RIPLEY RIDGE SUBDIVISION

COVENTRY, CONNECTICUT

MAY 1989

EASTERN CONNECTICUT ENVIRONMENTAL REVIEW TEAM REPORT

Eastern Connecticut Resource Conservation and Development Area, Inc.

RIPLEY RIDGE SUBDIVISION

COVENTRY, CONNECTICUT

REVIEW DATE: MARCH 23, 1989

REPORT DATE: MAY 1989

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPEMNT AREA, INC.

EASTERN CONNECTICUT ENVIRONMENTAL REVIEW TEAM
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ENVIRONMENTAL REVIEW TEAM REPORT
ON
RIPLEY RIDGE SUBDIVISION
COVENTRY, CONNECTICUT

This report is an outgrowth of a request from the Coventry Town Planner for the Planning and Zoning Commission and the Inland Wetlands Commission to the Tolland County Soil and Water Conservation District (SWCD). The S&WCD referred this request to the Eastern Connecticut Resource Conservation and Development (RC&D) Area Executive Council for their consideration and approval. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The ERT met and field checked the site on Thursday, March 23, 1989. Team members participating on this review included:

Barbara Buddington	*Regional Planner*	*Windham Regional Planning Agency*
Kevin DesRoberts	*Wildlife Assistant*	*DEP-Eastern District*
Steve Hill	*Wildlife Biologist*	*DEP-Eastern District*
Joe Neafsey	*District Conservationist*	*USDA-Soil Conservation Service*
Elaine Sych	*ERT Coordinator*	*Eastern CT RC&D Area*
Bill Warzecha	*Geologist*	*DEP-Natural Resources Center*
Paul Welle	*Hydraulic Engineer*	*USDA-Soil Conservation Service*

Prior to the review day, each Team member received a summary of the proposed project, a list of the town's concerns, a location map, a topographic map, and a soils map, a traffic study, storm drainage calculations and an environmental assessment report. During the field review the Team members were given plans and additional information. The Team met with, and were accompanied by the Town Planner and Zoning Enforcement Officer, and the applicant and her engineers. 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 designs 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 developer and 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 Eastern Connecticut RC&D Executive Council hopes you will find this report of value and assistance in making your decisions on this proposed subdivision.

If you require additional information, please contact:

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I. SETTING, ZONING AND TOPOGRAPHY

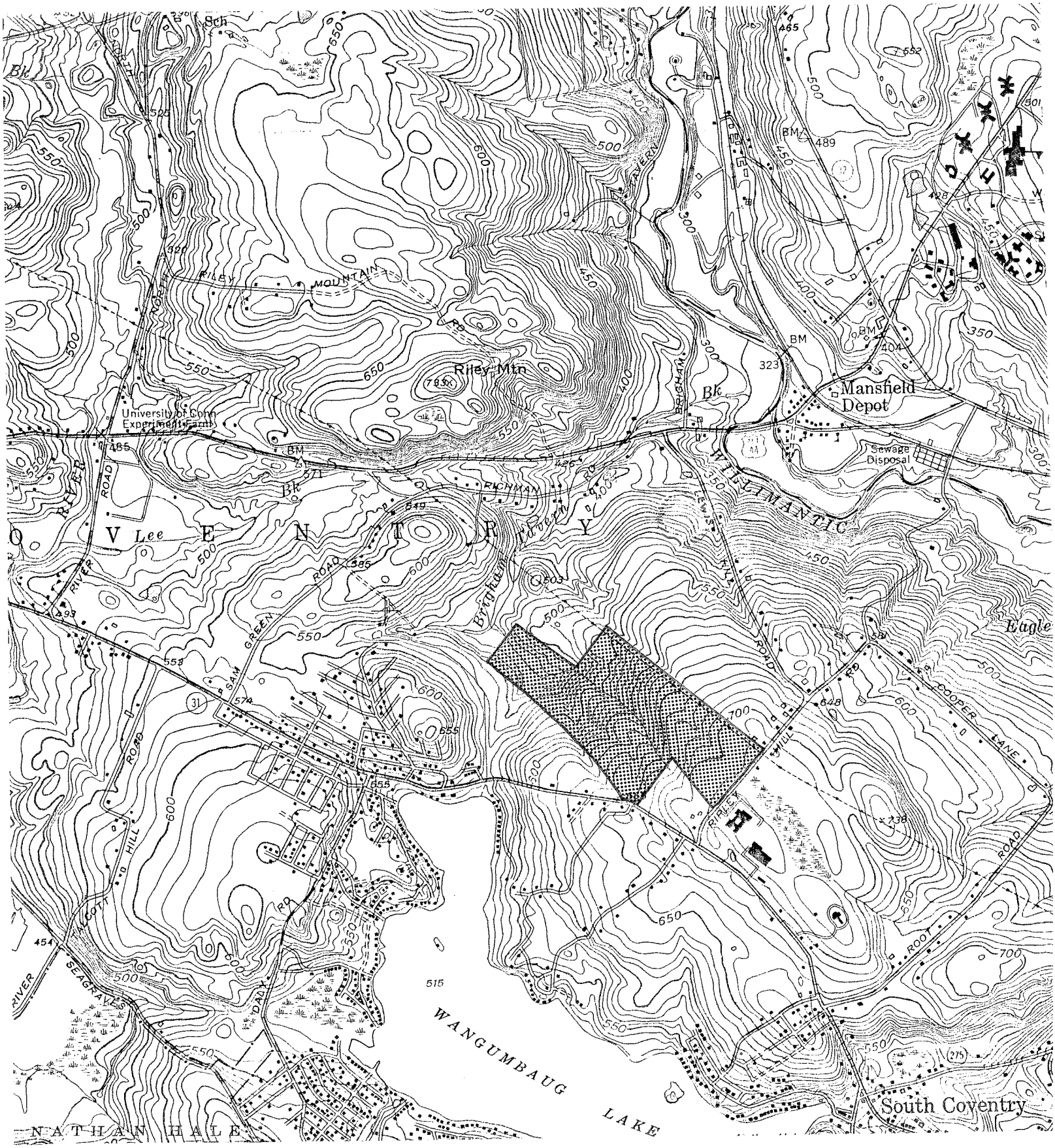
The proposed residential subdivision, approximately 135 acres in size, consists mainly of wooded land, which is proposed to be divided into 52 building lots. It is located in eastern Coventry and is bordered on the southwest by Old Tolland Turnpike (abandoned) and Route 31, on the southeast by Ripley Hill Road and on the northeast and northwest by private undeveloped land. High tension wires (Connecticut Light and Power Company) and their accompanying right-of-way traverses the northeastern parts of the property. Each lot will be served by individual on-site septic systems and wells. Access to the interior portions of the site will be provided by two new roads (Gardner Tavern Road and Carver Lane) which will connect Ripley Hill Road and Old Tolland Turnpike. Additionally, two short cul-de-sacs will be constructed off the roads mentioned in the preceding paragraph.

