FLOOD PLAIN MANAGEMENT STUDY TALLASEEHATCHEE, CROOKED, SHIRTEE CREEKS AND TRIBUTARIES IN VICINITY OF SYLACAUGA, ALABAMA

Prepared By

U.S. Department of Agriculture
Soil Conservation Service
Auburn, Alabama

In Cooperation With

City of Sylacauga, Alabama

Talladega County Soil and Water Conservation District

East Alabama Regional Planning and Development Commission

State of Alabama
Alabama Department of Economic and Community Affairs

October 1984

Acknowledgements:

The cooperation and assistance given by the many agencies, organizations, and industries during these flood hazard analyses are greatly appreciated. These include:

City of Sylacauga

Talladega County Soil and Water Conservation District

East Alabama Regional Planning and Development Commission

U.S. Geological Survey, Department of Interior

Alabama Department of Economic and Community Affairs (ADECA)

Appreciation is also extended to the many local officials and individuals who contributed information for the study and to landowners who permitted access for engineering surveys and field studies.

 For information address:

Alabama Department of Economic and Community Affairs
Resources Development Section
3465 Norman Bridge Road
P. O. Box 2939
Montgomery, Alabama 36105-0939

Source of copies:

City of Sylacauga
City Hall
Sylacauga, Alabama 35150

East Alabama Regional Planning and Development Commission
1001 Leighton Avenue
P. O. Box 2186
Anniston, Alabama 36202

FOREWORD

Pressures created by increased urbanization have intensified the demand for the use of flood plain areas in and adjacent to Sylacauga, Alabama. Technical information about flood hazards is essential for a local flood plain management program to be effectively planned and implemented.

This report provides flood hazard information for some 16.5 stream miles along Crooked Creek, Shirtee Creek and tributaries. The drainage areas involved range from 7.2 to 13.8 square miles in the Crooked Creek Watershed and less than 2.0 to 16.0 square miles for Shirtee Creek and tributaries. The report includes Flood Hazard Area Photomaps, Flood Profiles, and Discharge-Elevation-Frequency Data for the above streams. Also, Flood Hazard Area Photomaps are included for 4 miles of Tallaseehatchee Creek within the Sylacauga urban area. Flood plain land use management practices and corrective measures that would minimize the risk of flooding are discussed in this report under alternatives for flood plain management.

Identification of the major flood-prone areas, history of flooding, and pertinent State and statutory authority local flood-prone area land use management practices are contained in the report. State and local governmental units will find this information valuable in assessing flood problems and determining actions needed for the judicious use of lands in and adjacent to the flood plain.

TABLE OF CONTENTS

LIST OF TABLES

INTRODUCTION

The City of Sylacauga requested a flood plain management study to identify local flood problems and to encourage wise use of the flood-prone area. This study was conducted in accordance with a plan of study developed in April 1981 by the Soil Conservation Service (SCS), the Alabama Department of Economic and Community Affaris (ADECA), and the City of Sylacauga. Soil Conservation Service flood plain management studies in Alabama are carried out through an April 1983 Joint Coordination Agreement between the SCS and the ADECA. Data in this report are based on investigations and analyses performed by SCS in cooperation with ADECA, the City of Sylacauga, and the Talladega County Soil and Water Conservation District (Talladega Co. SWCD).

Soil Conservation Service flood plain management studies are conducted under the authority of Section 6 of Public Law 83-566, in response to Federal Level Recommendation No. 3 of Water Resources Council revised Unified National Program for Flood Plain Management, September 1979; and in compliance with Executive Order 11988, dated May 24, 1977. Section 11-52-1 through 11-52-84, the Code of Alabama 1975, as amended, provides the zoning authority for municipalities to develop land use controls. Sections 11-19-1 through 11-19-24 of the Code of Alabama 1975, as amended, provides authority for development of a comprehensive land management and use program in unincorporated flood prone areas of the State. It allows county commissions in Alabama to meet requirements of the National Flood Insurance Act of 1968 (as amended), and authorizes the county commissions to prescribe criteria for land management and use in flood-prone areas.

