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October 1987

ENVIRONMENTAL REVIEW TEAM REPORT

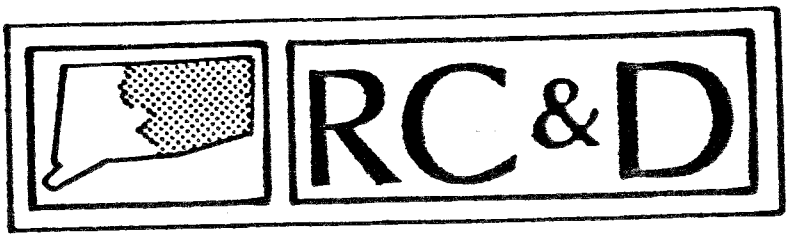
EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Union Cove

UNION, CONNECTICUT

Review Date: SEPTEMBER 10, 1987

Report Date: OCTOBER 1987

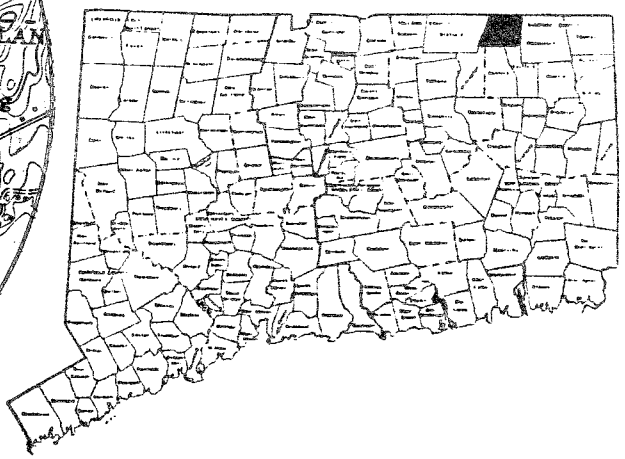


ENVIRONMENTAL REVIEW TEAM
PO BOX 198
BROOKLYN, CONNECTICUT 06234

Site Location

UNION COVE CONDOMINIUMS

UNION, CONNECTICUT



EASTERN CONNECTICUT

RESOURCE CONSERVATION

& DEVELOPMENT AREA

ENVIRONMENTAL REVIEW TEAM REPORT

ON

UNION COVE CONDOMINIUMS

UNION, CONNECTICUT

THIS REPORT IS AN OUTGROWTH OF A REQUEST FROM THE UNION PLANNING AND ZONING COMMISSION TO THE TOLLAND 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, SEPTEMBER 10, 1987. TEAM MEMBERS PARTICIPATING ON THIS REVIEW INCLUDED:

STEVE HILL	--WILDLIFE BIOLOGIST DEP - EASTERN DISTRICT
BRIAN MURPHY	--FISHERIES BIOLOGIST DEP - EASTERN DISTRICT
JOE NEAFSEY	--DISTRICT CONSERVATIONIST U.S.D.A. - SOIL CONSERVATION SERVICE
MEG ROLLINS	--DATA HANDLER DEP - NATURAL RESOURCES CENTER
TONY SULLIVAN	--PLANNER OFFICE OF POLICY AND MANAGEMENT
ELAINE SYCH	--ERT COORDINATOR EASTERN CONNECTICUT 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, LOCATION MAP, TOPOGRAPHIC MAP, SOILS MAP, ENVIRONMENTAL REPORT, ENGINEERING REPORT, LAND USE MAPS AND SITE PLANS. DURING THE FIELD REVIEW THE TEAM MEMBERS WERE GIVEN PRELIMINARY PLANS. THE TEAM MET WITH, AND WERE ACCOMPANIED BY A MEMBER OF THE PLANNING AND ZONING COMMISSION, THE DEVELOPER AND HIS ENGINEER. 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 ACTIONS 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 CONDOMINIUM DEVELOPMENT.

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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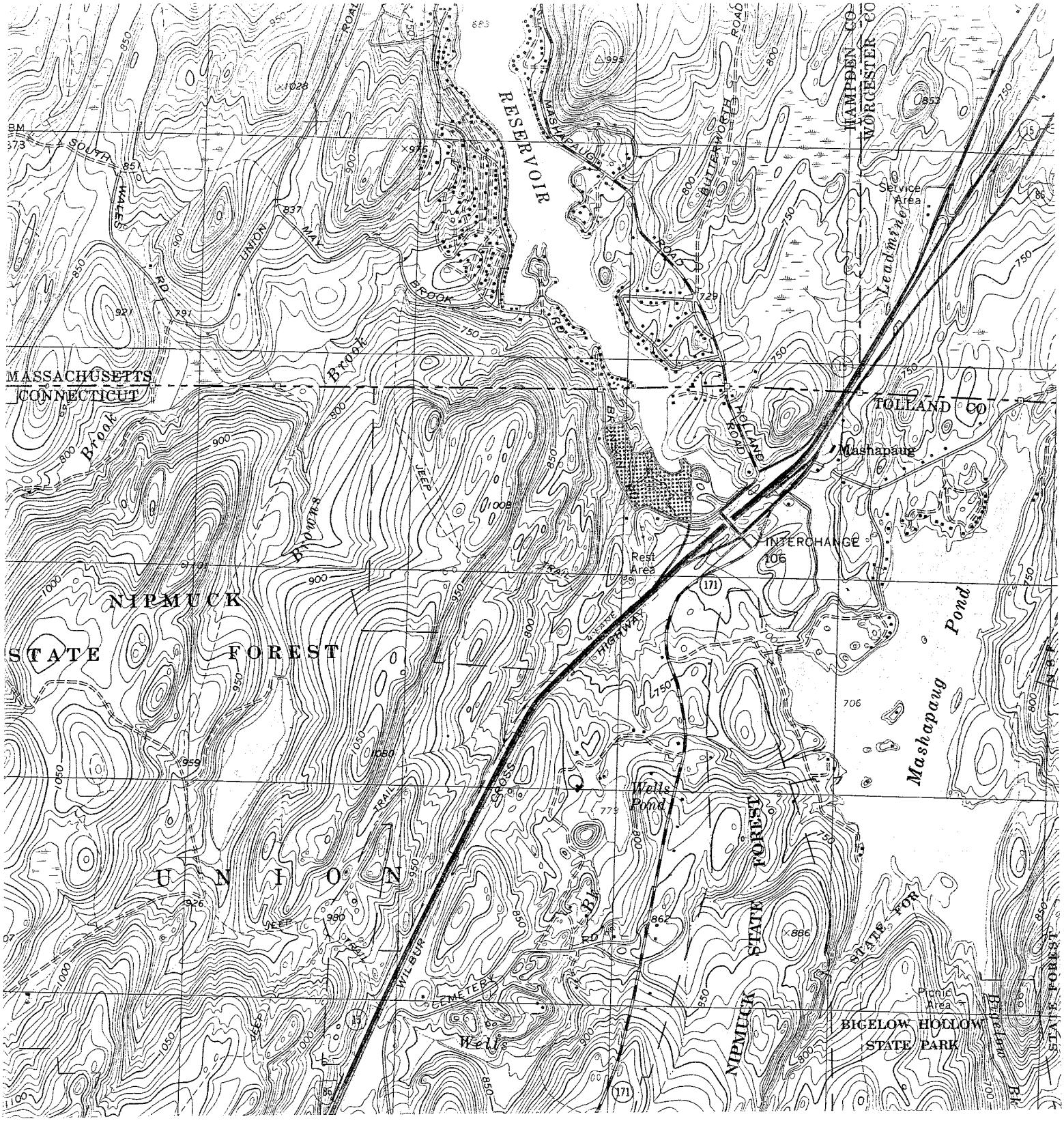


Scale 1"=2000'

A

INTRODUCTION

THE EASTERN CONNECTICUT ENVIRONMENTAL REVIEW TEAM HAS BEEN ASKED BY THE UNION PLANNING AND ZONING COMMISSION TO REVIEW A PROPOSED CONDOMINIUM DEVELOPMENT.

THE PROPOSED CONDOMINIUM SITE IS LOCATED IN NORTHERN UNION NEAR THE MASSACHUSETTS BORDER. IT CONSISTS OF 19 ACRES, WHICH IS BORDERED TO THE NORTH BY HAMILTON RESERVOIR, A RECREATIONAL WATER BODY, AND GILBRANSON ROAD TO THE WEST AND SOUTH. THE PLANS ARE TO DEVELOP THE SITE BY CLUSTERING 18 TWO-BEDROOM UNITS ON 9 ACRES. THE SITE WOULD BE SERVED BY ON-SITE SEWAGE DISPOSAL AND WATER SUPPLY.

THE FOLLOWING SECTIONS OF THIS REPORT PROVIDE INFORMATION ON THE NATURAL RESOURCE BASE OF THE SITE, AS WELL AS COMMENTS AND RECOMMENDATIONS REGARDING THE IMPACT OF THE PROPOSED DEVELOPMENT, AND CONCERNS THAT THE TOWN SHOULD BE AWARE OF AND GIVE CAREFUL CONSIDERATION TO BEFORE MAKING A DECISION. A BRIEF SUMMARY OF MAJOR POINTS IS INCLUDED AT THE END OF THE REPORT.

