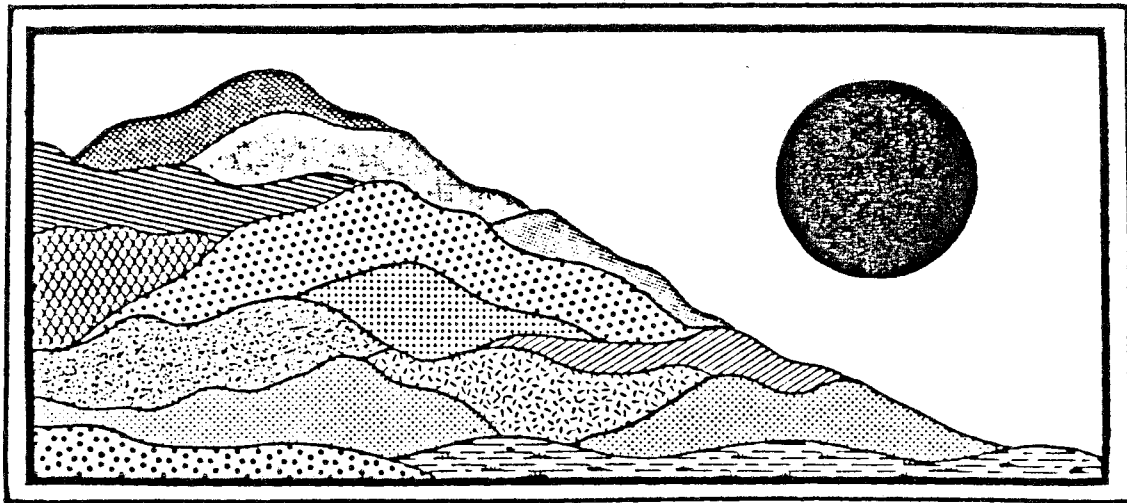


# SOUTHERN AUTO SALES, INC.

East Windsor, Connecticut

April 1988



## ENVIRONMENTAL

## REVIEW TEAM

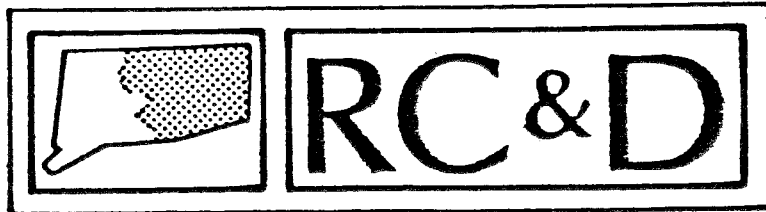
## REPORT

# SOUTHERN AUTO SALES, INC.

East Windsor, Connecticut

**Review Date:** FEBRUARY 11, 1988

**Report Date:** APRIL 1988



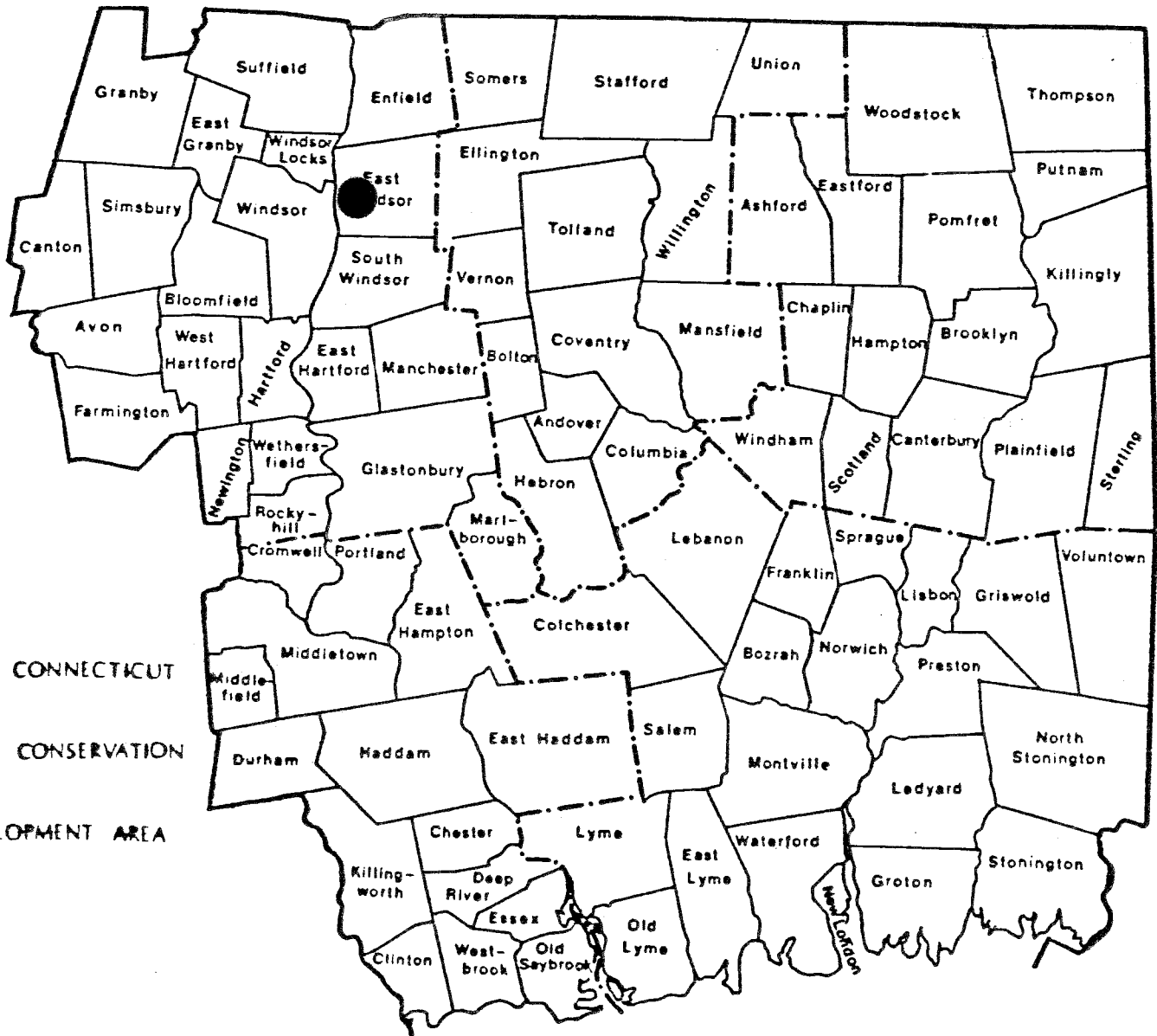
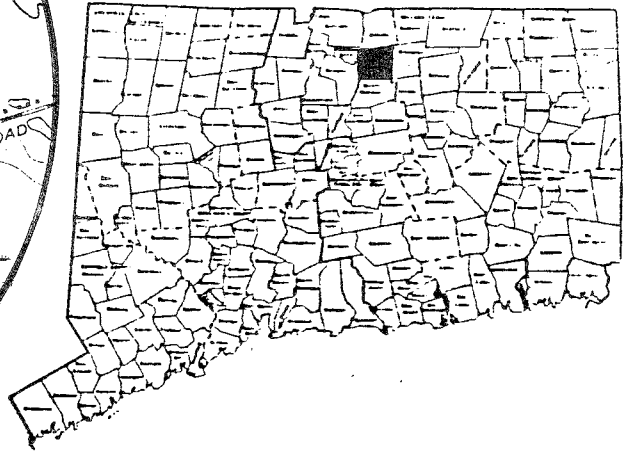
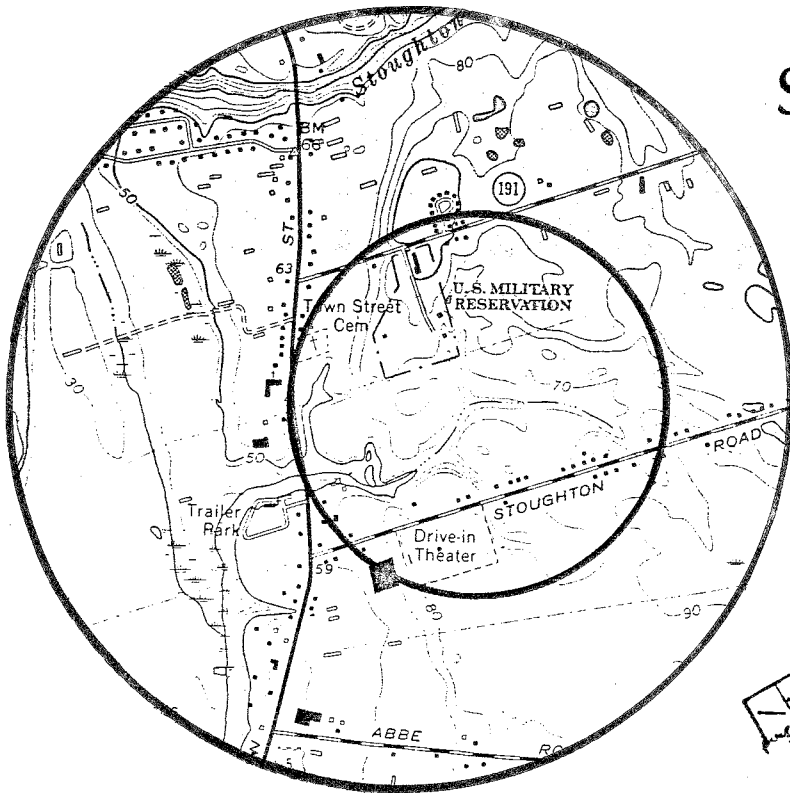
ENVIRONMENTAL REVIEW TEAM