The objective of this flood plain management study is to furnish technical data to local governments so they can prevent potential flood losses that might be caused by unwise development in flood-prone areas.

Information on the possibility of future storms of various magnitudes and the extent of flooding which might occur is included for Crooked Creek, Shirtee Creek and their tributary areas within and adjacent to the City of Sylacauga, Alabama. The extent of potential flooding from the 100-year and 500-year frequency flood is shown on aerial photomaps (see Appendix A). Elevation of expected flooding for selected recurrence intervals (10-, 50-, 100-, and 500-year events) are provided on flood profiles for the streams studied (see Appendix B). The Shirtee Creek study area includes the stream reach in which the Sylacauga Urban Channel has been installed. Within this reach (shown on Flood Hazard Area Maps 4 and 8 in Appendix A), the 100-year-24-hour storm is carried within the concrete-lined channel. This channel provides an outlet for the storm sewer system of the downtown business district of Sylacauga. This study did not include this downtown area in which storm sewers are designed to carry surface runoff (see Appendix A-map 8, limit of study--3rd Street). However, some street flooding can be expected to occur in this area. The extent of this street flooding will depend on the specific location and the sewer system capacity at this location. Tallaseehatchee Creek in the northern part of the City was studied by approximate methods (see "Glossary of Terms" in Appendix C for detailed definitions of terms used in the report).

By using the maps, tables, and profiles presented in this report, the flood elevation at selected locations along the streams may be determined. This information will permit local units of government to implement flood plain manangement regulations which recognize potential flood hazards.

The maps and profiles are based on conditions that existed at the time field surveys were made in 1969 and 1981. Such factors as increased urbanization, encroachment of flood-prone areas, relocation or modification of bridges and other stream crossings, and stream channel improvement can have a significant effect on flood stages and areas inundated. Therefore, the results of any flood hazard analyses should be reviewed periodically by appropriate State and local officials and planners to determine if changes in watershed conditions would significantly affect future flood elevations.

The Soil Conservation Service through the Talladega County SWCD, ADECA, and the East Alabama Regional Planning and Development Commission, can provide technical assistance in the interpretation and use of the information contained herein and will provide additional technical assistance and data needed in local flood plain management programs.

DESCRIPTION OF STUDY AREA

General

The City of Sylacauga is located in Talladega County, Alabama, within the Coosa River Basin (USGS Hydrologic Unit Code Tallaseehatchee Creek 03150107-SCS-010). The study area includes flood-prone areas of the Crooked, Shirtee, and Tallaseehatchee Creeks within and adjacent to the City of Sylacauga (see location map, Appendix A). Crooked and Shirtee Creeks are perennial streams and flow into Tallaseehatchee Creek from the south. Drainage areas are as follows: Crooked Creek - 13.8 square miles at the study limits, Shirtee Creek and tributaries - 16.0 square miles. Detailed studies were made on 16.5 stream miles of Crooked Creek, Shirtee Creek, and their tributaries (see Table 3,

page 11 for each stream length and flood-prone acreage). An additional 4.0 miles was studied on Tallaseehatchee Creek by the approximation method.

Sylacauga, with a 1980 population of 12,708 experienced an increase of 4 percent in the 1970-80 decade. The ADECA has projected the city's population to increase to 14,200 (11.7 percent) by the year 2000.

The area of incorporation, at present, is approximately 14 square miles and the incorporated area subject to flooding by the 100-year frequency storm is 0.8 square miles.