The subject site is located entirely in a RU-40 (single family) zone. Permitted uses in this zone include single-family homes on lots of at least 40,000 square feet. Based on plans submitted to Team members, all lots appear to be compatible with the requirements of RU-40.

The site is located on the north slope of a large northwest/southeast trending hill located northeast of Coventry Lake. The grade ranges from about 710 above mean sea level near Ripley Hill Road to 460 above mean sea level near Brigham Tavern Brook at the northwest limits of the property. The ground slopes gently northwestward toward Brigham Tavern Brook. Slopes become more steep (>15%) near lots 47-50.

LOCATION MAP

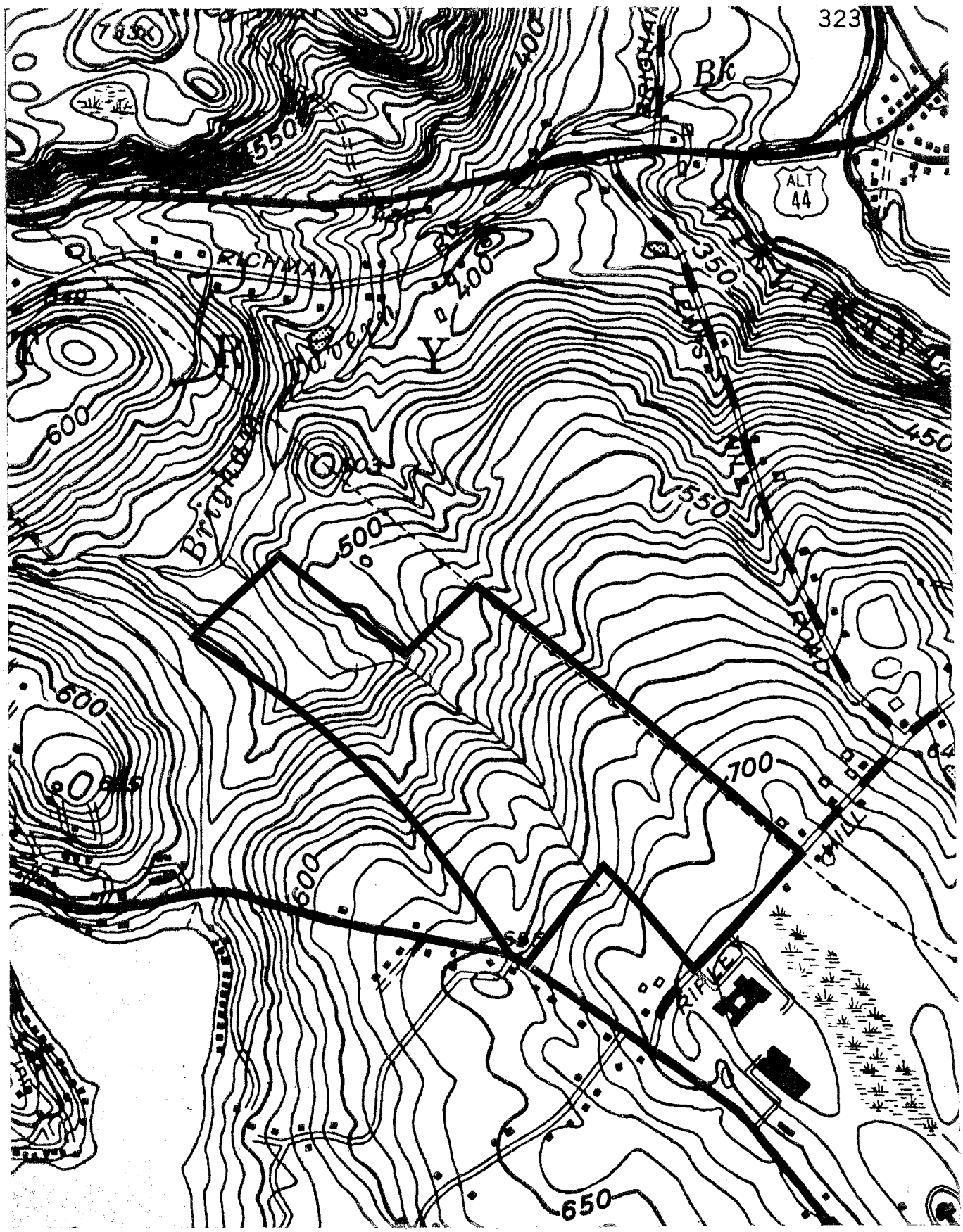
Scale 1" = 2000'



TOPOGRAPHIC MAP

Scale 1" = 1000'

Approximate Site Boundary



II. GEOLOGY

In consideration of soil survey data and an unpublished surficial geologic map, glacial till covers the entire site. The till consists of an unsorted, unstratified mixture of silt, sand, clay and boulders that were transported and deposited directly by the glacier. The texture of the till across the site appears to be sandy, based on deep test hole information supplied by the project engineer. In many deep test holes the till became compacted with depth. Because of the compactness of the till, one can expect the permeability of the soil zone to be low to moderate. In general, test pit logs for subsurface sewage disposal indicated a topsoil layer about 5-6" thick, a brown sandy subsoil layer about 22-30" thick, and then a moderately packed, sandy till which extended to about 84". Bedrock at shallow depths (less than 5 feet) was encountered in one deep test hole.

Bedrock was encountered at depths less than 7 feet in only a few holes. It is not well exposed within the site. According to the Bedrock Geological Map of Connecticut by John Rodgers (1985) bedrock underlying most of the site is identified as Hebron Gneiss, an interlayered dark-gray schist and greenish-gray fine to medium grained calc-silicate gneiss. A narrow band of dark gray, brown to gray weathering traprock intruded the Hebron Gneiss as molten material which later solidified in the surrounding parts. The rock, known as Butress dolerite, is compositionally similar to basalt and is located in the eastern parts.

Depth to bedrock in most places is 7 feet or more. Only a few deep test holes encountered the bedrock surface between 5 and 7 feet.