PO BOX 198

BROOKLYN, CONNECTICUT 06234

# Site Location

Southern Auto Sales, Inc.  
East Windsor, Connecticut



EASTERN CONNECTICUT  
RESOURCE CONSERVATION  
& DEVELOPMENT AREA

ENVIRONMENTAL REVIEW TEAM REPORT  
ON  
**SOUTHERN AUTO SALES, INC. EXPANSION**  
**EAST WINDSOR, CONNECTICUT**

This report is an outgrowth of a request from the East Windsor Conservation and Inland Wetlands Commission to the Hartford County Soil and Water Conservation District (S&WCD). The S&WCD referred this request to the Eastern Connecticut Resource Conservation and Development (RC&D) Area Executive Committee 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, February 11, 1988. Team members participating on this review included:

Frank Buck	--Environmental Analyst - DEP, Water Resources Unit
Denise Conklin	--District Manager - Hartford County Soil and Water Conservation District
Susan Hill	--Environmental Analyst - DEP, Water Resources Unit
Kip Kolesinkas	--Soil Resource Specialist - U.S.D.A., Soil Conservation Service
Brian Murphy	--Fisheries Biologist - DEP, Eastern District
Stuart Popper	--Senior Planner - Capitol Region Council of Governments
Eric Scherer	--District Conservationist - U.S.D.A., Soil Conservation Service
Elaine Sych	--ERT Coordinator - Eastern CT RC&D Area
Bill Warzecha	--Geologist - DEP, Natural Resources Center

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 soils map and an environmental report prepared by a consultant for the applicant. During the field review the team members were given topographic maps and plans for the proposed project. The Team met with, and were accompanied by the Chairman of the Conservation and Inland Wetlands Commission, the Town Planner, the engineer for the project, the applicant's environmental consultant, the applicant and an interested citizen. 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 and conclusions 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 Committee hopes you will find this report of value and assistance in making your decisions on this proposed expansion project.

If you require any additional information, please contact:

Elaine A. Sych  
ERT Coordinator  
Eastern Connecticut RC&D Area  
P. O. Box 198  
Brooklyn, CT 06234  
(203) 774-1253



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ONE.

INTRODUCTION

The Eastern Connecticut Environmental Review Team has been requested by the East Windsor Conservation and Inland Wetland Commission to assist in the review of a proposed expansion of Southern Auto Sales, Inc.

The following sections of this report provide information about the natural resource base of the site including topography, geology, soils, hydrology and wetland descriptions and functions. Other sections are concerned with the expansion plan and deal with areas of special concern and also include recommendations, mitigating measures and alternatives that should be considered and applied.

It is apparent to the Team members that the Commission should very seriously consider all that is included in this report prior to making a decision on this proposal. Careful scrutiny and evaluation is needed to ensure an environmentally sound project.





## TWO.

### TOPOGRAPHY AND SETTING

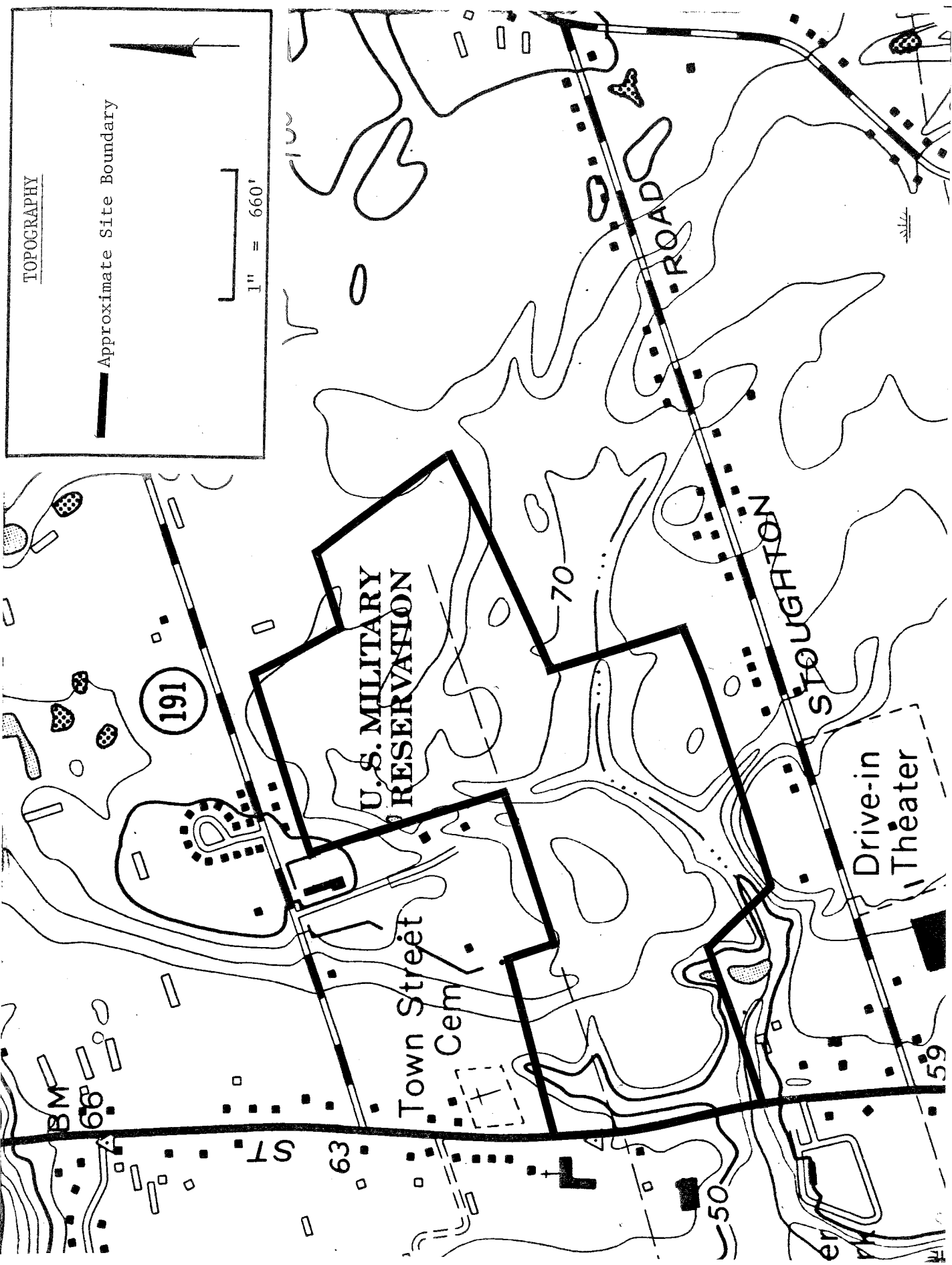
The site, about 107 acres in size, is located in the eastern part of East Windsor. It is bordered by Route 5 to the west, Stoughton Road to the south, Phelps Road to the north and several residential properties on the east. Other site boundaries abut private, town and U. S. Army land.

It is understood that the site is located in a B-2 zone. Permitted uses in a B-2 zone includes commercial development. A maximum pavement coverage consisting of 65% and a maximum building coverage of 35% is mandated for developments in a B-2 zone. The applicant wishes to construct two buildings, one of them will be a car wash facility, and to create about ±35 acres of paved parking area.

Except for the former farm field in the western part, which appears to have been recently converted to a parking lot facility, most of the site consists of relatively flat to gently sloping wooded land. A 1934 air photo revealed a fruit tree orchard in the western part and open farmland in the central part. Site elevation ranges from about 40 feet above mean sea level to 90 feet above mean sea level. As mentioned earlier, slopes generally vary from flat to gentle across the site. Areas of steep slopes are concentrated along the banks of Quarry Brook in the southern part and flank the sides of sandy, dune hills in the eastern part.