TABLE 1
DRAINAGE AREAS OF STREAMS

Stream or Tributary	Cross Section	Drainage Area Sq. Mi.
Shirtee	208	16.0
Shirtee	101	15.0
Shirtee @ Jct. Big Ditch		1.9
Shirtee @ Hwy. 21		0.4
Upper Shirtee @ Jct. Shirtee	104	12.8
Upper Shirtee @ Jct. Darby Branch	109	8.7
Upper Shirtee @ Hwy. 280	117	4.3
Tributary 1	122	1.1
Darby Branch @ Jct. Upper Shirtee	109	2.1
Darby Branch @ Co. Rd. 8	142	1.7
Darby Branch @ Hwy. 280	167	0.8
Big Ditch @ Jct. Shirtee	3	1.8
Big Ditch @ 4th St.	30	1.3
Big Ditch @ Quarry Rd.	50	1.0
Crooked Creek @ Hwy. 148	179	8.4

Climate

The climate is humid and temperate. Rainfall is generally well distributed throughout the year. The average temperature and rainfall are as shown in Table 2 below. The normal frost-free period is from approximately March 30 to October 30, about 220 days.

TABLE 2

AVERAGE TEMPERATURE AND RAINFALL*

Season	Temperature (Degrees Fahrenheit)	Rainfall (Inches)
Winter	45.2	15.3
Spring	61.7	16.8
Summer	77.6	11.7
Fall	62.3	10.1
Yearly Average 1951-80	61.7	53.9

*Climatography - No. 81, Talladega, Alabama (NOAA, Department of Commerce)

Geology and Topography

The area lies along the inner (northwest) boundary of the Piedmont Physiographic Province and the southwest boundary of the Appalachian Ridge and Valley Physiographic Province. Topography is rolling to steep with fairly wide, flat flood plains.

The area is generally a large rolling valley developed on limestone, dolomite, and marble; surrounded by rough mountain land developed on slates and phyllites. Elevations range from 500 to 550 feet above mean sea level in the valleys to as much as 1000 feet above mean sea level in the surrounding mountains. Geologic formations are the Talladega Slate Series, which include the Sylacauga Marble Member; and undifferentiated limestones and dolomites of Cambrian and Ordovician Age. The Talladega Series consists of slightly to somewhat metamorphosed platy rocks and marble that were laid down as sediment in a deltaic sequence. The dolomites are Cambrian and Ordovician sedimentary rocks laid down as chemical-physical precipitates.

Much of the City of Sylacauga and the areas east, south and west are underlain by marble. The Sylacauga Marble is extensively quarried and very important to the local economy. It is a fine-grained white to cream colored rock that is used for architectural stone and crushed marble products.

Soils

The soils within the 100-year flood hazard area formed in loamy and clayey alluvium on flood plains and stream terraces. Major soils are Chenneby, Chewacla, Choccolocco, Dowellton, Grasmere, Leadvale, McQueen, Melvin, Sylacauga, and Wickham. Adjacent uplands formed in clayey and loamy residuum of the Southern Appalachian Ridges and Valleys. Major soils are Decatur, Tallapoosa, and Tatum.

Chenneby, Chewacla, Dowellton, Leadvale, Melvin, and Sylacauga soils comprise about 50 percent of the flood hazard area and are on the lower elevations within the area. These deep, poorly drained to somewhat poorly drained soils

are frequently flooded. These soils are poorly suited for cultivated crops and fairly well suited to pasture, hayland, and woodland. In addition to the flooding hazard; building site development and the construction of sanitary facilities are limited by wetness, seepage, and permeability.

Choccolocco, Grasmere, McQueen and Wickham soils comprise about 50 percent of the flood hazard area and are on the higher elevations within the area. These deep, moderately well drained to well drained soils are rarely to occasionally flooded. These soils are well suited to cultivated crops, pasture and hayland, and woodland. Flooding is the main limitation to building site development and to the construction of sanitary facilities.

Decatur, Tallapoosa, and Tatum soils are on uplands adjacent to the study area. These shallow to deep, well drained soils do not flood. These soils are well suited to cultivated crops, well suited to woodland, and fairly well suited to pasture and hayland, and woodland. Building site development and the construction of sanitary facilities are limited by slope and the depth of Tallapoosa soils and seepage.

