EASTERN CONNECTICUT

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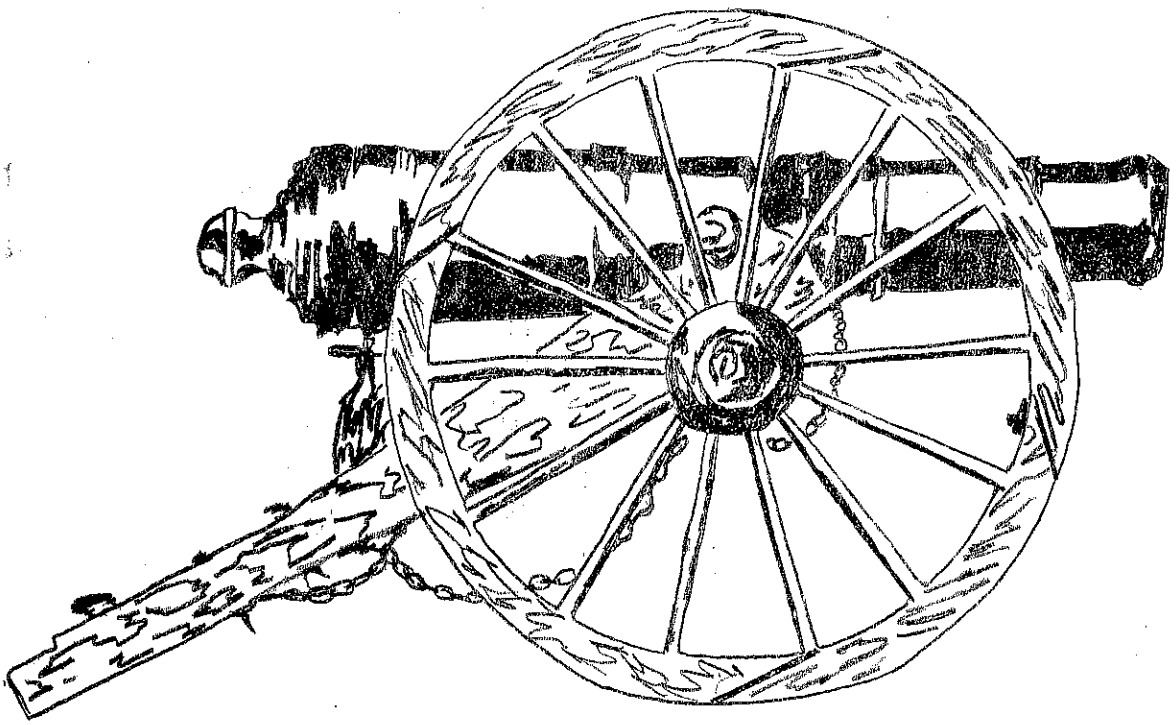
MEASURE PLAN

ENVIRONMENTAL REVIEW TEAM REPORT

FOR

JOSEPH GLASSER PROPERTY



RESOURCE CONSERVATION & DEVELOPMENT PROJECT

Assisted by:
UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service

ENVIRONMENTAL REVIEW TEAM REPORT

FOR

JOSEPH GLASSER PROPERTY

Mansfield, Connecticut

INTRODUCTION

This report is the outgrowth of a request from Joseph Glasser to the Tolland County Soil and Water Conservation District. The District Board of Supervisors approved the request and referred it to the Eastern Connecticut Resource Conservation and Development Project for their consideration and approval as a project measure. The request was approved by the RC&D Project Committee.

The request was for an environmental review of a property of 70 acres, more or less, located beyond Elsie Drive east of Codfish Falls Road in the Town of Mansfield. Mr. Glasser is planning a subdivision in which the construction of a 10 to 11 acre pond would be an integral part. The proposal would extend Elsie Drive around the pond site. A maximum of 27 houses on two-acre lots along the drive would be served by on-site water supply and septic systems.