Quarry Brook, a perennial streamcourse meanders in a westerly direction through the southern limits of the site enroute to the Connecticut River. An unnamed tributary, which originates in the wetland (proposed conservation area) in the northern part flows in a southerly direction until it joins Quarry Brook in the central part. A small pond created by a former dimension stone (sandstone) quarry is located in the northern portion. Another small pond, which was also created by a former quarrying operation, is located southwest of the property. Quarry Brook flows through the southern limits of the latter pond.

According to the site plan, approximately 56 acres or 52% of the parcel is comprised of regulated inland-wetland soils. It is understood that East Windsor has no prescribed setback (buffer zone) regulations from wetlands, ponds and streams but that each application is reviewed on a case by case basis.



TOPOGRAPHY

Approximate Site Boundary

1" = 660'

U.S. MILITARY RESERVATION

ROADS

STOUGHTON

Drive-in Theater

191

Town Street  
Cem.

70

50

59

BM

68

ST

63

### THREE.

### GEOLOGY

The site is located in an area encompassed by the Broadbrook topographic quadrangle. A bedrock geologic map and surficial geologic map by Roger Colton (1965) have been prepared for the quadrangle and published by the U. S. Geological Survey. (Map GQ-434).

#### A. Bedrock Geology

Bedrock does not break the ground surface within the site, except possibly in the area of the former quarry pits. Subsurface explorations were conducted by Clarence Welty Associates, Inc. on the site to determine geologic conditions. According to boring logs, the bedrock surface is closest to the ground surface in the western part of the site. Depths to the bedrock surface in this area ranged between 8.0 feet and 14.5 feet below ground surface.

Colton describes the bedrock underlying the site as Portland Arkose. It consists of reddish brown and gray arkosic siltstone, sandstone and conglomerates. The term arkose and arkosic mentioned above are used to describe the rock's mineral composition, primarily feldspar and quartz.

Portland Arkose consists of sediments that were deposited mainly by streams but occasionally in lakes during the Mesozoic geologic era. The rocks are approximately 170-180 million years old.

Because the bedrock surface is relatively deep throughout the site, it should pose no major problems in terms of the proposed commercial development.

#### B. Surficial Geology

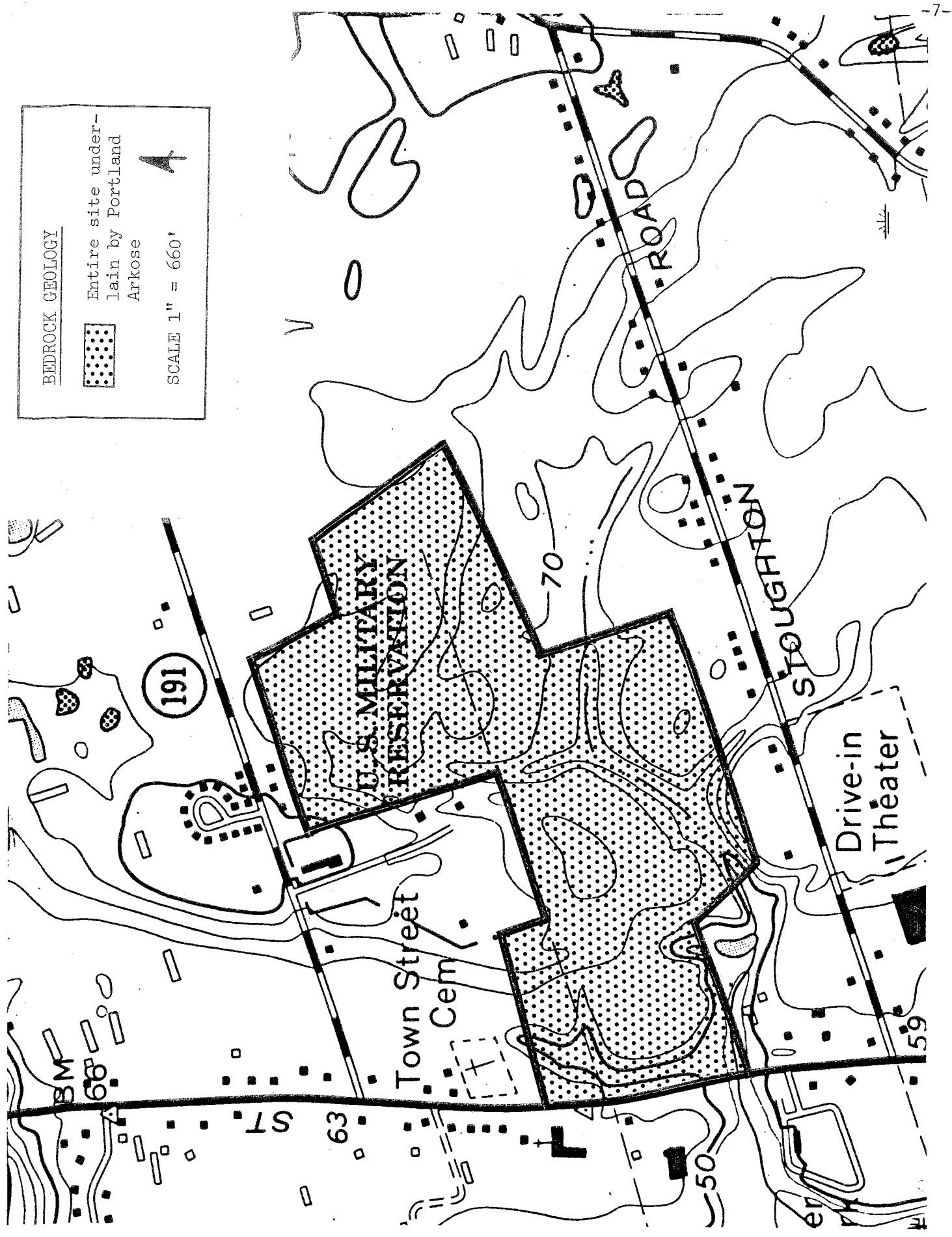
The unconsolidated materials covering the site are of more recent origin compared to the 170-180 million year old bedrock on which it rests. Most of the materials were deposited by glacier ice or meltwater streams. Evidence from other parts of the United States, primarily the midwest, indicates that the glacier advanced southward from Canada several times during the last million years. Most of the glacial sediments in Connecticut appear to date from the most recent of these advances, which climaxed about 18,000 years ago. Till is the oldest sediment. Till was deposited directly from the surface of, within, and beneath the ice, mainly while the ice was continuing to move forward. As a result, the various grain sizes from clay to boulders are mixed together in a complex, irregular fashion. Till does not appear to be exposed at the ground surface within the site, but according to subsurface data, it forms a relatively thin blanket over the bedrock surface beneath the site (Map GQ-434, Colton).

**BEDROCK GEOLOGY**

Entire site underlain by Portland Arkose

SCALE 1" = 660'