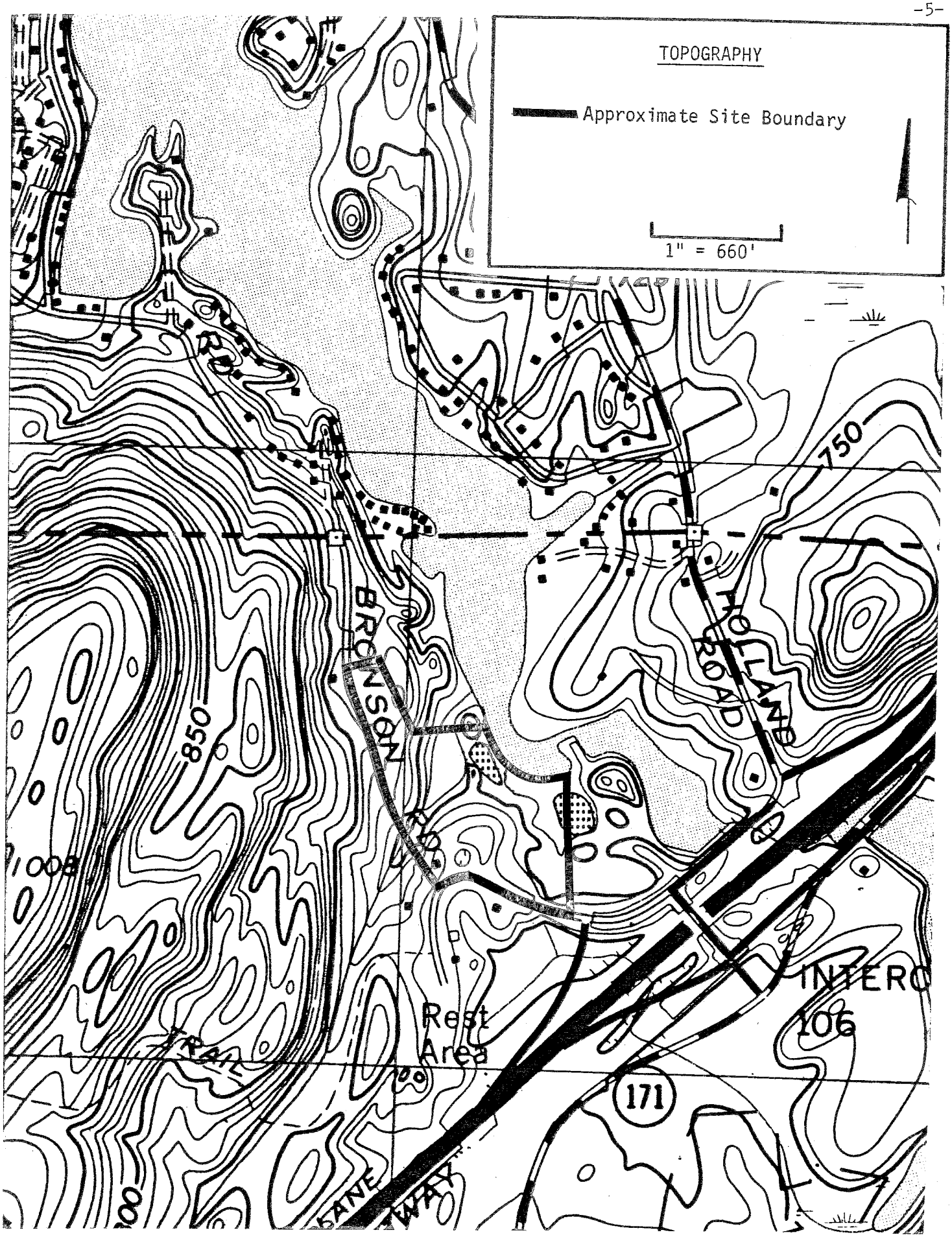
B

TOPOGRAPHY AND SETTING

THE SITE IS CHARACTERIZED BY LAND WHICH SLOPES EASTWARD TOWARD THE HAMILTON RESERVOIR. THE STEEPEST SLOPES ARE LOCATED NORTH OF AN EXISTING RESIDENTIAL STRUCTURE ON THE SITE AND ALONG GILBRANSON ROAD AT THE SOUTHERN LIMITS. THE EXCAVATION OF SAND AND GRAVEL HAS TAKEN PLACE IN THE SOUTHERN PART DURING THE PAST. THE REMOVAL OF THE MATERIAL PROBABLY COMMENCED DURING THE 1950'S AND WAS USED FOR ROAD BASE MATERIAL. THIS AREA WAS EXTENSIVELY DISTURBED AND RETAINS FEATURES RESULTING FROM THE EXCAVATION. THESE FEATURES INCLUDE BERMS SURROUNDING MINED AREAS, TWO SMALL PONDS AND STRIPPED TOPSOIL. ALSO, TWO BEDROCK KNOBS WERE EXPOSED DURING THE EXCAVATION PROCESS. THE SURFACES OF THESE EXPOSURES HAVE A NOTICEABLY UNEVEN "WHALEBACK" TOPOGRAPHY.

AN UNNAMED STREAM FLOWS IN A NORTHERLY DIRECTION THROUGH THE CENTRAL PART ENROUTE TO HAMILTON RESERVOIR. IT FLOWS THROUGH THE MAJOR WETLAND AREA OF THE SITE IN THE NORTHERN PART.

ELEVATIONS ON THE SITE RANGE FROM A HIGH OF ABOUT 730 FEET ABOVE MEAN SEA LEVEL ALONG GILBRANSON ROAD TO A LOW OF ABOUT 685 FEET ABOVE MEAN SEA LEVEL AT THE SURFACE OF THE POND IN THE EASTERN PART.


TOPOGRAPHY
Approximate Site Boundary
1" = 660'
750
850
1000
BRONSON RD.
HOLLAND ROAD
Rest Area
TRAIL
LANE
WAY
171
106
INTERC

C

BEDROCK AND SURFICIAL GEOLOGY

BEDROCK BENEATH THE SITE CONSISTS OF NORTHEAST TRENDING BELTS OF VERY OLD METAMORPHIC ROCK (ROCK CHANGED BY GREAT HEAT AND PRESSURE WITHIN THE EARTH'S CRUST) OF ORDIVICIAN AGE, KNOWN AS THE HAMILTON RESERVOIR FORMATION.

GENERALLY SPEAKING, THESE ROCKS, WHICH ARE GRAY IN COLOR, CONSIST OF MEDIUM-GRAINED LAYERED GNEISSES AND SCHISTS. THE TERMS "SCHIST" AND "GNEISS" ARE TEXTURAL TERMS. "SCHISTS" ARE CRYSTALLINE ROCKS WHERE PLATY, FLAKY AND ELONGATE MINERALS HAVE BEEN ALIGNED WITH THIN SHEETS OR BANDS. THIS ARRANGEMENT TYPICALLY GIVES THE ROCK A SLABBY APPEARANCE. "GNEISSES" ARE ALSO CRYSTALLINE ROCKS, BUT THEY ARE CHARACTERIZED BY LAYERS OF PLATY, FLAKY MINERALS THAT ALTERNATE WITH GRANULAR MINERALS. THIS MINERAL ARRANGEMENT GIVES THE ROCK A BANDED APPEARANCE AND MAKES IT MORE MASSIVE.

FOR FURTHER BEDROCK GEOLOGIC INFORMATION, INTERESTED PERSONS SHOULD REFERENCE THE BEDROCK GEOLOGIC MAP OF THE WALES QUADRANGLES GQ-1320 BY VICTOR M. SEIDERS, 1976.

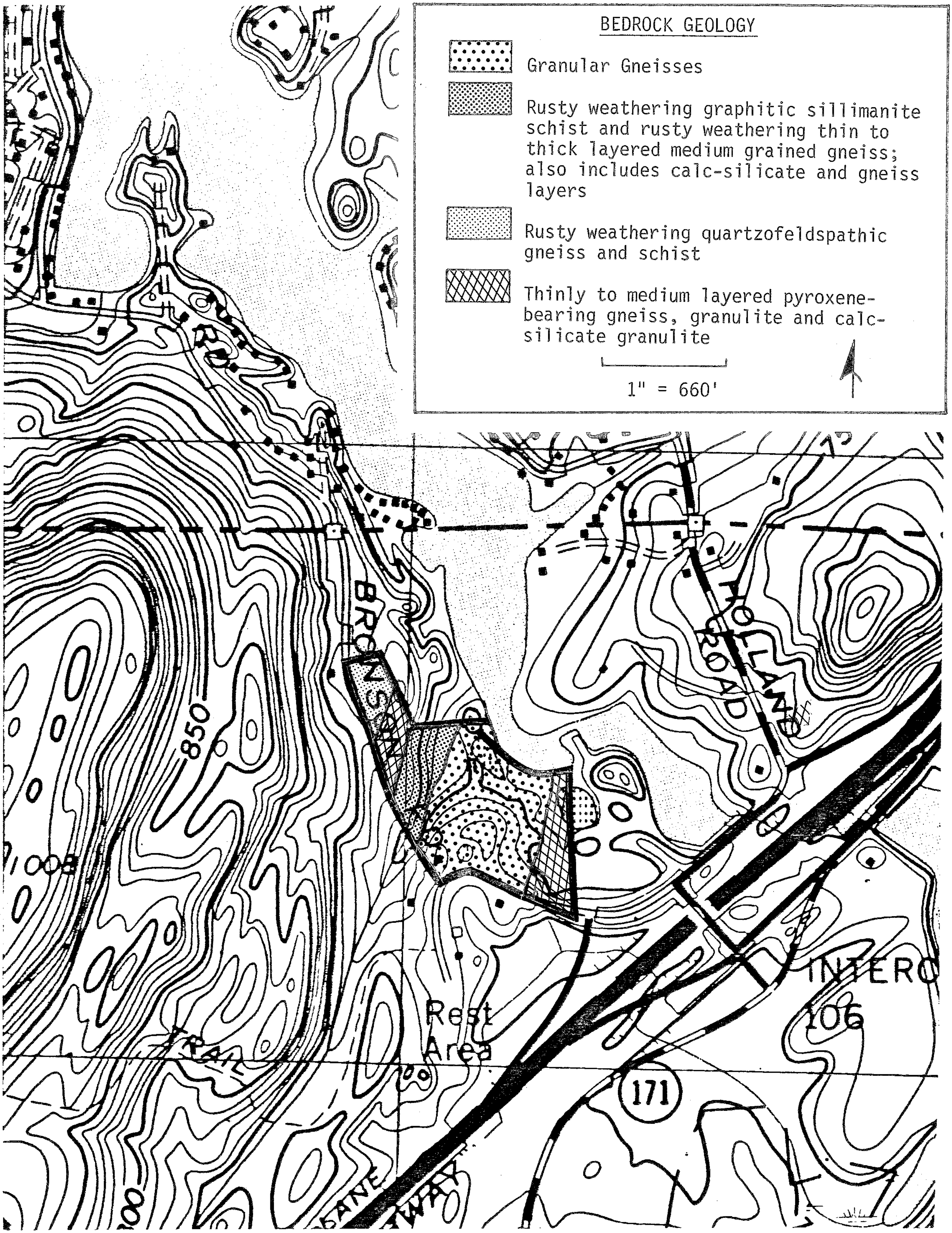
BECAUSE PUBLIC WATER FACILITIES ARE NOT AVAILABLE IN UNION, THE ROCK BENEATH THE SITE IS THE SOURCE OF WATER TO MANY HOMES IN THE AREA. IT IS ALSO LIKELY TO SERVICE THE PROPOSED DEVELOPMENT. (SEE WATER SUPPLY SECTION)