An Environmental Review Team was designated by the RC&D Project to review the proposed subdivision and present their comments to Mr. Glasser. The team was made up of personnel representing the following technical fields:

Team Coordinator - L. Small, Soil Conservation Service
Environmentalist - D. Miller, University of Connecticut
Geologist - R. Hyde, Department of Environmental Protection
Environmental Analyst - D. Meade, Department of Environmental Protection
Forester - H. Hurlock, Department of Environmental Protection
Fish Biologist - J. Piza, Department of Environmental Protection
Wildlife Biologist - E. Golden, Department of Environmental Protection
Community Planner - L. Barber, Windham Planning Region
Landscape Architect - R. Favretti, Cooperative Extension Service
Natural Resource Analyst - J. Hester, Northeastern Connecticut Planning Region
Soil Scientist - D. Hutchison, Soil Conservation Service
Engineering Specialist - D. Southwick, Soil Conservation Service
Soil Conservationist - D. Summers, Soil Conservation Service
Sanitarian - F. Grosso, Connecticut State Department of Health

The team met with Mr. Glasser to review plans and to study the property on the afternoon of February 1, 1973. Reports from team members

were sent to the Team Coordinator for review and summarization.

Soils of the property has been mapped by the USDA - Soil Conservation Service. Reproductions were made of the soil survey covering the property as shown in the Soil Survey for Tolland County, Connecticut. Natural soil groups were identified, described, and their proportional extent and limitations for urban uses shown. This information was forwarded to all members of the Review Team prior to their review of the site.

This report identifies the existing resource base and evaluates its significance to the proposed development and also suggest considerations that should be of concern to the Town of Mansfield. The results of this team action are oriented toward the development of a better environmental quality and the long-term economics of land use.

The Eastern Connecticut RC&D Committee hopes you will find the information contained in this report of value and assistance in making your decisions on this property.

If you desire additional information, please contact:

Tolland County Soil and Water Conservation District
Agricultural Center
Rockville, Connecticut 06066

Phone: 875-3881

CONCLUSIONS

From an aesthetic point of view, the development of this property has a good potential. It has a varied topography and an interesting association of plants. Fishers Brook enhances the property. The attractiveness of the property offers opportunity for imaginative settings of individual homes. However, factors other than minimum adherence to the required lot frontage in zoning regulations should determine the sites and setting of individual houses. Any other technique would likely destroy much of the variable character which is the principal attraction of the property. Development of the property should be planned with extreme care in order to preserve as many of the natural features as possible (tree groupings, the brook, rocks and ledges, topography.) Adequate protection of the natural resources imposes limitations for development, density, and specific site design.

In contrast to a mechanical type of layout, a system whereby lot arrangement would be in relation to desirable building sites would be more appropriate. The benefits to be derived from the conservation and preservation of the natural environment would be better utilized and more fully assured. Fewer houses located on the choice building sites would preserve environmental qualities of the property.

Careful preconstruction planning should consider the problem of well pollution from on-site septic system waste disposal. The density of housing sites and the placement of house, well, and septic system on each site must be carefully considered during the preliminary phase of planning the layout. Special attention should be given to the soil survey report. Slope of the land, soils and bedrock geology of the property and area are complex and offer some limitations for on-site sewage disposal. The excavation of deep soil test pits in the spring are needed and will help to assess subsoil conditions for this purpose. The poorly and very poorly drained "Pk" and "Lg" soils should have no houses, wells or septic systems placed within them.

Soil erosion and sedimentaiton are problems to be guarded against both during and after construction. Minimize disturbing natural vegetation as much as possible during construction. Avoid road or house construction on steep slopes. Stabilize, revegetate and mulch construction areas as soon as possible following construction.

A major consideration is the use of the brook valley and large swamp area in the center of the property. The construction of a pond here would destroy some of the natural features thereby offsetting visual and environmental rewards derived from the same. The larger the pond, the greater the cost and the greater the loss of natural

features.