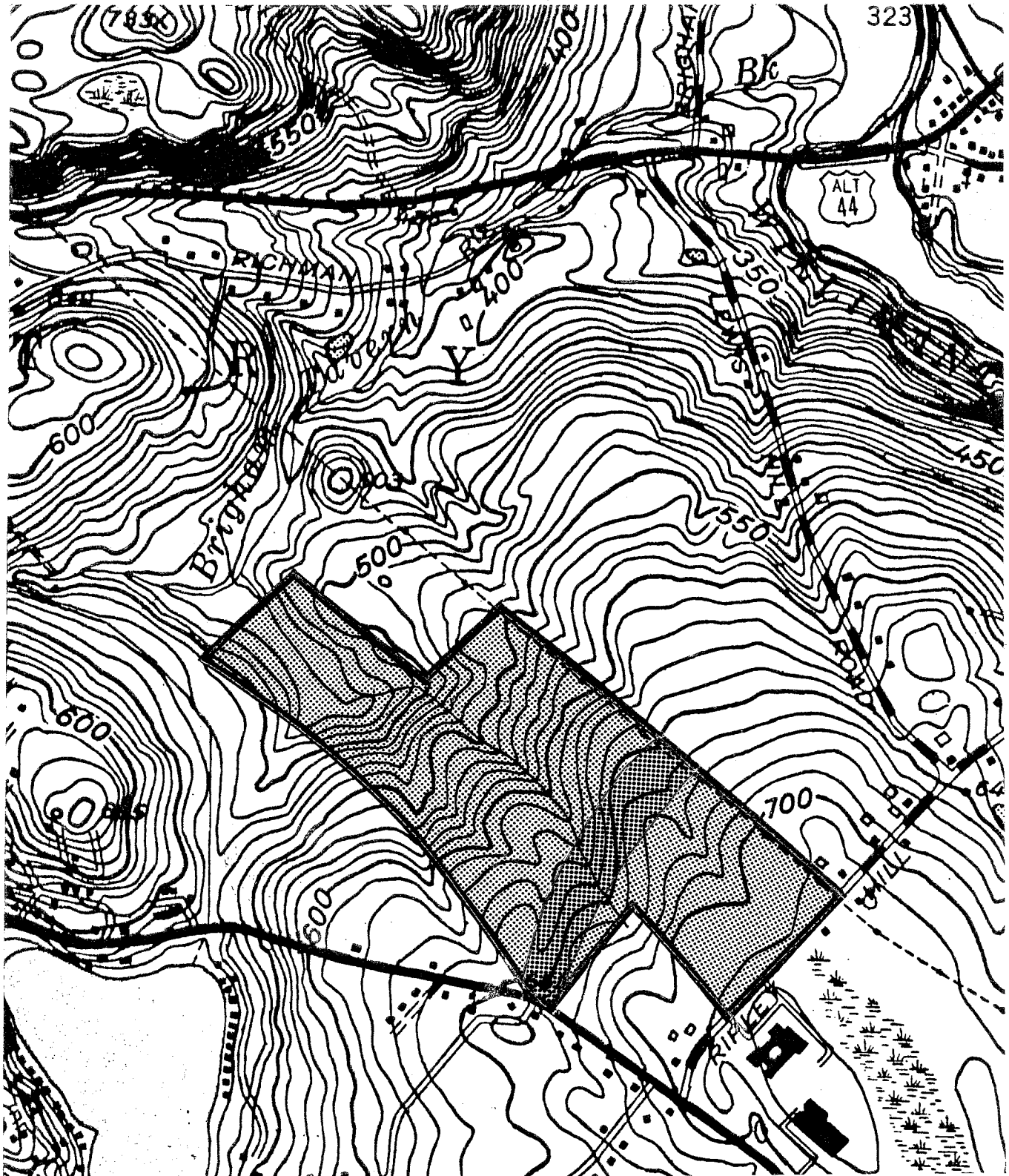
The underlying bedrock will be the major aquifer for domestic wells drilled on the site (see *WATER SUPPLY* Section).

BEDROCK GEOLOGIC MAP

Scale 1" = 1000'

HEBRON GNEISS-interlayered dark-gray schist and greenish-gray fine to medium grained calc-silicate gneiss.

BUTRESS DOLERITE-dark brown to gray weathering dolerite (traprock) compositionally similar to basalt.