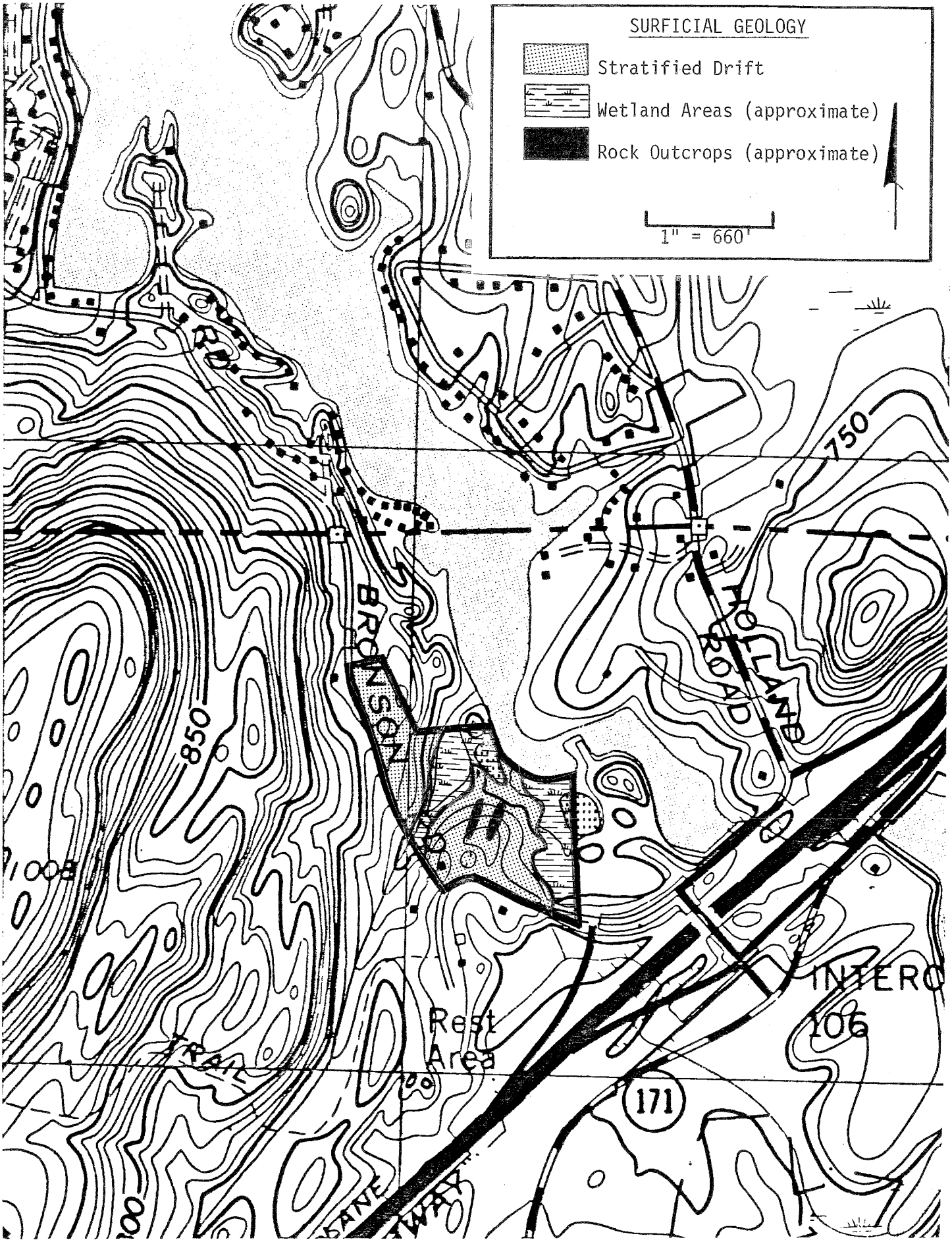
DEPTH TO BEDROCK WITHIN THE SITE RANGES FROM ZERO, WHERE BEDROCK IS EXPOSED AT GROUND SURFACE, TO PROBABLY NOT MUCH MORE THAN 10 FEET IN AREAS IN BETWEEN OUTCROPS.

THE ENTIRE SITE IS COVERED BY A GLACIAL DEPOSIT KNOWN AS STRATIFIED DRIFT. STRATIFIED DRIFT DEPOSITS, WHOSE MAIN COMPONENTS CONSIST OF SAND AND GRAVEL, WERE LAID DOWN BY THE GLACIER MELTWATER STREAMS EMANATING FROM STAGNANT CHUNKS OF ICE IN THE AREA. THE SAND AND GRAVEL IN THE SOUTHERN PART WAS THE SOURCE OF MATERIAL FOR THE FORMER MINING OPERATIONS.

OVERLYING THE STRATIFIED DRIFT IN THE NORTHERN AND SOUTHERN PART OF THE SITE ARE TWO MODERATELY LARGE POCKETS OF PERMANENTLY WET AREAS. BOTH CONTAIN ORGANIC MATTER IN THE SURFACE LAYER. ALSO, A NARROW WET AREA PARALLELS THE MAIN STREAMCOURSE ON THE SITE, WHICH FLOWS INTO THE WETLAND AREA IN THE NORTHERN PART.

THE SOILS COMPRISING THESE AREAS ARE PROBABLY REGULATED UNDER CHAPTER 440 OF THE CONNECTICUT GENERAL STATUTES. FILLING, MODIFYING OR CONSTRUCTING IN WETLANDS CAN HAVE SEVERE ENVIRONMENTAL IMPACTS BECAUSE OF THEIR IMPORTANT VALUE IN MAINTAINING WATER QUALITY, REDUCING RUNOFF AND PROVIDING WILDLIFE HABITAT. PRELIMINARY SITE PLANS INDICATE LITTLE OR NO DISTURBANCES OF THE WETLANDS ON THE SITE. BECAUSE OF PERMANENT WETNESS AND PRESENCE OF ORGANIC MATERIAL THESE AREAS ARE UNSUITABLE FOR DEVELOPMENT PURPOSES. HOWEVER, THERE DOES APPEAR TO


BEDROCK GEOLOGY
Granular Gneisses
Rusty weathering graphitic sillimanite schist and rusty weathering thin to thick layered medium grained gneiss; also includes calc-silicate and gneiss layers
Rusty weathering quartzofeldspathic gneiss and schist
Thinly to medium layered pyroxene-bearing gneiss, granulite and calc-silicate granulite
1" = 660'
BRONSON
HOLLAND ROAD
850
Rest Area
106
171
TRAIL


SURFICIAL GEOLOGY
Stratified Drift
Wetland Areas (approximate)
Rock Outcrops (approximate)
1" = 660'
750
850
1000
BRONSON
HOLLAND ROAD
Rest Area
TRAIL
INTERC
106
171
RAILWAY

BE THE POTENTIAL FOR SOME ACTIVITY IN THE WETLAND IN THE SOUTHERN PART, SUCH AS THE REMOVAL OF DEMOLITION WASTES AND A BEAVER DAM. ALSO, PRESENT PLANS INDICATE THE DREDGING AND ULTIMATE CONNECTION OF THE TWO SMALL PONDS IN THE EASTERN PART. AS A RESULT, ANY ACTIVITY WHICH INVOLVES FILLING, MODIFYING OR DREDGING REQUIRES A PERMIT FROM THE TOWN'S INLAND-WETLAND COMMISSION AND MAY BE SUBJECT TO PUBLIC HEARING.

IN REVIEWING A POTENTIAL PROPOSAL, THE TOWN NEEDS TO DETERMINE THE IMPACT THAT THE PROPOSED ACTIVITY WILL HAVE ON THE WETLAND. IF THE TOWN DETERMINES THAT THE WETLAND IS 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 THE REMOVAL OF DEMOLITION WASTE AND THE BEAVER DAM IN THE WETLAND AREA IN THE SOUTHERN PART COULD BE ACCOMPLISHED WITHOUT TOO MUCH ENVIRONMENTAL DAMAGE, PROVIDED THAT PROPER EROSION AND SEDIMENT CONTROL MEASURES ARE IMPLEMENTED.

D

SOIL RESOURCES

GENERAL SOILS INFORMATION

SOILS ON THIS SITE HAVE BEEN DISTURBED BY GRAVEL REMOVAL OPERATIONS, POND EXCAVATION, AND FILLING WITH DEBRIS FROM HIGHWAY CONSTRUCTION. BECAUSE THE SITE HAS BEEN SEVERELY DISTURBED, THE INFORMATION CONTAINED IN THE SOIL SURVEY OF TOLLAND COUNTY CANNOT BE USED TO DESCRIBE CONDITIONS ON THE SITE OR FOR INTERPRETIVE PURPOSES. IT IS SUGGESTED THAT THE APPLICANT RETAIN THE SERVICES OF A QUALIFIED PRIVATE SOIL SCIENTIST TO EXAMINE CONDITIONS IN THE FIELD AND PROVIDE THE COMMISSION WITH A MAP AND UP-TO-DATE INTERPRETIVE INFORMATION FOR THE SITE. THIS CAN BE DONE IN CONJUNCTION WITH OBTAINING DEEP TEST PIT DATA FOR ON-SITE SEWAGE DISPOSAL.

WETLAND BOUNDARY INFORMATION

WETLANDS ON THIS SITE WERE IDENTIFIED IN THE FIELD BY A CONSULTING ENGINEERING FIRM. BECAUSE THE BOUNDARIES WERE NOT PLOTTED ON THE PLAN MAP, IT WAS NOT POSSIBLE TO VERIFY THIS INFORMATION. IT IS SUGGESTED THAT THE COMMISSION REQUIRE THAT THE APPLICANT HAVE A QUALIFIED PRIVATE SOIL SCIENTIST DELINEATE WETLAND BOUNDARIES IN THE FIELD. THE BOUNDARIES SHOULD BE FLAGGED AND NUMBERED SEQUENTIALLY. THIS INFORMATION SHOULD THEN BE SURVEYED ONTO THE PLAN MAP. THE SOIL SCIENTIST SHOULD THEN REVIEW AND SIGN A STATEMENT ON THE MAP(S) CERTIFYING THAT THE INFORMATION IS SUBSTANTIALLY CORRECT. THE CERTIFICATION STATEMENT SHOULD BE SIMILAR TO THE FOLLOWING: "THE WETLAND SOILS ON THIS SITE WERE IDENTIFIED IN THE FIELD USING THE CRITERIA REQUIRED BY CONNECTICUT P.A. 72-155 AS AMENDED BY CONN. P.A. 73-571, CONN. P.A. 87-338 AND P.A. 87-533. THE BOUNDARIES OF THESE SOILS AND OF IDENTIFIED WATERCOURSES ARE ACCURATELY REPRESENTED ON THE PLOT PLAN." THIS STATEMENT SHOULD BE SIGNED BY THE SOIL SCIENTIST WHO PERFORMED THE FIELD WORK.

