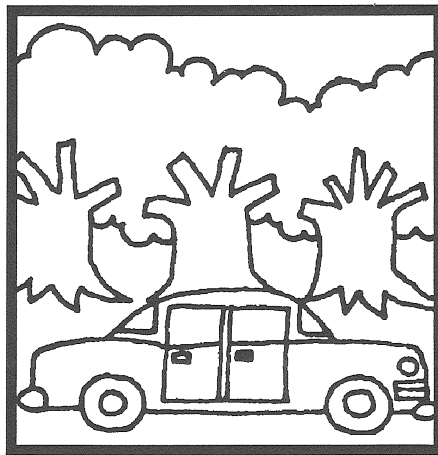


Jinny Hill Road Relocation

Cheshire, Connecticut



KING'S MARK ENVIRONMENTAL REVIEW TEAM REPORT

King's Mark Resource Conservation and Development Area, Inc.

Jinny Hill Road Relocation

**Cheshire, Connecticut
February 1994**

Environmental Review Team Report

**Prepared by the King's Mark Environmental Review Team
of the King's Mark Resource Conservation and Development Area, Inc.**

Haddam and Wallingford, Connecticut

**for the
Cheshire Inland Wetlands and Watercourses Agency**

This report is not meant to compete with private consultants by supplying site designs or detailed solutions to development problems. 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 Commission and the Town. The results of the Team action are oriented toward the development of a better environmental quality and long-term economics of the land use. The opinions contained herein are those of the individual Team members and do not necessarily represent the views of any regulatory agency with which they may be employed.

ACKNOWLEDGEMENTS

The King's Mark Environmental Review Team Coordinator, Elaine Sych, would like to thank and gratefully acknowledge the following Team members whose professionalism and expertise were invaluable to the completion of this report.

Nicholas Bellantoni	State Archaeologist CT Museum of Natural History
Doug Cooper	Supervising Environmental Analyst DEP - Bureau of Water Management Inland WaterResources Division
Norman Gray	Geologist University of Connecticut Department of Geology and Geophysics
Doug Holcomb	Principal Planner Central Naugatuck Valley Council of Governments
Douglas Hoskins	Environmental Analyst DEP - Bureau of Water Management Inland Water Resources Division
Richard Kszystyniak	District Conservationist U.S. Department of Agriculture Soil Conservation Service
Nancy Murray	Biologist/Environmental Analyst III DEP - Natural Resources Center Natural Diversity Data Base
Maribeth Wojenski	Transportation Planner CT Department of Transportation Bureau of Planning

I would also like to thank Jim Sipperly, the Cheshire Environmental Planner, and Michael Norwell, an engineer for the Town, for their cooperation and assistance during this environmental review.

EXECUTIVE SUMMARY

Introduction

An environmental review was requested by the Cheshire Inland Wetlands and Watercourses Commission for a proposed road relocation of Jinny Hill Road. Information requested by the commission will be used to assist them in making their decision on whether they should issue a permit to allow filling of a wetland for the road relocation.

The project site is ± 5 acre wetland area at the intersection of Jinny Hill and Sperry Roads. This report includes sections on soils and soil suitability, mining history, geology and potential subsidence, wetland values and functions, traffic and design analysis, and archaeological and historical significance.

The review process consisted of 4 phases:

- 1) Inventory of the site's natural resources (collection of data);
- 2) Assessment of these resources (analysis of data);
- 3) Identification of resource problem areas; and
- 4) Presentation of planning, management and land use guidelines.

Soil Resources

Soils in the area are primarily poorly and very poorly drained mineral soils or very poorly drained soils formed in organic materials. The actual roadbed construction will take place in the soils of mineral origin, and limitations of wetness and frost action can be overcome with proper design and construction. Soil erosion and sedimentation from the road construction process can be minimized through the use of best management practices.

The Team Soil Resource Specialist, while not a transportation/traffic expert, is unable to visualize that the new road relocation will significantly improve traffic conditions. It is his opinion that perhaps the removal of existing sight obstructions may improve the conditions as much as the road relocation and at less cost.

Geology and Hydrology

The proposed road relocation would affect a small wetland which drains an area that was extensively disturbed by barite mining activities in the mid 1800's. The miners discovered three mineralized zones in the Jinny Hill Area, known as the Northern, Central and Southern veins. The Central vein carried the richest ore and over 1,500,000 cubic feet were excavated and there were 4 miles of tunnels and stopes. The extent of the subsurface exploration of the other two mineral zones is uncertain, but it may have been limited as evidenced by the absence of tailings on the surface.

The watershed of the wetland area straddles the western end of the Central and Northern mineralized zones and includes numerous prospect pits, trenches and tailing piles. The wetland area may have acted as

a settling basin when the surrounding areas were disturbed. An additional area of about 20 acres can be expected to contribute water to the wetlands via interconnected tunnels and stopes. Even if these are collapsed they can act as "storm sewers" to carry water from outside the watershed directly to the project area. A sample of the grey silt taken from the project site contained a few silt-sized barite grains.

The proposed route for Jinny Hill Road crosses a the trace of the Northern vein. Historical records indicate that the Northern vein was never exploited so it is unlikely that subsurface exploration extended to the project site. No known shaft occurs within 500 feet of the proposed alignment and it would be surprising if tunnels or stopes were present under the site.

Inland Wetland Review

The entire wetland unit for this project appears to be approximately 3 acres in size, but no detailed wetland boundary was taken. The wetland consists primarily of forested and shrub/scrub cover. There is a streamcourse that flows through the area.

The road relocation will take place in an area consisting of relatively firm mineral soils. The most direct impact of the road relocation will be the placing of fill to elevate the roadbed. The fill required should be approximately .2 acres as shown on the plans dated July 1993.

Below are listed some general conclusions concerning the functional values of the wetland:

1) the flood water retention capabilities of the soils (the mineral soils) in the area of the proposed road relocation is not high, but the existence of forested wetlands associated with a watercourse do provide surface area for flood waters to spread out over during high flows. This function would tend to alleviate downstream floodwater impact; and 2) the ability to trap sediments and nutrients from water as it travels down gradient through the wetland due to the relatively flat, forested nature of this wetland.

It appears that the impacts of past road construction, adjacent residential development, watercourse alteration and adjacent barite mining activities have all impacted the wetland in the area. Construction of Jinny Hill Road and Sperry Road most likely resulted in past filling of wetlands in this area. Residential development and vehicular traffic would tend to be detrimental to wildlife using this wetland and it appears that the watercourse may have been ditched in the past to straighten its path. It may also be possible that barite present in the wetland soil could act to support a unique group of plants, but it may also be true that past use of this area in connection with the barite mining could have negatively affected vegetation by creating an even aged stand of red maple and slippery elm trees. The wildlife habitat function of this area would be considered average due to it being one cover type (forested) and its proximity to roads.

The wetland commission in evaluating this proposal must find that a prudent and feasible alternative to the proposed alteration does not exist prior to issuing a wetland permit. One possible alternative is a "no action" alternative. Another possible alternative, if the alteration is unavoidable, is to compensate for the loss of this wetland by restoring a previously altered wetland in the same watershed and of the same type. One choice would be to restore the existing section of Jinny Hill Road that would be replaced by the new construction. In addition, the 24" culvert pipe proposed could be replaced with a 24" "box" type culvert which would provide passage under the road for small mammals, reptiles and amphibians.

If a wetland restoration plan is approved then the site plan would need to be amended to include a wetland restoration plan.

The Natural Diversity Data Base

According to the Natural Diversity Data Base there are no known extant populations of Federal or State Endangered, Threatened or Special Concern Species occurring at this sight.

The area is indicated as a Natural Resource Inventory Site (the Cheshire Barite Mines) on a 1972 Natural Area Inventory prepared by the Connecticut Forest and Park Association. A Natural Area Inventory site listing does not impart any restrictions or provide any legal protection, it only identifies areas that should receive consideration for protection before any proposed development is approved. It appears that the actual mine locations are east of the proposed road relocation.