Choccolocco, Grasmere, Leadvale, McQueen, Sylacauga, and Wickham soils qualify for prime farmland. These soils comprise about 50 percent of the flood hazard area. Decatur soils, on the adjacent uplands, qualify for prime farmland. These soils comprise about 40 percent of the adjacent uplands.

If detailed soils information is desired for a specific location, the published soil survey of Talladega County, Alabama; the Talladega County Soil and Water Conservation District; or personnel in the SCS Field Office in Talladega should be consulted.

NATURAL VALUES

Land Use

The present land use in the Shirtee Creek Watershed consists of cropland (2 percent), pasture and hayland (3 percent), idle (2 percent), woodland (20 percent), and residential, commercial, industrial, and roads (73 percent). The present land use in the Crooked Creek Watershed consists of cropland (1 percent), pasture and hayland (1 percent), and woodland (98 percent). Flood plain land use in the study area is as follows: urban (35 percent), cropland (5 percent), pasture and hayland (10 percent), woodland (35 percent), and miscellaneous (15 percent).

Plant Resources

Historically, the overstory of the study area has been a part of the oak-hickory complex. This complex is more widespread than any of the other deciduous communities which occur in Alabama. Among the tree species which characterize this complex are white, red, black, chinquapin, post, and chestnut oaks; black locust; sugar and red maples; blackgum; sweetgum; beech; hickories; loblolly, longleaf, shortleaf, and Virginia pines; and sourwood.

Ground cover diversity and density is dependent upon the density and canopy expanse of the overstory trees. Among the plants which make up the understory and ground cover are flowering dogwood, eastern redbud, sweetshrub, American beautyberry, American strawberry bush, Piedmont azalea, honeysuckles, and many others.

Plant species which are listed only by Alabama as endangered, threatened, or special concern and which may be found in the oak-hickory complex include snowy orchis, ginseng, horse gentian, hairy gentian, Alabama skullcap and buffalonut.

The growth of urban areas and their surrounding scrubs have had an adverse impact on this deciduous forest community. Other adverse effects have occurred as the result of converting the oak-hickory forest to pine plantations, to farmland, and inundation due to impoundments on the larger streams.

Wetland types (U. S. Department of the Interior, Fish & Wildlife Service Circular 39) associated with the oak-hickory complex are 1 and 6. Type 1 makes up the bulk of the wetland area with Type 6 occurring on some of the smaller, perennial streams.

Fish and Wildlife

The oak-hickory complex provides habitat for several game and non-game species of wildlife. Game species occurring or residing in the oak-hickory complex are whitetail deer, wild turkey, gray squirrels, rabbits, and the bobwhite quail. Furbearers found in this complex include oppossum, raccoon, bobcat, beaver, mink, and muskrat. Other animal populations supported by the oak-hickory complex include amphibians, reptiles, and non-game birds.

The major species of game fish in the study area include bluegill, largemouth bass, longear sunfish, black and white crappie, white bass, and striped bass. The so-called rough fish species include catfish, bullheads, gar, suckers, carp, buffalo, and shad.

Archeological, Historical, and Natural Values

There are 129 sites of archeological significance reported in Talladega County and 224 historic landmarks. However, none of these archeological or historical sites will be affected by application of any of the flood plain management alternatives presented in this study.

As indicated, urban growth and clearing of the oak-hickory complex in the study area has drastically altered the natural values. Much of the area currently in open fields or pasture lies within the urban and build-up areas of Sylacauga where urban expansion is occurring. Many of the open areas along the streams have been invaded by Chinese Privet, *Ligustrum sinense*, to the extent that this plant restricts runoff of flood water.

FLOOD PROBLEMS

Historical Floods

Official records of historic flood elevations in Sylacauga have not been maintained and reliable information is not available. The 24-hour rainfall report by the National Weather Service indicates the storm of March 4, 1979, was about 6.6 inches which approximates a storm expected to occur once every 25 years.