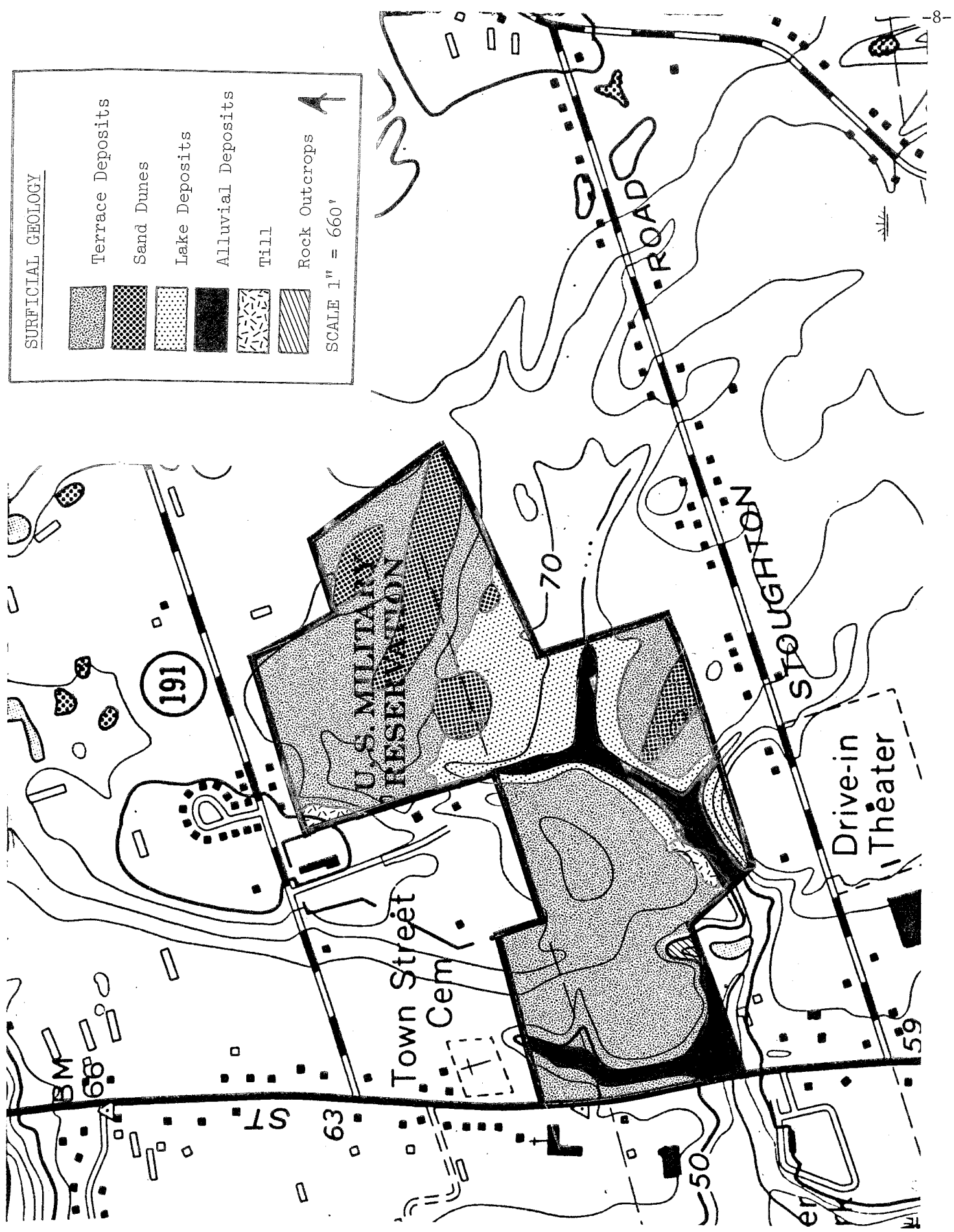
**A**



**SURFICIAL GEOLOGY**

	Terrace Deposits
	Sand Dunes
	Lake Deposits
	Alluvial Deposits
	Till
	Rock Outcrops

SCALE 1" = 660'

Approximately 13,000-14,000 years ago, the ice from the most recent glacial advance had melted back to northern Connecticut. Thinning at the margin resulted in the detachment of large blocks of ice, while continuing flow in the thicker ice to the north, produced more and more rock debris. The debris was carried forward by meltwater streams, which sorted it by grain size.

At some time during the period of glacial retreat, ice and sediment formed a blockage or dam in the Connecticut Valley in the vicinity of Rocky Hill. Water backed up from that blockage resulted in a lake of large proportions. The glacial lake has been given the name Glacial Lake Hitchcock. Meltwater entering the lake deposited sediment rapidly, building a series of coalescing deltas along the lake shore. Fine materials (clay, silt, and fine sand) were deposited on the lake bottom, often in a varied (alternating) sequence. Lake-bottom sediments cover some parts of the study site mainly along Quarry Brook and its tributary. According to Colton, the thickness of the lake deposits in the quadrangle range between 0 and 150 feet thick.

Overlying the lake deposits on the site is a moderately thick blanket (as much as 20 feet) of water deposited materials called terrace deposits. The terrace deposits on the site consist of yellowish brown, well laminated sand, silt and clay, which may be locally pebbly. They were carried forward over the "lake deposits" by meltwater streams during glacial retreat.

The final type of surficial geologic deposit found on the site is sand dunes/eolian (wind-blown) deposits. Sand dunes/eolian deposits consists of fine-grained particles such as sand and silt which formed following the draining of Glacial Lake Hitchcock. The presence of bare soils (no vegetative cover) following the disappearance of Lake Hitchcock, was the source of the sand dunes/eolian deposits on the site. The sand dunes are found primarily in the eastern part and are delineated as Wy (Windsor loamy fine sand) on the accompanying soils map. They may be as much as three feet thick in some places.

The Team's geologist estimated the area of regulated wetlands using a digital planimeter and the 100 scale site plan map distributed to Team members. The sites' wetlands occupy about 56 acres or 52 percent of the parcel. According to the applicant's soil scientist, the bulk of wetland soils include Scantic silt loam (sc), Biddelford silt loam (Bf) and Walpole sandy loam (Wd). The first two soil types formed over glacial lake sediments (see above, while the Walpole developed over stratified drift (sand and gravel) deposits. They differ mainly in (drainage class) e.g., the depth to high water table during the wet time of year. (See SOIL RESOURCES)

## FOUR.

### SOIL RESOURCES

The soils on the property occur on three major landforms. On the western side of the parcel the soils are excessively drained to poorly drained and formed in sandy terrace deposits. The soils on the western half of the parcel are moderately well drained to very poorly drained and formed in silty and clayey lacustrine deposits. Intermingled in a complex pattern on the landscape are moderately well drained to well drained soils formed in slightly higher sandy dune/beach deposits. Dissecting the parcel are two watercourses with sideslopes of lacustrine soils and narrow areas of alluvial soils along the channels.

The soil map included with this report has been created from on-site investigation, air photo interpretations, and information provided by Soil Science Services. This map can be used for a general discussion of soil limitations on this parcel. The Soil Resource Specialist walked over portions of the wetland boundaries on the parcel and found that small areas of eroded moderately well drained soils along the drainageways had been included with wetland soils in mapping. The wetland map prepared by Soil Science Services is generally accurate and can be used in discussions about wetland locations and planning decisions.

Because of the number of map units included, a chart of important soil features and interpretations has been prepared. Below are listed some additional soils information and concerns:

1. Included in areas mapped ScA are areas with a sandy surface layer and subsoil. Also included in mapping are narrow areas of alluvial soils along drainageways and small areas of somewhat poorly drained and moderately well drained lacustrine soils.
2. Included in areas mapped WvA are areas of moderately well drained sandy soils and areas underlain by silts and clays within 40 inches.
3. Included in areas mapped BfA are narrow areas of alluvial soils along the drainageways.
4. Included in areas mapped BxB are areas of moderately well drained soils with a sandy surface and subsoil and small areas dominated by 8 to 15% slopes.
5. The wettest soils (very poorly drained) have not been entirely included in the "conservation area" shown on the plan map. Boundaries should be modified to include the most important parts of the wetland system.



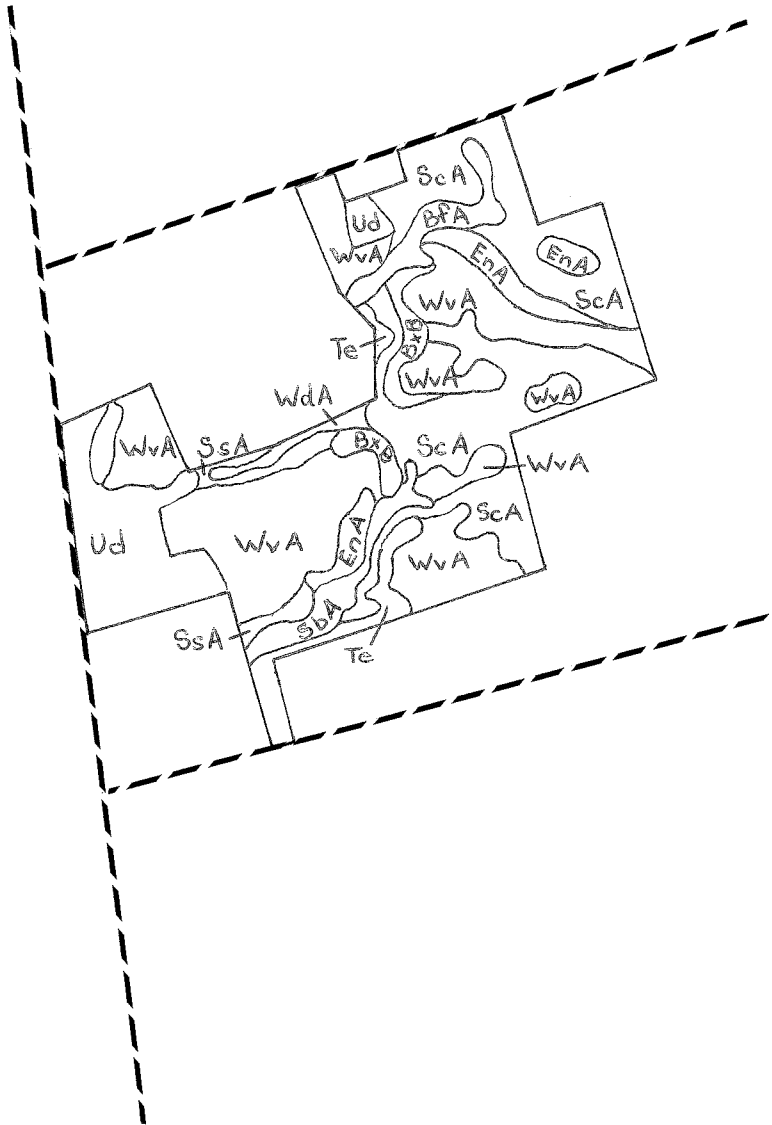
United States  
Department of  
Agriculture