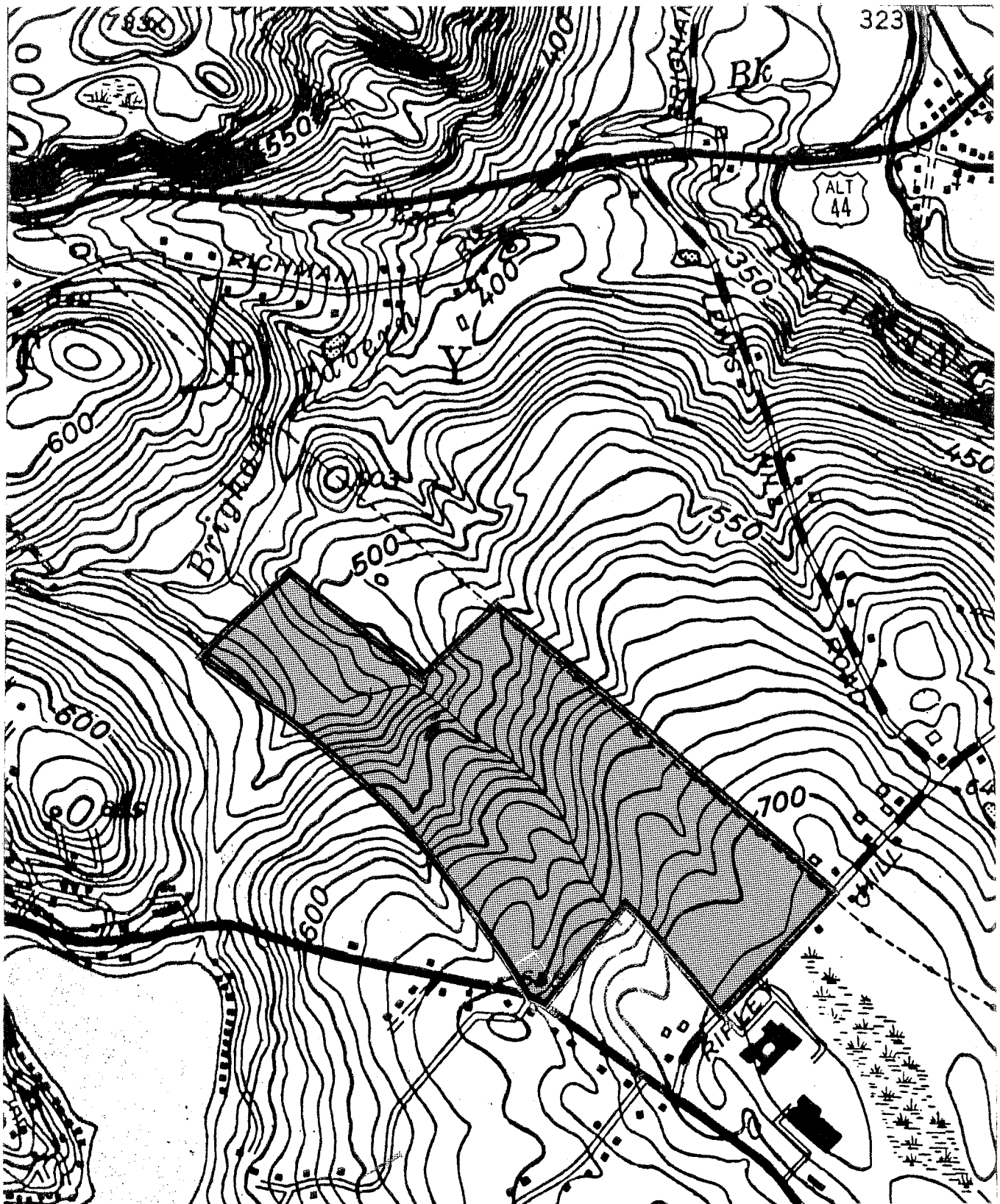


SURFICIAL GEOLOGIC MAP

Scale 1" = 1000'

TILL

OUTCROP AREA



III. SOIL REVIEW

General Soils Information

The information contained in the Soil Survey of Tolland County, CT appears to be adequate for planning purposes. If the Commission requires additional information it is suggested that the applicant retain the services of a qualified private soil scientist to review the information contained in the Soil Survey of Tolland County, CT, examine conditions in the field and provide the Commission with a verified map and more detailed interpretive information for the site.

Wetland Boundary Information

Wetlands on this site were identified in the field by a soil scientist and located on the plot plan. Because of time constraints, it was not possible to verify this information.

Note that the soil information that appears on the plan map, Sheet #25, was enlarged from the Soil Survey of Tolland County and then overlaid with the field delineated (and therefore more precise) wetland boundaries. Because of scale limitations (the original maps are at a scale of 1"=1320') and distortions in the original aerial photo base maps, the enlargement of the information to 1"=400' can result in a grossly inaccurate as well as misleading map that is useless for any purpose. As an example, compare the wetland boundaries as delineated in the field by the soil scientist versus the soil survey boundaries as enlarged. Which set of information will the Commission use to determine the extent of regulated areas? The District suggests that either a private soil scientist verify the enlarged information or the applicant provide an unaltered copy of the soil map at a scale of 1"=1320' on the plan map for information purposes. Unverified enlargements should not be accepted. It is further suggested that the Commission check their regulations and remove or alter any sections that require applicants to submit enlarged soil survey information.

Soil Erosion and Sediment Control Plan

The proposed road network disturbance limits, storm drain outlets, proposed detention basin site, proposed wetland culvert crossings and Brigham Tavern Brook between the junction of the unnamed tributary which drains the site and Richmond Road were field checked. Areas of concern for soil erosion include road cuts and embankments, storm drain outlets, driveways with a proposed grade of 5% or greater and the banks of receiving streams and watercourses. The banks of Brigham Tavern Brook downstream of the site appear to be particularly susceptible to erosion. Protection of this area needs to be considered when planning a stormwater management system. Wetland areas and watercourses need to be protected from sediment damage. Sediment laden stormwater and sediment generated during road construction through or across wetland areas are primary concerns.

It is important that a detailed, site specific soil erosion and sediment control plan should be developed and implemented for this site. The plan should be developed using the criteria contained in the Connecticut Guidelines for Soil Erosion and Sediment Control (1985).

A detailed, site specific, step by step narrative and corresponding checklist and map should also be developed for the project.

The plans that were provided with the ERT review package (revision dated 2/22/89) basically fit these criteria, however, there were several items of concern that need to be addressed in the final plans. The plan maps have been marked up and returned to the applicant's engineer for revisions.

The plan also needs to incorporate the construction of the proposed detention basin into the narrative and show the construction details for the structure including cross sections, the outlet structure, inlet structure(s) and measures to control groundwater in the basin and on cut slopes. A detailed operation and maintenance plan also needs to be developed for the structure. Design calculations also need to be provided for review.

Concern was also expressed about the long road lengths included in the proposed phases (2930 feet of Gardner Tavern Road in Phase 1 and 4000 feet of Carver Lane, Loomis Drive and improvements to Old Tolland Turnpike in Phase 2). It is suggested that each phase be separated into two or more sections of manageable length and that construction proceed through the stage of first course pavement and vegetative stabilization of embankments and shoulders within a relatively short time period. The plan was unclear on this aspect. The strategy should be to minimize the length of time an area is exposed.

Wetland crossing are an area of special concern. Two of the intermittent stream crossings did not have culvert information shown on the plans.

The Tolland County Soil and Water Conservation District would appreciate the opportunity to review the revisions of this plan prior to final approval by the Commission.

Hydrologic Report

The hydrologic analysis for the project was reviewed by Mr. Paul Welle, Hydraulic Engineer, SCS, Chester, PA. A copy of his report follows. A copy of Mr. Wells report, as well as a marked up copy of the calculations, have been returned to the applicant for information. When the TR-20 model has been corrected as noted, a revised summary of the results should be provided which compares present and developed conditions for different storm frequencies and different alternatives proposed. The analysis should show the projected increases in peak flows for different conditions and the following criteria applied in selecting the appropriate strategy for controlling stormwater:

1. If the primary purpose of the stormwater management system is to minimize soil erosion and/or sedimentation of downstream areas including channel scour and bank erosion, the peak discharges from the 2-year and 10-year frequency, 24-hour duration, Type III storms shall be analyzed and control provided.

or

2. If the primary purpose of the stormwater management system is to minimize flooding, the peak discharges from the 2-year, 10-year, and 100-year frequency, 24-hour duration, Type III distribution storms shall be analyzed and control provided.