Traffic and Design Review

After a review of the plans it appears that the proposed relocation will improve the site distances along Jinny Hill and Sperry Roads. It is suggested that the Sperry Hill Road intersection also be relocated, moved easterly and more perpendicular to Jinny Hill Road to improve the site distances from Sperry Road. This may result in additional environmental impacts to the area.

Accident data for the past 4 years (1990-1993) shows a total of 2 accidents for the Jinny Hill and Sperry Road intersection. These accidents were the result of drivers traveling too fast for the conditions and they appear to have no relationship to the limited sight lines. This does not mean that the intersection is safe, the sight line is restricted. The proposed relocation would reduce or eliminate restrictions and increase safety.

An alternative to the proposed alignment is to clear some of the vegetation to the right of Sperry Road on the approach to Jinny Hill Road, this would also serve to improve the sight line.

Archaeological/Historical Sensitivity

The Office of State Archaeology and the Connecticut Historical Commission suggest that the Town contract with a historical mining consultant specializing in mining operations to determine the extent of the underground mine workings if there is a real concern about the actual locations of tunnels, adits and stopes (Please refer to the **Geology and Hydrology** section for more information on mine history and location). The Office of State Archaeology and the State Historical Commission are prepared to offer technical assistance to the town in the preservation and conservation of this important aspect of Cheshire history.

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Introduction

An environmental review was requested by the Cheshire Inland Wetlands and Watercourses Commission for a proposed realignment of Jinny Hill Road.

The project site consists of a ± 5 acre wetland area at the intersection of Jinny Hill Road and Sperry Road. The Town proposes to fill the wetland to allow for the relocation of Jinny Hill Road to alleviate problems with poor sight lines. The wetland consists of forested and shrub/scrub cover with an intermittent streamcourse running through the site. The mining of barite took place in the general vicinity of this site during the mid to late 1800's. The bulk of the mining activities appear to have been to the east of the project site.

The Inland Wetlands and Watercourses Commission would like a detailed evaluation of the site to help them to decide whether they should grant an inland wetland permit to fill the site. Concerns which were raised include: soil suitability for road construction and support, was there any subsidence in the area due to past mining activities, is there any unique vegetation or animal life, what are the functions and values of the wetland, is the road relocation the best plan or are there alternatives, and is there any historical or archaeological significance to the site due to the barite mining activities?

The Environmental Review Team Process

Through the efforts of the Town of Cheshire and the King's Mark ERT, this environmental review and report was prepared for the Town. This report primarily provides a description of the on-site natural resources and presents planning, management and land use guidelines. The review process consisted of 4 phases:

- 1) Inventory of the site's natural resources (collection of data);
- 2) Assessment of these resources (analysis of data);
- 3) Identification of resource problem areas; and
- 4) Presentation of planning, management and land use guidelines.

The data collection phase involved both literature and field research. The ERT field review took place on November 30, 1993. Mapped data or technical reports were also perused, and specific information concerning the property was collected. Being on-site allowed some Team members to check and confirm

mapped information and identify other resources.

Once Team members had assimilated an adequate data base, they were able to analyze and interpret their findings. Results of this analysis enabled Team members to arrive at an informed assessment of the property's natural resource opportunities and limitations. Individual Team members then prepared and submitted their reports to the ERT coordinator for compilation into the final ERT report.



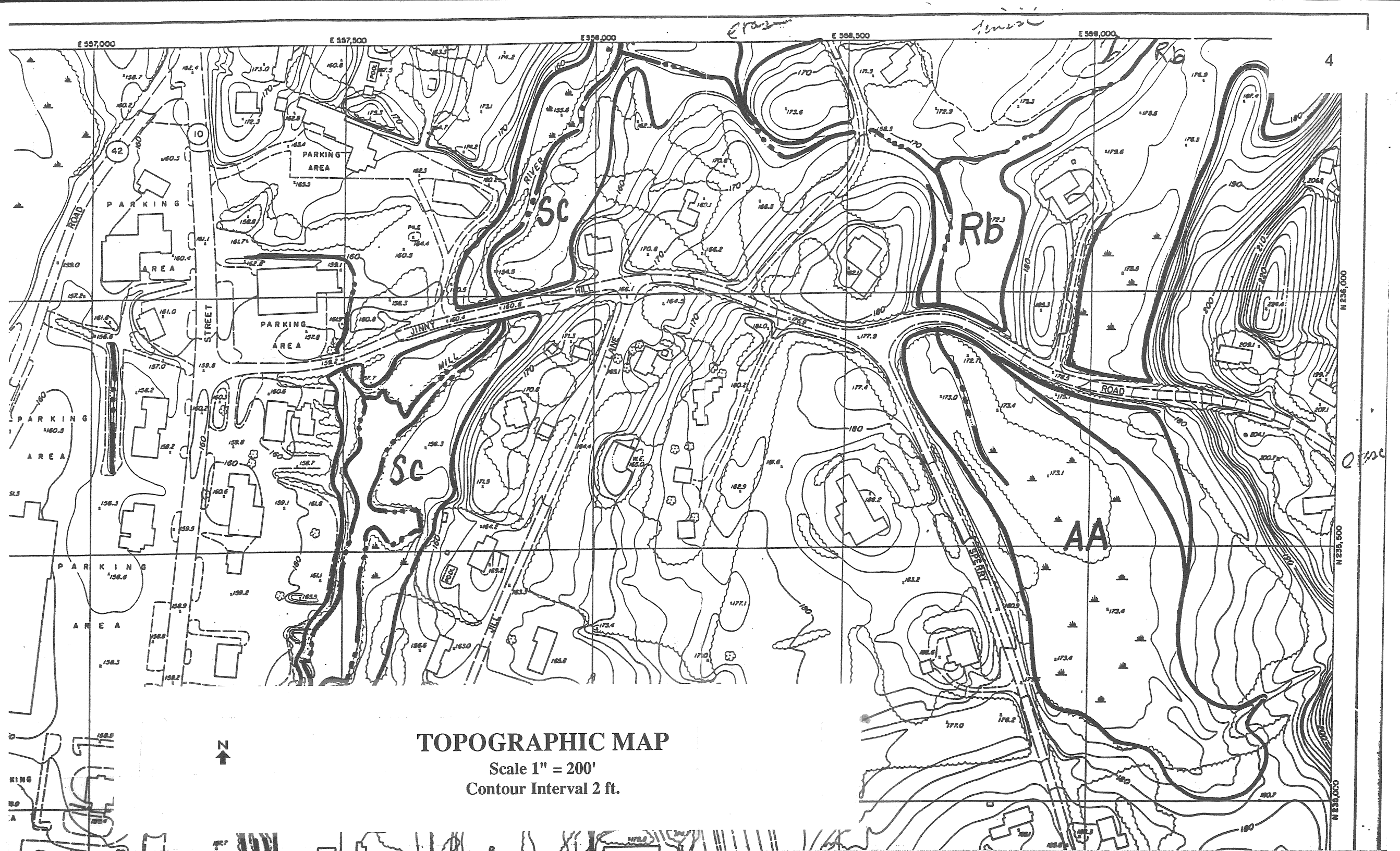
LOCATION MAP

Scale 1" = 2000'



