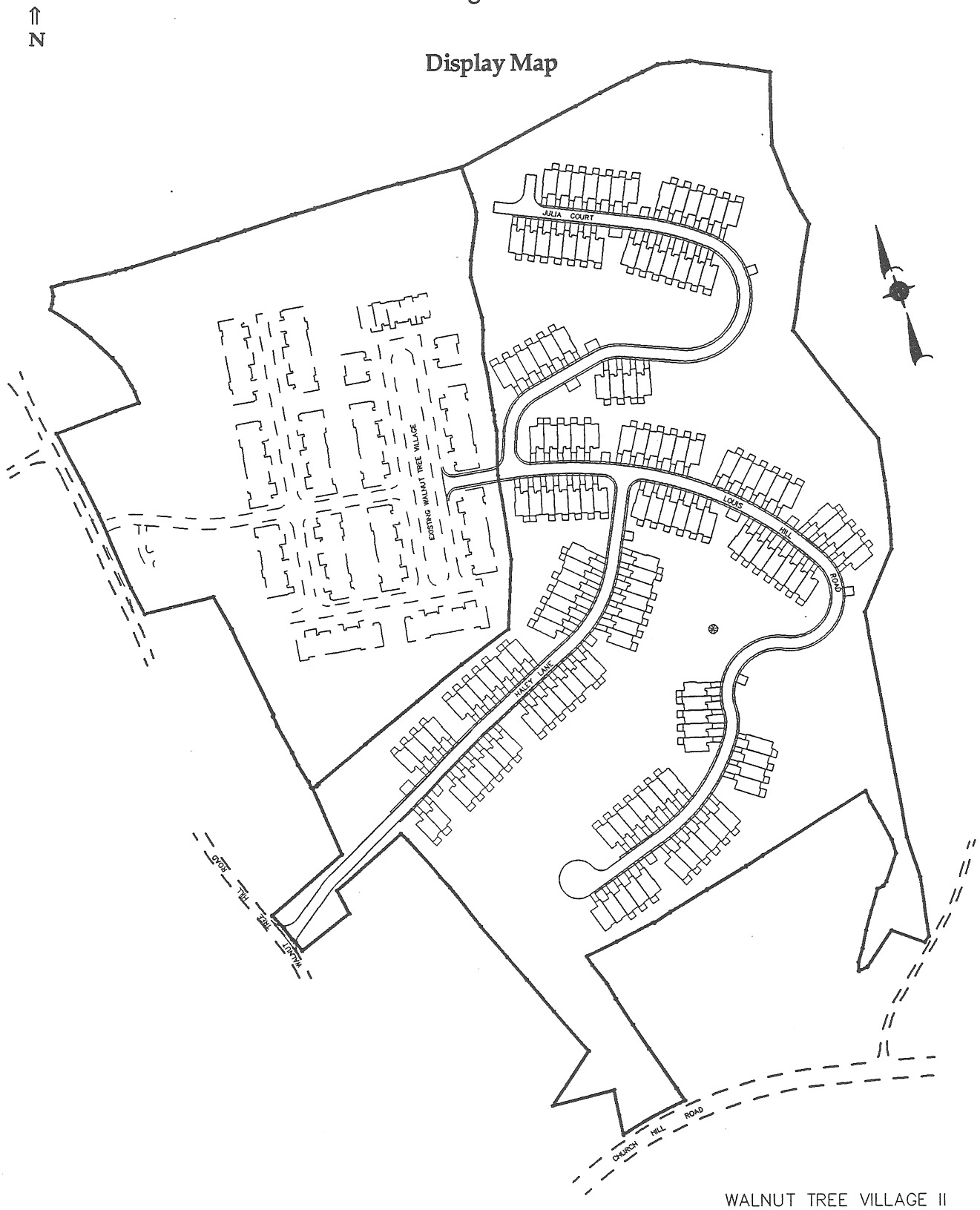


Figure 2

Display Map



WALNUT TREE VILLAGE II
DISPLAY MAP
FOR PROPERTY ON
CHURCH HILL ROAD
NEWTOWN, CONNECTICUT
PREPARED FOR
LOUIS DEFILIO
JULY 7, 1998 SCALE: 1"=300'

SPATH-BJORKLUND ASSOCIATES, INC
Consulting Engineers and Surveyors
MONROE, CONNECTICUT

Wetland Resource Review

After the ERT meeting and site walk of the proposed Walnut Tree Village II the following concerns have been generated:

- Disturbance of the man made pond at the eastern portion of the site.
- The divergence and discharge of surface runoff into the Pootatuck River.
- Sedimentation of downstream wetlands due to the steep grades throughout the site.