IF THIS PROCEDURE IS FOLLOWED AND DISCREPANCIES ARE FOUND, THE TOLLAND COUNTY SOIL AND WATER CONSERVATION DISTRICT CAN ON REQUEST REVIEW THE SUBMITTED INFORMATION FOR ADEQUACY.

OTHER COMMENTS

1. IT IS SUGGESTED THAT THE DEVELOPER WORK WITH A CONSULTING AQUATIC BIOLOGIST TO PREDICT THE EFFECT OF THE PROPOSAL ON THE WATER QUALITY OF THE PONDS IF "IMPROVED" AS PROPOSED. A CONCERN IS THAT THE COMBINATION OF SEPTIC EFFLUENT

ENRICHED GROUNDWATER THAT HAS ELEVATED NITRATE LEVELS AND A LANDSCAPE PLAN THAT INCLUDES A PROGRAM OF LAWN FERTILIZATION, MAY CAUSE EUTROPHICATION OF THE POND WHICH MAY RESULT IN NUISANCE ALGAE BLOOMS. IT WAS SUGGESTED TO THE DEVELOPER'S CONSULTANT ON THE DAY OF THE REVIEW, THAT CONSIDERATION BE GIVEN TO ENHANCING THE PONDS EXISTING DIVERSITY (BOTH PHYSICAL AND BIOLOGICAL) RATHER THAN CREATING A LESS DIVERSE WATERBODY THAT MAY BE SUBJECT TO ADVERSE EFFECTS OF NITRATE ENRICHMENT.

2. THE TREATMENT OF THE AREA IMPACTED BY THE BEAVERS SHOULD ALSO BE ADDRESSED IN THE FINAL LANDSCAPE PLANS. IT WAS SUGGESTED THAT THE CONSTRUCTION DEBRIS AND FILL MATERIAL WHICH ACT AS A DAM ACROSS THE SMALL STREAM BE REMOVED AND THE AREA GRADED TO RE-ESTABLISH TO THE EXTENT POSSIBLE THE ORIGINAL CONTOURS. (SEE WILDLIFE HABITAT SECTION)

E

EROSION AND SEDIMENT CONTROL PLAN

A DETAILED 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). THE TOLLAND COUNTY SOIL AND WATER CONSERVATION DISTRICT WOULD APPRECIATE THE OPPORTUNITY TO REVIEW THIS PLAN PRIOR TO FINAL APPROVAL. OF MAJOR CONCERN IS THE LOCATION OF THE STORM DRAIN OUTLETS. ENSURING THAT THE STORM DRAINAGE SYSTEM DOES NOT TRANSPORT SILT OR ROAD SAND TO HAMILTON RESERVOIR SHOULD BE A MAJOR COMPONENT OF THE PLAN.

F

HYDROLOGY

THE PROPOSED CONDOMINIUM SITE LIES WITHIN THE QUINEBAUG RIVER BASIN. BECAUSE OF THE SANDY/GRAVELLY NATURE OF THE OVERBURDEN ON THE SITE, MOST RAINFALL IS ABSORBED INTO THE GROUND RATHER THAN PASSING OVERLAND VIA STREAM-COURSES. WATER PERCOLATES DOWNWARD THROUGH THE SOIL COMPONENTS UNTIL IT REACHES THE GROUNDWATER TABLE. ONCE IT REACHES THE WATER TABLE, IT IS PULLED BY THE FORCE OF GRAVITY TOWARD DISCHARGE POINTS, SPRINGS, SEEPS, WETLANDS, SURFACE WATER BODIES, ETC.

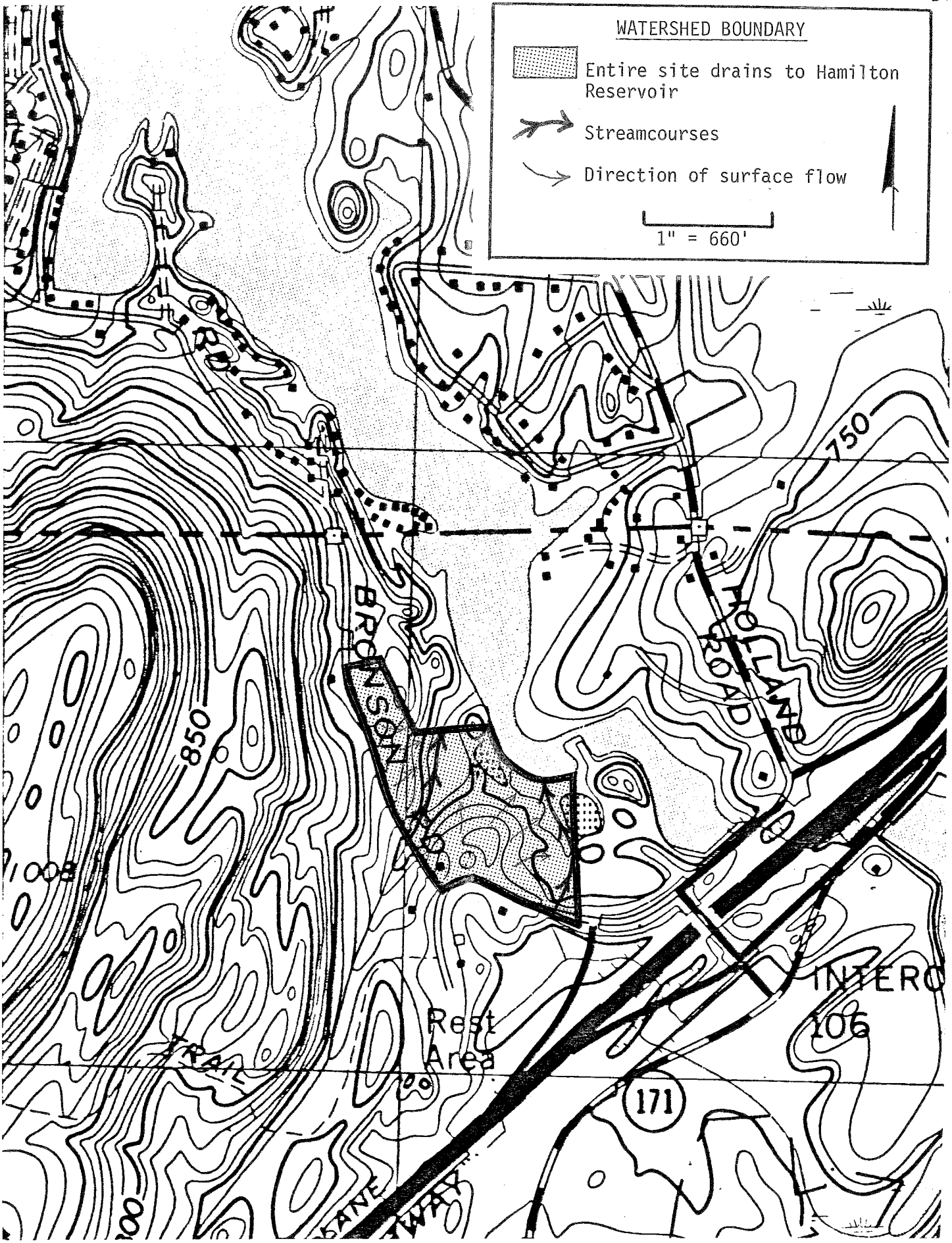
ONE NOTABLE STREAM IS PRESENT IN THE NORTH CENTRAL PART. THE STREAM ENTERS THE SITE FROM A CULVERT PASSING UNDER GILBRANSON ROAD. IT THEN FLOWS IN A NORTHWARD DIRECTION THROUGH THE LARGE WETLAND AREA ENROUTE TO HAMILTON RESERVOIR.

TWO SMALL PONDS IN THE EASTERN PART TO HAVE BEEN CREATED DURING THE RE-MOVAL OF SAND AND GRAVEL FROM THE SITE. THE WATER LEVEL OF THE PONDS ARE LARGELY COINCIDENT WITH THE WATER LEVEL OF HAMILTON RESERVOIR.

DEVELOPMENT OF THE SITE FOR CONDOMINIUMS WOULD BE EXPECTED TO INCREASE THE AMOUNT OF RUNOFF DURING PERIODS OF RAINFALL. THESE INCREASES WOULD RESULT FROM SOIL COMPACTION, REMOVAL OF VEGETATION AND PLACEMENT OF IMPERVIOUS SURFACES (ROOF TOPS, PARKING AREA, ETC.) OVER OTHERWISE PERVIOUS SOILS.

IT IS SUGGESTED THAT THE TOWN REQUIRE THE APPLICANT TO SUBMIT A STORMWATER MANAGEMENT PLAN FOR THE PROJECT. BECAUSE OF THE SITE'S CLOSE PROXIMITY TO WETLAND AREAS, THE SMALL PONDS ON THE SITE, AND HAMILTON RESERVOIR, ALL OF WHICH HAVE NATURAL STORAGE CAPABILITIES AND BECAUSE IT IS LOCATED IN THE LOWEST PART OF THE WATERSHED, ON-SITE DETENTION FOR POST-DEVELOPMENT RUNOFF DOES NOT APPEAR TO BE NECESSARY.

THE PROTECTION OF SURFACE WATER BODIES SUCH AS THE SMALL PONDS AND WATER-COURSES ON THE SITE AND THE HAMILTON RESERVOIR FROM SILT, SAND AND PARKING LOT DEBRIS IS A MAJOR CONCERN. IN THIS REGARD, IT IS RECOMMENDED THAT A COMPREHENSIVE EROSION AND SEDIMENT CONTROL PLAN BE SUBMITTED FOR THE PROPOSED DEVELOPMENT. THE APPLICANT'S ENGINEER SHOULD SHOW IN THE STORMWATER MANAGEMENT WHERE ROAD AND PARKING LOT RUNOFF WILL BE OUTLETTED TO. IDEALLY, IT SHOULD BE OUTLETTED TO A SEDIMENT BASIN AND/OR EITHER WETLAND AREAS ON THE SITE RATHER THAN DIRECTLY TO HAMILTON RESERVOIR. CONSIDERATION FOR THE MAINTENANCE OF CATCH BASINS ON A REGULAR BASIS IS RECOMMENDED.