Approximate Location





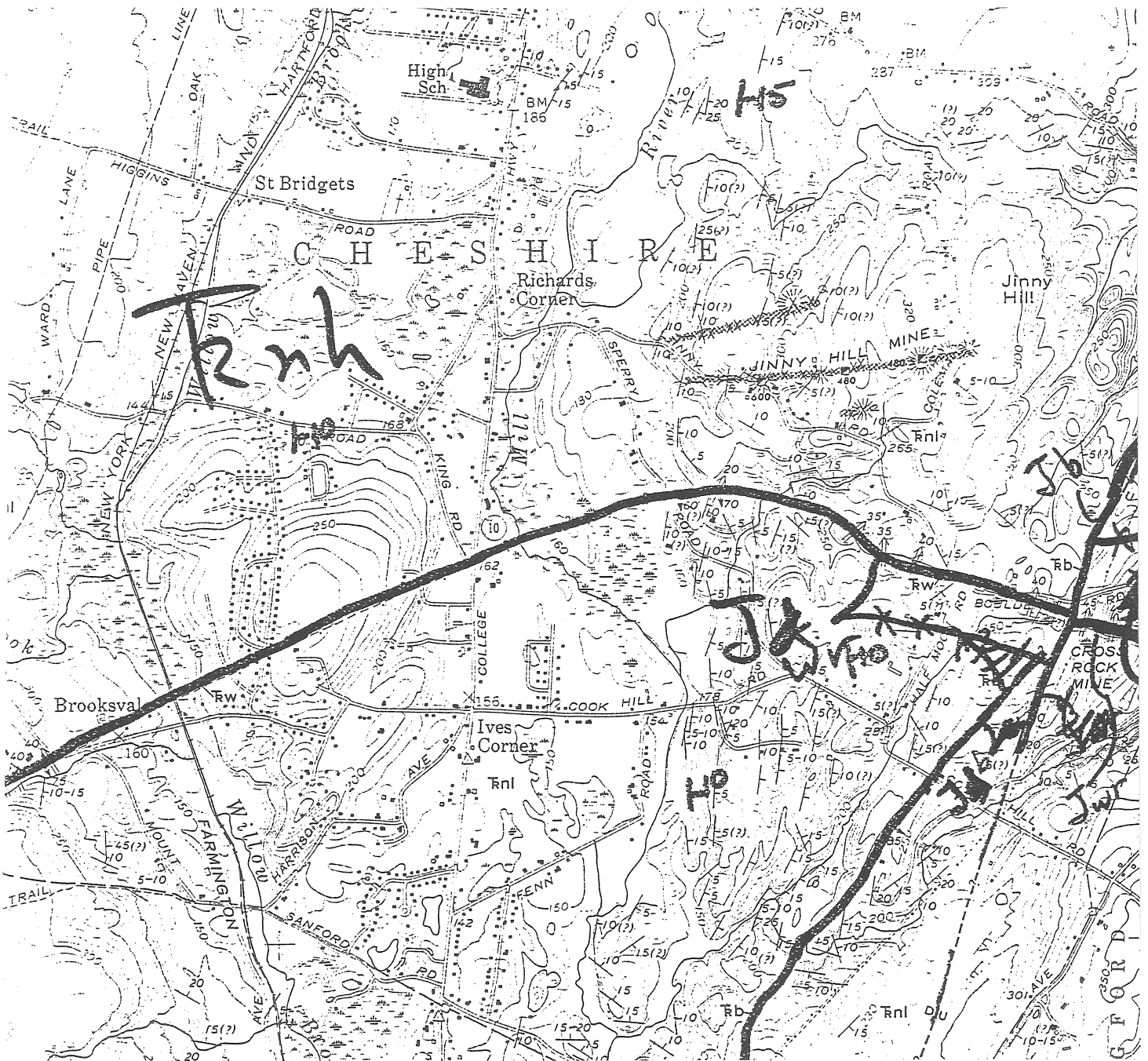
TOPOGRAPHIC MAP

Scale 1" = 200'
Contour Interval 2 ft.



LOCATION OF JINNY HILL MINE

Scale 1" = 2000'



Geology and Hydrology

Mining History

The proposed realignment of Jinny Hill Road would affect a small wetland which drains an area that was extensively disturbed by mining activity in the mid 1800's. Crawford Fritts, who mapped the geology of the Mount Carmel Quadrangle for the United States Geological Survey, published an important study of the history of the barite "mines" of Cheshire in 1962 (*The Barite Mines of Cheshire*, Cheshire Historical Society, reprinted 1990 by the State Geological and Natural History Survey of Connecticut). Based on studies of the historical records and his geological fieldwork Fritts concluded that the miners had discovered and explored three east-west mineralized zones in the Jinny Hill area; the so-called Northern, Central and Southern veins (see Figure 1). The ore zones were traced in a series of prospect pits, trenches and exploratory adits. Recent development has obliterated much of the original evidence visible to Fritts in the 1950's. He reports that the barite occurred as massive fillings of irregular open spaces in breccia along near vertical east-west normal faults which cut Triassic redbed country rock (see USGS GQ-199; *Bedrock Geology of the Mount Carmel Quadrangle, Connecticut*; Fritts 1963). Quartz and barite are the principle vein minerals. Calcite and malachite are also found but in very minor amounts. The Central vein carried the richest ore and seems to have been the only vein system that proved profitable to mine. Historical documents suggest that the main zone comprised several veins from one inch to five feet wide, but the average width was apparently only a few inches. Between 1838 and 1877 Fritts estimates 160,000 tons of barite were produced. Three main shafts, each in excess of 400 feet deep and spaced at 1000 foot intervals attest to the extent of the underground workings on the Central vein. It is reported that over 1,500,000 cubic feet were excavated and that four miles of tunnels and stopes were driven along the Central vein. The extent of the subsurface exploration of the other two mineralized zones is uncertain but the absence of tailings on the surface suggests that it was limited.

Geology

The proposed road alignment site occupies about 0.5 acres of flat wetlands underlain by several feet of dark grey silty clay. The surface is covered by only an inch or so of decomposed organic material and the upper few inches of the silt is light rather than dark grey in color. The thinness of the organic accumulation and the light color of the uppermost silt layer suggests that the wetland area acted as settling basin when the surrounding areas were disturbed by the prospecting and mining operations. The watershed of the wetland area straddles the western end of the Central and Northern mineralized zones and includes numerous prospect pits, trenches and tailing piles. Because the barite was processed at mills in New Haven and Hamden the fine sediments eroded from tailing and spoil piles would not be expected to contain much barite. Nonetheless, a few silt-sized barite grains were noted in a heavy mineral separate from one sample of

the grey silt taken from the project site.

Hydrology

The apparent surface watershed of the small seasonal stream that drains the project site through a small culvert under Jinny Hill Road covers approximately 100 acres (see Figure 2). An additional area about 20 acres in extent, can be expected to contribute water to the wetlands via the mine workings. Fritts (1962) speculates that the Jinny Hill mine workings extend along the Central vein from its main adit in the gully at the head of the wetlands all the way to Coleman Road. The interconnected tunnels and stopes, even if collapsed, can act as a “storm sewer” and carry water from outside the surface watershed directly to the project area.

Leachates from the weathering of sulfides at old mine sites can often adversely affect the local surface and groundwater supplies. Fortunately, the Jinny Hill mineralization contains virtually no sulfides and water from either the mine workings or the associated tailing piles should be indistinguishable from the regional groundwater. Barite is the most insoluble naturally occurring Ba (Barium) mineral and is essentially inert in the surface environment.

Potential Subsidence

The proposed route of the new Jinny Hill Road crosses the trace of the Northern vein system. The historical records suggest that the Northern vein system was never exploited and it is thus highly unlikely that subsurface exploration extended to the site. According to Fritts (1962), several deep prospect pits and an adit were sunk on the trace of the Northern vein on the hillside 800 feet east of the intersection of Jinny Hill and Sperry Roads. Remnants of an impure small barite vein approximately 4 inches wide were seen by Fritts in the partially collapsed excavations in 1958. He felt that the quality and quantity of the ore was lower than that found along the Central vein and that little further exploration or development would have been warranted. In addition, the barite miners seemed to have spaced their shafts at about 1000 foot intervals along an ore zone. The purpose of this arrangement was probably to limit the distance that ore and tailings had to be hauled for hoisting to the surface. As no known shaft occurs within 500 feet of the proposed realignment it would be most surprising if tunnels or stopes were present under the site.

