

QUARRY SITE RECREATION STUDY

**Rocky Hill
Connecticut
August 1990**



EASTERN CONNECTICUT ENVIRONMENTAL REVIEW TEAM REPORT

**Eastern Connecticut
Resource Conservation and Development Area, Inc.**

QUARRY SITE RECREATION STUDY

ROCKY HILL, CONNECTICUT

Review Date: May 30, 1990

Report Date: August 1990



Eastern Connecticut Environmental Review Team

**Eastern Connecticut
Resource Conservation and Development Area, Inc.
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ENVIRONMENTAL REVIEW TEAM REPORT
ON

QUARRY SITE RECREATION STUDY
Rocky Hill, Connecticut

This report is an outgrowth of a request from the State of Connecticut Department of Environmental Protection to the Hartford County Soil and Water Conservation District (SWCD). The S&WCD referred this request to the Eastern Connecticut Resource Conservation and Development (RC&D) Area Executive Council for their consideration and approval. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The ERT met and field checked the site on Wednesday, May 30, 1990. Team members participating on this review included:

Nick Bellantoni	State Archaeologist CT Museum of Natural History
Steve Cote	Soil Conservationist USDA - Soil Conservation Service
Joe Hickey	State Park Planner DEP - Bureau of Parks and Forests
Barbara MacFarland	Community Development Planner Capitol Region Council of Governments
Nancy Murray	Sr. Environmental Analyst DEP - Natural Resources Center
Larry Rousseau	Forester DEP - Western District Headquarters
Elaine Sych	ERT Coordinator Eastern Connecticut RC&D Area, Inc.
Carol Szymanski	Community Development Planner Capitol Region Council of Governments
Bill Warzecha	Geologist DEP - Natural Resources Center
Judy Wilson	Wildlife Biologist DEP - Western District Headquarters

Prior to the review day, each Team member received a summary of the proposed project, a list of the town's concerns, a location map, a topographic map, and a soils map. During the field review the Team members were given additional information. The Team met with, and were accompanied by Pam Adams-DEP Planning and Development, representatives from the Hartford County Soil and Water Conservation District and the Rocky Hill Parks and Recreation Director. Following the review, reports from each Team member were submitted to the ERT Coordinator for compilation and editing into this final report.

This report represents the Team's findings. It is not meant to compete with private consultants by providing site designs or detailed solutions to development problems. The Team does not recommend what final action should be taken on a proposed project -- all final decisions rest with the Town and landowner. This report identifies the existing resource base and evaluates its significance to the proposed development, and also suggests considerations that should be of concern to the developer and the Town. The results of this Team action are oriented toward the development of better environmental quality and the long-term economics of land use.

The Eastern Connecticut RC&D Executive Council hopes you will find this report of value and assistance in making your decisions on this recreation area.

If you require additional information, please contact:

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1. SETTING AND LAND USE

The site, about 80 acres in size, is located in northeast Rocky Hill on a former traprock quarry. It is bounded on the west by Old Main Street, wooded, undeveloped land on the north, an inactive railroad right-of-way (Conrail) on the east, and residential properties on the south. Access to the parcel is provided by Esther Road on the north and by Old Main Street, Mattesa Avenue and Meadow Road on the west.

A traprock (basalt) quarry was worked on the property in the late 1800's and is believed to have ended in the 1950's. The land was extensively disturbed and retains features from the quarry operation. These include vertical rock cliffs, a pond, and poorly drained depressions. Buildings, rusty machinery and other vehicles believed to have been part of the quarry operation remain on the site. Accompanying this report is a copy of a paper entitled "The Quarry in Rocky Hill, Connecticut" by Grace Lowell which gives an historical account of the traprock quarry operation on the site. (See Appendix A)

Land use in the area of the site includes medium to high density residential development, which mainly occurs west of the parcel and agricultural use, which occurs to the east. An inactive landfill is also located east-southeast of the parcel.

As noted earlier, the western half of the site retains features resulting from the past quarrying operation. The eastern half was less disturbed by this activity and is characterized by moderately steep, wooded land.

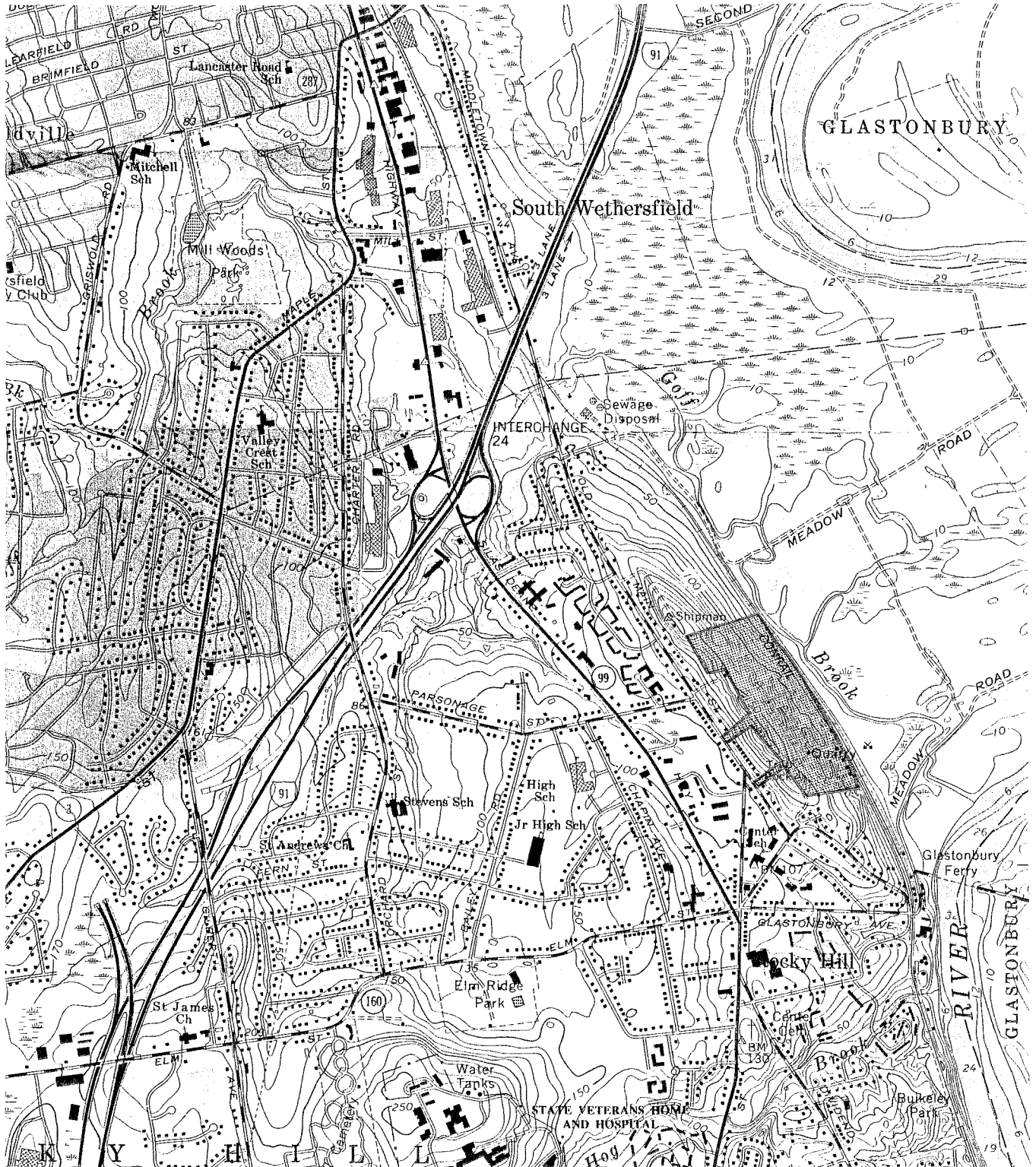
Based on visual observations made during the field walk, the site is subject to unauthorized dumping of demolition/building waste, tires, automobiles, motorcycles, appliances, landscaping clippings and other bulk waste. Every effort should be made to secure entrances to the site so that illegal dumpings do not occur.

LOCATION MAP

SCALE 1" = 2000'