Site Description

The project site is a 35 acre, mixed forested parcel surrounded by residential areas. The site is dominated by mixed deciduous tree species including: red oak *(Quercus rubra)*, white oak *(Quercus alba)*, white ash *(Fraxinus americana)*, shagbark hickory *(Carya ovata)*, American beech *(Fagus grandifolia)*, along with red maple *(Acer rubrum)* and sugar maple (*Acer saccharum*). The understory is dominated maples, dogwoods *(Cornus Sp)*, alders *(Ulnus Sp.)*, and a variety of feral landscape species including: barberry *(Berberis Sp.)*, winged euyonymus *(Euyonymus alatus)* and pachysandra *(Pachysandra Sp.)*.

Water Resources Descriptions

Water resources on the site include: a watercourse with a narrow wetland edge in the southwest section of the site, a watercourse in the southeastern portion of the site which drains into two man made ponds, wetland areas adjacent to the ponds and an isolated wetland area in the south central portion of the site. The watercourses found on the site are intermittent and appear to channel runoff during storm events. The wetland area in the south-central portion of the site supports little vegetation and seems limited in functional value. The upper pond contains 1-2 feet of water and

slowly drains into the lower pond and wetlands. The current functional value of this area includes: wildlife habitat and constant water source, water storage and water quality improvements. The lower pond contains very little standing water and has steep concrete sides which limit its wildlife habitat value.

Potential Impacts

(Note: On October 6, 1998 Team members received information stating that it was the applicants intention to eliminate the wetland crossing that was proposed between buildings 105 and 107 (between the two man-made ponds) and to relocate the road between buildings 108 and 107 staying to the north of the ponds parallel to the proposed road as shown on the plans. Also, on October 22, 1998, it was determined that a total of 133 residential units would be allowed by the Water Pollution Control Authority and that it was the intention of the applicants to eliminate at least units #104 and #105.

On a conceptual basis the reduction of wetland impacts is met with approval, but until such time as engineered plans are available for review of those changes, a detailed wetland review cannot be provided. The comments below address the plans as reviewed on September 17, 1998. The wetland Team members are available to review the proposed changes for the town when they become available.)

Impacts to the upper pond and adjacent wetland areas include 2,974 square feet for a road crossing. In addition, the applicant plans to utilize the area for water quality renovations through the construction of a 926 square foot forbay. The pond is currently fed by surface runoff and a groundwater seep. Although the pond is a man-made structure, it has very cool, clear water and is providing habitat for a variety of amphibian species. No fish species were apparent within the pond and adult leopard frogs *(Rana pipiens)* along with salamander larva were observed. Tracks of white-tailed deer *(Odocoileus virginianus)*, raccoon *(Procyon lotor)* and striped skunk *(Mephitis*

mephitis) were also observed along the sides of the pond. The applicant proposes to divert flows downstream of the man-made pond into a sedimentation pond and then off-site into the Pootatuck River. The Pootatuck River is stocked by the DEP Fisheries Division with coldwater finfish. The area from Turkey Hill Road to Walnut Tree Hill Road has public fishing access and provides recreational value.

Due to the steep grade present throughout most of the site, impacts to downstream wetlands such as sedimentation and erosion are likely. The site currently has areas where scouring and rill erosion are present. The project site plan details a variety of erosion controls to be utilized during construction activities.

Recommendations

Alternatives that allow for the avoidance of the upper pond would be desirable. The pond seems to be providing an important habitat for a variety of amphibian and other wildlife species. The divergence and discharge of stormwater into this pond would likely have an effect on the overall water quality of the pond. An increase in water temperatures, sediment load, and pollutants such salt laden road run-off or lawn fertilizers represent potential negative impacts. A possible alternative would be the creation of a sedimentation pond elsewhere on the site and re-routing the road to the south of the pond. The wetland area to the south of the pond is a narrow section that would provide an area ideal for a bridge crossing. The area currently proposed for the road crossing could be incorporated into the proposed trail system. Preservation of the watershed upstream of the pond would also be desirable. The maintenance of a minimal 50' vegetated buffer would help maintain the functions and values of the existing watercoure\pond, provide wildlife habitat and have potential aesthetic value. These options would allow for stormwater management and site access without sacrificing the integrity of the existing water resources.

If total avoidance is not a feasible option further stormwater and erosion control measures should be explored to improve water quality before runoff is discharged into the pond. The use of settling basins, gross particle separators, and rip rap pads up gradient of the pond could be utilized to further improve water quality before any discharge reaches the pond. Any discharge into the pond should comply with the conditions established by the *General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities (October l 997).* Provisions should also be made to allow for post construction maintenance of settling basins. A permanent access way which allows for minimal impact to vegetative communities, should be incorporated into the site plans for the periodic removal of accumulated sediment.