Coordinator's Note:

Glossary

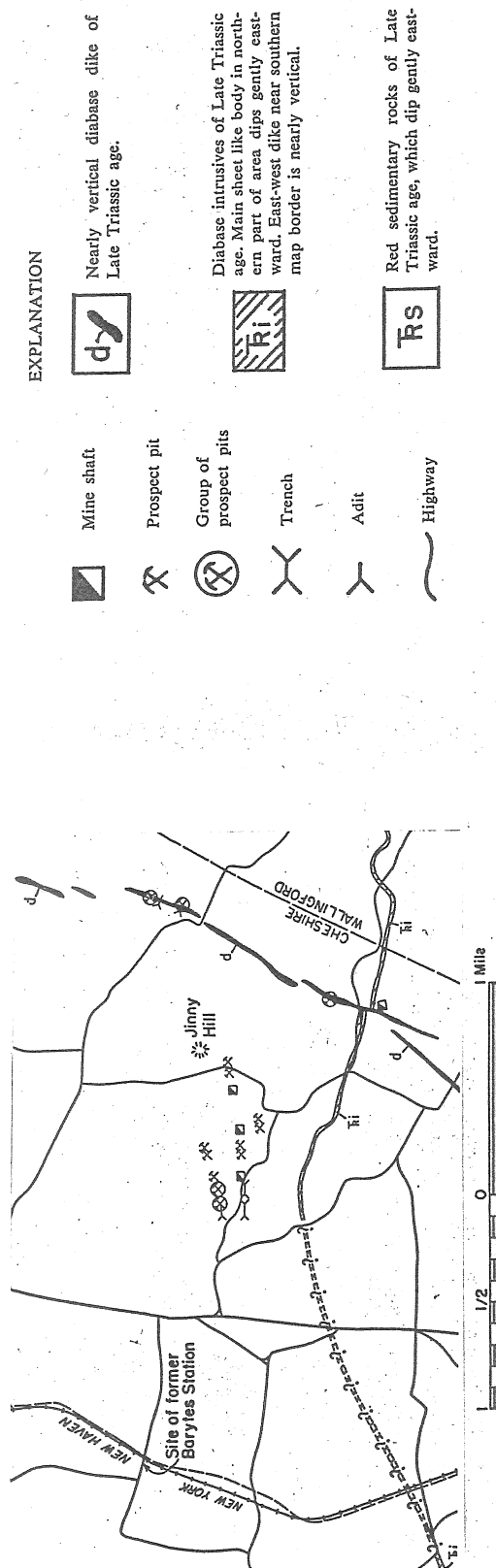
Adit - almost horizontal entrance to a mine.

Stope - an excavation in the form of steps made by the mining of ore in steeply inclined or vertical veins.

Tailings - refuse remaining after mining.

EXPLORATION PITS, TRENCHES, ADITS AND SHAFTS JINNY HILL BARITE DISTRICT

(after Plate 1 in Fritts, 1962)



**AREA DRAINED BY THE SEASONAL STREAM
CROSSING JINNY HILL ROAD NEAR ITS
INTERSECTION WITH SPERRY ROAD**



Soil Resources

General Soil Conditions

Soils in the area proposed for use in the planned Jinny Hill Road Relocation are primarily poorly and very poorly drained mineral soils or very poorly drained soils formed in organic materials. Soils upon which actual roadbed construction will take place are of mineral origin, and, though wetness and frost action do present limitations for the intended use, proper design and construction can overcome problems posed by on-site conditions. Soil erosion and sedimentation which might occur during the road building process can be minimized through the use of accepted best management practices.

Brief, non-technical soils descriptions of on-site soils are presented in Table 1, and the limitations of such soils for use as roadfill and for local roads and streets are described in Table 2. Please refer to the published New Haven Soil Survey for more thorough discussion of land use limitations.

Additional Comments

While the Team Soil Resource Specialist may lack the eye of a transportation engineer, as a motor vehicle operator he was unable to visualize conditions as being substantially improved by implementation of the planned road relocation. Given accident statistics available from CT DOT and others, it might be that removal of existing sight obstructions would improve safety as much as modifying road alignment, and at considerably less cost.

It is also recommended that, in order to avoid inadvertent violation of Federal law, a determination be made of U.S. Army Corps of Engineers' jurisdiction over any proposed filling in inland waters and wetlands.



SOILS MAP

Scale 1" = 1667'



TABLE 1 - Non-Technical Soils Descriptions

Aa	<p>Adrian and Palms Muck - These are nearly level, very poorly drained soils formed in organic materials 16 to 50 inches thick overlying sandy and loamy deposits. They are in depressions and along streams of outwash plains and glacial till uplands. Depth to bedrock is commonly more than 60 inches below the surface. These soils are ponded or have water near the surface for most of the year. Permeability is moderately rapid in the organic layers and rapid to moderately slow in the substratum. Surface runoff is very slow and the available water capacity is high.</p>
Rb	<p>Raypol Silt Loam - This nearly level, poorly drained soil formed over sandy and gravelly glacial outwash. It is in shallow drainage ways and low-lying positions on terraces and outwash plains. Depth to bedrock is commonly more than 60 inches below the surface. The soil has a seasonal high water table at or near the surface much of the year. Permeability is moderate in the surface layer and subsoil and rapid or very rapid in the substratum. Surface runoff is slow and the available water capacity is high.</p>
Wa	<p>Walpole Sandy Loam - This nearly level, poorly drained soil formed in water sorted glacial outwash and stratified drift. This soil is in depressions and drainageways on stream terraces and outwash plains. Depth to bedrock is commonly more than 60 inches below the surface. The soil has a seasonal high water table at a depth of about 10 inches from fall through spring. Permeability is moderately rapid or very rapid in the substratum. Surface runoff is slow and the available water capacity is moderate.</p>

TABLE 2 - Soil Interpretation Report

Map Symbol	Soil Name	Local Streets and Roads	Roadfill
Aa	Adrian	SEVERE Subsides Ponding Frost Action	POOR Wetness
	Palms	SEVERE Ponding Frost Action Subsides	POOR Wetness
Rb	Raypol	SEVERE Wetness Frost Action	POOR Wetness
	Walpole	SEVERE Wetness Frost Action	POOR Wetness

Definitions of SEVERE and POOR

Local Streets and Roads - a severe limitation indicates that one or more soil properties or site features are so unfavorable or difficult to overcome that a major increase in construction effort, special design, or intensive maintenance is required. For some soils that are rated severe, costly measures may not be feasible.

Roadfill - is soil material used in embankments for roads. The rating reflects the ease of excavating and working the material and the expected performance of the material where it has been compacted and adequately drained. If the thickness of the suitable material is less than 3 feet, the entire soil is rated poor.

The Natural Diversity Data Base

The Natural Diversity Data Base maps and files regarding the Jinny Hill Road Relocation area in Cheshire have been reviewed. According to the information, there are no known extant populations of Federal or State Endangered, Threatened or Special Concern Species that occur at this site.

However, the area indicated on the following maps is a Natural Area Inventory Site - the Cheshire Barites Mine. In 1972 the Connecticut Forest and Park Association, Inc. prepared a Natural Area Inventory which included 459 sites. These were nominated as significant sites for one or more of the following attributes: geologic, hydrologic, biologic, archaeologic, cultural, aesthetic, research/educational. Being listed as a Natural Area Inventory Site does not impart any restrictions or provide legal protection, it identifies areas that should receive consideration for protection before any proposed development is approved. Such consideration should evaluate direct and indirect impacts resulting from proposed land use of adjacent areas. From the information on file, it appears that the actual mine locations are east of the area in question. If you have any questions regarding the barite mines contact Margaret Thomas, DEP-NRC (566-3540).

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.

Also be advised that this is a preliminary review and not a final determination. A more detailed review may be conducted as part of any subsequent environmental permit applications submitted to DEP for the proposed site.

Inland Wetland Review

Included in this section are observations of the wetland resources, the impacts of the proposed road relocation and recommendations to alleviate those impacts at the above referenced location.

Although no detailed wetland boundary survey was undertaken for this project, the entire wetland unit where the road relocation will be taking place appears to be roughly 3 acres in size, primarily of forested and shrub/scrub cover. It is situated in a watershed of roughly 100 acres consisting primarily of a forested cover type with several single family residential units as well as an improved roadway.

During the 11/30/93 site visit of the Environmental Review Team, it was observed that the road relocation was to take place within an area of the wetland consisting of relatively firm mineral soils, not the organic muck (Adrian) indicated for this area in the Soil Survey of New Haven County (USDA-Soil Conservation Service, 1979). In addition, the entire wetland unit observed was significantly larger than indicated by any poorly or very-poorly drained map units for this vicinity in the above referenced soil survey. Due to a very significant rainfall two days prior to the site visit, the watercourse running through this wetland area was flowing full.