Approximate Site



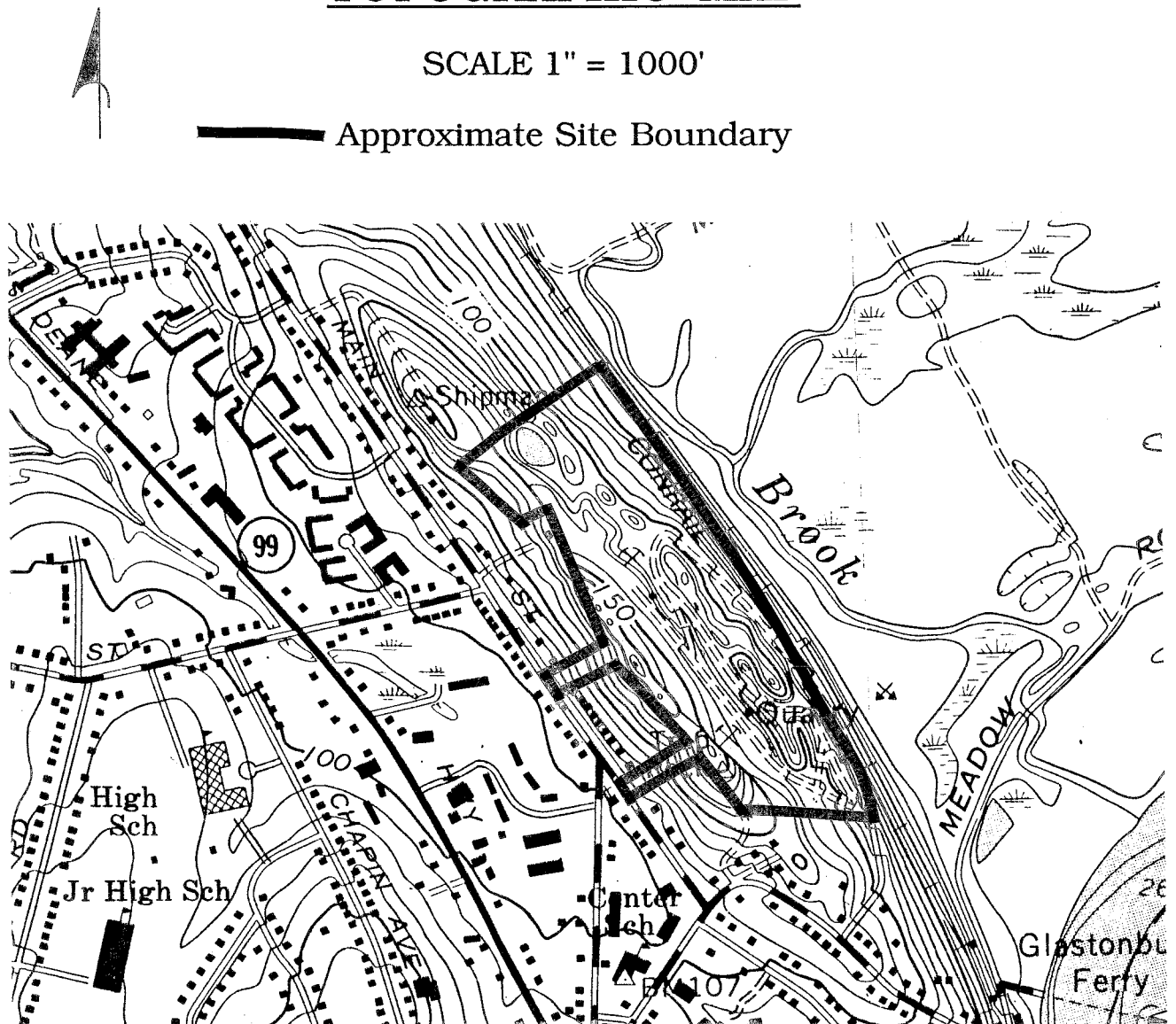
2. TOPOGRAPHY

Topography across the site is controlled by the underlying rock. Prior to the quarrying operation, the site's topography consisted of moderately steep to steeply sloping terrain and probably closely resembled the land terrain abutting the site to the north. The quarry operation left the land surface terraced in the western and central parts. Two east facing vertical cliffs, which in places may be 60 feet or higher, occur in this area. Nearly level benches occur at the bottom of each cliff face. Outside of the mined area, the land is characterized by moderate to steep slopes.

The site's topography affords visitors with commanding views of the Hartford skyline to the north and the Connecticut River valley and the physiographic region of Connecticut known as the Eastern Highlands to the east.

TOPOGRAPHIC MAP

SCALE 1" = 1000'



3. GEOLOGY AND RECREATION POTENTIAL

The entire site is located within the Hartford South topographic quadrangle. A surficial geologic map (QR-2, by R.E. Deane, 1954 and 1962) for the quadrangle has been published by the Connecticut Geological and Natural History Survey. No bedrock geologic map has been published to date. However, the Team's geologist referenced John Rodger's Bedrock Geological Map of Connecticut, 1985 for the Bedrock Geology section of this report.

The principal rock type underlying the site is comprised of Hampden Basalt, an intrusive igneous (formed from molten material above the earth's crust) rock. The rock, which is fine-grained, dark gray to brown weathering has a basic (opposed to acidic) mineral composition; that is, it is relatively low in silica but rich in iron, magnesium, or calcium-bearing minerals. "Basalt" is commonly referred to as "traprock". When freshly exposed, basalt is commonly dark gray, however when subjected to the weathering processes, its surface turns a reddish brown. This is caused by the oxidation of iron and magnesium-bearing minerals in the rock. Because of its durability, the rock makes an excellent construction aggregate. It is quarried in open pit excavation in numerous localities in the north-south trending basalt belts that occur in central part of the State and in the Pomperaug Valley in western Connecticut. From a geologic standpoint, the latter is a miniature version of central Connecticut.

Bedrock underlying the area west of the crest of the streamlined hill which the site is located on consist of sedimentary rocks (rocks formed by sediments near the earth's surface, generally a layer). These rocks known as the East Berlin Formation consist of thinly bedded, medium gray to reddish-brown arkosic (feldspar rich) silty shales.

The sedimentary rocks are weaker and more susceptible to erosion than the igneous rocks; this explains the sharp topographic contrast between the traprock ridges and the surrounding terrain in the Connecticut Valley.

Central Connecticut, approximately 220 million years ago, was located in a "rift valley". Tensional forces, thought to have been caused by the separation of the North American crustal plate from the European and African plates, produced major faults along the eastern margin of North America. The eastern margin of the central Connecticut basin slipped down along a line of faults, producing an escarpment at the edge of the eastern Connecticut highlands. Rivers flowed into the valley from the highlands from the east and west, spreading conglomerate, sandstone, and siltstone. Also, the sedimentary deposits, of which there are four, were covered by three volcanic events that spewed magma (subsequently becoming basalt) onto the sediments. From oldest to youngest these deposits include the New Arkose (a sedimentary unit), Talcott Basalt, the Shuttle Meadow Formation (a sedimentary unit), the Holyoke Basalt, the East Berlin Formation (a sedimentary unit), the Hampden Basalt and the Portland Arkose.

The entire sequence of sedimentary and volcanic deposition probably occurred in a span of approximately 20 million years, beginning in the Late Triassic Period and ending in the Early Jurassic Period (228 million years to 186 million years ago). During that time, the climate of the valley was semi-arid and warm. Dinosaurs roamed throughout the valley, leaving numerous footprints and an occasional bone in the sediments. The East Berlin Formation, which underlies the western limits of the site, is the same unit in which the famous trackway at Dinosaur State Park in Rocky Hill was discovered.

The "layer cake" of sedimentary and igneous rock is estimated to be approximately 11,000 feet thick. The Hampden Basalt flow is estimated to be about 200 feet thick and the East Berlin Formation to be about 560 feet. Sedimentary rock formations and lava flows in the rift valley were tilted from 10° to 30° generally toward the east and then eroded.

A discontinuous, generally thin blanket (<20 inches to bedrock) of till overlies bedrock on the site. Till, which was deposited directly from glacier ice more than 12,000 years ago is a non-sorted and generally structureless mixture of clay, silt, sand, gravel and boulders. The texture of the till on the site is generally sandy and loose.

Glacial striations left by the ice as it advanced through the region

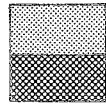
were incorporated onto the bedrock surface and are visible in many places on the site. The direction is generally south-southeast.

Recreation Potential of the Site from a Geological Perspective

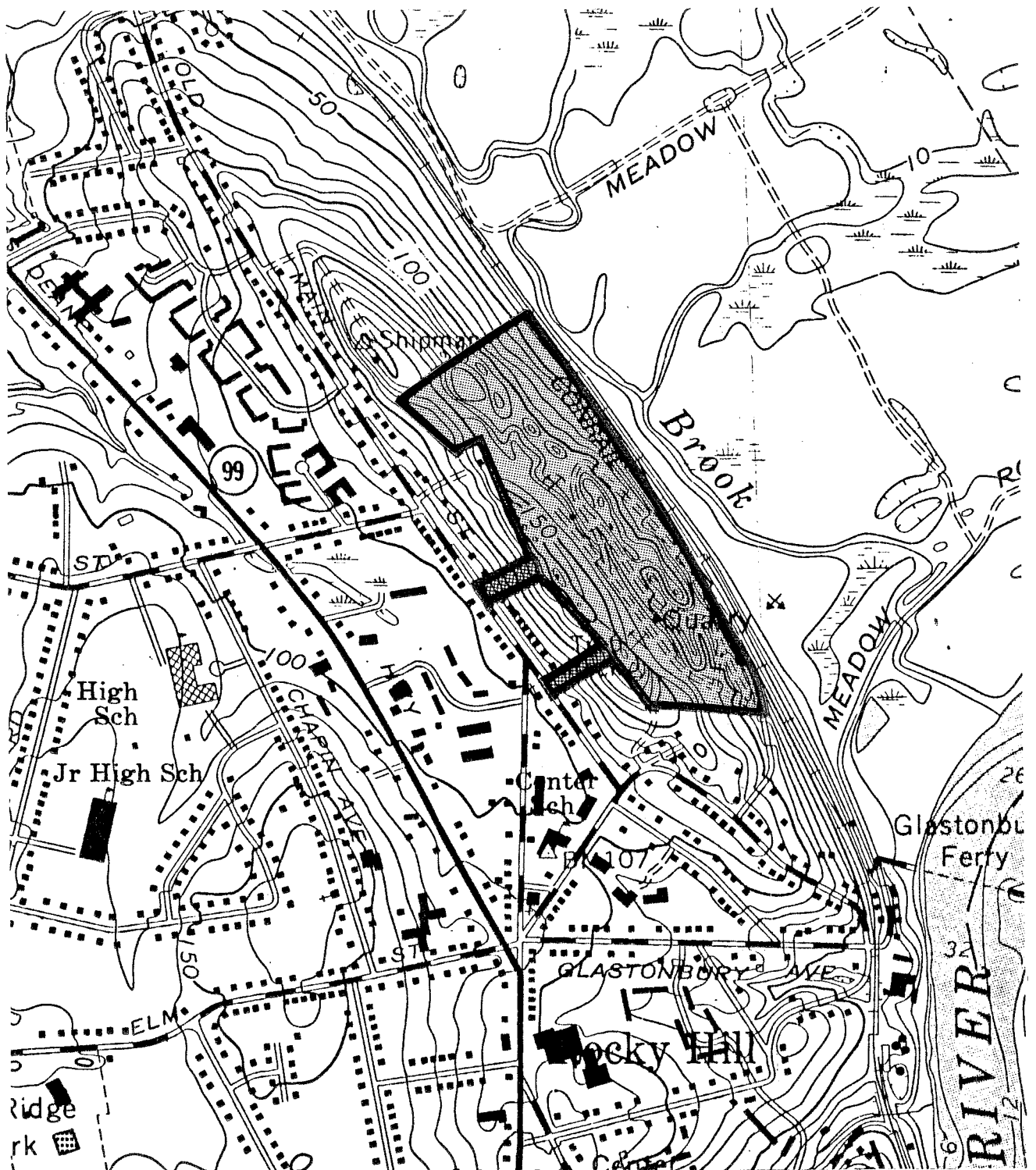
Past quarrying activities which produced vertical cliffs and terraced landscape, steep slopes and shallow to bedrock soils will be the major obstacles for most active recreational uses on the site. In places, seasonal wetness may also pose a hindrance in terms of active recreational uses. With exception of utilizing the nearly level bench areas on the site for prospective tennis courts, basketball courts or a soccer field, the site appears to be most suitable for passive recreational uses such as hiking, bird watching, mineral collecting, outdoor environmental education programs and cross-country skiing. The construction of playing fields will undoubtedly require the placement of suitable fill material and, in places may require blasting. Both raise site development and engineering costs.