Soil  
Conservation  
Service

Hartford County USDA-SCS  
Midway Office Park  
1101 Kennedy Road, Rm. 105B  
Windsor, CT 06095  
688-7725



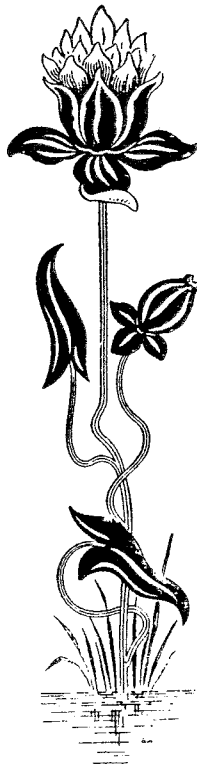
SCALE 1" = 1000'





6. Wetland soils associated with lacustrine landforms are supported by surface runoff and subsurface flow from areas slightly higher on the landscape. The proposed modification of the landscapes by the construction of the eastern parking area and the test track include grading, filling, large impervious areas, and the creation of concentrated flow where diffuse surface and subsurface flow existed. This will affect the amount of water and how water enters this wetland system.

7. The major limitations of the lacustrine soils for the development of the parking lots are seasonal wetness and the potential for frost heaving. Grading, extensive fill, surface drainage and possibly subsurface drainage may be necessary to overcome these limitations. Silty and clayey material excavated from the site is poorly suited for use as fill because of low strength and a high potential for frost action.



FIVE.

GEOLOGIC LIMITATIONS TO DEVELOPMENT

The principal engineering concerns with the soils are wetness and frost action. In addition, development on the clayey soils may be limited due to low strength. As a result, any construction that takes place in these areas is very difficult. Careful examination by a soils engineer of the clay soils on the site is warranted to determine its ability to support the proposed buildings and parking areas without settlement problems.

Because of the relatively flat gradients throughout the wetlands on the site, the flood control attributes and sediment retention capabilities of the wetlands would be expected to be good. All areas comprised of wetland soils are considered "regulated areas" under Chapter 440 of the Connecticut General Statutes. Any proposed activity that impacts regulated areas must be approved by the East Windsor Inland-Wetlands Commission. In reviewing a proposal, the commission will need to determine the impact that the proposed activity will have on the wetland. If the commission feels that the regulated areas are serving an important hydrologic or ecologic function and that the impact of the proposed activity will be severe, they may deny the activity altogether or, at least, require measures that would minimize the impact. It seems likely that U. S. Army Corps of Engineers permit will be required for the proposed filling that will be required for the construction of two parking areas in the wetlands on the site (See HYDROLOGY section). They should be contacted as soon as possible.

A major concern for the installation of sewers, waterlines, and electrical lines is the potential for "cutback" cave-ins in the sandy soils on the site. Proper shorings of sides should be accomplished in deep trenches (5 feet or greater). Because sandy soils are typically droughty, it is also often difficult to stabilize slopes with vegetation.



SIX.

EROSION AND SEDIMENT CONTROL CONCERNS

- suggest using plunge pool detail for outlet protection on storm drains. Add details to Sheet 27 of 27 and specify which detail is suitable for inlet protection which is suitable for outlet protection. Specify on site plans which detail to use.
- due to the long slopes proposed and the potential that construction may exceed 60 days, it is recommended that filter fabric be used in lieu of hay bales as sediment barriers. The legend and narrative should be changed to reflect this.
- the proposed construction entrance pad dimensions should be shown on Sheet 12 of 27.
- velocities should be determined for the proposed "swales" east of the parking lot on Sheet 13 of 27. Based upon the specifications for "waterways" in the Connecticut "Guidelines for Soil Erosion and Sediment Control". These waterways may need to be lined with a geotextile or other blanket material within the flow limits to prevent scouring and enable permanent vegetation to grow. These areas of special concern (as mentioned under Non-structural Measures, Temporary Mulch Sheet 26 of 27, should be highlighted on plans).
- use filter fabric as the sediment barrier around stockpiled topsoil, especially those stockpiled areas downslope of large watershed runoff areas.
- inlet/outlet protection for the proposed Quarry Brook crossing should be addressed and shown on plans (including detail drawings).
- if the proposed access off Stoughton Road is to be utilized during construction, a construction entrance pad is needed here. If this area is not to be used, access to it should be controlled via a barrier.
- inlet-outlet details for the crossing of the stream on Sheet 16 of 27 are needed.
- show any channel liners needed as per design requirements on waterway on Sheet 20 of 27.
- plans should show special seeding requirements for waterways, indicating acceptable species, rates, seeding methods and dates for seeding.
- catch basin protection details should be changed from those shown on Sheet 26 of 27 to one where filter fabric is used as an "envelope" over and under the grate. This type of control measure is an effective measure which will not interfere with construction traffic.

-- include filter fabric specs in 13th paragraph on Soil Erosion and Sediment Control Notes on Sheet 26 of 27.

Plans should show phasing sequences. Phasing will require that area be permanently stabilized or protected before another area is opened up.

-- construction schedule should be sensitive to breeding/nesting times, so as to disturb the wildlife as little as possible. Dryer months also will facilitate construction and earth moving activities on these soils.

A detailed construction schedule is needed for the site, showing each phase and construction activities within each phase. A check list should also be developed that would reflect this construction schedule and allow a site inspector to verify the proper sequence of events and note any changes.



SEVEN.

HYDROLOGY

The western, southern and eastern parts of the site drain to Quarry Brook, a perennial watercourse, which flows in a westerly direction through the site enroute to the Connecticut River. The northern part of the site drain to an unnamed intermittent streamcourse, which originates in the proposed conservation area. It merges into Quarry Brook in the central part.

At its intersection with the existing box culvert under Route 5, Quarry Brook drains an area of about 446 acres. The site represents about 24 percent of this drainage area.

Surface waters (Quarry Brook and its tributary) on the site are regulated by the Connecticut Department of Environmental Protection as class 'A'. A class 'A' designation means the water quality may be suitable for drinking water supply; may be suitable for all other water uses including bathing; character uniformly excellent, and; may be subject to absolute restrictions on the discharge of pollutants. For example, compatible discharges to a class 'A' water includes treated backwash/drinking water treatment facilities and minor cooling or clean water from industrial discharges.

Groundwater beneath the site is classified as 'GA' by the DEP. This means the groundwater is within the area of influence of private and potential public water supply wells. It is presumed to be suitable for direct human consumption. The State's goal is to maintain that condition by banning almost all discharge to groundwater.

It is understood that the proposed building floor drains, and car wash would be connected to a municipal sewer line. As such, no discharge of wastewaters to the groundwater would be expected. Before the Town approves the proposed project, it should first be demonstrated that the project will not exceed the capacity of the municipal sewer line and sewage treatment facility. It should be pointed out that a permit for the proposed car wash facility will be required by DEP's Water Compliance Unit. The treatment required for this type of discharge is oil/water separation. This is typically achieved by routing the wastewater through a 1,000 gallon (minimum size) concrete oil/water separator tank which allows the sand and grit contained in the water to settle to the bottom while the oil and grease, being lighter than water rises to the top. Through a tee pipe, the cleaner water exits the tank to the sanitary sewer leaving the grit, oil, and grease in the tank. Periodically, a licensed waste oil hauler must clean the tank. This must be done at least annually. However, more frequent cleaning may be required in order to properly maintain the tank. A list of certified haulers can be obtained from the Hazardous Materials Management Unit (566-5712).