Future Floods

Approximately 1,073 acres in the study area are inundated by the 100-year flood. The area of inundation increases approximately 12 percent, to 1,206

acres, for the 500-year flood. The 100-year storm floods the flood plain from less than 2 feet to over 8 feet along Crooked Creek and less than 3 feet to over 6 feet along Shirtee Creek and tributaries. The velocities of the streams in the study area vary from less than 1 foot per second to about 6 feet per second. Flood stages presented in this report are based on the assumption that road embankments will not fail before the maximum flood stages are reached. Unusual trash blockages and log jams were not considered in the analysis. Streams studied are tabulated by reaches with acreages subject to inundation from the 100-year and 500-year floods (see Table 3 below).

TABLE 3
STREAM MILEAGE AND FLOOD AREA
100-YEAR AND 500-YEAR FLOODS

Stream Reach	Miles	Cross Sections	Flood Area		Land Use 100-YR(Acres)	
			100-YR	500-YR	Urban	Cropland
Shirtee Creek	4.3	208 to study limit	189	237	169	20
Upper Shirtee Creek	3.7	106 to 132	357	376	70	10
Darby Branch	2.7	109 to 176	103	117	47	--
Big Ditch	2.5	3 to 59	89	119	33	--
Crooked Creek	3.3	1 & 35,36,177,186	335	357	22	23
TOTAL	16.5		1,073	1,206	341	53

The flood profile sheets (Appendix B) include expected water surface elevations for the 10-, 50-, 100-, and 500-year frequency floods, and present pertinent bridge and roadway data, and elevations of the existing channel bottom. Flood elevations can be estimated at any location from the profiles on Sheets 01P through 017P Shirtee Creek and tributaries, and Sheets 018P through 021P for Crooked Creek.

For information about the estimated floodwater elevation at a specific location, refer to the Flood Hazard Area Photomaps to determine where this location

is relative to the nearest upstream and downstream cross sections. To determine a floodwater elevation for a given frequency flood at a specific location, estimate or scale the valley distance between the location in question and the nearest cross section shown on the photomaps. Next, find the location of that cross section on the water surface profile, move the distance from the cross section to the point in question on the profile. Read the flood elevation directly from the profile by going up the elevation scale at the selected station to the plotted elevation line for the frequency flood and then read horizontally to obtain the elevation. The water surface elevations for the floods studied are shown at selected cross sections in Table 5 of Appendix C.

FLOOD PLAIN MANAGEMENT

Existing Flood Plain Management

The National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 encourage wise management of flood-prone areas through local land use management practices. The State of Alabama, responding to the National Flood Insurance Act, authorized and granted powers, by Section 11 of the Code of Alabama 1975 as amended, to each county or local government in Alabama to prescribe criteria for land management, including control measures in flood-prone areas. The Alabama Department of Economic and Community Affairs and the Regional Planning Commissions assist county and local governments in carrying out this authority by developing comprehensive land management programs in flood-prone areas. The City of Sylacauga has participated in the National Flood Insurance Program (NFIP) since February 18, 1975, (Emergency

Program phase). Entrance into this program authorized the sale of flood insurance at reduced rates for both residential and non-residential structures and mobile homes and their contents throughout the areas subject to flooding in the City. The National Flood Insurance Act of 1968 requires local units of government to develop land use management practices for flood-prone areas based on competent evaluation of flood hazards. In entering the NFIP, the City agreed to adopt the codes and ordinances necessary to protect future development in the community from flood hazards.

Alternatives For Flood Plain Management

The current low level of flood damages will allow local officials to emphasize strengthening their flood plain management program primarily by proper development and use in the flood plain and regulating upland land use changes to avoid increasing future runoff rates. Technical flood hazard information is a valuable tool which the City of Sylacauga can use to guide development and use of the flood-prone area, thereby minimizing future losses from flooding. This section is intended to outline a program by which the City can reduce the destruction and loss of property associated with a flood, while at the same time achieving wise use of the flood-prone areas. The Flood Hazard Area Photomaps contained in this report should be considered for adoption as part of Sylacauga's flood plain management program. If flood zone maps are developed and published as part of a flood insurance study, these maps could be officially incorporated into the city's flood plain management ordinance. Additional controls may need to be imposed when more detailed information is available. It is recommended that the City develop a program to publicize the availability of flood insurance and encourage community residents to participate in the program, especially those located in or near flood-prone areas.