BEDROCK GEOLOGIC MAP

SCALE 1" = 1000'

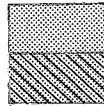


Hampden Basalt
East Berlin Formation

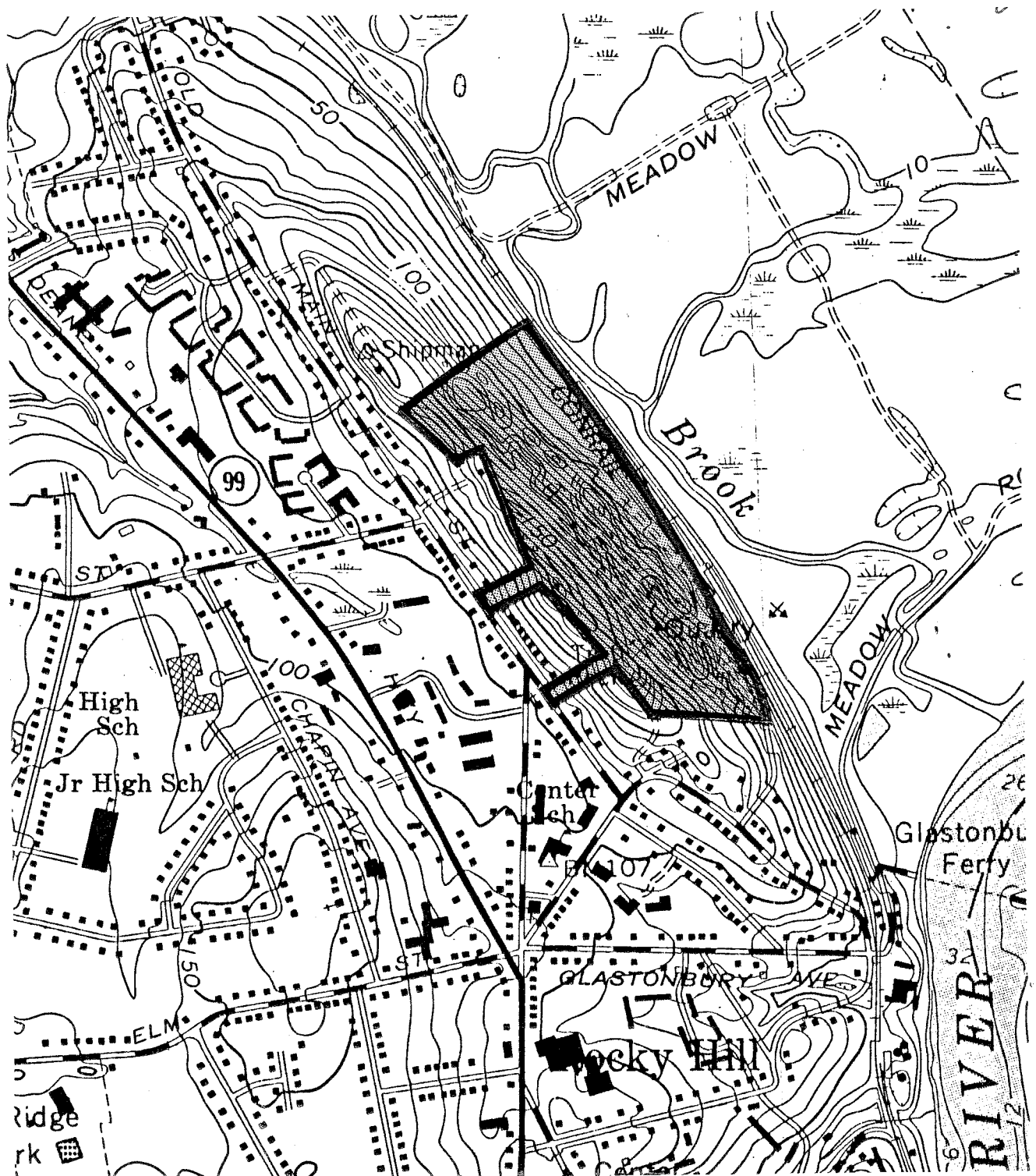


SURFICIAL GEOLOGIC MAP

SCALE 1 = 1000'



Till generally less than 10 feet thick
Areas where bedrock is at or near the ground surface



4. SOIL RESOURCES AND LIMITATIONS TO RECREATIONAL DEVELOPMENT

The soils of the Rocky Hill Quarry site are predominantly steep (8-25%) glacial tills on uplands. Soil map units vary markedly from North to South in this area. Soils in the northern sections are predominantly deep (usually greater than 5' to bedrock) with a compact layer 1.5 to 2' below the surface. This compact layer restricts the downward movement of water and can cause perched water tables.

Soils in the lower (southern 2/3) portion of the site surrounding the quarry vary from gently sloping to steep (3-35%) and are shallow to bedrock with areas of exposed bedrock. These soils vary from well drained to somewhat excessively well drained.

Ponds, watercourses, numerous drainageways and areas of probable wetland exist in various areas on the site. Probable wetland areas would be too small to be shown as individual soil map units on the soil survey sheets.

The main limitations of natural soils in this area to recreation facilities structures or improvements are steepness of slopes and shallowness to bedrock. Soils predominant in the northern section of the area are Broadbrook silt loams. Soils in the mid and southern areas are Holyoke rocky and very rocky silt loams and loams.

Detailed descriptions of the soils, as mapped on the Hartford County Soil Survey 1962, and their limitations for recreational facilities are shown on the Soils Limitation Chart.

Broadbrook soils, on the more moderate A or B slope phases, are well suited to crop or garden production (for example-vegetables or ornamentals as a community garden or for wildlife plantings). Longer slopes (150' or more) on C (8-15%) are not well suited for gardening or annual crops due to the high potential for severe erosion to occur. Soil conservation measures would be necessary if these areas were cultivated or otherwise substantially disturbed.

Holyoke soils, due to drainage class, shallowness to rock and

stoniness, are not well suited to raising crops or gardens. Areas on the floor of the quarry site, if adequate soil amendments are added (compost, topsoil, etc.) may prove suitable as garden areas.

Much of this area could be developed with recreational trails if trail layout and design incorporates site and soil limitations (see Appendix B - recreation trails and typical trail section for details). Woods roads already exist and with some maintenance (pruning of vegetation) and improvements (water control) could provide adequate trail sections. The road extending from the approximate mid section of the quarry site floor and heading northeastward has runoff following the road. Simple culverts or broad based dips ("thank-you-ma'ams") should be incorporated to handle this runoff and convey to safe outlets. Designs for these are available from the Hartford County Soil and Water Conservation District.

If trails for recreational foot traffic are designed, the exclusion of motor vehicles (especially motorcycles) is recommended due to incompatibility of uses and the damage recreational vehicles could cause on steep slopes. Simple measures for exclusion of vehicles are possible at trail heads and points of access if trail use by vehicles is seen.

Planned use of trails by bicycles and hikers would likely require that wide trails be designed to accommodate both uses. Building wide trails can amount to a significant expense over standard hiking trail widths.

Trail development for cross country skiing and/or for handicapped, elderly or children is possible on this site in certain areas. These trails should incorporate special design considerations such as flatter trail sections, high visibility trail markers and necessary bridges and handrails for handicapped, elderly and children.

SOILS MAP

SCALE 1" = 1667'



SOILS LIMITATION CHART

MAP UNIT NAME	GENERAL SOILS PROPERTIES	DRAINAGE CLASS & DEPTH TO SEASONAL HIGH WATER TABLE	LIMITATIONS TO: CAMP & PICNIC - PATH & STAIRS
BrC Broadbrook silt loam 8-15%	Very deep (5' to bedrock) compact till layer	1.5 to 2.5 - perched water table	Moderate, percs slowly Slight
BrD Broadbrook silt loam 15-25%	"	"	Severe-slope Moderate slope
HyC Holyoke v. rocky silt 3-15%	Shallow (0 to 17") to bedrock, in thin mantled glacial till	Well drained to somewhat excessively drained	Severe-depth to bedrock Slight
HzE Holyoke v. rocky loam 15-35%	As above, but with stones	"	Severe-slope and stones Moderate to severe slope

5. HYDROLOGY

The site lies entirely within the Goff Brook watershed area. Goff Brook, which drains an area of 12.4 square miles or nearly 8,000 acres. The former quarry operation greatly disrupted the natural drainage on the site. For the majority of the site, surface water flows eastward to the former Penn Central railroad right-of-way. Water is then routed under the railroad bed via drain pipes and ultimately discharges to Goff Brook. Surface runoff at the western limits of the site drain westward to Old Main Street. Water is routed under the street to a large wetland area located between Parsonage Street, Old Main Street and Main Street (Route 99) west of the site. The outlet stream for the wetland flows northwestward to Goff Brook. There is a small pond at the site's northern limits.





Groundwater within the site is classified as GA, which means that it is presumed suitable for direct human consumption. The State's goal is to maintain that condition by banning almost all discharges to groundwater.

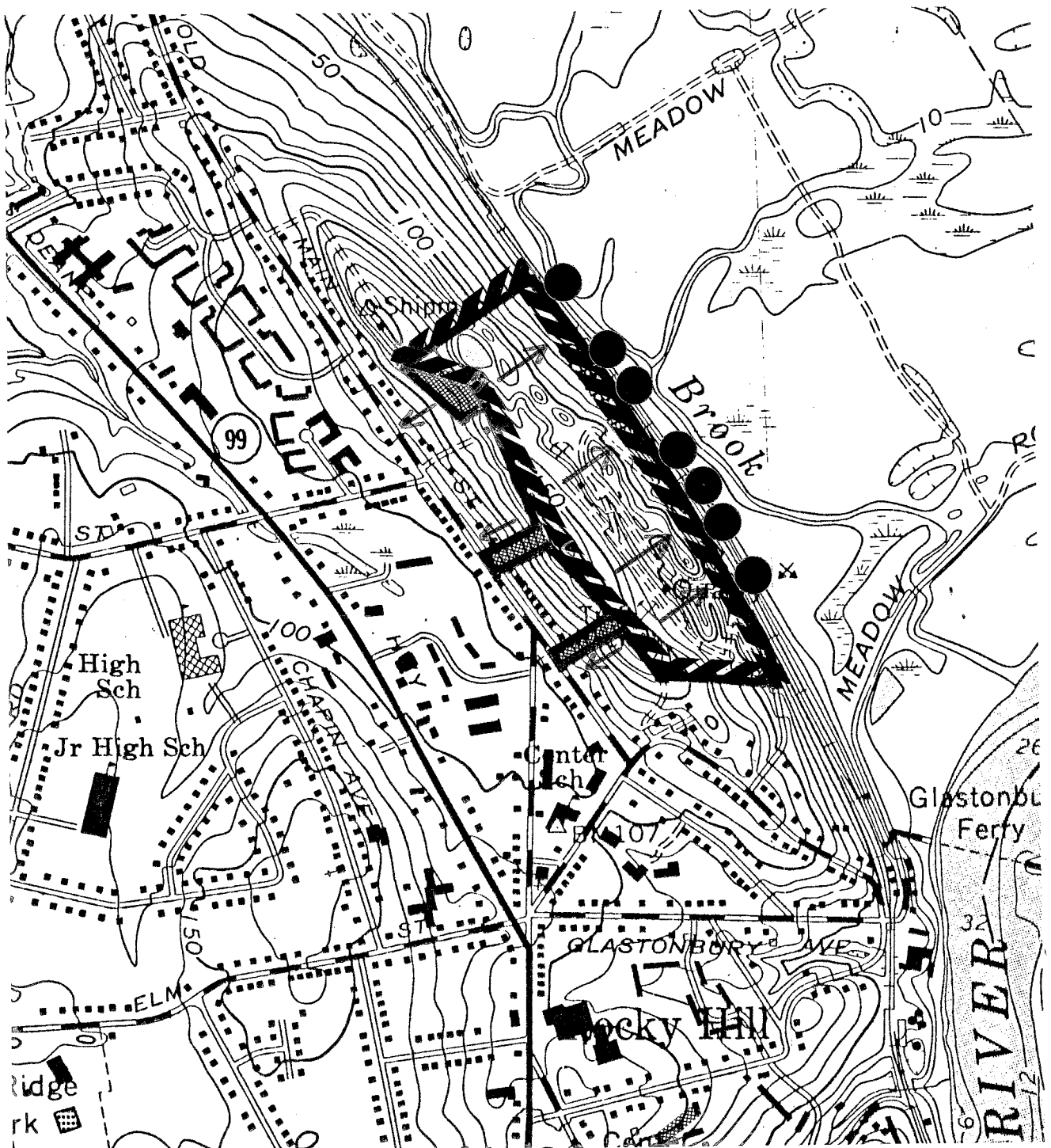
Surface waters within the site have not been classified to date and by default are considered to be a "A" water resource. A Class "A" water resource may be suitable for drinking water supply. Also it may be suitable for bathing and fishing. Goff Brook, east of the site is classified as a "B/A" streamcourse. This means that currently the brook or water is Class "B", and the State's long term goal is to upgrade it to a Class "A". A Class "B" water resource indicates that water quality is currently known or inferred to be degraded, in this case by landfill leachate. "B/A" water resources are generally suitable for recreational, agricultural or certain industrial uses such as process or cooling water. Groundwater in this area is also classified as "GB/GA".