The potential impacts of the proposed stormwater divergence and discharge into the Pootatuck River should be evaluated by the DEP Fisheries Division (see Aquatic Resources section). Increased nutrient and sediment loads can have negative impacts on both fish and macroinvertebrate species found within the river.

Site monitoring should be conducted throughout the duration of the project to ensure the proper use and maintenance of the erosion and stormwater control measures. The use of additional controls may be needed during the spring season when surface flow is at its highest.

Stormwater Management

Construction Activities

Since the site construction involves the disturbance of over five acres, Connecticut's General Permit for the Discharge of Stormwater and Dewatering Wastewaters (the "Permit") will cover the project. The permit requires that the site register with the Department of Environmental Protection (CTDEP) at least 30 days before the start of construction. The registrant must then prepare and keep on site during the construction project a Stormwater Pollution Control Plan (the "Plan"). If the disturbance exceeds 10 acres at any one time, a copy of the Plan must be submitted with the registration. Please note that while this review is based primarily on the state Permit, many of the erosion and sedimentation issues are included in the Connecticut Guidelines for Soil Erosion and Sediment Control (the "guidelines"), and are issues that must be dealt with on a local level before being included in the Plan.

The Plan must include a site map as described in Section 6(b)(6)(A) of the General Permit and a copy of the erosion and sedimentation (E & S) control plan for the site. The E & S plan that has been approved by the Town in conjunction with the CTDEP Inland Water Resources Division (IWRD) and the local Soil and Water Conservation District may be included in the Plan. This plan and site map must include specifics on controls that will be used during each phase of construction. Specific site maps and controls must be described in the Plan, as well as construction details for each control used. The permit requires that "the plan shall ensure and demonstrate compliance with" the guidelines. The current plans do not show erosion and sedimentation controls which meet these requirements.

Some specific controls which will need to be considered in this project include:

- Slope benches (or retaining walls where appropriate) are required for all vertical rises of over 15 feet. There are several areas included in the cut slopes which will require the addition of slope benches.

- If the road is cut in first, it must have either diversion bumps in the road, or swales with check dams along the edges of the road, to prevent it from becoming an eroded swale.

- The permit (Section 6(b)(6)(C)(i)(2)) requires that for areas where between two and five acres will be disturbed, a sedimentation basin or sedimentation trap will be available that will store a minimum of 134 cubic yards of water per acre disturbed; and for an area where greater than five acres are disturbed at one time, the Plan must show that a sediment basin will be available that will store a minimum of 134 cubic yards of water per acre disturbed. On this site, this might best be accomplished by a series of small sedimentation traps throughout the project.

- The plan should incorporate diversion trenches to divert clean water run on from areas of construction.

The permit (Section 6(b)(6)(D)) requires inspections at least once every seven calendar days and after every storm of 0.1 inches or greater. The plan must also allow for the inspector to require additional control measures if the inspection finds them necessary, and should note the qualifications of personnel doing the inspections. In addition, the plan must include monthly inspections of stabilized areas for at least three months *following* stabilization. In particular, there must be someone available to design and adjust E&S controls for changing site conditions, who has the authority and resources to ensure that such necessary changes are implemented.

Section 6(b)(6)(C)(ii) of the permit requires the plan to address dewatering wastewaters, which this site will likely generate. Silt fence is designed to filter runoff from one square acre of construction as stated in the Guidelines. Areas larger than this discharging to a single row of silt fence need additional controls.

With regard to the Town's specific questions regarding the site: it is not possible to determine the amount of additional groundwater which would be contributed to the north side of units 104 and 105 if the road were moved north of the existing pond, requiring additional cuts. The wells upstream of this area did not have groundwater readings, making it impossible to estimate how much, if any, additional water would be created by the deeper cuts. As long as the project institutes adequate velocity dissipation devices, excessive erosion to downstream areas should not occur. If the stormwater treatment system is built and maintained as designed, there should not be a significant increase in peak flows from the site.

Erosion and Sediment Control

After a review of the plans it was determined that the disturbance from the proposed development is approximately 60-70% of the total acreage. The plans did not include erosion and sediment (E&S) controls and other associated issues, except for some written information in the Engineering Report. The Newtown Conservation Department indicated that the E&S plans were not required at this stage of review, but the inclusion of the E&S control plan should be added for a proper review of this development. The Engineering Report does cover a small portion of the E&S controls, which is useful, but more information on the plans is necessary.