On the other hand, a properly constructed pond located on the property would offer some water oriented recreational advantages. If a pond is built, a small by-pass type of pond would be less damaging to existing natural resources.

An alternate use of the wetland area would be to allow natural growth to take over and the area revert back to a wooded swamp. A program of wildlife habitat improvement and wildlife management could be an asset to the subdivision.

GENERAL RESOURCE INFORMATION INVENTORY

Soil and Geology

The property is located in an area of upland glacial till. It is divided north-south by Fishers Brook. Very poorly drained organic muck and water-sorted deposits are common in the lowland valley along the brook. These deposits, left by meltwater streams are mostly silt, sand and gravel with some clay. The organic muck deposits were formed since glaciation.

Upland glacial till soils bordering the brook valley varies from rolling-hilly to steep. The upland friable fine sandy loam soils are very stony bouldery, mostly well drained but include some poorly and very poorly drained areas. The glacial till soil east of Fishers Brook are shallow to bedrock with some bedrock outcrops. On a preliminary basis, the bedrock underlying the region has been mapped as a rusty weathering mica schist with local high concentrations of iron and manganese. Structurally, the rock is highly fractured in several directions. The fracture zones are thought to extend at least into the top 200 to 300 feet of rock. Observation of two small outcrops showed a fractured mica shist alternating in thin bands with a biotite gneiss. At the surface there were no rust stains.

Included in the Appendix is a soils survey map of the property and a table showing the proportional extent of soils and their limitations for certain land uses. The soils are classified by natural soil groups and a description of each natural soil group is included.

Vegetation

Woodland on the upland till soils is an uneven aged stand of mixed hardwoods including some trees of saw log size. Sometime in the past, trees were logged from the area. The quality of the site for upland hardwoods is rated medium to good.

About ten acres of poorly and very poorly drained soils in the valley along the brook was cleared of trees and brush in 1971. Sprout growth is now developing at a fast rate. In general, the property contains an interesting association of woody, perennial and herbaceous plant life.

Watershed and Hydrology

The entire property is located within the Fishers Brook Watershed. The watershed area at a proposed dam site midway of the property is approximately 610 acres. It is about 75 percent woodland. A golf course is proposed on the adjoining property. This would increase storm flow quite considerably. Fishers Brook is a small tributary of Fenton River and leads to a public water supply reservoir for the city of Willimantic.

Of importance to development of the property is consideration of local hydrology. The average annual precipitation for this area is approximately 45 inches. Of this 45 inches, about 7 inches will enter the ground to become part of the groundwater system, 24 inches will be lost back to the atmosphere through evaporation and transpiration, and the remaining 14 inches will run off over the land surface. Variations of these amounts may be considerable depending on climatic factors.

Geology and soil conditions as described earlier in this section influences surface and subsurface hydrology. Where the till is thick and compact the surface is generally poorly drained. Where the till is friable and sandy or local sand deposits exist, the surface is better drained. Surface drainage of Fishers Brook follow the bedrock control of the area even though the rock may not be exposed at the surface. The wetland area along the brook reflects a perched water table conditions on top of compact till or irregular glaciated bedrock surface.

Fish and Wildlife

The wetlands bordering Fishers Brook and the coniferous trees to the east of the property provide winter food and cover to a number of wildlife species. The system has already been affected by the clearing of the swamp.

Fishers Brook is a small tributary to Fenton River, a trout stream which is stocked by the State.

Climatology

Microclimate - The proposed development will not have a significant effect on the microclimate of the area if a maximum amount of the forest vegetation is retained.

Streambelt and Wetlands

Streambelt corridors along perennial watercourses have been delineated for the Town of Mansfield. According to streambelt criteria established by the Soil Conservation Service, the area along Fishers Brook that would normally be included would be the very poorly drained "Pk" peat and muck soils and the "Lg" Leicester, Ridgebury, Whitman. Also included would be 200 feet of the steep sloping "HrC" Hollis soil on the east side of the swamp and 150 feet along both sides of Fishers Brook and the "Pk" soils on the "SxB" moderately well drained Sutton soil.