There are no outstanding aquifers on the site. Bedrock would be the most logical source of groundwater on the property. Bedrock is usually capable of supplying small but reliable yields of groundwater to individual wells. Except for the area in the vicinity of the former landfill groundwater quality should be generally good.

WATERSHED BOUNDARY MAP

SCALE 1" = 1000'

-  Approximate drainage area for the quarry
-  Approximate location of discharge points
-  General direction of surface flow
-  Portion of the site that drains to a large wetland area west of the site



6. THE NATURAL DIVERSITY DATA BASE

The Natural Diversity Data Base maps and files regarding the project site have been reviewed and according to our information, there are no known extant populations of Federally Endangered and Threatened species or Connecticut "Species of Special Concern" occurring at the site in question.

It should be noted that we have 1987 nesting records for **Long-eared Owl**, *Asio otus* in the marsh area east of the site in question. This is the only known extant nesting location for this species in the state. The Long-eared Owl is proposed for State Endangered Species status (Public Act B9-224). No official state list has been finalized to date.

Natural Diversity Data Base information includes all information regarding critical biologic resources available to us at the time of the request. This information is a compilation of data collected over the years by the Natural Resources Center's Geological and Natural History Survey and cooperating units of DEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. 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.

7. VEGETATION

The Rocky Hill Quarry Site contains approximately 45 acres of forest land and 35 acres of land that has been altered by the quarrying operation. The vegetative description follows the land classification with two broad vegetation cover types. These are the mixed hardwood forest and old field succession.

Vegetative Type Description

The types are directly influenced by either the soil conditions, past management of the property, or a combination of both. Soil types often dictates the moisture availability which can limit or restrict the vegetation's growth. Historical use of the land also influences the present vegetation type and condition.

Mixed Hardwood Forest

The largest continuous stand of this type is located north of the quarry. This type is made up of pole sized (4.5"- 10.5" d.b.h. [diameter at breast height]) trees of the following species: ash, aspen, black birch, gray birch, white birch, black cherry, elm, black gum, red maple, sugar maple, silver maple, black oak, pin oak, red oak, white oak, sassafras. The stand's age is approximately 35-40 years. A tree species of special note is *Ailanthus altissima*, Tree of Heaven or Chinese sumac. This escaped exotic was introduced from eastern Asia as an ornamental, but is now considered a weed species. This tree is found through out the property, and in it's shrub form it can be mistaken for poison sumac (*Rhus vernix*).

Old Field Succession

The second vegetation type is located in the actual quarry site. The area is naturally revegetating and the tree species found here are: alder, ash, aspen, grey birch, white birch, red cedar, pin cherry, cottonwood, elm, red maple, silver maple, chestnut oak, sassafras, tree of heaven, and willow. The tree size generally ranges from sapling to pole size. The number, types, and size of the tree growth varies with the soil depth and the amount of time since the area was disturbed.

Management Recommendations

The forest management potential of the property is limited due to the age and size of the present forest growth, the lack of established access, and the lack of established property lines. Though the economic potential of the property's forest land is low, the educational opportunity for forest ecology is great. The abundance of hardwood species and the revegetation of a once barren area lends itself to the development of nature trails. Tree identification

and examples of early forest succession should be highlighted along these trails.

8. WILDLIFE HABITAT

The approximately ±80 acre site was formerly a trap rock quarry. It contains sheer rocky cliffs, talus slopes, early successional stage growth and mature and pole sized mixed hardwood forest. The site contains a small pond in the old field area and there are some wetlands associated with the pond. The site lies adjacent to the rich flood plain field and forest habitat along the Connecticut River, in this area known as Great Meadows.

A Conrail railroad track runs along the western boundary of the property. Just beyond the western boundary is Goff Brook, a slow meandering tributary of the Connecticut River.

The area provides fair to good wildlife habitat. Perhaps its greatest value in terms of wildlife habitat is that it provides a buffer of undeveloped land between the rich flood plain habitat along that section of the Connecticut River and the highly developed areas of Rocky Hill. The site itself though does offer an area of undeveloped land that provides a fair diversity of wildlife habitat.

Early Successional Stage Type Habitat

The majority of the site is covered by pioneer type species of plants, shrubs and trees which are gaining a foothold on the abandoned trap rock quarry site. This area also contains rocky cliffs and talus slopes.

This variety of vegetative types currently provides a wide array of food and cover to various species of wildlife. There are various types of plants and herbaceous vegetation, shrubs like staghorn sumac, honeysuckle, multiflora rose and trees such as red cedar, black birch, cherry, cottonwood, aspen and black locust among others. The plants and herbaceous vegetation provide forage and browse along with a variety of seeds. The various trees and shrubs provide food, cover and nesting sites.

Pond/Wetlands

Currently the pond and adjacent wetland area provide poor wildlife habitat because they are choked with phragmites.

Phragmites has little value as food or cover to most species of wildlife. There are some trees and shrubs in the adjoining wetland area such as aspen, elm and ash that do provide some food and cover.

Forest

The forest contains a variety of species including oak, ash, maple, birch, and cherry among others. Forestland provides many things to wildlife, including food, cover, roosting and nesting sites. For example trees like the oak produce acorns or mast which are a valuable source of food for many species of wildlife. Maple trees produce samaras which are sought after by birds and small mammals.

Management/Suggestions

Early Successional Stage Habitat Area

Unless maintained, the early successional stage area will succeed into forest, although because of the great degree of disturbance in this area and the lack of topsoil, that process will proceed slowly. In order to maintain a variety of habitat types in the area this site should be maintained by periodic mowing when the time is appropriate. In addition to mowing, cutting back of larger trees which can shade out berry producing shrubs should be planned for, to help maintain this area.

Overall productivity of the vegetation and thus wildlife habitat might benefit by the addition of fertilizer and or lime. Soils are very thin in places and because of the sites history contains little organic matter. Some program of soil building and/or enrichment in order to increase the quality of the site could be done in coordination with the soil scientist's recommendations.

Species of seed producers valuable to wildlife could be planted in the open areas where there is enough soil, to enhance existing wildlife

habitat. Species like sunflower, millet and milo produce abundant seeds relished by a number of birds. Planting areas such as this can be done in conjunction with a wildlife/interpretive trail and/or bird blind as it would be an attractive area for wildlife and would thus increase the chance of seeing wildlife.

Pond/Wetland Area

Although the pond provides some wildlife habitat, it is very limited because the majority of the pond is choked with phragmites. Wildlife habitat could be enhanced by encouraging more desirable vegetation. Phragmites control could be conducted through the use of an herbicide program.

Depending on the feasibility, a water control structure could be built to control water levels in the pond and wetland area. In this way vegetation and therefore wildlife habitat could be enhanced and managed.

Forested Area

In general an area of mature forestland should be maintained on the site to provide for the needs of a variety of wildlife. Group selection or uneven-aged management should be used in coordination with the forester's recommendations to provide a sustained supply of mature forestland.

Snag trees (dead and dying trees) and cavity and den trees (trees with holes in them) should be protected from cutting during any management activities on the site, whenever possible. Snag trees provide a valuable source of insects for birds like woodpeckers and cavity and den trees provide nesting and denning sites.

Recreation Suggestions

1.) Wildlife Trail - Construct and maintain a wildlife habitat trail perhaps in conjunction with other interpretive uses of a trail. Different types of habitat could be pointed out, habitat features, succession, etc. could be shown.

2.) Bird Blind - Could be constructed in conjunction with wildlife/interpretive trail.

3.) Small Game Hunting - Due to the abundance of early successional stage type vegetation on the area and the adjacent forestland, the area does support some small game like grouse, rabbit and squirrel. Although the area could also provide deer hunting opportunities, these could be limited due to the small size of the area and the open nature of much of the site. Small game hunting opportunities could be provided on a daily permit basis during the season to limit the number of individuals hunting per day in order to provide for a quality hunting experience.

4.) Acquiring or Leasing Additional Adjacent Land - Acquiring or leasing additional adjacent land could greatly increase the recreational and management opportunities available at the site.

The site provides wildlife habitat for a variety of species and could provide several types of wildlife based recreation although the potential is somewhat limited by the small size of the area.

Proper management could certainly increase the quality of wildlife habitat that is currently available. Wildlife habitat could be upgraded to some extent just by preventing further degradation of the area by the dumping of garbage, use of ATV's, etc.. The site certainly has potential for a variety of uses and management schemes, including various types of wildlife based recreation and wildlife management, but an integrated approach to the management of the area should be taken, giving each resource discipline consideration.