WATERSHED BOUNDARY

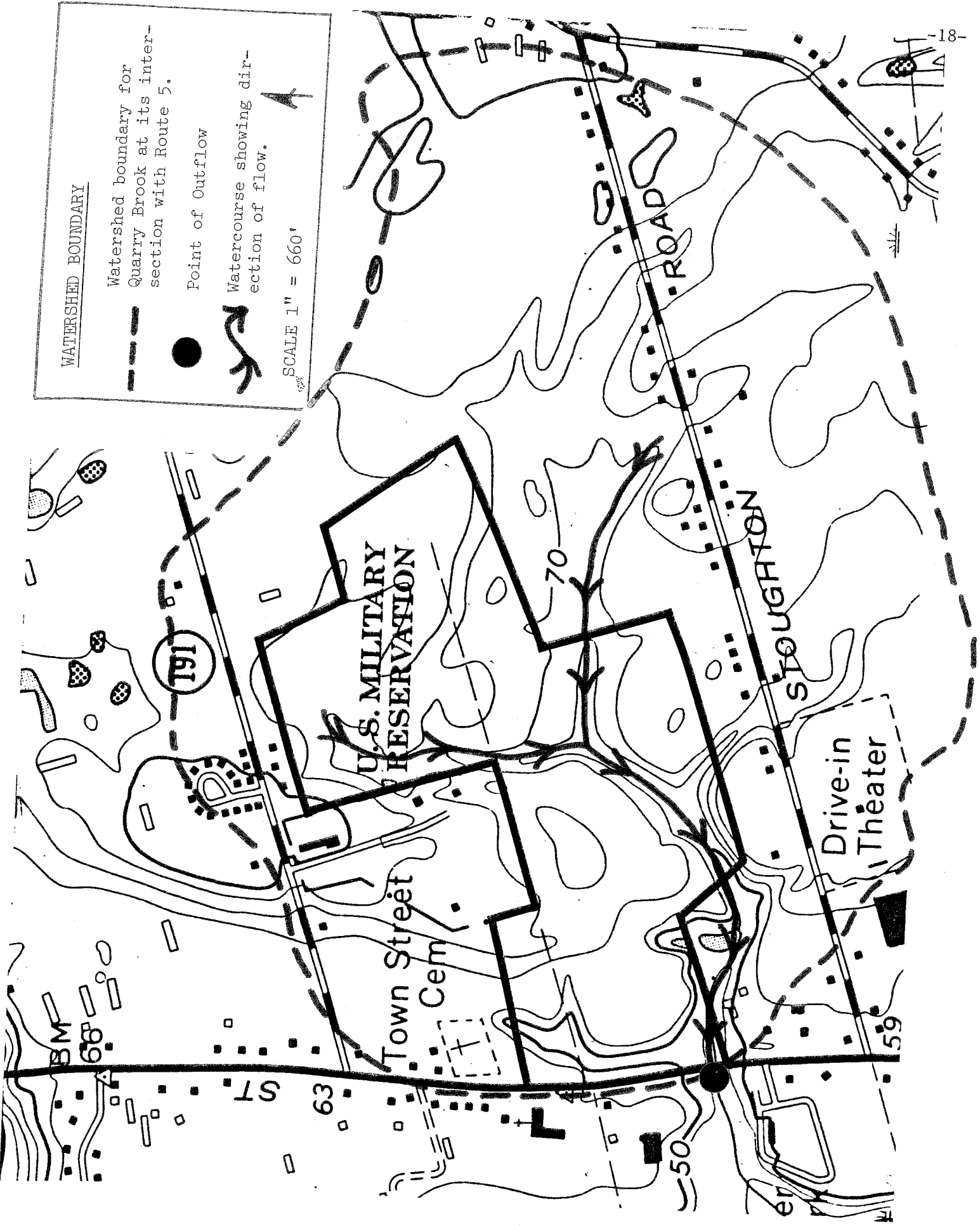
Watershed boundary for Quarry Brook at its intersection with Route 5.

Point of Outflow

Watercourse showing direction of flow.



SCALE 1" = 660'



According to the hydrologic study prepared by the applicant's engineer, development of the site under the present proposal would be expected to substantially increase the amount of runoff during periods of rainfall. There would be a 21%, 17% and 12% increase for the 10, 25 and 100 year storm events, respectively. These increases would result largely from the placement of impervious surfaces such as roof tops and parking areas (about ±35 acres), soil compaction and removal of vegetation. In this regard, consideration should be given to an alternative type of parking lot surface, which would have at least some infiltration capabilities (i.e., gravel parked, etc.). Because of the sites close proximity to the Connecticut River, the applicant's engineer does not propose to detain the post-development runoff increases. If the discharge of stormwater was prolonged on the site, it may be released at or about the same time the Connecticut River peaks. This may result in the aggravation of existing flooding conditions in the area. As a result, it would probably be better to get the stormwater off the site as quickly as possible. Careful examination of the box culvert passing under Route 5 is warranted. Also, any future development in the watershed needs to be analyzed on a case by case basis to ensure that post-development runoff does not cause flooding problems. Therefore, each developer in the watershed will need to do his or her part in controlling post-development flows from their respective developments. Once the stormwater management plans have been completed, it should be carefully reviewed by the Town's engineer.

Another concern with increased runoff from the site is the potential for streambank erosion, gulleying and deterioration of surface water quality due to parking lot runoff laden with road sand, road salt and automobile residue. Present plans indicate that parking lot runoff will be artificially collected and outletted to streamcourses or wetland areas on the site.

The Connecticut Soil Erosion and Sediment Control Act (Public Act #83-388), which became fully effective July 1, 1985 requires a detailed erosion and sediment control plan for the project. The erosion and sediment control plan should be properly enforced by the town. (See **EROSION AND SEDIMENT CONTROL CONCERNS**) Because of the silty and clayey soils present on the site, the potential for seasonally high water tables, and the large area of disturbance anticipated under present plans, the chance for environmental damage to watercourses and wetlands from siltation and sedimentation would be expected to be high without proper erosion and sediment control measures. Also, there is concern for the accumulation of road sand in streamcourses and wetlands from parking areas following their construction. For these reasons, consideration should be given to the installation of sediment basin(s) within the site. Since the primary purpose of the basin(s) would be to minimize erosion and sedimentation, the peak discharge from the 2-year and 10-year frequency storms should be analyzed. There should also be a determination made as to who will maintain the sediment basin(s) as well as catch basins, and who will sweep the parking areas. This maintenance will help to cut down on siltation and sedimentation problems and potential deterioration of wetlands and watercourses. Oil separators should also be considered for pre-treatment of parking lot runoff.

They will help to minimize floating solids, oils, and grease. Finally, it is recommended that the applicant contact DEP's Water Compliance Unit (566-5905) to determine if a permit is required for stormwater discharge to watercourses on the site.

Regulated wetland soils/streamcourses will need to be crossed in at two areas on the site. Although undesirable, wetland road crossings are feasible provided they are properly engineered. The roads should be constructed adequately above the surface elevation of the wetland. This will allow for better drainage of the road and also decrease the frost heaving potential of the road. In cut areas, under drains should be installed on either side of the road. Road construction through wetlands should preferably be done during the dry time of the year, and should include provisions for effective erosion and sediment control. All organic material should be removed and replaced by proper fill material. Culverts should be properly sized and located so as not to alter the water levels in the wetland or cause flooding problems. Because of the major wetland crossing anticipated in the southern parts on Quarry Brook, consideration should be given to a pre-fabricated concrete bridge. While this alternative may be more costly, it would help to minimize the disturbance of the wetland/floodplain in this area.





EIGHT.

WETLAND RESOURCES

A. Wetland Description

The entire project site has at various times been disturbed for agricultural/forestry purposes. The eastern half of the site is currently forested. Wetland areas are red maple (Acer rubrum) dominated forest, except for the north-eastern corner which is an emergent/shrub wetland with a transition toward red maple. Uplands are of two types; one dense band of evergreens obviously occupying only the upland soils and several small pockets of deciduous forest. The western half of the site consists mainly of an agricultural field. Most of this portion is upland with a couple of forested wetland inclusions. The two halves are separated by a forested wetland stream corridor. The Fish and Wildlife Service's National Wetland Inventory identifies two wetland types within the study area. The classification is based on the wetlands' hydrologic location, vegetative cover, water regime, and site specific modifiers. The wetland types are described below:

PF01E - Palustrine, forested (broad-leaved deciduous), seasonally saturated.

POWH - Palustrine, open water, permanent.

The PF01E wetland type is characterized by a forested canopy often dominated by red maple (Acer rubrum). During part of the growing season the soil is saturated or with standing water. For additional site description refer to the report submitted by the applicant from The Environmental Management Corporation, November 27, 1987.

B. Wetland Function and The Development Proposal

The current proposal would require the alteration and loss of approximately ±35 acres of wetland. Fifty-six (56) acres of the 107 acre parcel are wetlands. Most of this loss would be attributed to development on the eastern half of the site. Anticipated impacts from the proposed development on this portion would be the removal of an interspersed wetland/upland habitat, deforestation, an increased amount of stormwater discharge, an increase in water temperature due to runoff from the pavement, some erosion of the stream channels due to increased amount of stormwater discharge, and lowered stream level base flow due to the lack of infiltration of rainwater into the soil zone and its later discharge into the stream.