The streambelt area basically coincides with provisions of Public Act 155 "an act concerning wetlands and watercourses."

Zoning Regulations

The property is located in an ARA-90 zone which requires a minimum 200 feet of lot frontage. Also, in any subdivision the Planning and Zoning Commission might require ten percent dedication of open space.

EVALUATION

1 - Water Supply

No municipal water supplies are available nor are any being planned for the area in the immediate future.

Large families occupying four bedroom houses use large quantities of water for dishwashers, laundry, toilets, bath and other water using facilities. Well yeilds of less than 3 to 5 gallons per minute could be a limiting factor. Quantities of water in five wells inventories on Elise Drive and Codfish Falls Road seem quite sufficient with yields ranging from 4 to 10 gallons per minute and averaging 6 gallons per minute. Depth of wells averaged 270 feet. Well water in this type of area is transmitted by bedrock fractures that intersect the well and is derived from storage in till. Water quality is dependent upon the quality of water infiltrating the till (precipitation, runoff, and artificially introduced substances) and any impurities that may be picked up from the till or bedrock. A possible conflict may exist in the emplacement of both on-site water supply and septic systems. With two-acre lots, dilution of septic effluent by infiltration of natural water will probably be sufficient to assure good quality water. However, due to natural slope and shallow to bedrock conditions utmost care must be taken in placement of wells and septic tanks to (1) avoid breakthrough of effluent to surface and (2) maintain good quality water supply.

Wells should not be located on the poorly and very poorly drained "Lg" and "Pk" soils. The "SxB" soils have a seasonal high water table and should be used with extreme care.

It may be advisable to give consideration to the establishment of a public water supply to serve the development.

2 - Waste Disposal

There is no public sanitary sewage system serving the area nor is any being planned for the immediate future.

Because of geologic and soil conditions very careful consideration must be given to the location and installation of septic systems. Deep soil test pits will be needed where systems are to be located. Soil conditions should be appraised by a qualified soil scientist. This will help to determine the adequacy of soil conditions to avoid

pollution and contamination.

The soil survey indicates that 57 acres, or 71 percent, or the property may have severe to very severe limitations for on-site sewage disposal. Generally there appears to be sufficient unconsolidated material to accomodate emplacement of septic systems. However, areas that potentially may not have sufficient thickness are those immediately surrounding the wetland area and on high slopes having shallow to bedrock conditions. In the latter instances, bedrock conditions may allow effluent to break through and surface.

The property appears to be small for a development-wide irrigation type disposal system. A small central system with a discharge would not appear suitable at this time. However, as a long term consideration a central system or a public (town) sanitary sewerage facility serving this subdivision and other developments would permit a somewhat higher density development. In the meantime it would be advisable to consider larger lots with the sewage disposal systems designed by a professional engineer.

3 - Foundation Development and Graded Conditions

House building sites should be limited to the well drained lesser sloping soils. Buildings should be set well back from the poorly and very poorly drained soils (Pk and Lg soils.) Bedrock, if encountered on the "HrC" Hollis soil, could offer severe limitations for constructing homes with deep basements. In addition to different foundation construction conditions water seepage along bedrock could saturate foundation walls and become the cause of wet basements. With shallow basements considerable fill material would be needed to properly grade around houses and yards.

East of the valley wetland the land slopes upward on a slope of 18 percent or greater. Above the slope is a shelf of lesser sloping ground 150 to 175 feet wide. Assuming a proposed road right-of-way to be 50 feet wide, the distance from road to building 75 feet, and the width of a building 30 feet, a house would not have a very large back yard on gently sloping ground.

Erosion - The most critical period of erosion will occur during and shortly after actual construction of roads and buildings. Disruption and removal of natural vegetation coupled with high slopes will make certain parts of the property extremely vulnerable to erosion during heavy rainfalls. The problem will be magnified during wet seasons when overburden is near saturation level and surface runoff is high.