The priority areas for E&S control are the wetlands adjacent to abutting landowners and the subsurface wells in the southeast section of the property. The watercourse area on the west side along Walnut Tree Hill Road also needs to be protected. A "Limit of Disturbance" line and the wetland boundary line should be included on the E&S site plan. Diversions and other E&S control measures should also be indicated on the plans. This information should be clearly illustrated for ease of reference and installation for the control of soil erosion which is likely to occur on any exposed soil, and to ensure that wetland areas are protected. There should also be proper E&S controls temporarily and permanently used during construction and after development completion. There are some areas that will be re-contoured steeply to construct building units. Proper vegetative and engineered control measures need to be used to properly stabilize the soil during construction and after completion.

The final comment offered is that the gross particle separator that is to be used may not meet the state stormwater sediment removal standards. There should be some alternative methods discussed to meet the standards.

Aquatic Resources

Site Description

The ±35 acre site of the proposed Walnut Tree Village II elderly housing development contains the headwaters of two unnamed streams which are tributary to the Pootatuck River. The two unnamed streams are contained in moderate to steep gradient channels approximately 8 feet in top of bank width. Stream substrate is composed of cobble, gravel, coarse sand, and sand-silt fines.

A residential estate had previously occupied the site. The property owner had impounded the stream traversing the southeast section of the site in two locations. The impoundments, both less than 1/4 acre in surface area, were lined with concrete and had stone walls constructed around the perimeter.

Dense growths of hardwoods and woody shrubs predominate as riparian vegetation and provide the site's streams with a nearly complete canopy.

Aquatic Resources

The unnamed streams on the Walnut Tree Village II site are intermittent in flow and are not anticipated to support viable populations of fish or aquatic invertebrates. Being concrete lined, the in-stream impoundments are likely to remain at full volume on a year round basis. Discarded submersible pumps, pipework and wells were found on site near the ponds which indicates the previous property owner supplemented the pond water supply with groundwater and possibly circulated water between the two ponds. Information concerning the history of the development of the ponds was not incorporated in documents supporting additional development of this site. As such, it is difficult to assess whether the ponds were created for aesthetics or recreation such as swimming or fishing. It is feasible that with sufficient water depth (8 feet deep or

greater) and perennial water supply, both ponds may have been able to support small numbers of trout, largemouth bass or sunfish.

Fish were not observed in either pond during the recent site review. Both ponds have been subject to extensive sediment deposition and dumping of debris which is likely to have all but eliminated habitat supportive of a viable aquatic system.

Impacts

As the Walnut Tree Village II parcel does not contain perennial aquatic habitat, continued development as proposed is not of site-specific consequence to aquatic resources. However, land use change associated with the existing Walnut Tree Village development in headwater sections of the site's intermittent streams has had an apparent affect on storm flow frequencies as noted by bank erosion, channel braiding, and sediment deposition. Continued land use change within the remaining steeply sloped, forested areas of the site, such as that currently proposed through development of Walnut Tree Village II, has the potential to adversely impact aquatic habitats and resources found in proximate off-site reaches of the Pootatuck River should mitigative measures not be implemented. Anticipated impacts include:

- Soil erosion and subsequent sediment transport through increased runoff from unvegetated areas. Excessive erosion, sediment transport, and sediment deposition can degrade both water quality and physical habitat, in turn affecting the resident fish population. Specifically, excessive siltation has the potential to:

    - cause a depletion of oxygen within the water column
    - disrupt fish respiration and gill function
    - reduce water depth resulting in a reduction of habitats used by fish for feeding, cover, and spawning
    - reduce fish egg survival

- reduce aquatic insect production
- promote aquatic plant growth

- Development adjacent to streams often results in the alteration or removal of riparian vegetation. Changes to riparian vegetation can result in the following:

    - remove the natural "filtering" effect of vegetation which has the ability to prevent sediments, nutrients, fertilizers, and other non-point source pollutants from upland sources from entry into streams; such non-point source pollutants can degrade habitat and water quality

    - decrease the riparian corridor's ability to serve as a "reservoir" storing surplus runoff for gradual release back into the streams during summer and early fall low flow periods

- An influx of stormwater drainage may cause aquatic habitat degradation due to the release of pollutants from developed areas. Such pollutants include gasoline, oil, heavy metals, road salt, fine silts, and coarse sediments.

- Nutrient enrichment from fertilizer runoff from manicured lawns will stimulate aquatic plant growth. Herbicide runoff from manicured areas may result in fish kills and water quality degradation.