WATERSHED BOUNDARY
Entire site drains to Hamilton Reservoir
Streamcourses
Direction of surface flow
1" = 660'
750
850
1000
BROWNSON
HOLLAND ROAD
Rest Area
TRAIL
171
106
INTERC

G

GEOLOGIC DEVELOPMENT CONCERNS

TEAM MEMBERS WERE INFORMED ON THE REVIEW DAY THAT THE PROPOSED PROJECT WOULD CONSIST OF 18 TWO-BEDROOM TOWNHOUSE UNITS. ASSUMING AN APPLICATION RATE OF 150 GALLONS OF SEWAGE EFFLUENT PER BEDROOM PER DAY, IT IS ESTIMATED THAT THE SEWAGE DISCHARGE FROM THE PROJECT WOULD BE 5,400 GALLONS PER DAY. SINCE THE DAILY FLOW IS 5,000 GALLONS PER DAY OR MORE, A PERMIT FROM THE DEPARTMENT OF ENVIRONMENTAL PROTECTION'S WATER COMPLIANCE UNIT WILL BE REQUIRED. AS PART OF THE PERMIT PROCESS, DEP WILL CAREFULLY REVIEW ENGINEERING DATA ON HYDRO-GEOLOGIC CONDITIONS IN THE SEWAGE DISPOSAL AREA(S); THE DESIGN OF EACH SEWAGE DISPOSAL SYSTEM; A THOROUGH HYDRAULIC ANALYSIS OF THE DISPOSAL AREA; AN ANALYSIS OF THE PROBABLE IMPACT ON ANY NEARBY WATER RESOURCES AND THE UNDERLYING AQUIFER FROM A DRINKING WATER QUALITY STANDPOINT. THIS LAST REQUIREMENT SHOULD INCLUDE AN ANALYSIS OF BACTERIAL TRAVEL, VIRUS REMOVAL AND NITRATE AND PHOSPHATE TRANSPORT. THE "BURDEN OF PROOF" IS CLEARLY UPON THE DEVELOPER HERE TO SHOW THAT THE PROPOSED SEWAGE DISPOSAL SYSTEM(S) WILL FUNCTION PROPERLY AND NOT POSE A THREAT TO THE ENVIRONMENT OR PUBLIC HEALTH. PRIOR TO ACTING ON A PERMIT APPLICATION, THE APPLICANT SHOULD BE REQUIRED TO MAKE ARRANGEMENTS FOR OWNERSHIP, OPERATION AND MAINTENANCE OF EACH SEWAGE DISPOSAL SYSTEM. THE STAFFORD HEALTH DISTRICT, IN CONJUNCTION WITH THE DEP, WOULD ALSO PLAY AN IMPORTANT ROLE IN THE PERMIT APPLICATION, REVIEW OF THE PLANS AND INSPECTION OF THE SEWAGE DISPOSAL SYSTEM(S) DURING INSTALLATION.

AS MENTIONED EARLIER IN THE REPORT, THE BEDROCK SURFACE HAS BEEN EXPOSED ON THE SITE. THE UNDULATING CHARACTER OF THE EXPOSED BEDROCK SURFACE CLEARLY INDICATES THE NEED TO DETERMINE A GOOD PROFILE OF THE BEDROCK SURFACE. THIS IS ESPECIALLY WARRANTED BECAUSE OF THE POROUS SOILS ON THE SITE AND THE NEED TO RELY ON ON-SITE WELL(S). THE PUBLIC HEALTH CODE REQURIES THAT IF THE PERCOLATION RATE OF THE SOIL IS FASTER THAN 1 MINUTE PER INCH, THE BOTTOM OF ANY LEACHING SYSTEM SHALL BE NOT LESS THAN 10 FEET ABOVE LEDGE ROCK OR FIVE HUNDRED FEET FROM ANY WELL. GIVEN THE GRAVELLY NATURE OF THE SOILS WITHIN THE SITE, THERE IS A GOOD CHANCE THAT THE PERCOLATION RATE MAY BE FASTER THAN 1 MINUTE PER INCH.

ALTHOUGH SANDY/GRAVELLY SOILS ARE GENERALLY FAVORABLE FOR ON-SITE SEWAGE DISPOSAL, DEVELOPMENT OF THIS SITE SHOULD OCCUR ONLY WITHIN THE LIMITS OF ACCEPTABLE DENSITY AS TO THE CAPACITY OF THE SOIL, AND PARTICULARLY NOT TO OVER-LOAD THE AQUIFER WITH TOO GREAT A VOLUME OF SEWAGE WASTEWATER DISCHARGE. SUFFICIENT LAND AREA SUITABLE FOR RESERVE LEACHING SHOULD BE INDICATED ON THE SUB-DIVISION PLAN, SINCE PUBLIC SEWERS ARE NOT ANTICIPATED FOR THIS AREA.

THERE WILL NEED TO BE A LOT OF REGRADING IN THE AREA OF THE FORMER SAND AND GRAVEL OPERATION SITE. GRADING AND FILLING PLANS, AS REQUIRED BY TOWN REGULATIONS, SHOULD BE PROVIDED FOR REVIEW BY TOWN OFFICIALS.

H

WATER SUPPLY

PUBLIC WATER SUPPLY LINES ARE NOT AVAILABLE TO THE PROPOSED CONDOMINIUM SITE. THEREFORE, THE APPLICANT WILL NEED TO DEVELOP AN ON-SITE WATER SUPPLY WELL(S) TO SERVICE THE PROPOSED PROJECT. BOTH THE UNDERLYING BEDROCK AND THE STRATIFIED DRIFT COVERING THE BEDROCK HAVE POTENTIAL FOR YIELDING USABLE AMOUNTS OF WATER TO A WELL OR WELLS.

ACCORDING TO A MAP ENTITLED GROUNDWATER AVAILABILITY IN CONNECTICUT BY DANIEL B. MEADE, 1978, THE STRATIFIED DRIFT ON THE SITE MAY HAVE POTENTIAL FOR YIELDING LARGE VOLUMES OF WATER (50 TO 2,000 GALLONS PER MINUTE) TO INDIVIDUAL WELLS. SOME MAJOR FACTORS WHICH DETERMINE THE POTENTIAL PRODUCVITY OF A WELL TAPPING STRATIFIED DRIFT DEPOSITS ARE (1) THE TEXTURE OF THE DEPOSIT; (2) THE PROXIMITY OF THE DEPOSITS TO LARGE STREAMS OR BODIES OF WATER AND; (3) THE SATURATED THICKNESS OF THE DEPOSITS. THE FIRST TWO FACTORS APPEAR FAVORABLE FOR THE STRATIFIED DRIFT ON THE SITE BUT THE THICKNESS OF THE DEPOSITS MAY BE TOO THIN FOR THE DEVELOPMENT OF A SANITARY GRAVEL PACKED WELL. HYDROGEOLOGIC TESTING WHICH INCLUDES TEST WELLS WOULD BE NECESSARY IN ORDER TO DETERMINE ITS POTENTIAL AT ANY PARTICULAR LOCATION. ALSO, BECAUSE THESE TYPE OF WELLS ARE MORE SUSCEPTIBLE TO CONTAMINATION, ESPECIALLY SINCE THE RELATIVELY SMALL SITE WILL REQUIRE ON-SITE SEPTIC SYSTEM(S), IT SEEMS LIKELY THAT A DRILLED WELL OR WELLS TAPPING THE UNDERLYING BEDROCK MAY AFFORD MORE PROTECTION. BEDROCK IS COMMONLY CAPABLE OF SUPPLYING SMALL BUT USABLE YIELDS OF GROUNDWATER TO INDIVIDUAL WELLS.

GROUNDWATER MOVES THROUGH BEDROCK BY WAY OF AN INTERCONNECTED FRACTURE SYSTEM. MOST WELLS THAT PENETRATE 150 TO 200 FEET OF BEDROCK WILL INTERSECT ENOUGH FRACTURES TO SUPPLY AT LEAST 2 OR 3 GALLONS PER MINUTE. SOME WELLS, HOWEVER, FAIL TO INTERSECT ANY WATERBEARING FRACTURES. IT IS VERY DIFFICULT EVEN WITH SOPHISTICATED GEOPHYSICAL EQUIPMENT TO PREDICT WHETHER ANY PARTICULAR LOCATION WILL BE GOOD FOR DRILLING A WELL. ACCORDING TO WATER SUPPLY INFORMATION DISTRIBUTED TO TEAM MEMBERS, A WELL CAPABLE OF YIELDING BETWEEN 7.5 AND 10 GALLONS PER MINUTE WOULD BE DESIREABLE FOR THE CONDOMINIUM PROJECT. FOR COMPARISON PURPOSES, NINETY PERCENT (90%) OF THE BEDROCK WELLS SURVEYED IN WATER RESOURCES BULLETIN NO. 11 (SHETUCKET RIVER BASIN), WHICH THE SITE LIES WITHIN OBTAINED A YIELD OF 3 GALLONS PER MINUTE. THE TEAM'S GEOLOGIST REVIEWED WELL COMPLETION REPORTS FOR UNION SINCE 1955 BUT WAS UNABLE TO LOCATE EXISTING WELL YIELD DATA FOR THE IMMEDIATE AREA OF THE PROJECT SITE.

WATER WELLS DESIGNED FOR THE CONDOMINIUM PROJECT WOULD BE CLASSIFIED AS A PUBLIC WATER SUPPLY AND THE NECESSARY APPROVAL FOR ANY WELL LOCATIONS WOULD HAVE TO BE OBTAINED FROM THE STATE DEPARTMENT'S HEALTH SERVICES, PUBLIC WATER SUPPLY SECTION AND PUBLIC UTILITIES CONTROL. IT IS RECOMMENDED THAT THEY BE CONTACTED

AS SOON AS POSSIBLE TO DISCUSS THE PROPOSAL. WATER QUALITY, YIELD, ALONG WITH PLANS FOR PUMPAGE STORAGE AND DISTRIBUTION WOULD NEED TO BE REVIEWED AND APPROVED BY BOTH DEPARTMENTS. THE STAFFORD SPRINGS HEALTH DISTRICT WILL HAVE TO APPROVE THE LOCATION OF THE WELL OR WELLS.