Calculations and details for the proposed detention basin were not provided for review. The plans should be developed according to the detention basin standard found in the Guidelines for Soil Erosion and Sediment Control - Connecticut (1985) and should also contain an operation and maintenance plan. The basin structure should be on land deeded to the Town of Coventry and an access road should be provided for maintenance and emergency uses.

Report of Paul Welle, Hydraulic Engineer, SCS, Chester, PA.

As requested, Mr. Welle has reviewed the enclosed hydrologic analysis for the Ripley Ridge Subdivision. It appears that the TR-29 model properly reflects the data provided with two possible exceptions.

1. The topographic map shows part of the Ripley Ridge Subdivision in area 3: however, the computations show no change in either time of concentration or runoff curve number for area 3.

2. The times of concentration and runoff curve numbers for the existing condition (alternative 1) were used for alternative 3, the developed condition with a detention pond. A summary of the results is shown on the next page.

RUNOFF HYROGRAPH PEAK DISCHARGE RATES (cfs)

RUNOFF AREA	ALTERNATIVE 1 (existing)	ALTERNATIVE 2 (developed) (w/o detention)	ALTERNATIVE 3 (developed) (w/detention)
Structure 1	11.5	13.9	11.5
Structure 2	33.4	35.6	33.4
Structure 3	7.4	12.6	7.4
Section 7	73.5	90.4	73.5

Evidently the listing of input data provided is for a different run than the output. The result of this error is to overstate the effectiveness of the detention basin. Since the effect of structures 1 and 2 is negligible, the difference between alternative 1 and 3 at any downstream point is the impact of the detention basin.

The runoff curve number calculations indicate that, as a result of development. 58.9 acres of woods are to be converted to 6.9 acres impervious area and 52.0 acres open space. This is typical of lots slightly larger than 2 acres. Mr. Welle suggests checking the site plan for consistency with these data.

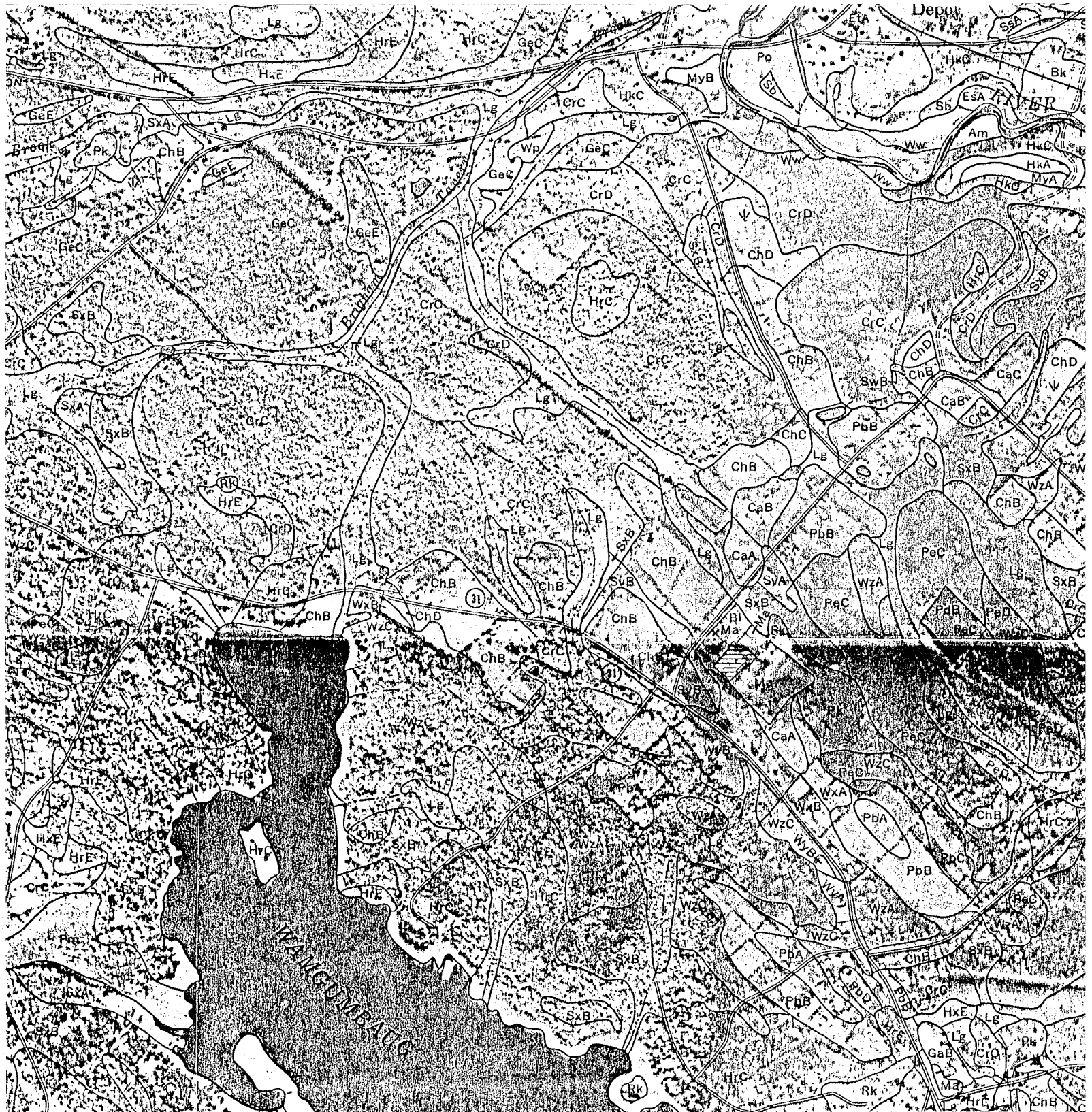
For areas 1a, 1b, and 1c, it should be noted that the flow paths for time of concentration (Tc) are not shown to change with development. The only change reflected by the Tc computation is conversion of woods to grass for areas 1a and 1c.

The peak elevations for flow over Richmond Road should be considered very approximate. There is no substantiation for the hydraulic rating above the assumed minimum road elevation of 399 feet.

SOILS

Tolland County USDA-SCS
24 Hyde Avenue
Rockville, Connecticut 06066
875-3881

Scale 1" = 1320'



IV. HYDROLOGY

The site is located entirely in the Brigham Tavern Brook drainage area, which is in the Shetucket River Basin. Brigham Tavern Brook flows through the northwest limits of the site and is tributary to the Willimantic River.