Recommendations

Reportedly, the Walnut Tree Village II site proposed for development of 133 housing units contains 0.45 acres of wetlands associated with the two intermittent Pootatuck River tributary streams. In an effort to mitigate the potential impacts to the off-site habitats and resources found in the Pootatuck River, the following measures are

recommended for incorporation into the design of this proposed elderly housing development:

- Maintain, at a minimum, a 50 foot buffer zone of undisturbed habitat adjacent to the site's two streams. The buffer zone boundaries should be measured from either, (1) the edge of riparian inland wetland as determined by Connecticut inland wetland soil delineation methods or (2) in the absence of riparian wetlands, the edge of the stream bank based upon bank-full flow conditions. Buffers absorb surface runoff, and the pollutants they may carry, before they enter wetlands or surface waters. Please refer to the attached documentation presenting Fisheries Division policy and position regarding riparian buffers for additional information (see Appendix).

- Portions of the proposed development site adjacent to Rocky Glen State Park slope steeply toward the Pootatuck River. Alteration of the existing topography within this section of the site have an extremely high potential for soil erosion and off-site sediment transport. To mitigate the potential for this occurrence, the following plot plan alterations need be undertaken: in order for this to be accomplished: eliminate proposed buildings #112, #114, #118, #119, #221 and #222.

- Institute a phased development of the site with an approved and completely functional stormwater management system installed initially. This should include the proposed stormwater detention basins. Design of the stormwater detention basins should be enhanced with a "biofilter" capability to further the system's capacity for nutrient removal.

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

- Limit liming, fertilizing, and the introduction of chemicals to developed land susceptible to runoff into streams or wetlands.

- Limit regulated activities adjacent to riparian buffer zones to historic low precipitation periods of the year.

The Natural Diversity Data Base

The Natural Diversity Data Base maps and files regarding the project have been reviewed. According to our information, there are no State and Federally Endangered and Threatened species, Connecticut State Special Concern species, or natural communities in the areas listed above.

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 held investigations. Consultation 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.

Wildlife Resources

This section focuses on potential wildlife habitat impacts and recommendations for reducing wildlife resource impacts from the proposed development.

Wildlife Observations/Site Inspection

Wildlife observed utilizing the forested areas and along the forest edge during the site visit were: American robin (*Turdus migratorius*), northern cardinal (*Cardinalis cardinalis*), blue jay (*Cyanocitta cristata*), wild turkey (*Meleagris gallopavo*), gray squirrel (*Sciurus caroliniana*), white-tailed deer (*Odocoilius virginiana*), eastern coyote (*Canis latrans*) and northern two-lined salamander (*Eurycea bislineata*). A more detailed review of the property during the four seasons of the year would, undoubtedly, reveal additional wildlife use of the property.

Current Conditions

The land which Walnut Tree Village II is slated to expand to is a mix of habitat conditions ranging from upland mixed deciduous forest with bedrock outcroppings to previously developed land reverting to early successional habitat. It is expected that wildlife ranging from forest-dwelling wildlife to adaptable suburban wildlife are inhabiting the area. Adding to the diversity of habitat of the small area is the ground water surfacing near the watercourse and small man-made ponds. Two immature northern two-lined salamanders were observed in the water next to the groundwater seep.

Recommendations for Reducing Development Impacts to Wildlife

General decline in habitat diversity occurs with suburbanization. Methods of reducing wildlife impacts include the following:

- maximize the amount of existing natural vegetation which provides seasonal food and cover value to wildlife.
- Improve habitat conditions by removing invasive non-native vegetation such as oriental bittersweet (*Celastrus orbiculatus*) and winged euonymus (*Euonymus alatus*) (See Table 1).
- Minimize the disturbance of groundwater and other water resources which provide drinking, bathing or breeding pool potential.
- Plant native trees, shrubs and herbs to provide a complimentary supply of food and cover to area wildlife (see Table 2).
- Because of the steepness of grade and the required fill for buildings and roads, extra care should be taken to stabilize exposed soil. Stockpiled earth should be carefully placed in areas less susceptible to erosion. Sediments reaching watercourses or wetlands can diminish the habitat quality for wetland wildlife.

Originally, the Team wildlife biologist was going to recommend not crossing the southwestern wetland area with fill material and a road. Subsequently, a letter dated October 6, 1998 from the developers (faxed from the ERT coordinator's office) states that that wetland area will not be crossed or filled.

Landscaping Plan and Plantings

A landscape planting list was not available for this development. Traditionally, burning bush (*Euonymus alata*), is a shrub planted for its aesthetics, however, it is

currently considered an invasive nonnative which can spread into surrounding forests and displace native plants. As a matter of fact, it can currently be found in the understory of the bedrock outcrop area. An alternative replacement native plant to consider is highbush blueberry (*Vaccinium corymbosum*). Highbush blueberry leaves turn orange to bright red in the fall and provide a good summer food source for local wildlife.