A WELL SHOULD BE LOCATED AT A RELATIVELY HIGH POINT ON A SITE AND CONSERVATIVELY SEPARATED FROM SEWAGE DISPOSAL SYSTEMS AND PROTECTED FROM SURFACE RUNOFF WHICH MAY CONTAIN SUCH CONTAMINANTS AS AUTOMOBILE RESIDUE, HYDROCARBONS, AND/OR ROAD SALT. THE PERMEABLE NATURE OF THE SOILS ON THE SITE SHOULD BE KEPT IN MIND WITH REGARD TO SEPARATING DISTANCES. THE WELL OR WELLS SHOULD BE TIGHTLY SEALED INTO THE UNDERLYING BEDROCK AS WELL AS PROPERLY GROUTED. THIS SHOULD HELP TO REDUCE AND MINIMIZE THE CHANCES OF WELL CONTAMINATION. ALL APPLICABLE RULES AND REGULATIONS REGARDING WELL INSTALLATION AND DEVELOPMENT SUCH AS THE WELL DRILLING BOARD, PUBLIC HEALTH CODE AND TOWN ORDINANCES WILL NEED TO BE COMPLIED WITH IN ORDER TO ENSURE PROPER PROTECTION OF THE WELL(S).

GROUNDWATER IN THE AREA IS CLASSIFIED BY THE DEP AS GA, WHICH MEANS THAT IT IS SUITABLE FOR PRIVATE DRINKING WATER SUPPLIES WITHOUT TREATMENT. THE NATURAL QUALITY OF THE GROUNDWATER WOULD ALSO BE EXPECTED TO BE GENERALLY GOOD BUT THE UNDERLYING BEDROCK IS KNOWN TO BE MINERALIZED WITH HIGH CONCENTRATIONS OF IRON AND MANGANESE WHICH CAN IMPACT A METALLIC TASTE TO THE WATER, DISCOLOR LAUNDRY, KITCHEN UTENSILS, OR PLUMBING FIXTURES. IN ORDER TO COMBAT THESE POTENTIAL AESTHETIC PROBLEMS, FILTRATION DEVICES USUALLY NEED TO BE INSTALLED.

NATURAL DIVERSITY DATA BASE

ACCORDING TO NATURAL DIVERSITY DATA BASE INFORMATION, THERE ARE NO EXTANT RECORDS OF FEDERALLY ENDANGERED OR THREATENED SPECIES OR CONNECTICUT SPECIES OF SPECIAL CONCERN AT THE PROPOSED CONDOMINIUM SITE.

NATURAL DIVERSITY DATA BASE INFORMATION INCLUDES ALL INFORMATION REGARDING CRITICAL BIOLOGIC RESOURCES AVAILABLE TO US AT THE TIME OF A REQUEST. THIS INFORMATION IS A COMPILATION OF DATA COLLECTED OVER THE YEARS BY THE NATURAL RESOURCES CENTER'S GEOLOGICAL AND NATURAL HISTORY SURVEY AND COOPERATING UNITS OF DEP, PRIVATE CONSERVATION GROUPS AND THE SCIENTIFIC COMMUNITY. THIS INFORMATION IS NOT NECESSARILY THE RESULT OF COMPREHENSIVE OR SITE-SPECIFIC FIELD INVESTIGATIONS. CONSULTATION WITH THE DATA BASE SHOULD NOT BE SUBSTITUTED FOR ON-SITE SURVEYS REQUIRED FOR ENVIRONMENTAL ASSESSMENTS. CURRENT RESEARCH PROJECTS AND NEW CONTRIBUTORS CONTINUE TO IDENTIFY ADDITIONAL POPULATIONS OF SPECIES AND LOCATIONS OF HABITATS OF CONCERN AS WELL AS ENHANCE EXISTING DATA. SUCH NEW INFORMATION IS INCORPORATED INTO THE DATA BASE AS IT BECOMES AVAILABLE.

IF YOU HAVE ANY FURHTER QUESTIONS, FEEL FREE TO CONTACT THE NATURAL RESOURCES CENTER AT 566-3540.

J

WILDLIFE HABITAT

HABITAT DESCRIPTION AND WILDLIFE SPECIES

THE AREA CONSISTS OF VEGETATION TYPICAL OF DISTURBED SITES (I.E., FORMER GRAVEL PIT). THIS INCLUDES RED MAPLE, BIRCH SPECIES, AND ASPEN. UNDERSTORY VEGETATION CONSISTS OF SPECKLED ALDER, RED MAPLE, SWEETFERN, AND GOLDENROD. TWO SMALL PONDS ARE LOCATED ON THE SITE AND ARE SURROUNDED BY A NARROW VEGETATION BAND CONSISTING OF SWEETFERN, SPECKLED ALDER AND GOLDENROD.

THE AREA PROVIDES HABITAT FOR NUMEROUS SPECIES OF SONGBIRDS, VARIOUS REPTILES AND AMPHIBIANS, AND BEAVER.

EFFECT OF PROPOSED DEVELOPMENT ACTIVITY

THE PROPOSED DEVELOPMENT WILL HAVE LITTLE SIGNIFICANT IMPACT ON THE MAJOR WILDLIFE SPECIES INHABITING THIS AREA. THE BEAVER THAT ARE OCCUPYING THE WETLAND AREA LOCATED ON THE SOUTH END OF THE PROPOERTY HAVE DAMMED UP A SMALL STREAM. THIS HAS CREATED A SMALL POND. AN ARTIFICIALLY CREATED DAM CONSTRUCTED BY THE DUMPING OF CONSTRUCTION MATERIALS HAS INTENSIFIED THE POND CONSTRICTION. AT PRESENT, THIS AREA HAS LITTLE FOOD AVAILABLE TO BEAVERS WHICH TRAVEL THROUGH THIS POND VIA A ROAD CULVERT TO ANOTHER POND LOCATED TO THE SOUTH OF THE AREA UNDER REVIEW. THE BEAVER THAT ARE CURRENTLY INHABITING THIS AREA WILL ALWAYS POSE A POTENTIAL NUISANCE SITUATION DUE TO THE GREAT SIZE OF THE PARENT POPULATION IN OUTLYING AREAS.

RECOMMENDATIONS FOR MITIGATION

THE IMPACT OF DEVELOPMENT ON WILDLIFE POPULATIONS CAN BE MINIMIZED BY IMPLEMENTING THE FOLLOWING MEASURES:

1. PROVIDE A VEGETATIVE/SHRUB BUFFER ALONG THE TWO SMALL PONDS.

2. DISCOURAGE THE PLANTING AND FERTILIZING OF LARGE EXPANSES OF GRASS LAWNS DOWN TO THE EDGE OF THE SMALL PONDS.

3. BEAVER PROBLEM: IT IS SUGGESTED THAT THE DAM CREATED BY THE DUMPING OF CONSTRUCTION MATERIALS BE REMOVED. THIS AREA SHOULD BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY. THIS MAY RESTRICT THE BEAVER TO THE WETLAND AREA TO THE SOUTH OF THE AREA UNDER REVIEW.

K

FISH RESOURCES

SITE DESCRIPTION

THE PROPOSED DEVELOPMENT WILL BE LOCATED ADJACENT TO THE SOUTHWEST SHORELINE OF HAMILTON RESERVOIR. THE RESERVOIR IS THE PRIMARY SURFACE HYDROLOGICAL FEATURE OF CONCERN. A WIDE VARIETY OF OTHER IMPORTANT AQUATIC HABITATS EXIST ON THIS PROPERTY. THEY INCLUDE: TWO SMALL CONNECTING PONDS, A BEAVER POND AND ITS OUTLET, AND ONE SEASONAL WATERCOURSE.

MOST OF HAMILTON RESERVOIR IS LOCATED IN MASSACHUSETTS. RESIDENTIAL DEVELOPMENT IS PREVALENT ALONG ITS SHORELINES; HOWEVER, VERY LITTLE DEVELOPMENT HAS OCCURRED NEAR THE SMALL PORTION OF THE RESERVOIR THAT LIES IN CONNECTICUT. RESERVOIR SURFACE WATERS ARE CLASSIFIED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) AS "CLASS A". DESIGNATED USES FOR THIS CLASSIFICATION WOULD BE: 1. POTENTIAL DRINKING WATER SUPPLY SOURCE 2. FISH AND WILDLIFE HABITAT 3. RECREATIONAL USE 4. AGRICULTURAL AND INDUSTRIAL SUPPLY AND 5. OTHER LEGITIMATE USES INCLUDING NAVIGATION.

THE RESERVOIR SHORELINE NEAR THE PROPOSED DEVELOPMENT IS HEAVILY VEGETATED WITH A VARIETY OF SUBMERGENT (SUBMERGED) AND FLOATING (ON SURFACE WATER) SPECIES OF AQUATIC VEGETATION. COONTAIL AND WATERSHIELD ARE THE PRIMARY SUBMERGENT AND FLOATING PLANTS, RESPECTIVELY.

THE TWO CONNECTING PONDS CONTAIN DENSE CONCENTRATIONS OF SUBMERGENT AQUATIC WEEDS SUCH AS COONTAIL AND ELODEA. PONDWEED (FLOATING PLANT) WAS ALSO OBSERVED. POND WATER DEPTH RANGES FROM 1 TO 7 FEET AND BOTTOM SUBSTRATE IS COMPRISED OF SAND AND GRAVEL OVERLAIDEN WITH ACCUMULATED SILTS.

A SMALL POND ORIGINALLY IMPOUNDED BY THE DUMPING OF DISPOSED CONSTRUCTION MATERIALS AND LATER ENHANCED BY A BEAVER POPULATION IS LOCATED NEAR THE SOUTHERN PORTION OF THE RESERVOIR. ITS OUTLET, 4 TO 6 FEET WIDE AND COMPRISED OF A GRAVEL, SMALL ROCK BOTTOM, EMPTIES NORTHWARD INTO HAMILTON RESERVOIR. WATERS ARE DISCOLORED DUE TO HIGH IRON CONTENT.

FISH POPULATION

HAMILTON RESERVOIR SUPPORTS HEALTHY AND DIVERSE FISHERIES. FISH SPECIES WHICH PRESENTLY INHABIT THE RESERVOIR ARE: LARGEMOUTH BASS, SMALLMOUTH BASS, BLUEGILL SUNFISH, PUMPKINSEED SUNFISH, CALICO BASS, CHAIN PICKEREL, YELLOW PERCH,

DIVISION OF FISH, WILDLIFE, AND RECREATIONAL VEHICLES. EITHER CONNECTICUT OR MASSACHUSETTS FISHING LICENSES ARE VALID; MASSACHUSETTS REGULATIONS APPLY.

LARGEMOUTH BASS, BLUEGILL SUNFISH, AND PUMPKINSEED SUNFISH CAN BE FOUND IN THE TWO CONNECTING PONDS. THE BEAVER POND OUTLET AND SEASONAL WATERCOURSE DO NOT SUPPORT ANY PERMANENT FISH POPULATIONS.