Residents in flood-prone areas should be made aware of the impacts of not obtaining flood insurance coverage.

In conformance with the requirements of the NFIP, the City is already enforcing certain regulations in identified flood-prone areas. These include the basic subdivision and zoning ordinances and construction codes. A local regulatory program should be implemented through the use of codes and ordinances and proper administrative procedures. Revision of existing codes and adoption of effective policies and procedures can result in the wise management of flood-prone areas in future years. Land use management practices in flood-prone areas are an important aspect of a flood plain management program. These practices include zoning, subdivision regulation, and construction standards. Additional regulations developed for the flood-prone areas should be integrated with the City's existing land use management policies. The ordinances that are amended and the additional regulations that are adopted should be mutually supporting and should be compatible with the city's overall development policies. Assistance can be provided by the East Alabama Regional Planning and Development Commission or ADECA in developing the regulatory measures needed. The following alternatives may also be viable as a part of the City's overall plan to minimize future flood damages:

The National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) Office in Birmingham, Alabama, issues flood warnings, and severe weather and flood warnings, along with general weather forecasts.

The National Weather Service is linked by teletype to the media outlets (newspaper, radio, television) and any other private or government agency in the area where a primary wire service has been established, if they arrange in

advance for the Service. Other local media may obtain the information relayed through newswire services. Rainfall accumulations and predictions by the NWS are furnished to local and county Emergency Management Agencies (Civil Defense Units) when flooding is predicted in their areas. The 5-year frequency flood (5.3 inches of rainfall in 24 hours) approaches the level at which damages occur. Once a flash flood watch is issued by the NWS, the Talladega County Civil Defense Office can monitor stream stages and issue statements to local radio stations for broadcast to the public. Evacuation of low-lying areas can be accomplished through the help of the local National Guard Unit and rescue squad.

The City is currently enforcing the Southern Standard Building Codes published by the Southern Building Code Congress and the National Electrical Code published by the National Fire Protection Association. Standards should be considered for adoption for filling in areas subject to flooding. Also, guidelines should be established for storage of materials in flood-prone areas. These standards and guidelines may be incorporated into a single flood-prone area ordinance that will supplement existing construction codes.

Other alternatives, i.e., flood proofing existing structures, purchasing and relocating existing structures, and structural solutions to significantly reduce flooding were given only minimum consideration during this study. The frequency of flooding and the extent of property at risk were not considered sufficient at this time to justify these more costly alternatives.