9. ARCHAEOLOGICAL REVIEW

A review of the State of Connecticut Archaeological Site Files and Maps show that four prehistoric Indian encampments are located in the project area. These sites were discovered by local archaeologists from the Albert Morgan Archaeological Society, Rocky Hill, Connecticut and partially excavated by the Public Archaeology Survey Team, Inc., who was contracted to conduct a survey for a proposed development project. The quarry site has

received considerable archaeological attention. As a result, known prehistoric and historic resources on the property are well defined. This will provide the town with a data base of cultural resources which it can effectively manage and protect.

The four archaeological sites on the quarry property include two on the upper terrace along the 150 foot contour interval (CT119-1, CT119-2), one downslope on the 100 foot contour interval (CT119-3), and a fourth in the southern portion of the project area, which had been partially destroyed by quarrying activity (CT119-4). Both sites CT119-1 and CT119-2 yielded quartz, flint, and argillite assemblages suggesting that stone tool manufacturing and maintenance activities took place there sometime in the prehistoric past. The exact dating of these sites could not be determined. On the other hand, Site CT119-3 is a multi-component site yielding a wide range of stone tools, including soapstone bowls, drills, biface reduction flakes, groundstone tool fragments, narrow-stemmed projectile points, aboriginal ceramics and hearth deposits. The artifacts suggest occupations from the Late Archaic Period (circa 6,300 - 4,900 B.C.) and later during the Middle Woodland Period (A.D. 500 - 1,000). Excavations indicate that these sites maintain a good degree of integrity and can yield important information on local and regional prehistoric cultural patterns. All three sites are eligible for nomination to the National Register of Historic Places.

The town's plans for passive recreation use of the quarry property should have little or no effect on the archaeological sites. However, the possibility of a parking lot in the northern end of the property where the three sites with good integrity are located could pose a threat to these resources. Parking lot and access road construction should avoid these sites. The Office of State Archaeology is prepared to offer the Town of Rocky Hill technical assistance in avoiding impact to these cultural resources. In addition, the original discoverer of these prehistoric sites, Mr. David Cooke, is a resident of Rocky Hill. We recommend that the town contact him for information concerning the exact location of the sites.

The archaeological sites cannot be employed for any recreational use by the town. However, they can serve as educational tools for the town's students. Excavations can be conducted to teach children and adults the methods of archaeologists. The artifacts recovered can illustrate how archaeologists make inferences about the past. And, the sites can help reconstruct the history of the town

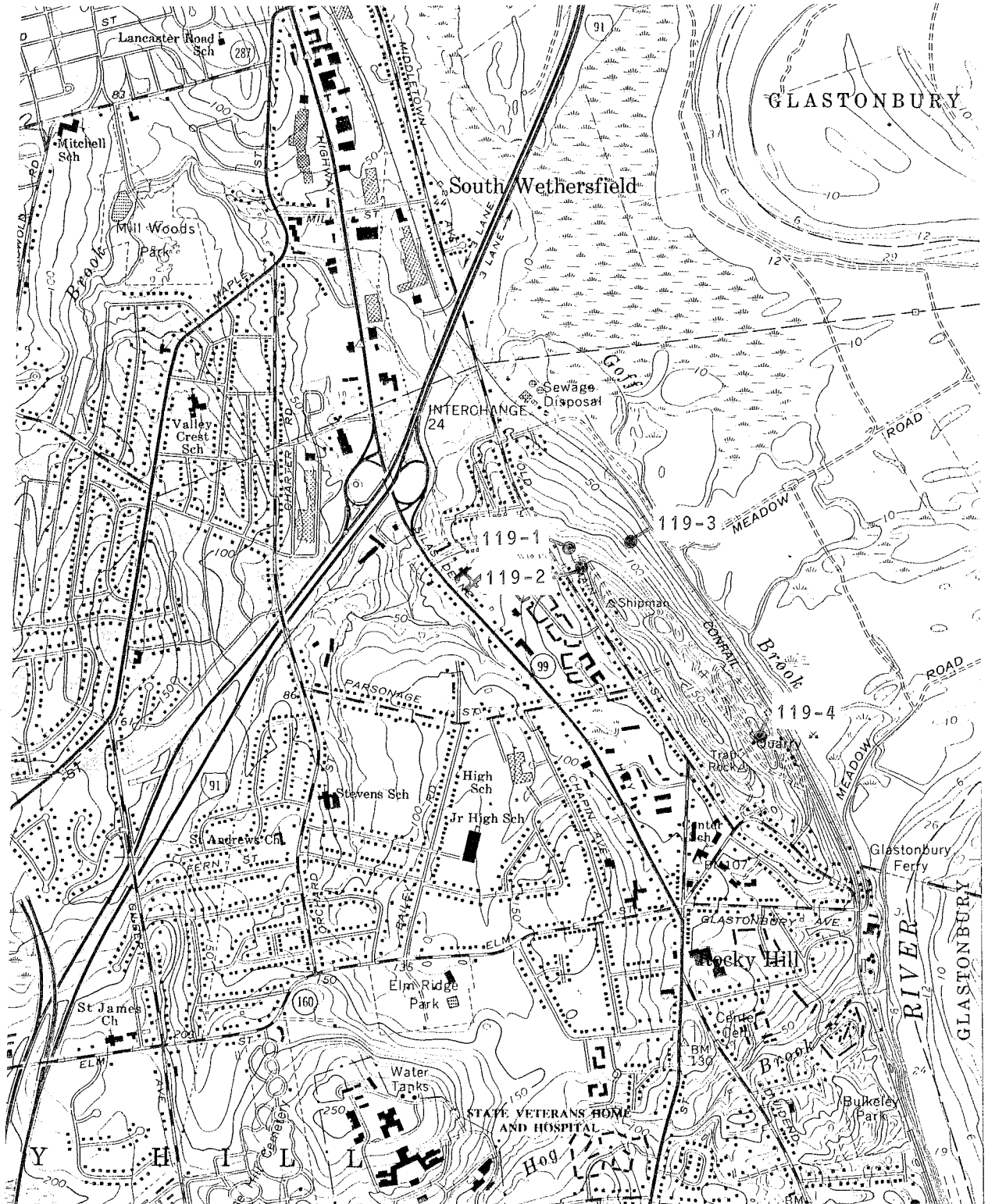
thousands of years before Christ. We suggest that you contact the Albert Morgan Archaeological Society for information on such activities.

The archaeological sites on the property are below-ground resources. They are not visible to people using trails in the area. We suggest that the sites are not advertised with signs at their locations. This might provide information to individuals who may vandalize the sites. However, at the main access point, the town may want to provide the public with information concerning the significance of the prehistoric sites, as long as specific locations are not given. This would promote an awareness of the archaeological resources without threatening them from undesirable excavations. In addition, the town can work with the Office of State Archaeology and the Connecticut Historical Commission to create an archaeological preserve at the quarry site. This would provide protection for the sites from anyone wishing to destroy them.

In summary, the quarry property contains four documented archaeological sites, three of which are eligible for the National Register of Historic Places. These sites would be protected by the town as an important cultural resource. Passive recreational purposes should have no impact on these sites. However, the placement of the proposed parking lot and access roads should avoid these areas if possible. Any areas that must be disturbed should have archaeological excavations conducted to recover information that would be lost due to landscaping. While these prehistoric sites offer no recreational use, they can serve as important educational sources for the community. We suggest that the town contact Mr. David Cooke of the Albert Morgan Archaeological Society for further information concerning these sites and possible excavations in the future. The Office of State Archaeology looks forward to working with the Town of Rocky Hill in preserving the cultural resources of the project area.

ARCHAEOLOGICAL SITES

SCALE 1" = 1000'



10. STATE PARK PLANNER COMMENTS

As our field inspection indicated, the property is largely a mined-out traprock quarry which nature is beginning to mask with pioneering vegetation. As such, it has severe reuse limitations without major expenditure. Because such investment is unlikely as well as unnecessary, a use plan should be based upon its existing condition.

In the opinion of the Team State Park Planner, the major function of this property is to protect the eastern flank of the historic village along Old Main Street and Riverview Drive, threatened by previous intensive development proposals. In addition, it also provides open space in an increasingly urbanized area, striking vistas, and some equally striking man-made cliffs.

Therefore management actions should be limited to:

Development of one or at most two public access points, the major one at least being off Old Main Street. These should involve a small parking lot for probably no more than 10 cars.

Gating of all accessways to prevent vehicular access to the site and especially further dumping.

Development of a system of trails, basically following existing rights-of-way/roadways and possibly including some interpretive signs.

Removal of existing trash and remains of former quarrying operation.

Acquisition of additional land or easements to permit an interesting cliff walk along at least part of the ridgecrest. (Fencing at cliff locations is not recommended because of liability problems when fencing proves to be inadequate and because of landowner protection provided by Sec 52-557f to 52557i inclusive of the CT General Statutes).

Protection of the archeological site/sites by not publicizing their existence and keeping trails located away from them.

Consideration of some tree planting to increase biotic diversity and attractiveness in the quarry proper and to speed up nature's reclamation of the site.

Maintenance of the status quo in the undisturbed, forested northern part of the property.

Determination of legal status of access via Esther Road.

In addition, the Town of Rocky Hill should consider acquiring the reportedly tax-delinquent former landfill site to provide a physical linkage between the Quarry and Ferry Park.

11. REGIONAL PLANNING REVIEW

The 80-acre former quarry site in Rocky Hill is a valuable addition to the town's open space. Currently, only 6.6.% of the land in the Capitol Region is publicly owned open space. DEP's ownership of land within the Region is 4.2%, which is below the state average.

Because of a previous quarrying operation on the site, now abandoned, at least one access road leads into the site and several wide trails already exist on the property. Parking could be developed at this access road keeping in mind that size and space of the parking facilities vary according to the uses allowed on the site. For example, busses and horse trailers need more space for loading and turnaround than do passenger vehicles.

"Development" of the site for a combination of passive and active recreation uses could offer the town's citizens an inexhaustible list of activities. Inasmuch as is possible, the site's natural beauty should be retained. The mass removal of trees and other plant material should be avoided. Scenic vistas already existing should not be disturbed, but enhanced. The public could be directed to areas to observe these sights. Signs could be posted identifying points of interest.

The excavating activity has left a large, level, fairly open area located centrally on the property with the traprock ridge providing a scenic backdrop to it. The area is suitable for picnicking and other compatible open space uses.

The site lends itself well to a series of trails for hiking, walking, backpacking, bicycling, cross-country skiing, and horseback riding. According to recreation resources, "any reasonably level stretch of land covering 1/2 mile or more can be viewed as a potential trail site." Abutting the property and running adjacent to Goff Brook and the Connecticut River floodplains, the Conrail rail bed now lies dormant. While commuter service may be restored at some future date, leasing or some other use arrangement could be sought to provide for additional trail development along the rail line.