According to the site plan submitted to Team members, a few unnamed streamcourses and their accompanying wetlands, which flow northward, occur on the site. For the most part, they all join in the open space area between Lots 51 and 52 and Lots 43, 48 and 50, which is comprised mainly of regulated wetlands. The outlet stream for the wetland in the northwest limits routes the water to Brigham Tavern Brook. The upper limits of the drainage area for the watercourses appears to coincide with Ripley Hill Road. Most of the proposed development encompasses this drainage area. As a result, it does not appear that much more development could take place in the drainage area.

Brigham Tavern Brook and the unnamed streamcourses on the site are classified by Connecticut DEP as a Class "A" resource. This means the stream water is currently known or inferred to be uncontaminated. State goal is to maintain existing natural quality characteristics by banning discharges to these watercourses.

Based on the site plan distributed to Team members, the proposed access road will need to cross regulated wetlands in 3 areas. A total of ±70 linear feet of wetland crossings is anticipated. Additionally, grading and filling for road improvements to Old Tolland Road near Lots 50 and 51 will impact wetlands. Every effort should be made to align the road with Old Tolland Road. This should help reduce land and wetland disturbances in the area.

Although undesirable, wetland crossings are feasible, provided they are properly engineered. The road should be constructed adequately above the surface elevation of the wetlands. This will allow for better drainage of the road and decrease the frost heaving potential. Road construction through wetlands should be done during the dry time of year and should include provisions for effective erosion and sediment control. Any unstable, organic or mucky material

should be removed and replaced with a permeable road base material. Except for the expansive wetland encompassing the proposed open space areas the soils comprising the majority of wetland on the site appear to have a mineral content rather then organic. The broad wetlands in the open space areas may contain more organic material. The wetland areas proposed for crossing along Carver Lane serve mainly as conduits for routing water to the larger, wetlands in the northeast part of the site. Culverts should be properly sized and located so they do not alter the water levels in the wetland or cause flooding problems.

The mapped inland-wetland soils on the site are regulated under Connecticut's Wetlands Act. Any activity which involves modification, fillings, removal of soils, etc. will require a permit and ultimate approval by the Town's Inland Wetland Commission. In reviewing a proposal, the Commission needs to determine the impact that the proposed activity will have on the wetlands. If Commission members determine that the wetland is serving an important hydrological or ecological function and that the impact of the proposed activity will be significant, they may deny the activity altogether, or at least require measures that would minimize the impact.

The proposed residential development as planned, followed by the construction of houses, roads and driveways will lead to increases in the amount of runoff shed from the site. Stormwater arising from newly paved roads would be artificially collected in catch basin and routed to protected discharge points, most of which will terminate in or near streamcourses and their respective wetlands. It is not known if roof leaders, curtain drains and building drains will be tied into the proposed storm drainage system.
A copy of the stormwater report was made available by the applicant's technical staff. Although post-development runoff conditions will exceed pre-development runoff conditions, no stormwater detention is proposed at the present time. It is indicated that a detention basin which could capture post-development runoff increases from parts of the subdivision could be located on a portion of Lot 44. No details for this detention were available on the review day.

Once drainage calculations have been re-computed and the potential for downstream flooding analyzed, the project engineer should re-check the

possible need for on-site detention. The two wetlands that occupy the open space area appear to be in relatively good hydrologic positions and large enough to ameliorate post-development flows for some storm events, but this needs to be checked carefully by the applicant's engineer. Additionally, the potential biologic impacts of stormwater runoff to the wetlands needs to be properly addressed. If a detention basin is proposed, access for maintenance vehicles will be needed and should be shown on the plan. Every effort should be made to protect on-site streamcourses and Brigham Tavern Brook.

V. SEWAGE DISPOSAL

Sewage disposal in this part of Coventry depends upon the installation of private on-site subsurface sewage disposal systems. Subsurface exploration on the parcel has been conducted by the applicant's engineer. This soil information was made available to Team members. Based on deep test information, soil mapping data and visual observation, the major geologic limitations with respect to subsurface sewage disposal on the site are: (1) an area of moderate to steep slopes near lots 47-50 and (2) the presence of till soils (which may have moderately slow to slow percolation rates and which may be characterized by seasonally high water tables). Percolation rates must be determined for each lot prior to subdivision approval. The location of the percolation test should be shown on the plan.

It is understood that all lots will require special engineered design systems. The major limitation of the site appears to be the presence of seasonally elevated water table. In order to surmount the limitations, improvements such as intercepting/curtain drains and/or elevating areas designated for leaching systems with suitable, well-drained fill will be required for lots with seasonally high ground water conditions. These leaching systems should be spread out with the contours to encourage lateral dispersal. Cut and fill systems should be avoided on the steep slopes.

The potential for seasonally high water tables suggests that building footing drains should be installed around homes. Where feasible, building footing

drains may be connected to curtain drains to help protect leaching system areas.

The project engineer should address where each curtain drain will be located and discharged so that problems such as gullying, well contamination or interference with on-site or neighboring septic systems do not occur. These drain locations should be determined prior to subdivision approval.

Before subdivision approval, the applicant's engineering firm must show that each of the proposed lots in the subdivision meets the minimum soil standards set forth in Section 19-13B103e(a)(3) of the State Public Health Code.

The approval of septic systems should be a coordinated effort between the design engineer and the Town sanitarian. Because most of the lots will be deemed of "special concern" by the Stat Public Health Code, plans for design of the subsurface sewage disposal facilities (along with the placement of each on-site well water supply) must be prepared by a professional engineer and submitted to the Health Department for review and approval by their certified staff. The final configuration of lots should not be approved until the Health Department is assured that each lot meets all of the State Health Code Requirements.

VI. WATER SUPPLY

Based on review of hydrogeologic data, the principal aquifer on the site is the underlying crystalline, metamorphic rock. Wells drilled in bedrock generally supply small but reliable yields of ground water that fill openings (fractures and joints) in the rock. Since the yield of a given well depends upon the number and size of water bearing fractures that it intersects, and since the distribution of the fracture is irregular, there is no practical way to predict the yield of a well in a specific location, outside of drilling the well first. Experience has shown that openings such as fractures usually occur within the first few hundred feet of the bedrock surface. Below this depth, the presence of fractures tend to decrease

in number. As a result the chance of increasing the yield of a well usually decreases with depth.
The majority of well completion reports for bedrock wells in the area (Ripley Hill Road and Lewis Hill Road) surveyed by the Team's geologist reported yields ranging between 1 and 50 gallons per minute and depths ranging from 240 feet to 605 feet. The medium yields and depths for the 11 well completion reports surveyed were 4 gallons per minute and 345 feet deep, respectively.