Runoff erosion and sedimentation problem can be reduced by careful site selection and sound planning before construction of roads,

buildings, and driveways. Some suggestions to reduce severeity of the problem are:

(1) Preservation of natural vegetation, forest and litter wherever possible. Tha smallest practical area of land should be exposed at any one time.
(2) Do construction during dry seasons when surface runoff is minimum.
(3) Divert surface runoff from critical areas by use of temporary ditches or dikes.
(4) Provide for revegetation construction areas and critical areas exposed during construction and well in advance of winter.

4 - Roads and Utilities

Access to property is by extension of Elsie Road. Location of the road on the property should be carefully planned. Design and construction should be in accordance with sound engineering standards. Good foundation material should be used and good surface grading incorporating adequate surface and subsurface drainage system will be required to keep maintenance to a minimum. New road grades should be as gently sloping as possible with provisions made at the time of construction to control erosion and sedimentation. Road grades should not exceed 8 percent. A bridge crossing Fishers Brook should be sufficiently large to eliminate over-topping during peak storm runoff. Preferably, the bridge would be of concrete construction and have sufficient load capacity to allow the passage of heavy equipment before and after construction.

Roads and bridges should be designed to meet town specifications. Remove as little natural vegetation as possible. Clean up and remove construction debris during or as soon as possible following construction. Saw logs and/or other wood cut from roadways may be marketable and outlets should be investigated.

5 - Hazards

No particular existing natural or man-made hazards were observed.

The possibility of man-induced hazards can be reduced by keeping land use changes to a minimum, protecting and improving vegetative cover on steep slopes, improving hydrologic characteristics that would yield excessive runoff, anticipating increased runoff from buildings, roads and cleared areas and placing water, sediment and erosion control devices at critical locations. This will also reduce the hazards of

pollution and sediment in Fishers Brook.

6 - Aesthetics and Preservation

Forestry - It is estimated that the development will remove approximately 30 acres of good commercial forest land from productivity as well as another 30 acres, more or less, of fairly good commericial forest land. If found feasible, cluster housing would reduce acreage loss of manageable forest by one-third.

Markets should be sought for marketable wood cut in process of developing the property. The Forest Service of the Department of Environmental Protection is available to assist with this.

During construction, individual trees would stand a better chance of survival against soil compaction if land clearing and grading is carried out during dry seasons. Reinforce vegetative cover on steep slopes by underplanting with hemlock and white pine seedlings.

Wildlife - The impact of the proposed development of this area will have a lasting effect on wildlife. Preserve as much of the existing vegetation as possible. Wildlife habitat can be enhanced by proper disposal of cuttings and by planting additional food and cover plants, such as conifers, nut bearing trees, and food bearing shrubs, where suitable areas occur.

Vegetation in the streambelt area along Fishers Brook, highly valuable wildlife habitat, whould not be disturbed. The development of a pond will affect the life habitat of furbearers with the changing of biology of the stream and its ability to produce food and habitat needed for their existnace. Small bird and mammal numbers could be reduced or increased depending on extent of clearing and the resulting landscape following development.

7 - Fish

A shallow water pond constructed on the property would create an undesirable condition by warming up the water flowing downstream. Warm water flowing into Fenton River from Fishers Brook would increase somewhat the temperature of a good cold water trout stream. As Fishers Brook is small, no serious problem should arise. However, too many similar ponds on a small stream would destroy a good trout stream. If a pond is created by damming the main brook, the dam should include a fish ladder.

8 - Pond

The wetland along Fishers Brook on the property fall within provisions of Public Act 155 " an act concerning inland wetlands and watercourses." Under this act any proposal to modify the existing character of the wetland and watercourse would require prior approval of Town and/or State Commissions or Agencies responsible for administering the act.

The merits of a large (+11 acres) pond, a small by-pass type pond, or no pond were discussed. While it appears that pond construction on the property may be feasible, the impact of a pond and its effects on downstream waters should be fully evaluated. Economic considerations to complete a finished pond should be weighed against the aesthetic and recreational benefits to be gained.