Table 1 - Invasive Nonnative Plants (DO NOT PLANT)

- Trees
  - Norway Maple (*Acer platanoides*)
  - Tree of Heaven (*Ailanthus altissima*)
  - Catalpa (*Catalpa spp.*)
- Shrubs
  - Autumn Olive (*Elaeagnus umbellata*)
  - Russian Olive (*Elaeagnus angustifolia*)
  - Winged Euonymus (*Euonymus alatus*)
  - Burning Bush (*Euonymus atropurpureus*)

Table 2 - Suggested Plants Recommended for Landscaping or Habitat Enhancement

- Red maple (*Acer rubrum*)
- Pin oak (*Quercus plaustris*)
- White oak (*Quercus alba*)
- Black oak (*Quercus velutina*)
- Black cherry (*Prunus serotina*)
- Serviceberry (*Amelanchier canadensis*)
- Staghorn sumac (*Rhus typhina*)
- Spicebush (*Lindera benzoin*)
- Winterberry (*Ilex verticillata*)
- Arrowwood viburnum (*Viburnum recognitum*)
- Blackberry (*Rubus allegheniensis*)
- Sugar maple (*Acer saccharum*)
- Red cedar (*Juniperus virginiana*)
- Hickory (*Carya spp.*)
- Sassafras (*Sassafras albidum*)
- Gray birch (*Betula populifolia*)
- Alder (*Alnus spp.*)
- Bayberry (*Myrica penslvanica*)
- Highbush blueberry (*Vaccinium angustifilium*)
- Sweet pepperbush (*Clethra alnifolia*)
- Silky dogwood (*Cornus ammomum*)
- Red raspberry (*Rubus idaeus*)

Conclusion

The current development will diminish the amount and quality of habitat available to the wildlife which are year round occupants, as well as seasonal inhabitants. Several suggestions were made to minimize impacts to wildlife, including maximizing natural plantings, landscaping with non-invasive and native vegetation and avoiding the crossing of the wetland area with a road.

The Team wildlife biologist is available for further consultation upon request.

Forest Vegetation

The review area is approximately 35 acres of which 81% or 28.5 acres is tree covered. The remaining 19% is comprised of a residence, several outbuildings, roads, and areas cleared by construction activities. The present use of the site is residential and open space. The surrounding properties appear to be residential lots of varying sizes, the existing Walnut Tree Village development, and private and State owned woodlands. The acreage of the study area and the forest cover types were scaled from aerial photographs.

The forested vegetation description for the site can be divided into four cover types (see Figure 3 - Forest Cover Type Map).

Type A - Mixed Hardwood Sawtimber - 6 acres
Type B - Hemlock Sawtimber - 10 acres
Type C - Old Field - 6 acres
Type D - Oak Ridge - 5 acres
Type E - White Pine Plantation - 1.5 acres

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

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

Forest Vegetative Type Description

- **Type A** - Mixed Hardwood Sawtimber - This type is comprised of sawtimber sized hardwood trees located in the southern portion of the site. The species present are Alanthis, white ash, American beech, black birch, black cherry , elm, hemlock, shagbark hickory, black locust, red maple, sugar maple, black oak, red oak, white oak, yellow poplar. Sugar maple is the dominant sawtimber species present. The understory contains seedlings and saplings of beech and sugar maple. Shrub species present in varying abundance are spicebush. multiflora rose, alder, witch hazel, barberry, highbush blueberry and winged euonymus. Vine growth present are grape, poison ivy, and bittersweet.

- **Type B** - Hemlock Sawtimber - This type occupies the northern and eastern portion of the site. The predominate species is sawtimber and poletimber sized hemlock trees. The hardwood tree species present are black birch, red maple, black oak, Chestnut oak, and white oak. The hemlock foliage is infested with elongated hemlock scale (*Fiorina externa*). Prolonged feeding of this sap sucking insect will cause widespread mortality. If another sap sucking insect, hemlock wooly adelgid (*Adelges tsugae*) becomes established in the type, then mortality of hemlock will occur at a rapid rate.

- **Type C** - Old Field - This type is located in the center of the site, east of the residence and contains several out buildings. The forest cover is scattered and contains overgrown ornamental trees and shrubs. Trees present are Alanthis, sugar maple, black birch white birch, white ash, oriental chestnut, aspen. black cherry, butternut, black locust, flowering dogwood, and red maple. Softwood species found are eastern red cedar, hemlock, white pine, red pine, douglas fir, and norway spruce. Shrubs present are multiflora rose, barberry, winged euonymus, honeysuckle, autumn olive, and rhododendron. Vine growth present in the type is Asiatic bittersweet, wild grape and poison ivy.