Using some basic assumptions, the Team's geologist evaluated available recharge and predicted water use of the subdivision to estimate the potential impact on the bedrock aquifer. Specifically, recharge calculations show that the amount of water available to the site each day is about 77,680 gallons. This is based on groundwater recharge amounts of 8 inches per year for an upland, mostly till-covered site and ±130 pervious acres (less 5 acres for impervious surface) allowing for infiltration. Predicted water use at the site is estimated at 5,600 gallons per day. This is based on a 75 gallons per day per capita water usage. An assumption of 4 persons per single family residence (52 lots) was used.

Based on these figures, it is estimated that the planned subdivision will receive about 5 times the recharge as is necessary to balance water demand. In addition, induced recharge by properly renovated septic system effluent (about 95%) plays an important role in the groundwater budget. The latter stresses the need for properly designed and installed septic systems.

It must be kept in mind that the computations in the preceding paragraphs assumes the underlying bedrock is fractured and is capable of transmitting usable amounts of water to the proposed wells. This cannot be determined exactly without first drilling the well.

Where possible, new wells should be spaced 200 feet or more between each other. This will provide about one acre (200' x 200') or 595 gallons per acre of direct discharge to each well. This separation distance should help to minimize the chances for mutual interference between pumping wells. The latter assumes the fractures in the underlying bedrock are saturated and capable of transmitting water to a well.

Each well should ideally be located on a relatively high portion of the lot, properly separated from the sewage disposal system or any other potential pollutant (e.g., road drainage, curtain drain tank, etc.) and in a direction opposite the expected direction of groundwater movement. They should all be cased with steel pipe into the underlying bedrock. In order to provide adequate protection of the quality of bedrock water, all wells will need to be properly installed in accordance with all applicable State Public Health Code and Connecticut Well Drilling Board regulations. In addition, the District sanitarian will need to inspect and approve well locations.

The natural quality of groundwater should be satisfactory. However, the bedrock beneath the site may have elevated amounts of iron and/or manganese minerals, which could lower the overall quality. There are suitable treatment filters available to ameliorate these potential water quality concerns.

Groundwater in the area is classified by the Department of Environmental Protection (DEP) as GA, which means that it is suitable for private drinking water supplies without treatment.

Because of the site's existing water quality and because leakage from underground fuel storage tanks is a frequent cause of groundwater contamination in State, it is recommended that residential tanks of this nature be prohibited on the site.

VII. WILDLIFE REVIEW

Wildlife Habitat Description

The 134.73 acre parcel of land proposed for the Ripley Ridge subdivision is composed of four major habitat types; mixed hardwoods, old fields, wetland areas, and powerline. This area contains a diversity of cover types that provide habitat for a number of wildlife species. A detailed

description of wetland vegetation is provided by Jody T. Chase, environmental consultant for the applicant.

Old field areas consist of reverting hay fields located in the southeastern portion of the property adjacent to Ripley Hill Road. Old fields provide habitat for field dwelling mammals and provide an abundance of insects for foraging songbirds during spring, summer and fall. With the adjacent mixed hardwood habitat, open fields also provide forage areas for raptors preying on small mammals. These fields are dominated by viburnum spp, red maple and oak seedlings, multiflora rose, spirea spp., grey birch saplings, and a variety of grasses and sedges.

Mixed hardwoods are the major habitat component throughout most of the property. Overstory vegetation is dominated by ash, black oak, grey birch, hop hornbeam, and ironwood. Understory cover ranges from light to moderate consisting primarily of birch, red maple, and oak seedlings, witchhazel, hop hornbeam, highbush blueberry, viburnum spp, and spice bush in wet areas. Dominant ground cover species consist of Christmas ferns, tree club moss, and shiny club moss. A relative abundance of dead wood (snags and fallen trees), which is important for a number of birds, small mammals, woodland amphibians and reptiles, occurs throughout the mixed hardwood habitat type.

Cordwood cutting has taken place in the northwestern portion of the property. The understory is dense in many areas due to regeneration. Dominant species in the understory consist of oak seedlings, sweet fern, beaked hazelnut, hickory seedlings, birch seedlings, azalea, viburnum spp, and black cherry.

The CL&P powerline is located along the eastern property line. Powerline vegetation is dense in many areas and consists primarily of sumac, beaked hazelnut, blackberry, viburnum spp, highbush blueberry, and winterberry. Ground cover consists of a variety of ferns, grasses, and sedges.

Wildlife Species

Bird species observed inhabiting the property included cardinals, robins, crows, ruffed grouse, yellow shafted flickers, downy woodpeckers, mourning doves, dark-eyed juncos, a red-tailed hawk, and a variety of other song birds. The presence of Baltimore oriole nests were observed adjacent to old field and reverting areas.

Mammalian species inhabiting or utilizing the area consist of white-tailed deer, eastern cottontails, raccoons, grey squirrels, eastern striped chipmunks, red fox, and various other small mammals.

With the abundance of wetland habitat associated with the intermittent water courses and abundance of deadwood this area also provides habitat for amphibian and reptilian species.

Effects of Development on Wildlife

As the subdivision plans indicate, development will occur in the mixed hardwood and open field habitats. This will result in fragmentation and elimination of these habitat types, which will in turn reduce species diversity and richness. Species that are intolerant to human disturbances will be forced to emigrate into adjacent habitat. Species dispersion into adjacent habitats may result in competition with species already occupying the area. Many species will also be forced to inhabit less desirable habitat; decreasing survivability. Species more tolerant to man such as starlings, robins, house sparrows, and raccoons may increase in number and become a nuisance.

The planned discharge of stormwater into wetlands may have negative impacts on invertebrates, amphibians, and reptiles due to increased pollution, erosion, sedimentation, and water levels (Campbell 1973). The use of catch basins and riprap plunge pools will help reduce water flow and filter out heavy sediments, but will allow fine silt and pollutants to enter wetlands. Due to the topographical characteristics of the property, disturbances to wetlands may have negative impacts on Brigham Tavern brook.