IMPACTS

THE FOLLOWING IMPACTS ON HAMILTON RESERVOIR AND ASSOCIATED AQUATIC HABITATS CAN BE EXPECTED IF DEVELOPMENT IS CONSTRUCTED WITHOUT PROPER EROSION AND SEDIMENTATION CONTROLS:

1. CONSTRUCTION SITE SOIL EROSION AND SEDIMENTATION THROUGH INCREASED RUNOFF FROM UNVEGETATED AREAS - EROSION AND SEDIMENTATION DUE TO CONSTRUCTION HAS LONG BEEN REGARDED AS A MAJOR STIMULUS IN THE LAKE EUTROPHICATION (AGING) PROCESS. SERIOUS STREAM DEGRADATION CAN ALSO OCCUR. IN PARTICULAR, SILT DEPOSITION WILL:

*REDUCE FISH EGG SURVIVAL - ADEQUATE WATER FLOW, FREE OF SEDIMENT PARTICLES IS REQUIRED FOR EGG RESPIRATION AND SUCCESSFUL HATCHING.

*REDUCE AQUATIC INSECT PRODUCTION - SEDIMENT FREE WATER IS ALSO REQUIRED FOR SUCCESSFUL AQUATIC INSECT EGG RESPIRATION AND HATCHING. AQUATIC INSECTS ARE IMPORTANT FOOD ITEMS IN FISH DIETS. REDUCE INSECT LEVELS WILL ADVERSELY EFFECT FISH GROWTH AND SURVIVAL SINCE EXCESSIVE ENERGY DEMANDS ARE REQUIRED TO LOCATE PREFERRED AQUATIC INSECTS WHEN POPULATION LEVELS ARE LOW.

*REDUCE STREAM AND POND WATER DEPTH.

*ENCOURAGE THE GROWTH OF ROOTED AQUATIC PLANTS AND PRECIPITATE DENSE ALGAE BLOOMS IN POND ENVIRONMENTS AND PROMOTE FILAMENTOUS ALGAE GROWTH IN STREAMS - ERODED SOILS CONTAIN PLANT NUTRIENTS SUCH AS NITRATES AND PHOSPHATES. ALTHOUGH ALGAE AND AQUATIC PLANTS REQUIRE THESE NUTRIENTS FOR GROWTH, MOST AQUATIC ECOSYSTEMS CONTAIN VERY LIMITED AMOUNTS. CONSEQUENTLY, THESE NUTRIENTS ACT AS FERTILIZERS ONCE THEY ARE INTRODUCED INTO AQUATIC HABITATS RESULTING IN ACCELERATED PLANT GROWTH.

*CONTRIBUTE TO THE DEPLETION OF OXYGEN - ORGANIC MATTER ASSOCIATED WITH SOIL PARTICLES IS DECOMPOSED BY MICRO ORGANISMS CONTRIBUTING TO THE DEPLETION OF OXYGEN IN WATERS OVERLYING SEDIMENTS.

2. PERCOLATION OF SEPTIC SYSTEM LEACHATE - A FAILURE OF PROPOSED SEPTIC SYSTEMS TO OPERATE PROPERLY WOULD BE POTENTIALLY DANGEROUS TO AQUATIC ECOSYSTEMS. SEASONALLY HIGH WATER TABLES, HIGHLY PERMEABLE SAND AND GRAVEL SOILS, AND STEEP SLOPES ON THIS SITE WOULD POSSIBLY ALLOW TRANSPORT OF LEACHATE INTO AQUATIC ENVIRONMENTS. THE INTRODUCTION OF SEPTIC EFFLUENT COULD RESULT IN A MAJOR THREAT TO FISH AND PUBLIC HEALTH DUE TO WATER QUALITY DEGRADATION.

3. TRANSPORT OF LAWN FERTILIZER TO AQUATIC ECOSYSTEMS - RUNOFF AND LEACHING OF NUTRIENTS FROM FERTILIZERS COULD PROVIDE ADDED NUTRIENTS FURTHER STIMULATING LAKE EUTROPHICATION AND NUISANCE AQUATIC WEED GROWTH.

4. INTRODUCTION OF ROAD SALTS - SURFACE DRAINAGE FROM PAVED ROADS MAY INTRODUCE SALTS AND POLLUTANTS INTO HAMILTON RESERVOIR AND OTHER AQUATIC ENVIRONMENTS. THIS WILL RESULT IN WATER QUALITY AND AQUATIC HABITAT DEGRADATION. THIS AREA ALREADY RECEIVES EXCESS SALTS FROM INTERSTATE 84.

IF REALIZED, THESE IMPACTS WOULD HAVE A SEVERE, ADVERSE EFFECT UPON HAMILTON RESERVOIR AND ASSOCIATED AQUATIC HABITATS. DEGRADATION OF WATER QUALITY AND FISH HABITAT COULD RENDER THIS AREA LESS DESIRABLE FOR RECREATIONAL ACTIVITIES. ADDITIONALLY, THE DEVELOPER OR CONDOMINIUM RESIDENTS MAY BE FINANCIALLY LIABLE FOR ALL DAMAGE INCURRED TO THE ENVIRONMENT.

RECOMMENDATIONS

THE IMPACT OF DEVELOPMENT CAN BE MINIMIZED BY IMPLEMENTING THE FOLLOWING PRECAUTIONARY MEASURES:

1. PROVIDE A 100 FOOT BUFFER ZONE ALONG HAMILTON RESERVOIR, THE CONNECTING PONDS, AND OTHER WATERCOURSES. THIS PROTECTIVE STRIP WILL HELP PREVENT EROSION AND SEDIMENTATION EVENTS AND MAINTAIN AQUATIC ECOSYSTEM INTEGRITY.

2. THE DEVELOPER PLANS ON DREDGING THE TWO CONNECTING PONDS IN ORDER TO ENLARGE INTO ONE BODY OF WATER AND TO REMOVE ACCUMULATED SILTS ON THE BOTTOM. PERMITS ARE REQUIRED FOR POND DREDGING AND DEPOSITION OF SPOILS. CONTACT THE WATER RESOURCES UNIT OF THE DEP FOR ADDITIONAL INFORMATION. BEFORE DREDGING OPERATIONS ARE INITIATED, RESIDENT FISHES SHOULD BE CAPTURED, TRANSPORTED, AND RELEASED INTO HAMILTON RESERVOIR WHEN THE POND LEVEL IS LOWERED. CONSULT WITH DEP FISHERIES PERSONNEL CONCERNING SPECIFIC FISH REMOVAL TECHNIQUES AND FISH STOCKING RECOMMENDATIONS.

3. INSTALL AND MAINTAIN PROPER EROSION AND SEDIMENTATION CONTROLS DURING CONSTRUCTION SUCH AS SILT FENCES, HAY BALES, AND CATCH BASINS - DIRECT ALL RUNOFF AWAY FROM HAMILTON RESERVOIR AND REGULARLY MAINTAIN CATCH BASINS.

4. LIMIT LIMING AND FERTILIZATION OF CONDOMINIUM LAWNS - STRESS THE USE OF LOW PHOSPHATE LAUNDRY DETERGENTS. THESE STEPS WILL PARTIALLY MITIGATE THE ADDITION OF NUTRIENTS TO ALL WATERBODIES.

5. ENCOURAGE UNION COVE CONDOMINIUM RESIDENTS TO CREATE A HAMILTON RESERVOIR ENVIRONMENTAL ASSOCIATION IN ORDER TO EDUCATE ALL RESIDENTS CONCERNING RESPONSIBLE LAND MANAGEMENT PRACTICES AND ACTIVITIES NEAR THE RESERVOIR. TECHNICAL ASSISTANCE REGARDING THESE MATTERS CAN BE OBTAINED FROM DEP AND SOIL CONSERVATION SERVICE (SCS) PROFESSIONALS.

SUMMARY

AS PROPOSED, THIS DEVELOPMENT HAS THE POTENTIAL TO NEGATIVELY IMPACT HAMILTON RESERVOIR AND OTHER SENSITIVE AQUATIC HABITATS. CAREFUL AND CONSCIENTIOUS PLANNING MUST BE EXERCISED BY THE DEVELOPER AND THE TOWN OF UNION TO MITIGATE A MYRIAD OF POTENTIAL IMPACTS. IF IMPLEMENTED, PROPER MITIGATION MEASURES WILL PRESERVE EXISTING WATER QUALITY AND FISH HABITAT.

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PLANNING COMMENTS

UNION IS IN THE PREDICAMENT OF HAVING PROPOSED TO THE PLANNING AND ZONING COMMISSION, AN APPLICATION TO MAKE A ZONING CHANGE TO ITS ZONING REGULATIONS AND ZONING MAP ALMOST IMMEDIATELY AFTER ADOPTING A WELL THOUGHT OUT AND COMPREHENSIVE SET OF NEW REGULATIONS AND MAP. THE ADOPTION OF SUCH A CHANGE WILL DO MORE THAN SET A PRECEDENT FOR THE UNION PZC, A PRECEDENT THAT SAYS THAT IT IS ALL RIGHT TO AMEND OUR REGULATION AT ANY TIME. IN THE TEAM PLANNER'S EXPERIENCE, IT ERODES THE CONFIDENCE THAT THE COMMISSION SHOULD HAVE, AND SHOULD BE BUILDING IN THEIR REGULATION, AND THEIR ABILITY TO PRODUCE REGULATIONS THAT WILL ENSURE THE TOWN COMPLIMENTORY DEVELOPMENT. SOME OTHER PERSON, SOME OTHER ENTITY, OR SOME DEVELOPER WILL ALWAYS HAVE AN IDEA THAT THEY THINK IS BETTER FOR THE TOWN, BUT IT IS, IN THE END RESULT, THE MISSION OF THE PLANNING AND ZONING COMMISSION TO PLAN AND REGULATE THE DEVELOPMENT OF UNION.

THE PROJECT THAT THE DEVELOPER IS PROPOSING FOR UNION COVE IS NOT A BAD IDEA. IT IS REASONABLE IN THAT IT PROPOSES A DENSITY THAT IS SIMILAR TO THAT ALREADY ALLOWED BY UNION'S ZONING REGULATION. IT INCORPORATES MANY IDEAS FOUND IN CONTEMPORARY DEVELOPMENTS THAT ARE NOW IN REGULATIONS IN OTHER TOWNS. THE REGULATION THAT THEY HAVE ASKED TO USE TO AMEND THE EXISTING REGULATION WILL ACCOMMODATE THE DEVELOPMENT OF UNION COVE. IF UNION'S ZONING REGULATION IS AMENDED IN THIS MANNER, THAT REGULATION WILL BE IN FORCE AFTER UNION COVE HAS BEEN BUILT AND IS BUT A MEMORY. THEN, THE UNION PZC MUST WRESTLE WITH THE THOUGHT OF WHETHER OR NOT THEY STILL WANT THE REGULATIONS, AND IF THEY CAN APPLY IT TO OTHER SIMILAR DEVELOPMENTS THAT WILL APPLY UNDER ITS PROVISIONS. IF THAT NEW REGULATION DOES NOT HAVE APPLICABILITY TO OTHER DEVELOPMENTS THEN THE CYCLE WILL BEGIN AGAIN. NEW APPLICANTS, THEN NEW PROPOSALS AND THEN REQUESTS FOR NEW AMENDMENTS TO THE REGULATIONS TO ACCOMMODATE THE NEW PROPOSALS.