The most direct impact of the road relocation in the vicinity of the Jinny Hill and Sperry Road junction will be the placing of fill to elevate the road bed. If construction activity in the wetland is confined within the slope limits as indicated in the set of plans entitled "Plan and Profile for Jinny Hill Road Reconstruction / Cheshire CT", dated July 1993, the area of fill required should be approximately .2 acres.

The functional values of this type of wetland commonly include flood control, ecological integrity, wildlife habitat and nutrient retention/sediment trapping. Although it is difficult to evaluate the functional values of such a limited wetland area in detail, some general conclusions are possible.

Because of the apparent absence of very poorly drained soils, peats and mucks in the vicinity of the proposed road relocation, the flood water retention capabilities of the soil itself are not high, however, the existence of the forested wetlands associated with the watercourse do provide surface area for flood waters to spread out over during high flows. This function would tend to alleviate downstream floodwater impact.

Directly related to the flood control function of a wetland is its ability to trap nutrients and sediments from water as it travels down gradient through the wetland. These nutrients and sediments commonly come from surface runoff in the form of road sands, salts and engine oil as well as from groundwater in the form

of household septic system effluent. The relatively flat, forested nature of the impacted wetland offers a suitable environment for this function to occur.

It appears that the impacts of past road construction, adjacent residential development, watercourse alteration and nearby barite mining activities have all impacted the wetlands in this area. The construction of the existing Jinny Hill and Sperry Roads most likely resulted in past filling of wetlands in this area. Nearby residential development and vehicular traffic would tend to be detrimental to the wildlife utilizing this wetland area. It appears when viewed on aerial photographs that the watercourse running through the wetland has been ditched in the past to straighten its course. This is usually done with the intent of deepening the watercourse so that water will drain from the adjacent wetlands more quickly. While it is possible that barite present in the wetland soil may act to support a unique assemblage of herbaceous plants, the use of this area in connection to past barite mining activities may also have negatively effected the vegetation in this area by creating an even-aged stand of red-maple and slippery elm trees.

Ecological integrity is also a factor when considering the functional value of wildlife habitat to a wetland area. Considering that the impacted wetland area is of only one cover type (forested) and its proximity to roads, the wildlife habitat function of this area could be considered average. This area, with its dense crown of trees would be most valuable as nesting sites for songbirds.

When evaluating project impacts to wetlands and watercourses, the wetlands commission should keep in mind that section 22a-41(b) of the Connecticut General Statutes requires that in the case of an application which receives a public hearing, the agency must find that a feasible and prudent alternative to the proposed wetland alteration does not exist prior to issuing a wetlands permit. A possible alternative to this wetland alteration is a "no-action" alternative. The feasibility of this alternative would be best judged by other members of this ERT.

Another possible alternative, if the proposed road relocation is unavoidable, is to compensate for the loss off this wetland by restoring a previously impacted wetland area, preferably one that is in the same watershed and of a similar wetland type. An obvious choice would be to restore the existing section of Jinny Hill Road between road station 13+50 and 17+00 that is intended to be replaced by the new road construction as indicated on the above referenced plan. It appears that this section of road was originally built over wetland soils. By removing this portion of road, placing wetland soils excavated from the area proposed for the relocated road, and planting suitable wetlands vegetation it is likely this area could be restored and function as a wetland. In addition, the 24" culvert pipe proposed to carry the flow of the watercourse under the road could be replaced with a "box" type culvert which would provide a more suitable passage under the road for small mammals, reptiles and amphibians.

If this alternative were to be approved, the site plan would need to be amended to include a wetland restoration plan indicating among other things, the type number and location of wetland vegetation to be planted as well as a monitoring plan to judge the effectiveness of the restoration process. This type of "one for one" wetlands mitigation, when done properly, can be an ideal alternative when wetland impacts are unavoidable.

Traffic and Design Review

After reviewing the design plans for the Jinny Hill Road Relocation, it appears that the project will benefit the area by eliminating the reverse curve and improving sight distances along Jinny Hill and Sperry Road.

To reduce the skew angle on Sperry Road, it is suggested that the intersection be relocated easterly, more perpendicular to Jinny Hill Road. This would greatly improve sight distances from Sperry Road. It should be noted that this suggestion may result in additional impacts.

The State Department of Transportation Accident Records and Statistics Unit collects and analyzes traffic accident data on local and state roads. As of 1990, this Office no longer collects local property damage accident statistics. They do, however, still collect local injury accident statistics. For the time period of January 1987 through December 1992, there were no reported accidents on the State Accident Records Data Base for this intersection.

The local police department data (most recent four years of accident data) shows a total of twelve (12) accidents that have occurred on Jinny Hill Road between Crestwood Drive to the east and Route 10 to the west (See Accident History Reports). Three of the accidents resulted in minor injuries with the remainder resulting in property damage only. These accidents tend to be concentrated at the intersections along Jinny Hill Road, but only two occurred in the vicinity of Sperry Road (see Accident Location Map). Both of these accidents were the result of drivers traveling too fast for conditions and involved either wet or snow covered surfaces, and they appear to have no relationship to limited sight lines at the intersection.

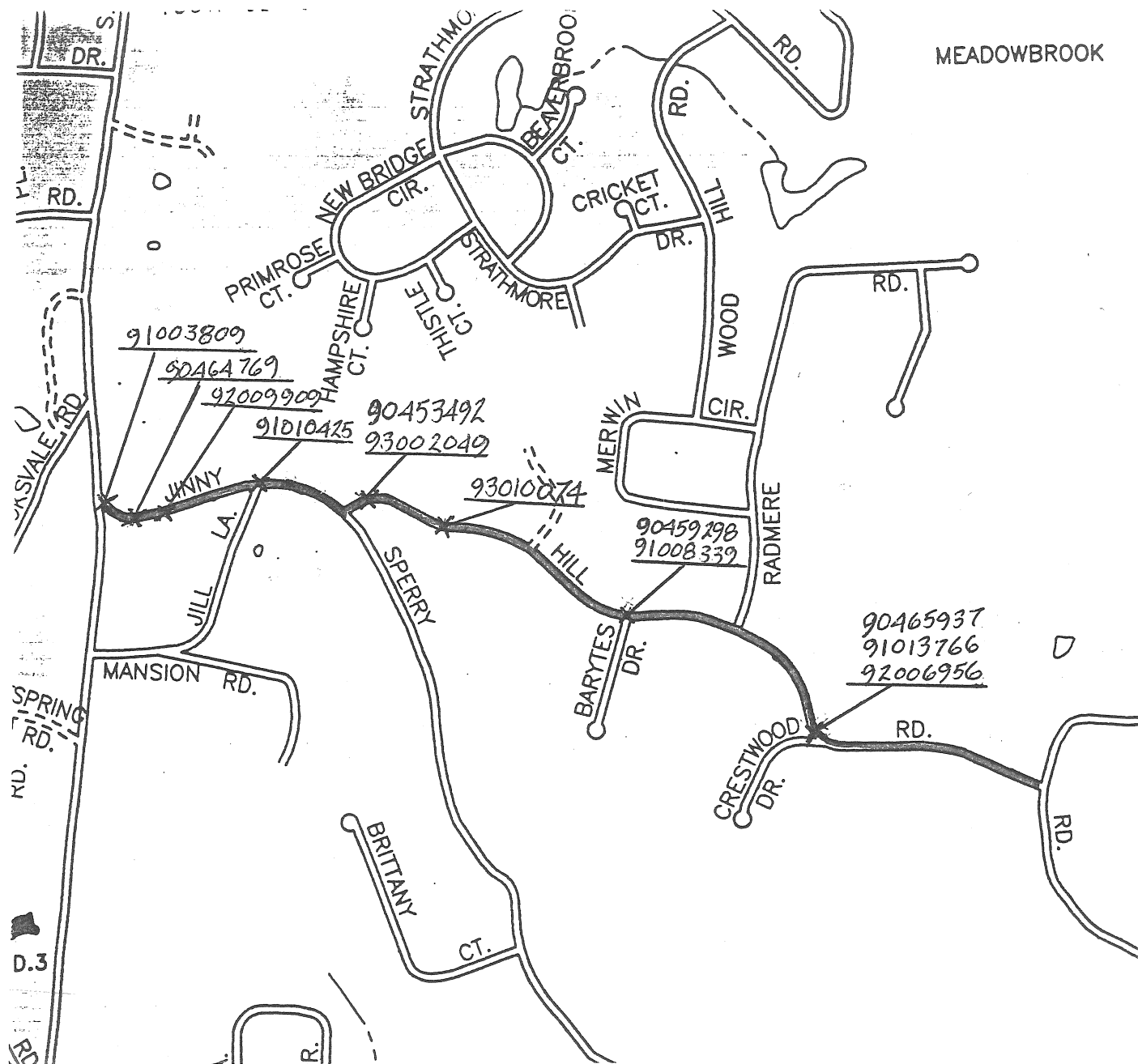
The lack of accidents at this location does not mean that it is safe. Although it is not indicated by the accident history, the sight line to the right of Sperry Road is clearly restricted by vegetation. The proposed alignment would reduce or eliminate the current sight line restriction and would improve safety of the intersection by reducing the potential for angle type accidents.