Since thirty-two of the proposed building lots contain wetlands there will be a negative impact on these areas if there is any clearing or removal of vegetation within wetlands. Vegetation removal in wetlands would have severe impacts on wildlife, especially reptiles and amphibians. Soil and water types, cover, food, breeding grounds, and hibernation areas may be altered so that species dependent on specialized habitats are eliminated and more adaptable species reduced (Campbell 1973). Barriers to seasonal movement and population dispersal, such as roads are also serious threats (Campbell 1973). The road network will be located between two of the seasonal streams and cross wetlands in three locations.

Mitigation of Impacts of Development on Wildlife

Several measures can be taken to minimize impacts of development on wildlife. There should be at least a **100 foot buffer** surrounding all wetland areas in which no vegetation removal should take place. Owners of lots containing wetlands should be discouraged from any removal of vegetation within this buffer. These buffer strips will help limit disturbances to wetlands and provide important corridors for a number of wildlife species.

To insure the least amount of disturbances to wetlands, the site should be inspected on a regular basis to verify that erosion and sedimentation control measures are properly implemented and maintained throughout the course of development.

The proposed construction of a stormwater detention pond would mitigate wetland degradation for wildlife by dissipating water flow, controlling water levels, allowing sediments to settle and filtering out some pollutants before discharging into wetlands.

Since the average lot size is 2 acres, as much of each lot as possible should be left wooded. This would reduce vegetation removal, habitat destruction, and be more aesthetically pleasing for the residents of the development. Owners of lots in forested areas should be discouraged from removal of understory vegetation and dead wood. Understory vegetation provides food and cover for a number of birds and small mammals. The

existence of many wildlife species depends on the presence of dead trees. Removal of snags will reduce potential nest sites for both primary (cavity excavating) and secondary cavity nesting birds (i.e. black-capped chickadees, downy woodpeckers, white-breasted nuthatches) (Best et al. 1978). Fallen trees are also a necessity for many species (i.e. salamanders, snakes, mice, shrews, insects) (Hassinger 1986) and should not be removed.

Owners of lots in open field areas should be encouraged to plant tree and shrub species that are utilized by wildlife. To attract birds, a variety of plants are needed that are fairly small, bear fruit and have thorns (Geis 1986).

Literature Cited

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VIII. PLANNING REVIEW

Consistency with State, Regional and Local Plans

State Plan

The land proposed to be developed as the Ripley Ridge subdivision in Coventry is classified as "rural land" in the State Policies Plan for the Conservation and Development of Connecticut, 1987-1992. Land so classified lacks outstanding characteristics which would justify its inclusion in either a development or conservation classification. It's predominant features are forest resources and scenic areas. Low density rural development, such as proposed for Ripley Ridge, is consistent with this designation.

Regional Plan

The Regional Growth and Preservation Guide Plan classifies this property as suitable for "low density rural" uses, appropriate for very light density development and the use of open space preservation techniques to protect areas along streams, watersheds and scenic areas.

The proposed subdivision is technically consistent with the Guide Plan. It includes 21.4 acres (15.9% of the total acreage) designated as open space to be deeded to the Town of Coventry. All but approximately two acres of this open space, however, is inland wetlands. While the soils on the parcel may preclude a cluster development which could maximize the preservation of open space, further consideration should be given to increasing the open space (especially non-wetlands) provided by the conventional plan which has been proposed. It may be possible to accomplish this by reducing lot sizes on some of the larger lots; it may require a plan with fewer buildable lots.

Local Plan of Development

Coventry's Plan of Development identifies several areas of the town which would benefit from special consideration (protection or development) as

the town grows. These are the Wangumbaug Lake Drainage Basin, the Village Area Drainage Basin, River Aquifer Areas, and the Eagleville and Bolton Lakes Drainage Basins. The installation of a sewer system improved the protection of the water quality of Wangumbaug Lake, which is a major recreation facility for the town. The village area is also served by sewers to encourage the growth of a concentrated population center to "revitalize the village with a minimum loss of natural resources." The town's plan supports the development of a sewered higher density residential area to the east, south, and west of the village area.

Ripley Ridge lies about a mile to the north of areas served by the sewer system. By its non-inclusion in any of the areas singled out for special concern, the parcel proposed as Ripley Ridge falls into the "other" category, for which the town plan envisions low density rural residential development with on-site sewer and water, and with minimum lot sizes of 40,000 square feet exclusive of major environmental restrictions such as wetlands and steep slopes. The Ripley Ridge subdivision's minimum lot size, exclusive of access and wetlands, is 42,000 square feet. The proposed plan is consistent with the town's Plan of Development.

Traffic

Although the proposed subdivision with its 52 lots may be expected to add approximately 520 trips per day to local roads*, no significant problems are anticipated. The traffic study submitted by Towne Engineering, Inc. for this subdivision is consistent with data in the 1988 Update of the Regional Transportation Plan for the Windham Region. Route 31 has the capacity to handle a much higher volume of traffic than it now has.

It should be noted that the State Master Transportation Plan, 1989, has one project scheduled in the vicinity of this subdivision: improved drainage and the construction of a climbing lane on Route 31 between Route 275 and Root Road. This has been identified as a project for "fast tracking" under the I-84 Trade-In plan, and construction is scheduled to begin in 1990.

Population

Ripley Ridge would increase the town's population by an estimated 153 (1.6%) to 174 (1.9%) people.# It is estimated that 73 of these will be school children, based on 1.4 school age children per three to four bedroom single family house in a typical subdivision.## This represents a 4.7% increase in the towns school population. Because plans are to develop the subdivision in two stages and over five years, the increase in school population in any one year is not expected to be significant.

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* Based on average family unit generating an average of 10.6 vehicles trips/dwelling unit/weekday. Source: Trip Generation Study of Various Land Uses, Israel Zevin, ConnDOT, 1974. 10.0 vehicle trips/dwelling unit/weekday. Source: Trip Generation, 3rd edition, Institute of Transportation Engineers.

Based on 1980 Census data for Coventry: 2.95 people per household or 3.34 people per family. Percentages are based on The Department of Health Services (1988) population estimate for Coventry - 9,510.

New Jersey County and Municipal Government Study Commission Housing and Suburbs, Fiscal and Social Impact of Multi-Family Development.

ABOUT THE TEAM

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

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

PURPOSE OF THE TEAM

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

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

REQUESTING A REVIEW

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

For additional information and request forms regarding the Environmental Review Team please contact the ERT Coordinator: 203-345-3977, Eastern Connecticut RC&D Area, P.O. Box 70, Haddam, Connecticut 06438.