The ecological diversity of the site provides for excellent educational opportunities. The abandoned quarry operation, the view of the Capitol City from the ridge and the settlement of Rocky Hill along the Connecticut River are resources for cultural interpretive services. The wooded areas, the small pond, the wetlands and open space and the habitats which they provide are resources for natural interpretive services. In addition to the educational enhancement and environmental appreciation values the interpretive services provide, they have the additional asset of being quiet, compatible use to the adjacent residential areas.

Exposed cliffs should remain, while the danger to the public could be minimized with a series of installed wooden planks with protective rails overlooking the cliffs. Steps could be built on gentler slopes to connect one area with another. The views from the ridge may still be enjoyed and the public is protected from falling down a steep slope with an aesthetically pleasing barrier feature in place. Daytime use only is recommended for this site, as the cliffs and rocky terrain found in some areas could become hazardous after dusk.

Uses adjacent to the parcel may be connected by the development of trails. This may apply to a possible interconnection with Ferry Park in the future. Presently, the site may have more value as a buffer, not a connector, between adjacent uses and the wetland/floodplain area of the river.

Activities selected for the site should benefit many types of users.

For example, young, old, and handicapped individuals as well as novice and experienced sportsmen. Furthermore, uses should be compatible: hunting should not be competing with hiking in the same season or in the same general area.

Use Ratios

Hikers and horseback riders should be spaced 254' apart or 20 persons per mile of trail.

Bicyclists should be spaced 134' apart on the trail or about 39 persons per square mile.

For multi-use trails, allow 25 miles per 50,000 population of service area, according to the Bureau of Outdoor Recreation.

The following is a list of recreation activities and uses which are in demand in the Capitol Region, according to a DEP study:

hiking	cross country skiing
walking	interpretive services
bicycling	rock climbing
bird watching	hunting
ice skating	playgrounds
exercise trails	snow shoeing
photography	horseback riding
archery	dirt bike riding
kite flying	frisbee
picnicking	yard games
jogging	sleigh riding

Standards for camping, picnicking, riding and hiking are found in Appendix C.

The following sources were consulted in preparing review comments for this site:

"Planning for Urban Trails", American Society of Planning Officials, Dec. 1969.

Connecticut Statewide Comprehensive Outdoor Recreation Plan,

1987-1992 (SCORP), Connecticut Department of Environmental Protection.

APPENDIX A

The Quarry in Rocky Hill

THE QUARRY IN ROCKY HILL, CONNECTICUT

By Grace Lowell

The great trap rock quarry in Rocky Hill was cut out of the rise which gave its name to the town. Lying west of the railroad tracks and east of Old Main Street, the quarry was worked from the late 1800's to the middle of the present century. The length of the quarry is about half a mile, but its width is fairly small as it is cut into the east side of the hill. The quarry floor is on several levels, and the highest rock face near the north end is about 60 feet high. Trap rock, or basalt, is used extensively in concrete and road construction.

The following is taken from "The New Haven Trap Rock Company", a pamphlet written by Ray J. Reigeluth, Chairman of the Board of The New Haven Trap Rock Company, New Haven - 1962.

"The name Trap Rock comes from the German word Teppen, or steps, which quarrymen in Europe gave these rocks because the quarry faces break into step-like blocks. From a geological point of view it might very properly be said that our business was founded some 200 million years ago when the Connecticut countryside was populated largely by dinosaurs. It was in this period that New England was shaken with a series of violent volcanic upheavals. These volcanic rumblings, in combination with the savage doings of the dinosaurs, were the chaotic world in which our Trap Rock ledges were formed."

And now we have in Rocky Hill the greatest known number of dinosaur tracks in one place in the world.

In the late 1800's, we find mention of the Rocky Hill Stone Company with a quarry at Rocky Hill. This Company, along with five other quarries in the state, merged in 1900 to form The Connecticut Trap Rock Company.

The Rocky Hill Town records of 1901 indicate that the James H. Cooke Company, with office and place of business in the town of Plainville, had its name changed to the Rocky Hill Stone Company by order of the Superior Court of Hartford County February 8, 1901 and that it owned the following described real estate in Rocky Hill:

"1. one certain piece of land containing three acres more or less bounded North on other land herein conveyed, East by the Highway, South by land of C. P. Roberts and West on land of the N. Y. N. H. & Hartford Railroad Co.

"2. one other piece of land containing two acres more or less bounded North on land formerly of Geo. W. Morton, East by Beaver Brook and highway partly by each, South by other land of said grantor, and West on land of N. Y. N. H. & Htfd RR Co.

"3. also one piece of land containing four acres more or less bounded North on land formerly of Lyman Hollister, East by land of heirs of Henry Webb deceased, South by the Connecticut river and West by the highway.

"4. also one other piece of land containing three acres more or less bounded North on land now or formerly of Nancy Pelton, East on highway, South on land of Mary Ledwith and West on land of the N. Y. N.H. & Htfd Railroad Co.

"5. also one other piece containing three acres more or less bounded Northerly by highway, Easterly by land of Charles Stanley, Southerly by Connecticut river, Westerly by land of said grantor.

"6. also one other piece of land containing five acres more or less bounded North on land of Lavinia Bayard, East on land of N. Y. N.H. & Htfd. R.R. Co., South on land of grantor and West on land of George H. Bugby and land of heirs of Austin Standish and on other land of said grantor.

"7. also one other piece of land containing five acres more or less bounded North on land now or formerly of estate of Samuel Shipman, East by land of the N. Y. N.H. & Htfd R.R. Co. and by highway, South by land of E.B. Wright and West by land of Lewis Whitmore and others

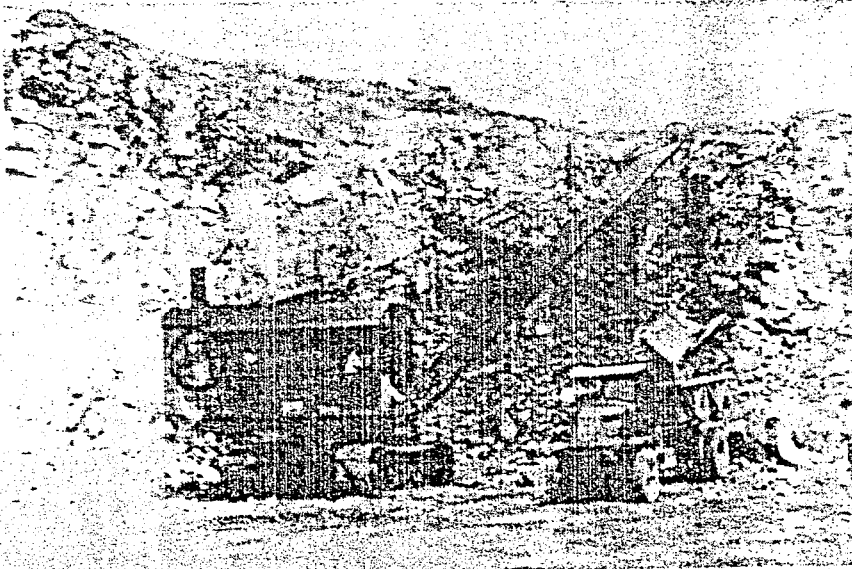
"8. also one other piece of land containing fifteen acres more or less bounded North on land of Margaret Brown, East on land of N. Y. N.H. & H RR Co., South on other land of said grantor and West on lands of B.H. Arnold, T. Gilbert, said grantor and A. J. Shipman part on each being the same lands conveyed to said grantor under name of the James H. Cooke Company in deed from James H. Cooke dated April 3d 1899 and recorded in said town of Rocky Hill Land Records in Misc. Book Vol 3, page 1-2."

Mr. William Quinn started work at the Quarry in 1907 - at that time Mr. William Manchester was superintendent - later Mr. Quinn became superintendent. Mr. Quinn gave the following information:

In 1907 Mr. Quinn had charge of stripping (cleaning off top of ledge) done by hand - two dump carts and seven men. The purpose of stripping was to make it possible to drill (two or three feet of dirt in places). This was done approximately for seven or eight years. It was then done by steam shovel and bulldozers.

Drilling and blasting were done with the aid of steam drills and the pipe was laid from the plant to the top of the quarry. (Sidney Lusson, a Rocky Hill man married to Stella Kelley, was engineer.) On account of the condensation of steam the method was changed to air drills.

The Company air compressor with the air drill was used to drill back from the ledge (10-12 feet) from the face. Holes were spaced eight or ten feet apart, drilled to a depth of twenty-two feet. The holes were loaded with $\frac{3}{4}$ of a stick of dynamite and electric caps inserted, hooked up in a series of about thirty holes. After the top blast was fired and cleaned up a toe was left which had to be drilled and blasted to keep the quarry floor on a level. Because of the height of the ledge it required two blasts at one time. These were fired with a blasting battery to the end of the quarry operation.



QUARRY FACE
STEAM SHOVEL
LOADING TRUCK
1914

Foreman Fousta Rigoletti was hurt repairing the crusher, changing the eccentric. He lost an arm and three fingers on his left hand. Dr. Oran Moser was sent for; he had hired a horse and covered wagon from Mr. Ed Wright and the Doctor took Mr. Rigoletti to the hospital. Mr. Quinn followed with the Doctor's horse to bring the Doctor home.

Some other workers through the years were Tony DeMarko, Edward Sullivan, Rip Rap plant; Same Sylvester and Carman Sylvester, Drilling and Blasting; Fred Tolli, Railroad car loader; Sid Lussen, Plant Engineer; Lewis Shamback, Plant Engineer; Charlie Yeager, Office; Warren Pomeroy and Harry Martin, Shovel Operators; James Vinchetti, John Marino, Dominic DeNunzio, Joe Caruso, Tony Caruso, Charles Vavaci, Charles Pawlich. Forty-five men were employed at a time.

In the early years the workmen went by numbers but after a time they were called by name. Twenty-one men loaded quarry cars - seven crews, three men to a car. By piece work twenty-two and one half tons was a day's work for which the pay was \$1.75 a day. For extra tonnage (over 22½) six cents a ton was paid.

The men used to push cars by hand to scales to be weighed. Later the Company bought a mule to snake cars out with. Later still the method was changed to Plymouth locomotives which Tenny Covey operated.