Functions provided by the wetlands are habitat, flood control, and water quality. The habitat provided by these forested wetlands is of high quality. The forested wetland provides feeding and breeding habitat for birds, small mammals, and amphibians. Many species have strict habitat requirements and cannot change from one habitat type to another. The size (acreage) and vertical distribution (ground level to canopy) are other habitat requirements which are relatively static. Another factor which increases the value of wetlands is having adjacent undeveloped upland. Some species utilize wetlands for feeding and uplands for breeding, or vice versa, and therefore require both land types for their habitat. The eastern half of the site is a mosaic of wetland and upland providing such habitat type.

Flood control is realized through the interception of rain by leaves and branches, evapotranspiration (Evaporation into the air and transpiration is the uptake of water by plant roots and release through pores in the leaves into the air.), and infiltration into the soil zone. The paving of these wetlands will result in greatly increased peak flow discharges to Quarry Brook, ( 400 cfs for design storm). Such rapid discharges to a small stream system such as Quarry Brook can result in significant erosion and channel scarring at the point of entry and also further downstream.

The excellent quality of ground and surface waters at this site (designated A) is a result of the lack of upland development on this and adjacent parcels and the degree of vegetative cover and soil/water contact provided in these wetlands. As proposed this project will result in the loss of both of these features while increasing erosion and pollutant loading, therefore, negative water quality effects must be anticipated if this development is permitted as proposed.

The present proposal does not provide stormwater detention for any type of storm, however frequent storms of small severity provide sufficient flows to carry oils and greases to receiving waters. Design of a retention facility to collect the first on-half inch of runoff, or to provide on-site detention of smaller storms, while shunting major storm flows off-site, will significantly reduce the amount of oils and greases, fertilizers, etc. which will enter into the receiving streams.

Such a design would allow for the quick removal of design storm flows during which time the dilution of pollutants in receiving streams would be greater while providing primary treatment for pollutants associated with smaller storms.

Additionally, the large amount of black top pavement proposed will significantly increase the temperature of runoff water during the numerous smaller summer storms events. This runoff will quickly be shunted to Quarry Brook where the effects of low dissolved oxygen, increased pollutant loading and increased temperatures will result in acute biological stress to stream inhabitants. Additionally, this scenario may also encourage undesirable turbidity, scums and algal growth within slower portions of Quarry Brook.

Although the parcel in question does not provide any significant direct water table recharge, the perched water table does travel in a receiving stream. Such flow provides surface water - soil contact for filtration and storage of significant volumes of water for maintenance of stream base flow during low flow periods.

The value of these productive wetland soils and their vegetative cover to the excellent quality of surrounding ground and surface waters immediately raises the question as to the suitability of a project which will result in essentially their complete removal from the hydrological cycle of this portion of the watershed.

### **C. Alternatives**

As the present design does not appear to consolidate buildings and parking lots to reduce the scope of wetlands impacts, it is obvious that alternatives exist to reduce the impact to regulated wetlands while providing economic feasibility to the applicant.

One alternative would be to develop the western half of the site thereby reducing much of the wetland impact. Another alternative, which could be used in conjunction with the above, would be the use of permeable construction materials for the parking lots. The use of permeable construction materials for the construction of this parking lot would result in greatly reduced loss of water percolation, stormwater runoff and pollutant loading. As this parking lot will not be subject to intensive traffic volumes and corresponding road maintenance, the use of alternative materials may be acceptable. Although local requirements may require public parking lots to be paved, this situation presents a unique problem which may warrant further investigation into alternative parking lot construction materials.

The commitment of such a large parcel of wetlands for the construction of a parking lot to be used only 52 days a year (1 day/week), appears to be a disproportionately large commitment of limited wetland resources for a small public benefit.

The current proposal provides the owner use of this land with an inequity of return for the environment. The wetland loss is large, over 20 acres. Most plans for development include mitigation of 1:1 replacement for wetlands. This plan offers for mitigation a Conservation Area. To date, 7.5 acres have been set aside to open space, at least as much as the anticipated wetland loss. A portion of the property which is not proposed for development and is well suited for open space is the area located in the southeastern part of the property abutted to the east by the property presently owned by the Town of East Windsor. This area is an interspersed wetland/upland habitat. Also, for open space to work as mitigation it must be deeded as such in perpetuity. (Also see **PLANNING CONCERNS, Part E**).

As this proposal will result in the loss of approximately ±35 acres of regulated wetlands with probable impacts to surrounding water quality the Town should consider the implementation of an imaginative and resourceful stormwater management plan. The easily manipulated drainage characteristics of a parking lot lends itself to easy handling and directing of stormwaters, versus the collection of run-off from a large residential subdivision or similar type development.

These recommendations closely parallel those of the consultants' report pp. 4-5, where he states, "Increased discharge could destabilize downstream channels and lead to bank erosion if not carefully introduced. Suspended loads will also increase if careful erosion and sedimentation control measures are not executed. It is recommended that the final plans should include some provision for runoff management to reduce suspended matter and nutrient loads, including oil traps and possibly a sediment basin." These alternatives are feasible with present engineering technology and will not jeopardize the economic success of this proposal. Therefore, it is the Team biologist's opinion that should the local agency determine that these wetlands impacts are acceptable, that such an imaginative stormwater design be implemented to maintain the quality of waters within this area.

Additional concerns of the Hartford County Soil & Water Conservation District include:

-- Access to the site from Phelps Road as opposed to Stoughton Road is more desirable -- it will eliminate a major wetland crossing. This is a feasible alternative to Stoughton Road and will help to mitigate impact on wetlands. (Also see **PLANNING CONCERNS - Part A**).

- The environmental report could be more descriptive of functional values of wetlands and on how the proposal will mitigate loss of these values.

- A wider separating distance between parking lots and wetlands would create a vegetative filter (buffer) strip. This is especially needed where proposed parking lots do not have a stormdrain (catch basin) system to handle surface water.

- Impact to wetlands can be reduced by combining the crossing areas in the rear. Use of "Jersey Barriers" could help.

NINE.

FISH RESOURCES

A. Site Description

The proposed development, approximately 107 acres in size, involves an expansion of Southern Auto Sales, Inc. in East Windsor, Connecticut. This proposal will convert a total of ±35 acres of land to pavement. Quarry Brook is the primary surface hydrological feature of fisheries concern on this property.

Quarry Brook is a small floodplain tributary of the Connecticut River. This low gradient, shallow brook contains a sand and gravel substrate overladen with fine sediments. Local flood events and erodibility of soils has resulted in heavy stream sedimentation conditions. Streambanks in several areas have been eroded resulting in undercut and unstable sections along Quarry Brook. The existence of several gullies draining off this property and into Quarry Brook was further evidence that erosion and sedimentation is a common occurrence in this area.

The Quarry Brook streambelt or riparian zone is heavily vegetated with a well-developed overhead canopy. This canopy shades and cools stream waters serving a critical role in fish survival.

B. Fish Population

Waters of Quarry Brook are not stocked with trout by the DEP Bureau of Fisheries. However, the brook is expected to support a native (wild) brook trout population as well as blacknose dace and longnose dace. It is quite probable that several fish species that inhabit the Connecticut River such as smallmouth bass, sunfish and herrings may seasonally disperse into Quarry Brook.

Quarry Brook is currently classified by the DEP as "Class A" surface water. Designated uses for this water classification include; potential drinking water supply; fish and wildlife habitat; recreational use; agricultural, industrial supply and other legitimate uses.

C. Impacts

The following impacts on Quarry Brook can be expected if proper mitigative measures are not implemented:

1. Stormwater runoff from paved surfaces to Quarry Brook - surface drainage from the ±35 acre paved surface may allow sediments, sands, salts, gasoline

or oils to enter the brook. A stormwater management plan has been devised for this property which involves the placement of catch basins at various locations along the pavement. Stream sedimentation will occur if these basins are not properly designed, placed, and maintained. Stream sedimentation due to stormwater runoff can cause severe aquatic habitat degrading. If realized, sedimentation can result in the reduction of the following important variables:

- \* Stream pool depth - pools provide cover, shelter, and resting areas for fish. They are critical to fish survival.
- \* Fish egg survival - sufficient water flow, free of sediment particles is a basic requirement of egg respiration (biological process of extracting oxygen from water) and successful hatching.
- \* Aquatic insect production - sediment free water is also a basic need for successful aquatic insect egg respiration and hatching. Aquatic insects are the primary foods consumed by stream fishes. Decreased amounts of insects will adversely effect fish growth and survival since excessive energy demands are required to locate preferred aquatic insects when populations levels are low.
- \* Streamwater oxygen levels - organic matter associated with soil particles is decomposed by micro organisms. Decomposition will contribute to the depletion of oxygen in waters overlying deposited sediments.

Further, stormwater runoff containing salts and sediments can result in increased fertility of stream waters in turn encouraging the growth of rooted aquatic plants and filamentous algae. Since this property will house many vehicles, stormwater runoff may contain gasoline and oils that may accidentally spill and enter the brook causing "fish kills" in immediate and downstream areas.