In the event that it is determined that the proposed alignment would result in extensive environmental damage to the area in question, the design team (the town) may wish to consider clearing some of the vegetation to the right of Sperry Road on the approach to Jinny Hill Road which would allow for some improvement to the sight line.



ACCIDENT LOCATION MAP

Scale Unknown



ACCIDENT HISTORY REPORTS

Accident History - Jinny Hill Rd., Cheshire
1990 through 1993

STREET LOCATION	INCIDENT CODE	#K	#A	#B	#C	I	FT/I	D	DATE	TIME	DAY	#V	COLSN	INVOLV	WEATH	ROAD	LIGHT	CASE NO.
JINNYHILLRD&SPERRYRD	ACC MV PRPTY DAMAG	0	0	0	0	N	110	E	06-Mar-90	08:47 AM	TUE	1	OFFRD	FIXOBJ	SNOW	SNOWY	DAYLT	90453492 ✓
JINNYHILLRD&BARYTESD	ACC MV PRPTY DAMAG	0	0	0	0	Y	0	0	21-Jun-90	05:55 PM	THR	2	RTANG	OTHM/V	CLEAR	DRY	DAYLT	90459298
JINNYHILLRD&SMAINST	ACC MV PRPTY DAMAG	0	0	0	0	N	200	E	09-Oct-90	07:51 AM	TUE	1	OFFRD	FIXOBJ	RAIN	WET	DAYLT	90464769
JINNYHILLRD&CRESTWOO	ACC MV INJURY	0	0	0	2	N	35	N	02-Nov-90	11:45 AM	FRI	3	SDSWI	OTHM/V	CLEAR	DRY	DAYLT	90465937
JINNYHILLRD&SMAINST	ACC MV INJURY	0	0	0	1	N	30	E	23-Mar-91	08:51 AM	SAT	1	VEHPE	PEDEST	RAIN	WET	DAYLT	91003809
JINNYHILLRD&BARYTESD	ACC MV INJURY	0	0	2	0	Y	0	0	15-Jun-91	08:59 AM	SAT	2	RTANG	OTHM/V	CLEAR	DRY	DAYLT	91008339
JINNYHILLRD&JILLLA	ACC MV PRPTY DAMAG	0	0	0	0	Y	0	0	27-Jul-91	06:32 PM	SAT	2	REARE	OTHM/V	CLEAR	DRY	DAYLT	91010425
JINNYHILLRD&CRESTWOO	ACC MV PRPTY DAMAG	0	0	0	0	N	40	N	05-Oct-91	07:13 PM	SAT	1	OFFRD	FIXOBJ	RAIN	WET	DK-NO	91013766
JINNYHILLRD&CRESTWOO	ACC MV PRPTY DAMAG	0	0	0	0	N	150	W	16-May-92	01:27 PM	SAT	1	OFFRD	FIXOBJ	CLOUD	WET	DAYLT	92006956
JINNYHILLRD&SMAINST	ACC MV PRPTY DAMAG	0	0	0	0	N	528	E	09-Aug-92	05:08 PM	SUN	1	OFFRD	FIXOBJ	CLOUD	WET	DAYLT	92009909
JINNYHILLRD&SPERRYRD	ACC MV PRPTY DAMAG	0	0	0	0	N	100	E	18-Feb-93	02:45 PM	THR	1	OFFRD	FIXOBJ	CLEAR	WET	DAYLT	93002049 ✓
JINNYHILLRD&SPERRYRD	ACC MV PRPTY DAMAG	0	0	0	0	N	528	E	13-Aug-93	04:55 PM	FRI	2	SDSWI	OTHM/V	CLEAR	DRY	DAYLT	93010074

HEADINGS

STREET LOCATION: Location referenced to nearest intersecting street.

INCIDENT CODE: Type of accident

#K: Number Killed

#A: Number "A" type (disabling) injuries.

#B: Number "B" type (visible, not disabling) injuries

#C: Number "C" type (complaint of pain) injuries

I: Intersection, yes or no

FT/I: Distance from referenced intersection in feet

D: Direction from referenced intersection

DATE: Date of accident

TIME: Time of accident

DAY: Day of week

#V: Number of involved vehicles

COLSN: Type of collision

OFFRD: Vehicle off roadway

RTANG: Right angle collision

SDSWI: Sideswipe collision

VEHPE: Vehicle vs. pedestrian

REARE: Rear end collision

INVOLV: Involvement factor

FIXOBJ: Fixed object

OTHM/V: Other motor vehicle

PEDEST: Pedestrian

WEATH: Weather conditions

SNOW: Snowing

CLEAR: Clear weather

RAIN: Raining

CLOUD: Cloudy conditions

ROAD: Road surface conditions

SNOWY: Snow covered

DRY: Dry surface

WET: Wet surface

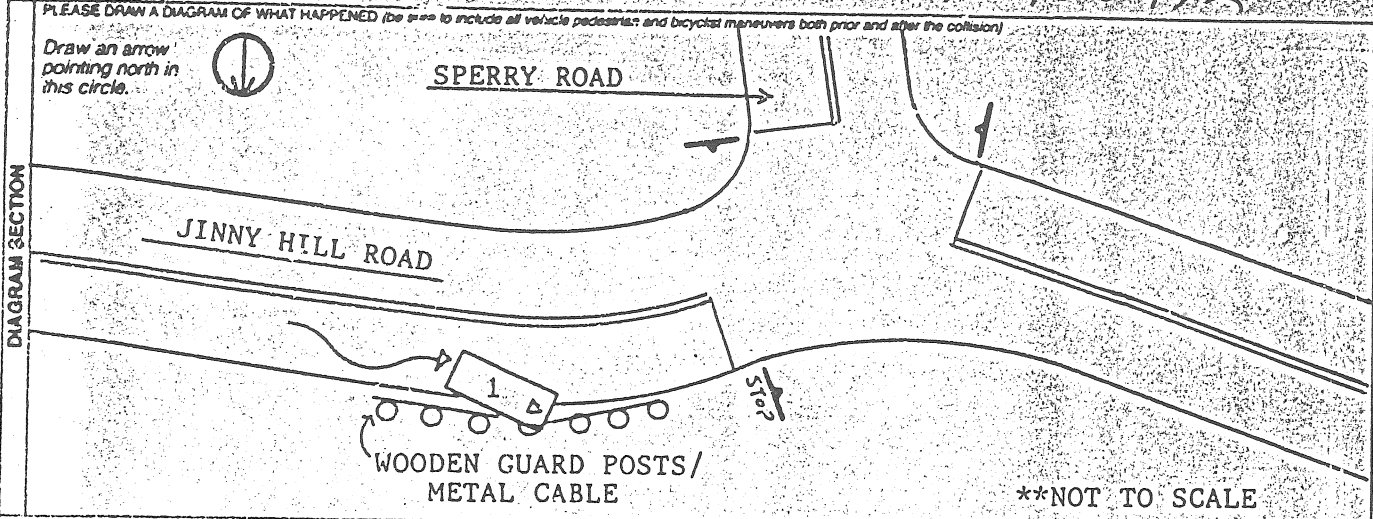
LIGHT: Light conditions

DAYLT: Daylight

DK-NO: Darkness, no roadway illumination

CASE NO.: Police case number

90453492



DIRECTION OF TRAVEL OF EACH VEHICLE, PEDESTRIAN, ETC.