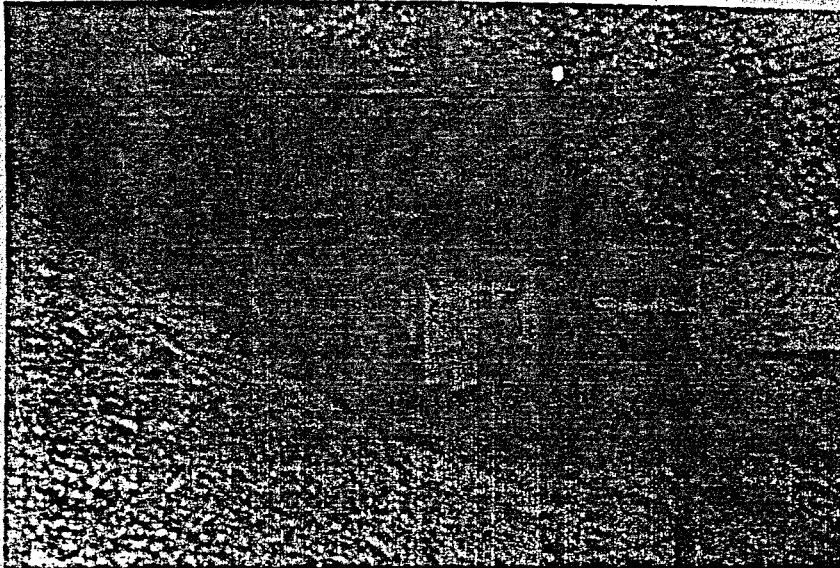
Mr. Quinn laid out all the tracks and switches until 1914. They were then taken up and the quarry was equipped with steam shovel and two large quarry trucks.

Mr. Quinn also put up a jaw crusher 36 x 42", which dumped crushed stone (large size) into a storage bin. From this bin - opening in bottom into a car, rock taken into a #6 crusher. Ran down by gravity and pulled back by cable, elevated to top of plant to screening room, emptied into a revolving screen and dropped into separate bins. Screenings - dust, ¾", 1", 2" - new screens added for 1/2". Four hundred tons a day while operating by hand, and after shovels were added there were one thousand tons a day.

There were two spur tracks off the Valley Railroad and at 11 A.M. each day, six days a week, the spur became the storage space for empty freight cars, ten or twelve cars at a time. The early cars carried 32 tons per car (Pratt side-board cars). The later low-side Pa. cars carried 72 tons per car.

The Company purchased a right of way from Freeburgh (now Esther Road, so named in 1922) and could then ship by trucks as well as by rail. Shipments went to Massachusetts (Cape Cod), New York state, Connecticut, etc.

Some of the work done with stone from this quarry: the rip rap plant at the first level furnished all stone for facing the river side of the dikes around Hartford (large rock, one-foot squares, etc.); a ready-mix concrete plant later erected; furnished all the concrete for the Veteran's Home & Hospital.



LOADING TRUCK
WITH RIP RAP
PILE IN BACK

In the earlier years most of the workers lived around the quarry, cooking on outside fireplaces and living in shanties and commissary. At this time most of the men were single. Supplies from a commissary, operated by Tony DeMarko, could be purchased by the men.

From New Haven Trap Rock Company office - "during the period of 1925 and 1944 we sold over a million and a half tons from this Quarry."

The New Haven Trap Rock Company bought this Quarry on March 28, 1935 (copy of certificate of merger in Historical Society files).

Mr. William Quinn retired in 1957. During the many years he was there, on a Sunday afternoon he would go over to see that everything was as it should be.

APPENDIX B
Recreation Trails

Recreation Trails

I. TRAIL LOCATION:

1. General Layout - Design trails around trees and large boulders. A curbed trail is much more interesting than a straight one. It saves trees too.
2. Marking the Route - Mark trails in the spring or fall when leaves are off. Tie red flagging securely to living trees along the trail centerline. (Space flags every 100 feet.)
3. Trail Slope - We suggest that you follow the recommendations below when laying out the slope of the trail:



- 0-4% slopes-recommended for most recreation trails where possible.
 - 5-8% slopes- limit sections of trail on these slopes to no more than 500'.
 - 9-15% slopes- if it is necessary to run sections of trail on these slopes, limit to distances under 200'.
 - 16% or greater- steps and handrails suggested.
- (A 5% slope indicates that the trail rises 5' for every 100' in distance traveled.)

II. TRAIL CLEARING

1. We suggest spring or early fall for trail clearing.
2. Clear brush at ground level, 2 feet on each side of trail centerline. Clear overhead branches to well above head level (8'). Cut branches off flush with main stem.
3. Use a herbicide on cut stems on ground the same day to help prevent sprouting. Contact the Hartford County Extension Service for recommendations.
4. Stack cut brush in piles 3 feet high and 5 - 7 feet square some distance back from the trail. These will serve as wildlife cover.

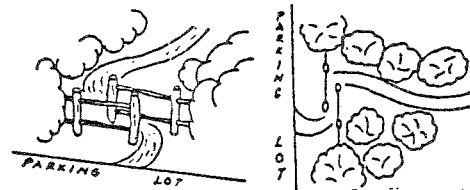
III. TRAIL SURFACE

1. Remove stones from trail surface.
2. Where steep slopes are encountered or where small watercourses intersect the trail, we suggest that you consult the APPALACHIAN MOUNTAIN CLUB'S TRAIL BUILDING AND MAINTENANCE GUIDE. This book explains soil erosion control practices for trails.
3. The following table lists materials for the trail surface.-

SOIL CONDITIONS	NATURAL SOIL GROUPS	SUGGESTIONS FOR TRAIL SURFACE
<u>DRY SOILS</u> - Loamy, well drained soils	A1a, A1b, A1c, A1d, A1e, B1a, B1b, B1c, B1d, B1e, C1a, C1b, C1c, C1d, C1e, D1, D2, E1, G1	<u>Low-Moderate Use Trails</u> - Leave Natural Forest Litter <u>Heavy Use Trails or Very Sandy soils</u> - Pave Trail surface with wood chips, pave 3" deep and 30" wide. (5 cu.yds. will cover 200' of trail)
<u>SEASONAL HIGH WATERTABLE</u> - soils with a high watertable Fall - Spring only	A2, B2a, B2b, C2a, C2b	Pave trail surface with wood chips or other porous material. This will allow trail use during the wet seasons of the year. Pave 4" deep and 30" wide.
<u>WETLANDS</u> - Soils with a high water table all year long. No flooding.	A3a, B3a, C3a, G3a	Build small wooden bridges where trail crosses these soil conditions. The AMC Trail Building Guide includes some very good illustrations.
<u>WETLANDS</u> - Soils with a high water table all year long - <u>Subject to Flooding</u>	A3b, B3b, C3b, E3a, E3b, F1, F2, G3b	Elevated wooden bridges will be necessary to prevent wood from floating away when water rises. Up rights should be driven into the soil down to a solid base. These require special designs

IV. TRAIL MAINTENANCE:

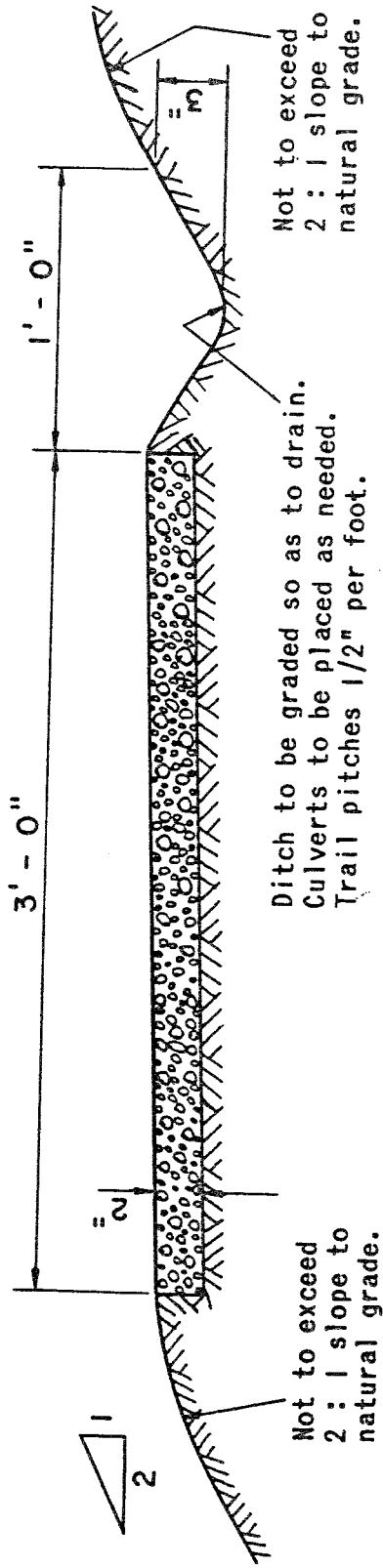
1. All branches within the trail walkway should be pruned annually. May suggested.
2. Place new woodchips on trail where trail shows signs of wear.
3. Check wooden walkways for damage and safety.
4. Identify and correct all soil erosion problems promptly.
5. If trail shows signs of use by motorcycles, etc., they can be excluded by using simple gates. See diagram at right.



REFERENCE: We suggest the use of the APPALACHIAN MOUNTAIN CLUB'S TRAIL BUILDING AND MAINTENANCE GUIDE. This guide book has very good illustrations for trail signs and markers and erosion control practices. It is available at most camping supply stores.

NOTE: Unsuitable material should be excavated and the trail filled with aggregate not exceeding 1" in diameter. Depth of filled aggregate may vary from 0" to 6" according to the soil and its trafficability. In very wet areas artificial walkways or raised embankments may be needed.

Width of trail may be increased in accord with traffic load.



Not to exceed
2 : 1 slope to
natural grade.

Ditch to be graded so as to drain.
Culverts to be placed as needed.
Trail pitches 1/2" per foot.