A large deep water pond would require impounding water at a high elevation. This would require a large dam, if found feasible following a thorough investigation of foundation conditions. Clearing and developing the site, disposing of stumps, rock and other construction debris, constructing the dam, spillway and fish ladder (all concrete) and finishing off the pond would prove to be very costly. The poorly drained organic soils have proven difficult and costly to excavate. Flowage would extend upstream beyond the present north property line, thereby requiring additional land acquisition or an easement to flood. A pond constructed on Fishers Brook would become somewhat of a trap for sediment and debris. Deposition of sediment could bring a serious threat to life span of the waterbody. As the source of sediment will vary, from upstream as well as the development area, the design of the dam must include facilities to allow for periodic draining if cleaning becomes necessary. The outer extremities of the pond would be shallow water unless considerable excavation was carried out.

A smaller pond, less than eight acres, might be constructed with the normal water level back to the low elevation along the north property line. The pond would be shallow unless considerable excavation was done. Flood water would overflow the adjoining property.

An alternative to a large pond would be a smaller by-pass type pond of up to two acres constructed in the swamp on the east side of Fishers Brook. Inflow to the pond from Fishers Brook could be by a pipe which would be opened and closed as needed. Provisions for outletting water from the pond and returning it to the brook would be needed. A by-pass pond should be located well back (100 feet minimum) from the brook. Land between the brook and pond would be maintained in a good vegetative cover. Before planning for this type of pond the extent and depth of organic material should be investigated. Organic material discolors the water and sealing it off becomes an added cost.

If the pond was included as part of an open space requirement, whereby

12 - Microclimate

On the east side to the swampland, care should be taken to leave trees and vegetation located on the west facing slope undisturbed. Removal of all or part of this will cause increased cold air drainage at night resulting in a severe frost pocket at the bottom of the slope. Also houses located at the top of the first slope will be colder in the winter and warmer in the summer if the trees on the slope are removed. This is due to the increase in cold air movement and higher winds from the norhtwest (due to increased exposure) during the winter, and an increased radiation load (removal of shade) in the summer.

APPENDIX

JOSEPH GLASSER PROPERTY
Codfish Falls Road
Mansfield, Connecticut

PROPORTIONAL EXTENT OF SOILS AND THEIR LIMITATIONS FOR CERTAIN LAND USES

Natural Soil Group	Soil Symbol	Slope (Percent)	Approx. Acres	Percent of Area	Urban Use Limitation 1/				
					On-Site Sewage	Buildings with Basements	Streets and Parking	Land-scaping	Principal Limiting Factors
B-1c	CrC	3-15	17	21.1	2	2	3	3	Slope; Stoniness
B-2b	SxB	3-8	6	7.5	2	2	2	2	Seasonal High Water Table; Stoniness
B-3b	Lg	-	8	10.0	4	4	4	4	High Water Table
D-1	HrC	3-15	34	42.5	3	3	3	3	Shallow Depth to Bedrock
D-2	HrE	15-35	2	2.5	3	3	4	4	Shallow Depth to Bedrock; Flooding
F-1	Pk	-	13	16.4	4	4	4	4	High Water Table; Flooding
TOTAL			80	100.0					