THIS SCENARIO IS REPEATED BECAUSE CARE AND THOUGHT IS NOT APPLIED WHEN AMENDING ZONING REGULATIONS. THE RECOMMENDATION TO BE MADE HERE IS THAT IF THE UNION PZC SEES THAT THIS DEVELOPMENT, AND DEVELOPMENTS SIMILAR TO THIS ONE, ARE GOOD FOR THE TOWN THEN THE COMMISSION SHOULD STUDY SUCH AN AMENDMENT AND DRAFT ONE THAT WILL HAVE UNIVERSAL APPLICABILITY THROUGHOUT THE TOWN.

THE AMENDMENT AS PROPOSED HAS CERTAIN DEFICIENCIES WHICH ARE GOOD FOR THE DEVELOPMENT AND QUESTIONABLE FOR THE TOWN. THERE SHOULD BE A SECTION DETAILING WHAT KINDS OF PLANS (E.G. ELEVATIONS, BUILDING PLANS, PLANTING PLANS, CIRCULATION PLANS, SANITARY PLANS) WILL BE REQUIRED AND A STATEMENT THAT THE PLANS APPROVED BY THE COMMISSION SHALL BECOME PART OF THE REGULATION AND THE DEVELOPMENT MUST BE CONSTRUCTED AS APPROVED. THERE SHOULD BE A SECTION DETAILING HOW THE DEVELOPER WILL GUARANTEE THE COMPLETION OF THE DEVELOPMENT, WHICH ASSURES THE COMMISSION

THAT THEY DO NOT RECEIVE APPLICATIONS THAT ARE NOT OF A SERIOUS NATURE, SUCH AS CONSTRUCTION BONDS OR SAVINGS ACCOUNT ASSIGNMENTS. SOMEWHERE IN THE REGULATION THERE SHOULD BE WORDING WHICH GIVES THE COMMISSION DISCRETION TO MODIFY THE PLANS, MAKE OTHER REQUIREMENTS AND IN GENERAL ALLOW THE COMMISSION LATITUDE TO INSURE THE TOWN THAT THE DEVELOPMENT WILL BE GOOD FOR THE TOWN AND IN THE BEST INTERESTS OF THE TOWNSPEOPLE.

NONE OF WHAT HAS BEEN SAID IN THIS SECTION IS INTENDED TO IMPLY THAT THE PROPOSAL FOR UNION COVE IS POORLY ENVISIONED OR POORLY PRESENTED TO THE TOWN. THE ONLY INTENTION IS THAT THE TOWN PROTECT ITSELF IN EVERY WAY POSSIBLE AND GET THE BEST DEVELOPMENT THAT IS AVAILABLE.

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SUMMARY

NOTE: THIS IS A BRIEF SUMMARY OF THE MAJOR POINTS, CONCERNS AND RECOMMENDATIONS OF THE TEAM. YOU ARE STRONGLY URGED TO READ THE ENTIRE REPORT, AND TO REFER BACK TO SPECIFIC SECTIONS IN ORDER TO OBTAIN ALL THE INFORMATION ABOUT A CERTAIN TOPIC.

* ANY ACTIVITY THAT WILL TAKE PLACE IN WETLAND AREAS (I.E. THE BEAVER DAM AREA AND THE TWO PONDS) WILL REQUIRE A PERMIT FROM THE TOWN'S INLAND WETLANDS COMMISSION AND DEP WATER RESOURCES UNIT SHOULD BE CONTACTED.

* IT IS SUGGESTED THAT THE APPLICANT RETAIN THE SERVICES OF A QUALIFIED SOIL SCIENTIST TO EXAMINE CONDITIONS IN THE FIELD AND PROVIDE THE COMMISSION WITH INTERPRETIVE INFORMATION FOR THE SITE BECAUSE THE SOILS HAVE BEEN GREATLY DISTURBED BY THE SAND AND GRAVEL EXCAVATIONS.

* THE ERT WAS UNABLE TO VERIFY WETLANDS BECAUSE THE BOUNDARIES WERE NOT PLOTTED ON THE PLAN MAP. WETLAND BOUNDARIES SHOULD BE DELINEATED AND FLAGGED IN THE FIELD, NUMBERED SEQUENTIALLY AND SURVEYED ONTO THE PLAN. THE TOLLAND COUNTY SW&CD CAN THEN ON REQUEST REVIEW THE INFORMATION FOR ADEQUACY.

* IT IS SUGGESTED THAT THE DEVELOPER WORK WITH A CONSULTING AQUATIC BIOLOGIST TO PREDICT THE EFFECT OF "IMPROVING" THE PONDS. SOME CONSIDERATION SHOULD BE GIVEN TO ENHANCING THE EXISTING POND CONDITIONS.

* A DETAILED SOIL EROSION AND SEDIMENT CONTROL PLAN SHOULD BE DEVELOPED, OF MAJOR CONCERN IS THE LOCATION OF STORM DRAIN OUTLETS.

* A STORMWATER MANAGEMENT PLAN SHOULD BE REQUIRED. THE PROTECTION OF SURFACE WATER BODIES (PONDS, WATERCOURSES, AND HAMILTON RESERVOIR) FROM SILT, SAND AND PARKING LOT DEBRIS IS EXTREMELY IMPORTANT.

* A PERMIT FROM DEP WATER COMPLIANCE UNIT IS REQUIRED FOR SEWAGE DISCHARGE OF GREATER THAN 5,000 GALLONS PER DAY. DEP WILL CAREFULLY REVIEW ALL DATA AND THE "BURDEN OF PROOF" IS UPON THE DEVELOPER TO SHOW THAT THE PROPOSED SEWAGE DISPOSAL SYSTEM WILL FUNCTION PROPERLY AND NOT POSE A THREAT TO THE ENVIRONMENT OR PUBLIC HEALTH.

* THE DEVELOPER SHOULD BE REQUIRED TO MAKE ARRANGEMENTS FOR OWNERSHIP, MAINTENANCE AND OPERATION OF EACH SEWAGE DISPOSAL SYSTEM.

* A PROFILE OF THE BEDROCK SURFACE IS NEEDED BECAUSE OF EXPOSED BEDROCK, POROUS SOILS, ON-SITE SEWAGE DISPOSAL AND ON-SITE WELLS.

* GRADING AND FILLING PLANS AS REQUIRED BY TOWN OFFICIALS SHOULD BE PROVIDED.

* APPROVAL FOR ANY WELL LOCATIONS NEEDS TO BE OBTAINED FROM THE STATE DEPARTMENT OF HEALTH SERVICES PUBLIC WATER SUPPLY SECTION AND PUBLIC UTILITIES CONTROL. ALSO THE STAFFORD SPRINGS HEALTH DISTRICT WILL HAVE TO APPROVE WELL LOCATIONS.

* THE PROPOSED DEVELOPMENT WILL HAVE LITTLE SIGNIFICANT IMPACT ON THE MAJOR WILDLIFE SPECIES INHABITING THE AREA. IMPACT CAN BE MINIMIZED BY PROVIDING A VEGETATIVE BUFFER ALONG THE POND(S), DISCOURAGING THE PLANTING AND FERTILIZING OF LARGE EXPANSES OF GRASS LAWNS DOWN TO THE POND(S).

* IN THE AREA INHABITED BY BEAVERS IT IS SUGGESTED THAT THE DAM CREATED BY DUMPED CONSTRUCTION FILL BE REMOVED AND THE AREA GRADED TO CONFORM WITH EXISTING TOPOGRAPHY. THIS SHOULD BE ADDRESSED ON THE PLANS.

* AS PROPOSED THIS DEVELOPMENT HAS THE POTENTIAL TO NEGATIVELY IMPACT HAMILTON RESERVOIR AND OTHER AQUATIC HABITATS. CAREFUL AND CONSCIENTIOUS PLANNING IS NEEDED ON THE PART OF THE DEVELOPER AND THE TOWN.

* THE IMPACT TO FISH RESOURCES CAN BE MINIMIZED BY (1) PROVIDING A 100' BUFFER STRIP ALONG HAMILTON RESERVOIR, THE POND(S) AND WATER COURSES (2) DREDGING AND CONNECTING THE 2 PONDS WILL REQUIRE PERMITS (3) DEP FISHERIES PERSONNEL SHOULD BE CONTACTED CONCERNING FISH REMOVAL, RELEASE AND STOCKING (4) INSTALL AND MAINTAIN PROPER EROSION AND SEDIMENT CONTROL MEASURES (5) LIMIT LIMING AND FERTILIZATION OF LAWNS AND (6) ENCOURAGE A UNION COVE CONDOMINIUM HAMILTON RESERVOIR ENVIRONMENTAL ASSOCIATION.

* THE AMENDMENT TO THE ZONING REGULATIONS AS PROPOSED HAS CERTAIN DIFICIENCIES WHICH ARE GOOD FOR THE DEVELOPMENT AND QUESTIONABLE FOR THE TOWN. ADDITIONAL SECTIONS ARE NEEDED THAT (1) DETAIL PLANS REQUIRED (2) A STATEMENT THAT THE PLANS APPROVED BY THE COMMISSION BECOME PART OF THE REGULATION AND THAT THE DEVELOPMENT MUST BE BUILT AS APPROVED (3) DETAILS ON HOW THE DEVELOPER WILL GUARANTEE COMPLETION OF THE PROJECT (4) THERE SHOULD BE WORDING THAT GIVES THE COMMISSION THE DISCRETION TO MODIFY PLANS, MAKE OTHER REQUIREMENTS AND INSURE THE TOWN THAT ANY DEVELOPMENT IS IN ITS BEST INTEREST.

* THE PLANNING AND ZONING COMMISSION SHOULD GIVE CONSIDERABLE THOUGHT TO ANY CHANGES TO THEIR NEW ZONING REGULATIONS AND ZONING MAP.

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.