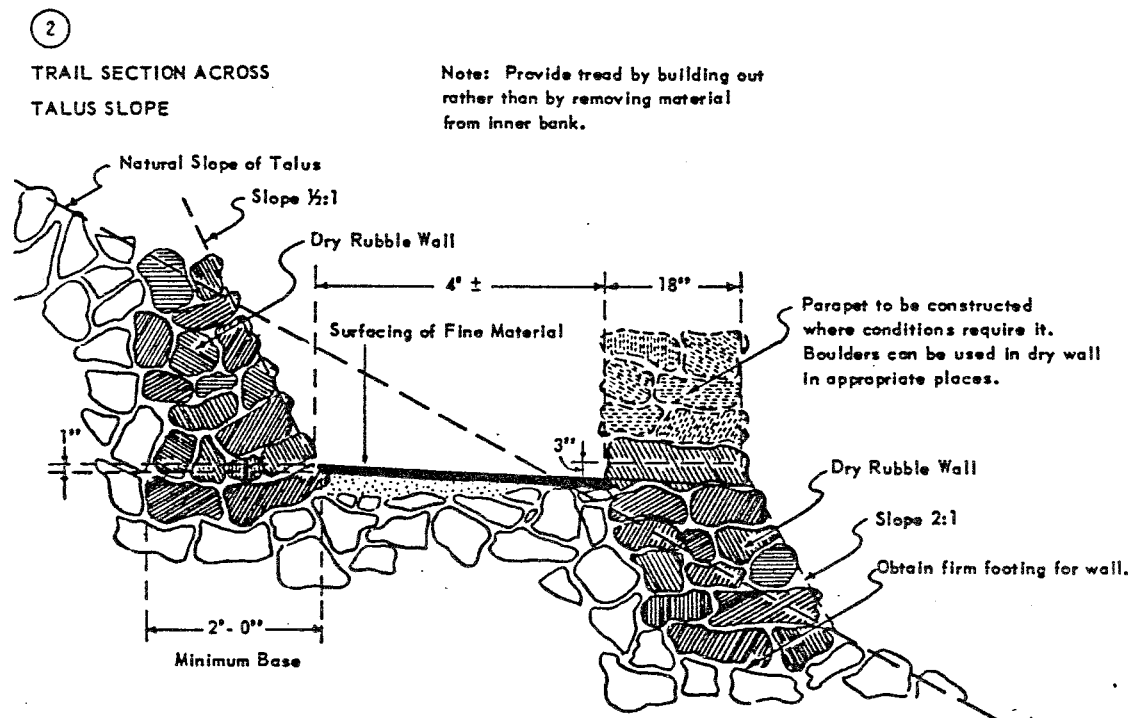
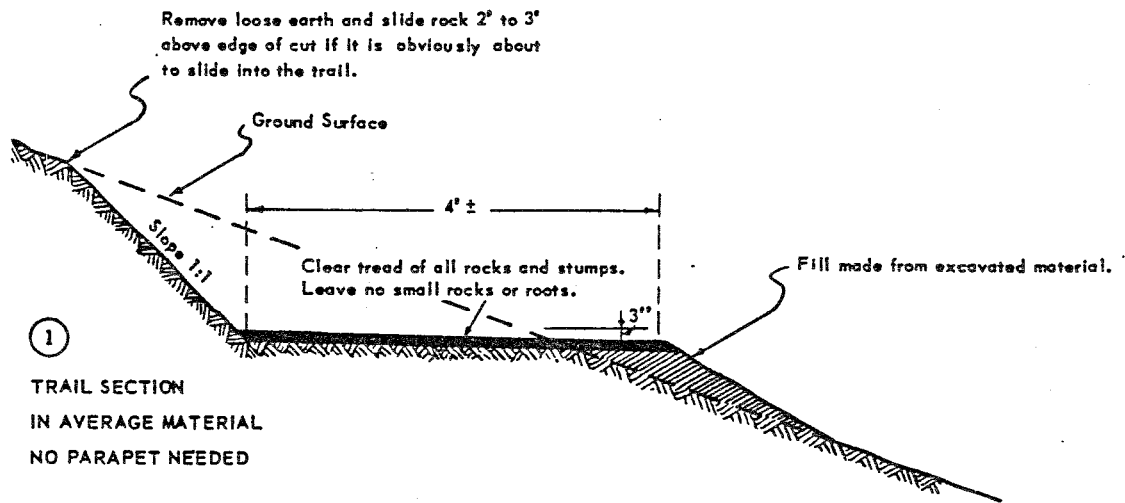
Not to exceed
2 : 1 slope to
natural grade.

SCS-REC-110 3-71	U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE
TYPICAL TRAIL SECTION	
FROM ORIGINAL DESIGN BY NEVADA STATE PARK SYSTEM	

The trail will normally be 4'-0" wide. This tread width is neither a maximum nor minimum, however, and should not be construed to be a standard to strive for. The width will vary according to the locality, terrain, and the amount and type of use a trail will receive. Heavily used trails and those which may be used periodically for maintenance and emergency vehicles may be considerably wider than four feet. Trails intended for foot travel only and back country or wilderness trails may be less than this. Care should be exercised in the determination of the width and alignment.

The slope of the cut will vary according to the hardness of the ground on which the trail is constructed. Any part or all of the width may be carried on a wall built of large stones, the supporting ground being benched as necessary to afford a stable foundation.

When necessary to retain material on steep slopes, a dry random rubble wall may be built along the down-hill side of the trail. When crossing talus slopes, it may also be necessary to construct a suitable dry random rubble wall on the up hill side to retain slide material above the trail. Surface of trail on talus slopes should be covered with dirt or other material.



UNITED STATES DEPARTMENT OF THE INTERIOR, NATIONAL PARK SERVICE		TRAIL CONSTRUCTION	
<i>The Park Practice Program</i>		Contributed by	
NATIONAL CONFERENCE ON STATE PARKS	AMERICAN INSTITUTE OF PARK EXECUTIVES	NATIONAL PARK SERVICE	
DATE November 1963	PLATE 339 B	U.S. Department of the Interior	
INDEX B-3105	CONTROL S-0831-B		

APPENDIX C

Planning Advisory Service Report

where courses are crowded, it will absorb the overflow of play. While the short course owes much of its rapid growth in popularity to the great demand for golf facilities and the inability of an accelerating golf course development program to catch up with this demand, the par-3 course is carving out a place of its own by virtue of its special appeal.

The average par-3 course of nine holes will require from 45 minutes to one hour to play a full round.¹⁹ This fact attracts many working golfers, particularly during the week when they cannot spare the three to four hours required to play a regulation nine-hole course.

A par-3 nine-hole course can be built on as little as five acres. However, some of the larger installations will have 18 holes distributed over as much as 60 acres. While five acres is adequate for a very short nine-hole course, it is wise to buy additional land to provide for expansion.²⁰ In estimating the area required, space for adequate parking, clubhouse facilities if desired, and shelter for maintenance equipment and tools should be provided.

Table 12 shows some possible yardage combinations for nine-hole par-3 courses with total yardages of 450, 900, and 1,350 yards. (The National Golf Foundation is the clearing house for information on golf activities and facilities. Several of the National Golf Foundation publications, listed in the bibliography, have been extremely useful in putting this section of the report together.)

Camp Sites

Standards for four types of camping activities have been suggested in California's Recreation Plan, Part II:

Type - en-route
Development - 10 units per acre
Parking - one car space and space for trailer per unit

Type - organizational
Development - five acres developed with permanent facilities and structures for eating and sleeping to accommodate 100 persons
Parking - minimum 50 spaces

Type - group
Development - five acres with sanitary and basic cooking facilities and open space for bedding or tents sufficient to accommodate not more than 50 persons for short periods of time
Parking - minimum of 25 cars

Type - family with tent or trailer
Development - four units per acre (unit consists of table, cooking facilities, space for tent or bedding and screening)
Parking - one car space for every unit

Some site development standards for camping were suggested at the American Society of Planning Officials Annual Conference in Minneapolis, Minnesota.²¹ Camping and picnicking units should be at least 100 feet apart to preserve the forest cover and to provide privacy. A camping unit should consist of a platform or area for pitching a tent; tables and benches; and nearby water supply, cooking, and sanitary facilities. Areas should be easily accessible to roads or trails. The terrain in site areas preferably should have a 10 per cent slope, but should not exceed 20 per cent. Recommended also is the adoption of four persons per unit as the average capacity for all types of facilities. Minimum, maximum, and optimum density standards can be applied to camp and picnic units. At a capacity of four persons per unit, these units should be spaced no closer than 100 feet apart of five per acre in staggered arrangements in the forest areas, and in more intensive areas no closer than 50 feet apart, or 10 units per acre.

Scattered camp development is undesirable from the standpoint of aesthetics, economics in construction, and maintenance and administration. Scattered development hampers good forest and land management practices. Consequently, cluster standards have been devised to cover each camping recreation facility, based on construction economics and administration, and on the necessity for protecting the recreation resources by providing for large open areas between clusters. The camp and picnic clusters should be planned for a minimum of 25 and a maximum of 50 units per cluster (see Figure 4 for cluster recreational facility for year 2050.) The area of the site should be at least five and no more than 10 acres for each cluster. Design considerations, of course, must be related to topography and cover and standards may have to be modified in certain instances.

Picnic Sites

Picnicking facilities should be developed so that there is a proper balance among the three major types of facilities: those within communities, those outside the communities (beyond the metropolitan fringe), and those along highways. The family picnic unit should consist of a table and benches with nearby water supply, cooking, and sanitary facilities. Auto parking space and proper access are additional requirements.

Within the city, people will travel an average distance of five miles from home to a picnic area. Picnic areas located within the community should have no more than 16 picnic units per acre, with each unit accommodating not more than eight persons.

For large groups, the same type of facilities are needed, but less space is allotted to each picnicker. For an organized group picnic area within the city, 200 persons per acre is desirable. It is also recommended that an additional one-third acre for each group area be provided to accommodate 50 cars.

In picnic areas located on the fringe of the city somewhat different standards have been suggested. Here, eight units per acre is the recommended standard with one parking space provided for each unit.

For wayside rests, along major highways, units should be planned at a maximum

density of 16 units to the acre, with no fewer than four units at a single location.²²

Riding and Hiking Areas

General guidelines for riding and hiking trails have been suggested in the California report:²³

Type - hikes of one day or less
Development - well defined and maintained trail, up to ten feet in width, grades not to exceed five per cent average with a maximum of 15 per cent.

Parking - minimum parking for 25 cars at any one access point. On short scenic, well known trails, the parking area might be expanded to 100 automobile parking spaces.

Type - overnight hikes
Development - well defined trail with average grades of five per cent and none to exceed 15 per cent. Three to five acre overnight trail camping areas should be provided at intervals of about five hours hiking time.

Parking - minimum for 10 automobiles at any access point.

Additional hiking standards prepared by the Los Angeles Regional Planning Commission²⁴ recommend that trail stops be located six to 15 miles apart, that pathways be a minimum of six feet in width, and that trails be a minimum length of six to 12 miles.

The California report also suggests standards for horseback riding:²⁵

Type - rides of one day or less
Development - well graded wide tracks with interconnecting loop trails and numerous access points. Average grade should be five per cent and not exceed 15 per cent.
Parking - a minimum space for 10 cars and stock trailers and a loading ramp or platform.

Heavily used trails may need up to 80 spaces for cars and trailers. Adequate holding stalls, hitching racks, and water are of utmost importance.

Type - extended trips
Development - the same as the one day or less rides with the stationing of overnight trail areas 12 to 15 miles apart, with the minimum size for these areas being three to five acres. Ample space should be allowed around development to allow for a buffer zone. If possible, water should be available every six miles.
Parking - the assembly areas or jump off points should be large enough to park vehicles and stock trailers. If the assembly area is also the base camp facility, it should be a minimum of 20 acres with the necessary basic facilities such as water and toilets.

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, soil specialists, engineers and planners. The ERT operates with state funding under the supervision of the Eastern Connecticut Resource Conservation and Development (RC&D) Area --- an 86 town region.

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

PURPOSE OF THE TEAM

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

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

REQUESTING A REVIEW

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

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