- **Type D** - Oak Ridge - This type is located in the northwest portion of the site. Poletimber-sized trees of chestnut oak, black oak, scarlet oak, white pine, and shagbark hickory are growing on shallow to bedrock soil sloping to the southwest. The understory is comprised of seedlings of oak and white pine and shrubs of huckleberry.

- **Type F** - White Pine Plantation - This type is located near the southern boundary of the site. White pine sawtimber-sized trees is the predominant species here. There are scattered black cherry sawtimber trees present. Vine growth present are wild grape and bittersweet.

Management Considerations

Several factors have to be considered in the maintenance of a forest. The potential for windthrow of trees growing on shallow soils, as in Types B and D, is greater due to the shallow root penetration into such soils. Openings in these forest types created by construction activities could predispose the remaining trees to windthrow. Alterations to the water table height and or the natural drainage will have a negative impact on the health of vegetation in all forest cover types.

The proposed housing development will convert approximately 11 acres (37%) of the forestland to non-forested. Cover Types B, C, D and E will be most impacted. The construction of the buildings, roads, parking lots and utilities will fragment the continuous forest cover into fingers and islands. Overall concern therefore should be for maintaining and enhancing the vegetation that can remain. It would be desirable to incorporate the retention of individual trees and clumps of trees and shrubs into the final site plan. Trees are sensitive to changes in soil conditions. Development activities near trees may disturb their root zone and ultimately their health and vigor. Dead and dying trees reduce the aesthetic appeal of the property, become a safety hazard, and are

expensive to remove. Wherever practical, clumps or clusters of trees should be left to reduce the possibility of soil disturbance and mechanical injury to individual trees. These plants should be identified and marked on the ground to insure their retention and protection. The guidance of a State licensed arborist would be valuable in accomplishing this.

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 theses trees would benefit the healthier trees by reducing the competition for sunlight, water and nutrients. Properly applied these removals would not only improve the remaining trees, but improve the property's aesthetics, wildlife habitat and safety for the public.

In type B the hemlock growth is currently stressed by the scale infestation. Development activities could further stress these trees and increase the rate of mortality. Hemlocks should not be considered as a tree to retain around the developed area.

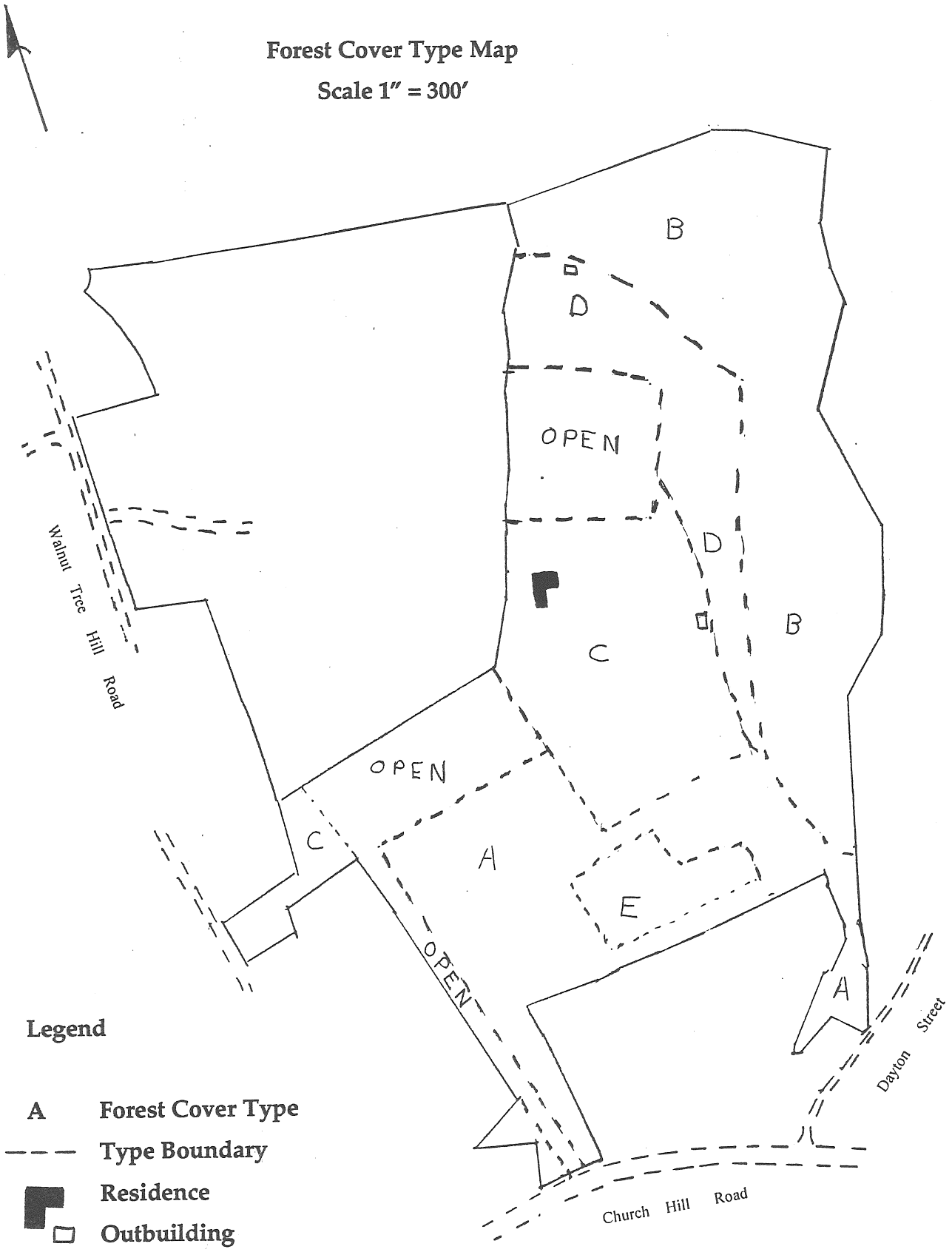
Trees of unique size and form should be released from the competition of other trees and opened to public viewing. Such trees will require protective devices to prevent injury from construction activities.