Stormwater drainage from this property will increase stream flows. Increased volumes of water in Quarry Brook will compound the current stream-bank erosion problem resulting in additional amounts of sediment being deposited within this system.

2. Erosion and sedimentation of Quarry Brook through increased runoff from unvegetated zones - topsoils will be exposed and become susceptible to erosion during the construction process. The negative effects of stream sedimentation were previously discussed.

3. Road construction over Quarry Brook - development plans call for crossing the brook at three (3) separate locations. The two upstream locations involve the installation of 48" circular pipe culverts while the lower location will utilize a single 6' x 6' box culvert. Culverts were designed to accommodate

100 year floods. Instream culvert placement in concert with placement of fill alongside the stream will inevitable result in stream sedimentation problems if proper precautions are not followed.

4. Loss of overhead vegetation along the Quarry Brook riparian zone - the loss of overhead shading in the immediate area of the three (3) road crossings will result in a net loss of this important stream parameter. Vegetation loss will also increase evaporation of exposed stream waters. Trees are very important in that they help cool stream water temperatures in the summer and provide important cover for resident fishes. Resident fish may be forced to disperse and locate in more suitable sections of Quarry Brook.

5. Impacts to downstream environments - any water quality problems or habitat degradation that directly occurs within Quarry Brook will eventually be observed in downstream areas of the brook and enter the mainstem of the Connecticut River.

#### **D. Recommendations**

The wide ranging impacts that can be observed within Quarry Brook may be minimized to some extent by implementing the following precautionary measures:

1. Properly design, locate, and maintain catch basins to ensure the proper management of stormwaters. Maintenance is very critical. Southern Auto Sales, Inc. should regularly maintain all catch basins to minimize adverse impacts to Quarry Brook. Catch basins should trap most sediments reducing the likelihood of stream sedimentation; however, waters that contain pollutants such as salts and even small amounts of enriched sediments will eventually cause water quality and aquatic habitat degradation. This impact can not be prevented.

2. Maintain at the minimum a 100 foot open space buffer zone along the edge of Quarry Brook - no alteration of riparian habitat shall take place in this zone. Research has shown that properly sized buffer zones will help prevent surface runoff and other pollutants from entering streams.

3. Develop a detailed soil and erosion plan for this site - this includes such mitigative measures as silt fences, hay bales, and catch basins. An official from the Town of East Windsor should be responsible for checking any ongoing construction. Regular site visits will ensure that the developer has complied with all stipulated mitigative devices.

4. All instream work and land grading/filling should take place during the summer - this will help minimize the impact to the aquatic resources of Quarry Brook. Reduced streamflows and rainfall during the summer provide the least hazardous conditions in which to work near sensitive aquatic environments.

5. The developer should help offset any losses of important riparian vegetation - this can be accomplished by placing stream enhancement structures in Quarry Brook such as wing deflectors to create pools and riffles. These devices can also be strategically placed to reduce streambank erosion. Re-vegetate areas along Quarry Brook which have been cleared during the development process. Also revegetate all existing gullies within the stream riparian zone. Technical assistance concerning stream enhancement structures can be obtained from the Team's fisheries biologist at 295-9523.





TEN.

PLANNING CONCERNS

A. Traffic and Access

The existing access to the site is off Route 5, a state highway. The applicant is proposing to build a second accessroad to the site off of Stoughton Road. Presently the operations of Southern Auto Sales take place on both sides of Route 5. According to the applicant the use of ths site under review, will allow for the consolidation of the operations and will eliminate the large amount of automobile and pedestrian traffic crossing Route 5 on auction days.

The site is located off of a state highway and will therefore require a number of permits to be issued by the State Department of Transportation, (DOT). It is important to note that the DOT's permit review and approval process may impact the design of the site. The following DOT permits may be required:

1. A State Traffic Certificate from the State Traffic Commission is required for any site abutting or adjoining a state highway and containing more than 200 parking spaces.
2. A DOT Highway Encroachment permit is required for any work that will take place within the state highway right-of-way.

The East Windsor Planning and Zoning Commission should verify that all the required DOT permits have been obtained by the applicant prior to its issuance of site plan approval.

The CRCOG Traffic Engineer has recommended that a study be made of the existing traffic signalization at Stoughton Road and Route 5. The purpose of the study would be to insure that the existing traffic signalization is capable of handling the increased traffic generated by the proposed new access road.

B. Land Use

The site is located within the Town's B-2 (Business) zone. The use of the site for automobile sales and storage is permitted in a B-2 zone.

The office and reconditioning facilities of Southern Auto Sales, Inc. presently occupy a land area directly across Route 5 from the site under review. The business of Southern Auto Sales is the wholesaling of new and used cars to licensed dealers with the principal activity consisting of a major auction on Wednesdays. The applicant presently uses the site under review to park and store automobiles which are sold at the auctions.

Directly south of the site along Route 5 is an area zoned B-2, while to the southeast along Stoughton Road are areas zoned R-1 (Residential) and A-1 (Agricultural). As was previously noted the area west of the site along Route 5, includes the applicant's present facilities and areas zoned B-2 and M-1 (Industrial).

The area north of the site on Phelps Road is zoned R-3 (Residential). While directly east of the site is a large area zoned A-1.

### **C. Site Design Compatibility**

The applicant is proposing to construct two buildings on the site, one of which will be a car wash. The applicant is also proposing to construct a large area of paved parking spaces to include: 150 employee parking spaces, 750 client parking spaces, and about 2,500 parking spaces for vehicles to be sold or stored.

As was previously noted the area surrounding the site is one of mixed agricultural, commercial, industrial and residential uses. Section 13.5 of the Town of East Windsor Zoning Regulations requires that Site Plan Approval be obtained prior to the issuance of a building permit. That same section includes specific standards for the design and landscaping of parking areas and for overall drainage design. To insure compatibility with a variety of land uses the Planning and Zoning Commission should make the following efforts:

1. Extensive efforts should be made to insure that the large parking area facing Route 5 is well designed and adequately landscaped and screened as required by the site plan regulations.
2. Require that design, landscaping and screening standards should be applied to all the parking areas at the site as required by the site plan regulations.
3. Require any portion of the site abutting or adjoining a different zone include properly landscaped and screened buffer areas.

### **D. Drainage/Wetland Crossing And Filling**

Previous sections by other specialists have discussed the impact the filling and paving of about ±35 acres of regulated wetlands will have upon the surrounding water quality. In addition, comments on the impact the large area of paved parking will have on the drainage of the site and alternative proposals for parking have been made by the other specialists and the applicant's consultant. The Commission should seriously consider all the alternatives and recommendations made on these very important issues prior to its final decision.

The possible impact and disposal of the car wash wastewaters has also been discussed. Research has indicated that there is the possibility of disposing of the car wash wastewaters through the Town sewers. However, since this may or may not be feasible it would be prudent of the Commission to require the applicant to prepare an alternative plan for the disposal of the car wash wastewaters.

There are two regulated wetland soils/streamcourses crossings proposed at the site. If the Commission should issue permits allowing for the crossing of these sites the following recommendations should be considered:

1. The major crossing will be in the southern area of Quarry Brook for the construction of the access road to Stoughton Road. This is a large area of wetlands, surrounded by sloped terrain. As was previously noted in the report consideration should be given to the use of a pre-fabricated concrete bridge at this crossing.
2. The other crossing is located in the central portion of the site and can be crossed through the use of a culvert and properly engineered cut and fill techniques.

#### **E. Open Space**

The B-2 zoning regulations will allow for up to 65% of the site to be covered by a combination of building and impervious pavement. There are no requirements for the dedication of open space within the B-2 zoning regulations.

The proposal as it now stands would require the loss of over 20 acres of wetlands. The applicant is proposing to set aside 7.5 acres for open space. The Commission may wish to request that more area be set aside to mitigate loss of over 20 acres of regulated wetlands.

As was previously noted, in the review for open space to work as mitigation it must be deeded as such in perpetuity.



# About The Team

The Eastern Connecticut Environmental Review Team (ERT) is a group of professionals in environmental fields drawn together from a variety of federal, state, and regional agencies. Specialists on the Team include geologists, biologists, foresters, climatologists, soil scientists, landscape architects, archeologists, recreation 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 area.

The Team is 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, sanitary landfills, commercial and industrial developments, sand and gravel operations, 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 officials 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. This request letter should include a summary of the proposed project, a location map of the project site, written permission from the landowner allowing the Team to enter the property for purposes of review, a statement identifying the specific areas of concern the Team should address, and the time available for completion of the ERT study. 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 regarding the Environmental Review Team, please contact Elaine A. Sych (774-1253), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, P.O. Box 198, Brooklyn, Connecticut 06234.