1/ 1 = Slight; 2 = Moderate; 3 = Severe; 4 = Very Severe

ACREAGE SUMMARY OF LIMITATIONS

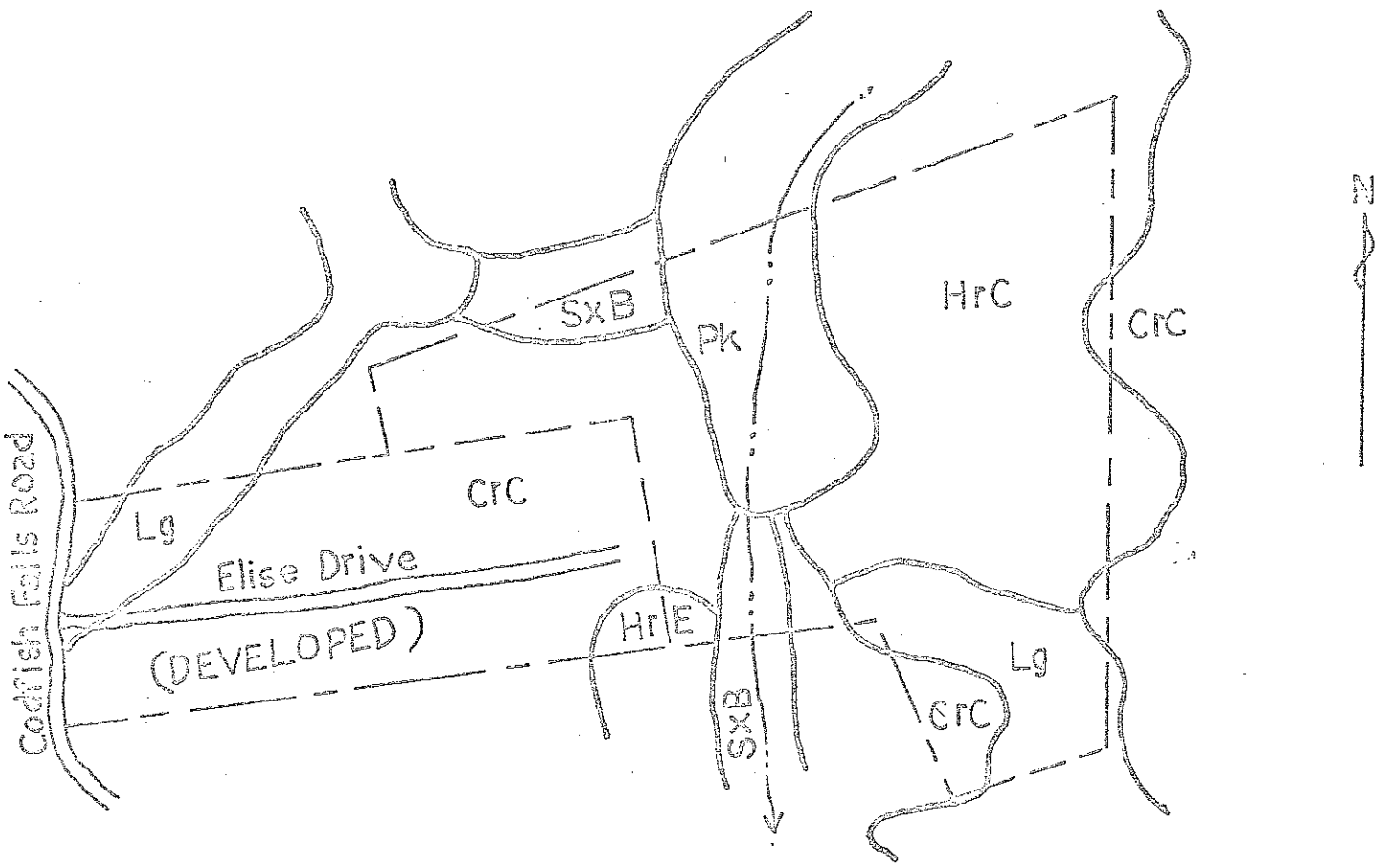
Total Acres = 80	Slight		Moderate		Severe		Very Severe	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
On-Site Sewage	-	-	23	29.0	36	45.0	21	26.0
Buildings with Basements	-	-	23	29.0	36	45.0	21	26.0
Streets and Parking	-	-	6	7.5	51	63.5	23	29.0
Landscaping	-	-	6	7.5	51	63.5	23	29.0

SOIL SURVEY

JOSEPH GLASSER PROPERTY

CODFISH FALLS ROAD

MANSFIELD, CONNECTICUT



Prepared by:

Scale: 1" = 660'

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service