Any manipulation of the forest vegetation should be done under the guidance of a State certified forester. A current listing of these processionals may be obtained by contacting the State Forester's office at the Department of Environmental Protection, Bureau of Natural Resources, Forestry Division, 79 Elm Street, Hartford, CT 06106, Telephone: (860) 424-3630.

Figure 3

Forest Cover Type Map

Scale 1″ = 300′



Archaeological Resources

A review of the State of Connecticut archaeological site files and maps shows no known archaeological resource on the project area; however, adjacent to the south, east and west of the project area along the Pootatuck River and brook drainages leading into the river, there are over 13 archaeological sites recorded. These sites are primarily prehistoric Native American encampments and were discovered with the cultural resource management of the Iroquois Gas Pipe Line system. These sites are all located on lower levels immediately adjacent to the river and the brook systems and are in a different topographic and environmental zone than the upland of the project area.

Field review of the project area suggests a low probability for prehistoric Native American encampments; however, the property does contain remnants of a 20th Century summer home used by residents of New York City coming to Newtown in the summer and on weekends and establishing a country home. As a result there are remnants of a very large swimming pool and stone workings for water drainages to provide for ponds as well as very scenic walks. There is also indication of deliberate planting of trees, as well as other ground vegetation. There are remnants of a tennis court and other manifestations of that early 20th Century resort homestead. While the archaeological remnants of this home are not necessarily historically significant today, they may well have a significance in future years especially in understanding the various phases in the history of Newtown.

As a result, the Office of State Archaeology recommends that all of the stone work as well as all of the resort features including the house, swimming pool, ponds, tennis courts and the whole layout of that property be mapped for future reference and that the remains of the entire complex be photo documented. The request of the Office of State Archaeology is not for archaeological field work in terms of excavation, but simply a documentation using maps and photographs. It is also understood that the proposed development will not affect the swimming pool and the pond areas,

however, it is requested that this mapping and photo documentation be done and all of the records be repositted at the Newtown Historical Society for future reference. In this regard Daniel Cruson, Town Historian, and the State Archaeologist will be pleased to provide technical assistance to the property owners in seeing that the maps and photographs are taken prior to any construction activity.

Transportation Engineer Review

Access to the Phase II site will be from the existing roadway for Phase I (off of Walnut Tree Hill Road) and a new road intersection also with Walnut Tree Hill Road. During the field review and subsequent to that review, the applicants indicated that there would be a change in the internal road alignment to avoid the wetland crossing. It was not clear to the Team transportation engineer whether this change would involve adding an access point on Church Hill Road. During a telephone conversation with Mr. Trudell (10/21/98), he stated that the Walnut Tree Hill Road access would remain the only new entrance, and no access would be provided to Church Hill Road. This would be more a more favorable condition from an engineering standpoint.

The applicants traffic impact report was reviewed. It contained information on existing and future traffic volumes, accident experience, anticipated traffic generated by the development, and expected operating levels of service on Walnut Tree Hill Road and nearby intersections. The conclusions of the study indicate that the development will not cause an adverse impact and that the adjacent streets will be able to accommodate added traffic. The traffic report was comprehensive and professionally conducted. Its findings that the development can be safely accommodated is supported by the data and analyses presented in the report.

Appendix

For Appendix Information please contact
the ERT Office at 860-345-3977

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.