VEHICLE #1 going ☐ N ☐ S ☐ E ☒ W on JINNY HILL ROAD

VEHICLE #2 going ☐ N ☐ S ☐ E ☐ W on _____

PLEASE GIVE A COMPLETE DESCRIPTION OF WHAT HAPPENED (be sure to explain any prior response marked with an asterisk)

VEHICLE #1 WAS TRAVELING WESTBOUND ON JINNY HILL ROAD APPROACHING A STOP SIGN AT SAID INTERSECTION. VEHICLE #1 ATTEMPTED TO SLOW DOWN BUT SKIDDED OFF THE NORTH EDGE OF THE ROADWAY AND STRUCK A WOODEN GUARD POST. OPERATOR #1 STATED THAT UPON APPLYING THE BRAKES SAID VEHICLE SKIDDED OUT OF CONTROL ON THE SNOW COVERED ROADWAY. NOTE: OPERATOR #1 LEFT THE SCENE AND RETURNED HOME TO CONTACT POLICE. THE ABOVE DIAGRAM IS BASED ON EVIDENCE AT THE SCENE AND OPERATOR STATEMENTS.

																									WERE MEASUREMENTS TAKEN? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No										PHOTOS? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No									
Cont	Road #		HL	Dir	N/R	Hamp		TR #		CI	St	Cum Mile		Rd	Ty	I	SF	Local Road Location																										
	22	25	26	27	28	30	31	34	35	36	37	38	39	44	45	46	47	48	49	50	53	54	57	58	61	62	65																	
DOT USE ONLY	C/F	Col	Card	Card	Alpha Description																																							
	36	47	48	49	7																																							
			4	5	41																																							
	CV	Dir	Man	Obj #1	L	Obj #2	L	P	C	Dr	Man	CV	Dir	Man	60-62	Obj #1	L	Obj #2	L	P	C	Dr	Man	Card																				
																										15																		

ENFORCEMENT ACTION	NAME OF PERSON ACTION WAS TAKEN AGAINST		TYPE OF ENFORCEMENT ACTION (✓ one)		COURT DATE AND TOWN CODE	
	REINH, JOHN		<input type="checkbox"/> Arrest <input checked="" type="checkbox"/> Written <input type="checkbox"/> Warning <input type="checkbox"/> None <input type="checkbox"/> Other		- - - - -	
	CHARGE		STATUTE OR ORDINANCE NUMBER		UNIFORM SUMMONS/COMPLAINT NUMBER	
	SPEED TOO FAST FOR CONDITIONS		14-218a		- - - - -	
ENFORCEMENT ACTION	NAME OF PERSON ACTION WAS TAKEN AGAINST		TYPE OF ENFORCEMENT ACTION (✓ one)		COURT DATE AND TOWN CODE	
			<input type="checkbox"/> Arrest <input type="checkbox"/> Written <input type="checkbox"/> Warning <input type="checkbox"/> None <input type="checkbox"/> Other			
	CHARGE		STATUTE OR ORDINANCE NUMBER		UNIFORM SUMMONS/COMPLAINT NUMBER	

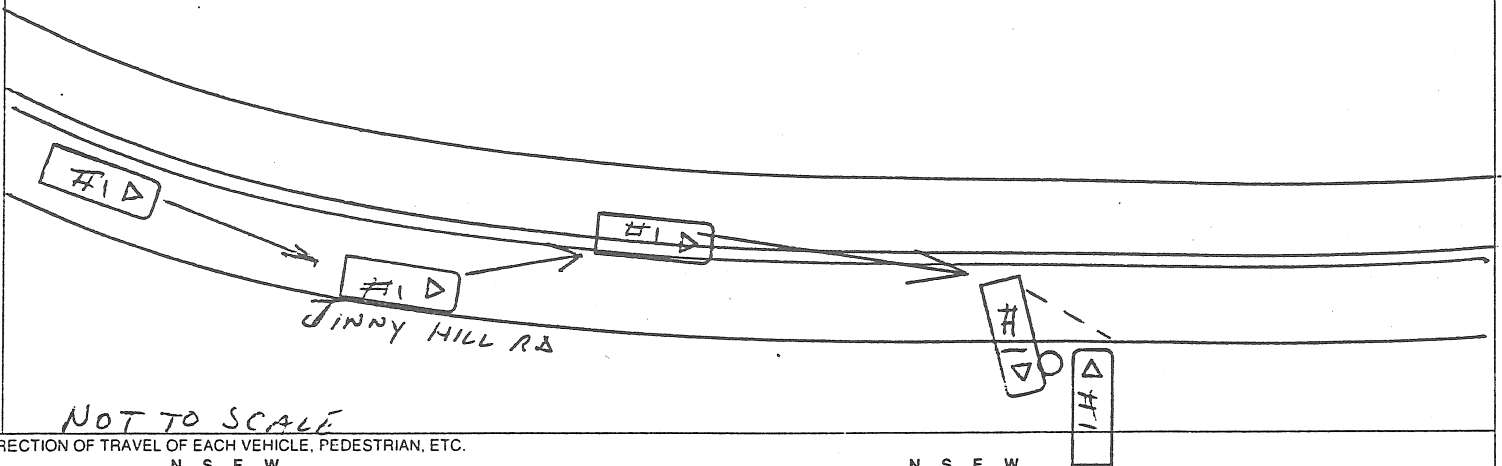
RANK AND SIGNATURE OF INVESTIGATING OFFICER		BADGE NUMBER	DEPARTMENT NAME	REPORT DATE	CASE STATUS	SUPERVISOR
Officer Joseph M. Higgins		029	CHESHIRE	03/06/90	<input type="checkbox"/> Open <input checked="" type="checkbox"/> Closed	[Signature]

PLEASE DRAW A DIAGRAM OF WHAT HAPPENED (be sure to include all vehicle pedestrian and bicyclist maneuvers both prior and after the collision)

Draw an arrow pointing north in this circle.



DIAGRAM SECTION



NOT TO SCALE

DIRECTION OF TRAVEL OF EACH VEHICLE, PEDESTRIAN, ETC.

VEHICLE # 1 going ☐ N ☐ S ☐ E ☒ W on JINNY HILL RD VEHICLE # 2 going ☐ N ☐ S ☐ E ☐ W on

PLEASE GIVE A COMPLETE DESCRIPTION OF WHAT HAPPENED (be sure to explain any prior response marked with an asterisk*)

NARRATIVE SECTION

VEH#1 WAS W/B ON JINNY HILL RD. AS VEH#1 WAS W/B IT MOVED TO THE NORTH PART OF THE W/B LANE. VEH#1 TRAVELED THROUGH LOOSE SAND. OP#1 BEGAN TO LOOSE CONTROL OF THE VEHICLE. VEH#1 CROSSED THE DOUBLE YELLOW LINES. VEH#1 THEN LEFT THE TRAVELED PORTION ON THE NORTH SIDE OF THE ROAD. VEH#1 STRUCK A TREE AND CAME TO REST OFF OF THE ROADWAY. OP#1 STATED THAT PRIOR TO LOOSING CONTROL HE AVOIDED AN E/B VEHICLE WHICH WAS TRAVELING NEAR THE CENTER LINES

WERE MEASUREMENTS TAKEN? ☐ Yes ☒ No PHOTOS? ☐ Yes ☒ No

4 Cont	Road #	RL	Dir	NIR	Ramp	TR #	CL	St	Cum Mile	Rd	Ty	I	SF	Local Road Location															
	22	25	26	27	28	30	31	34	35	36	37	38	39	44	45	46	47	48	49	50	53	54	57	58	61	62	65		
DOT USE ONLY	CF	Col	Card	Card	Alpha Description																								
	66	67	68	69	7																								
	CV	Dir	Man	Obj #1	L	Obj #2	L	P	C	Dir	Man	CV	Dir	Man	60-62	Obj #1	L	Obj #2	L	P	C	Dir	Man	Card	5				
ENFORCEMENT ACTION	NAME OF PERSON ACTION WAS TAKEN AGAINST										TYPE OF ENFORCEMENT ACTION (✓ one)										COURT DATE AND TOWN CODE								
	JOHN FERRUCCI										<input type="checkbox"/> Arrest <input checked="" type="checkbox"/> Written Warning <input type="checkbox"/> None <input type="checkbox"/> Other																		
	CHARGE										STATUTE OR ORDINANCE NUMBER										UNIFORM SUMMONS COMPLAINT NUMBER								
	SPEED TOO FAST FOR CONDITIONS										14-218 G																		
ENFORCEMENT ACTION	NAME OF PERSON ACTION WAS TAKEN AGAINST										TYPE OF ENFORCEMENT ACTION (✓ one)										COURT DATE AND TOWN CODE								
											<input type="checkbox"/> Arrest <input type="checkbox"/> Written Warning <input type="checkbox"/> None <input type="checkbox"/> Other																		
	CHARGE										STATUTE OR ORDINANCE NUMBER										UNIFORM SUMMONS COMPLAINT NUMBER								
RANK AND SIGNATURE OF INVESTIGATING OFFICER										BADGE NUMBER					DEPARTMENT NAME					REPORT DATE					CASE STATUS SUPERVISOR				
OFFICER AND SIGNATURE										018					CHESHIRE					2/18/93					<input type="checkbox"/> Open <input checked="" type="checkbox"/> Closed				

Archaeological/Historical Sensitivity

Of historical concern with the proposed project area is the possibility of underground adits, or mining tunnels, associated with the barite mining operations of 19th-century Cheshire. Barite is composed of barium sulfate which had important commercial use as a weight mineral in the manufacture of paint. The map of mineral leases is taken from Crawford E. Fritts' *The Barite Mines of Cheshire* (State Geological and Natural History Survey of Connecticut, 1990) showing the direction and extent of the barite deposits and prospecting excavations in relation to the proposed road relocation.

As the maps indicate, the barite veins and prospecting pits appear to terminate immediately east of the project area. However, we cannot determine the exact extent of the underground tunnel system. They may not have extended as far as the current intersection of Sperry and Jinny Hill Roads. Please refer to the **Geology and Hydrology** section for more information. If there is further concern regarding the location of the mine tunnels and the possible hazard of sinkhole collapse it is suggested that the Town of Cheshire consider contacting a historical mining consultant who would undertake detailed historic research as to the extent of the mine workings.

In summary, the Office of State Archaeology and the Connecticut Historical Commission suggests that the Town of Cheshire contract with a historical mining consultant specializing in mining operations in order to determine the extent of the underground mine workings and their possible effect on the road relocation plan if there is concern about the exact locations of mine tunnels and workings. The Offices of State archaeology and the Connecticut Historical Commission are prepared to offer any technical assistance to the town in the preservation and conservation of this important aspect of Cheshire history.

MAP OF MINERAL LEASES

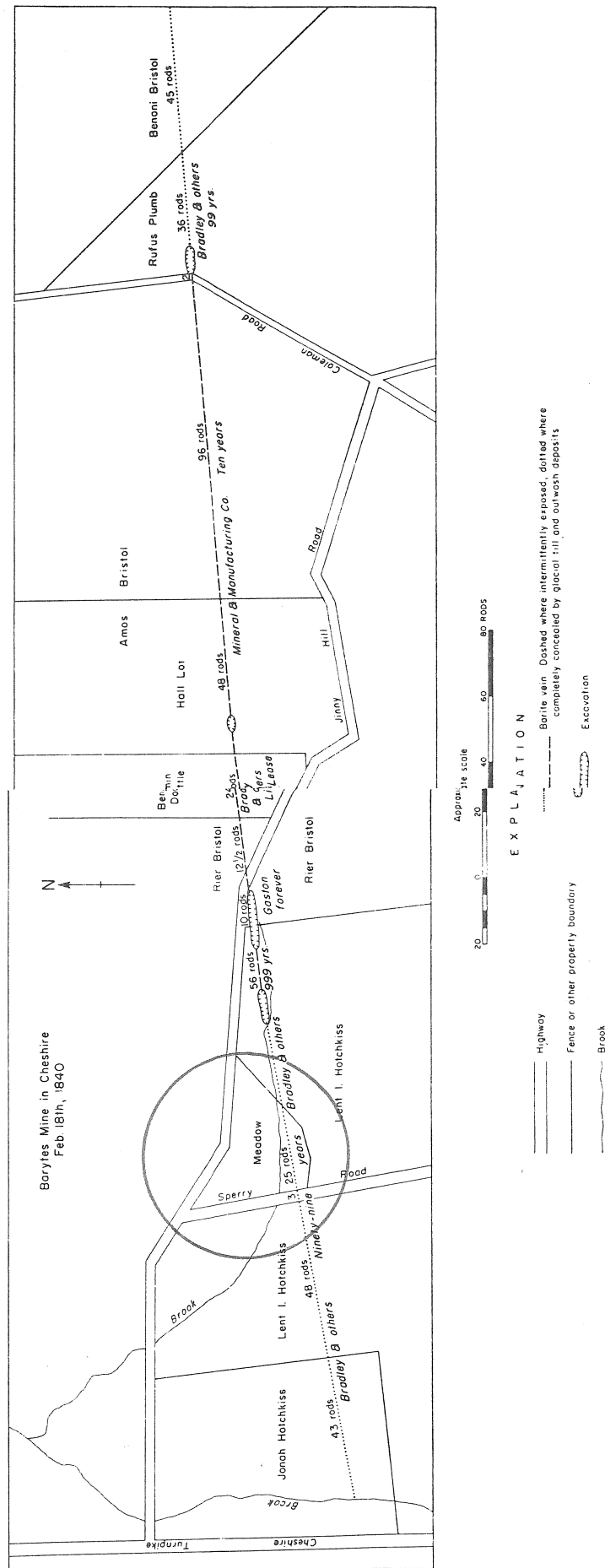


PLATE 2 - MAP OF MINERAL LEASES AT JINNY HILL ME, CHESHIRE, CONNECTICUT, AS OF FEBRUARY 18, 1840
Modified from manuscript map made by Shesha Warkley (39). Printing replaces original script. Names of lessors in upright letters. Names of lessees and terms of leases italicized. North arrow, explanation, and present highway names added.

ABOUT THE TEAM

The King's Mark Environmental Review Team (ERT) is a group of environmental professionals drawn together from a variety of federal, state and regional agencies. Specialists on the Team include geologists, biologists, soil scientists, foresters, climatologists and landscape architects, recreational specialists, engineers and planners. The ERT operates with state funding under the aegis of the King's Mark Resource Conservation and Development (RC&D) Area - an 83 town area serving western Connecticut.

As a public service activity, the Team is available to serve towns within the King's Mark RC&D Area - **free of charge**.

Purpose of the Environmental Review Team

The Environmental Review Team is available to assist towns in the review of sites proposed for major land use activities or natural resource inventories for critical areas. For example, the ERT has been involved in the review of a wide range of significant land use activities including subdivisions, sanitary landfills, commercial and industrial developments and recreation/open space projects.

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 site and highlighting opportunities and limitations for the proposed land use.

Requesting an Environmental Review

Environmental reviews may be requested by the chief elected official of a municipality or the chairman of an administrative agency such as planning and zoning, conservation or inland wetlands. Environmental Review Request Forms are available at your local Soil and Water Conservation District and through the King's Mark ERT Coordinator. This request form must include a summary of the proposed project, a location map of the project site, written permission from the landowner/developer allowing the Team to enter the property for the purposes of a review and a statement identifying the specific areas of concern the Team members should investigate. When this request is reviewed by the local Soil and Water Conservation District and approved by the King's Mark RC&D Executive Council, the Team will undertake the review. At present, the ERT can undertake approximately two reviews per month depending on scheduling and Team member availability.

For additional information regarding the Environmental Review Team, please contact the King's Mark ERT Coordinator, Connecticut Environmental Review Team, P.O. Box 70, Haddam, CT 06438. The telephone number is 203-345-3977.