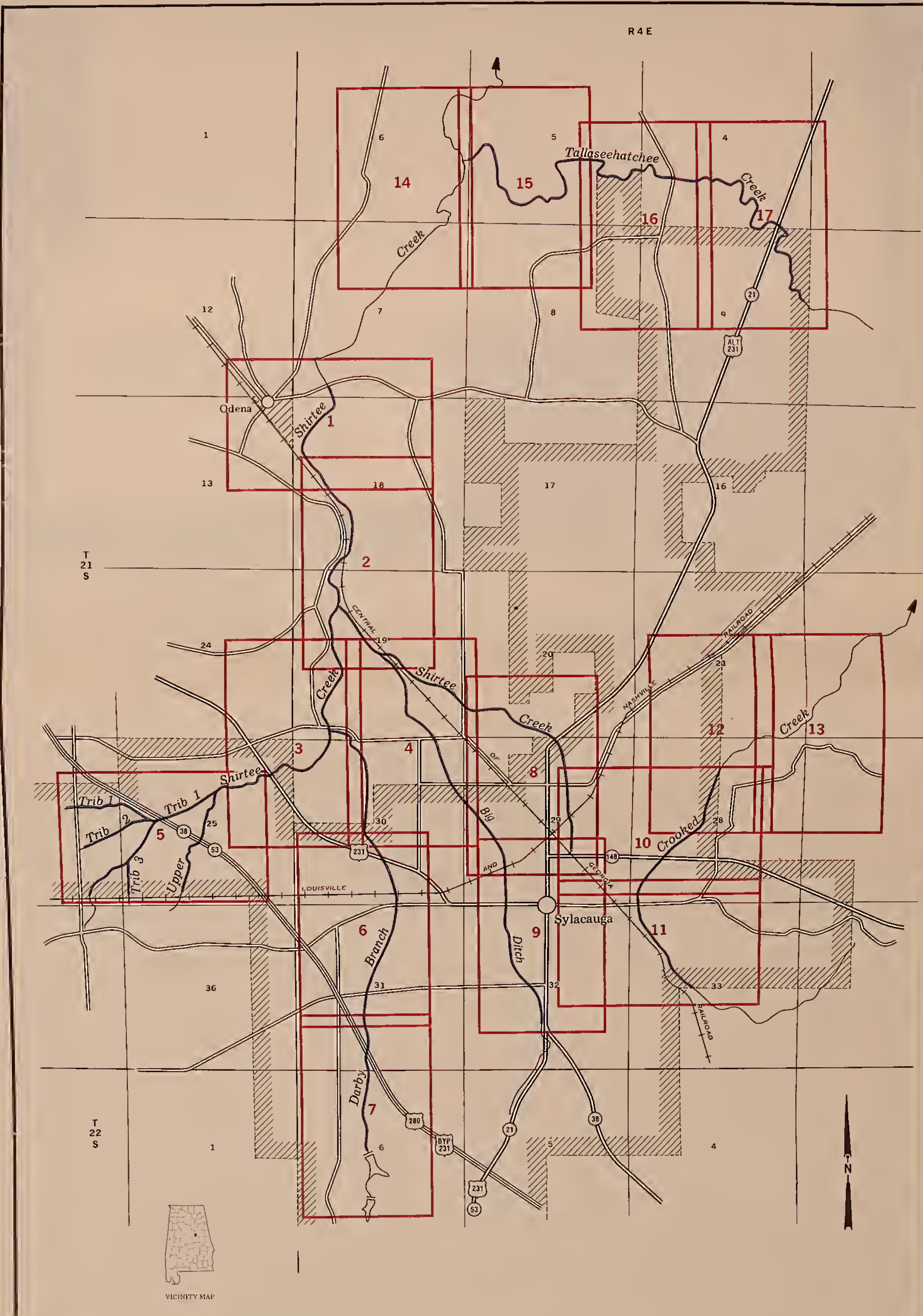
The success of the flood plain management program will depend greatly upon the efforts of the local government to inform the public of the program. A public information program should be designed specifically to disseminate to all

affected parties the essentials of the program, including code requirements, standards, and insurance provisions. Because the program affects not only future construction but also existing development, it is essential that property owners, land developers, real estate interests, construction interests, and lending institutions be acquainted with the flood plain management program and all of its implications. A knowledgeable and well-informed citizenry is the key to a successful flood plain management program.

APPENDIX A

LOCATION MAP AND PHOTOMAP INDEX

FLOOD HAZARD AREAS - SHEETS 1 THROUGH 17



LEGEND

City Limits

Stream

Flood Hazard Study Area

1 Photomap Sheet Area Coverage

0 3000 6000 9000 FEET

0 2000 METERS

APPROXIMATE SCALE

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SYLACAUGA, ALABAMA
FLOOD PLAIN MANAGEMENT STUDY
TALLADEGA COUNTY

LOCATION MAP AND PHOTOMAP INDEX

SHIRTEE CREEK AND TRIBUTARIES
CROOKED AND TALLASEEHATCHEE CREEKS

SHEET 1 OF 1

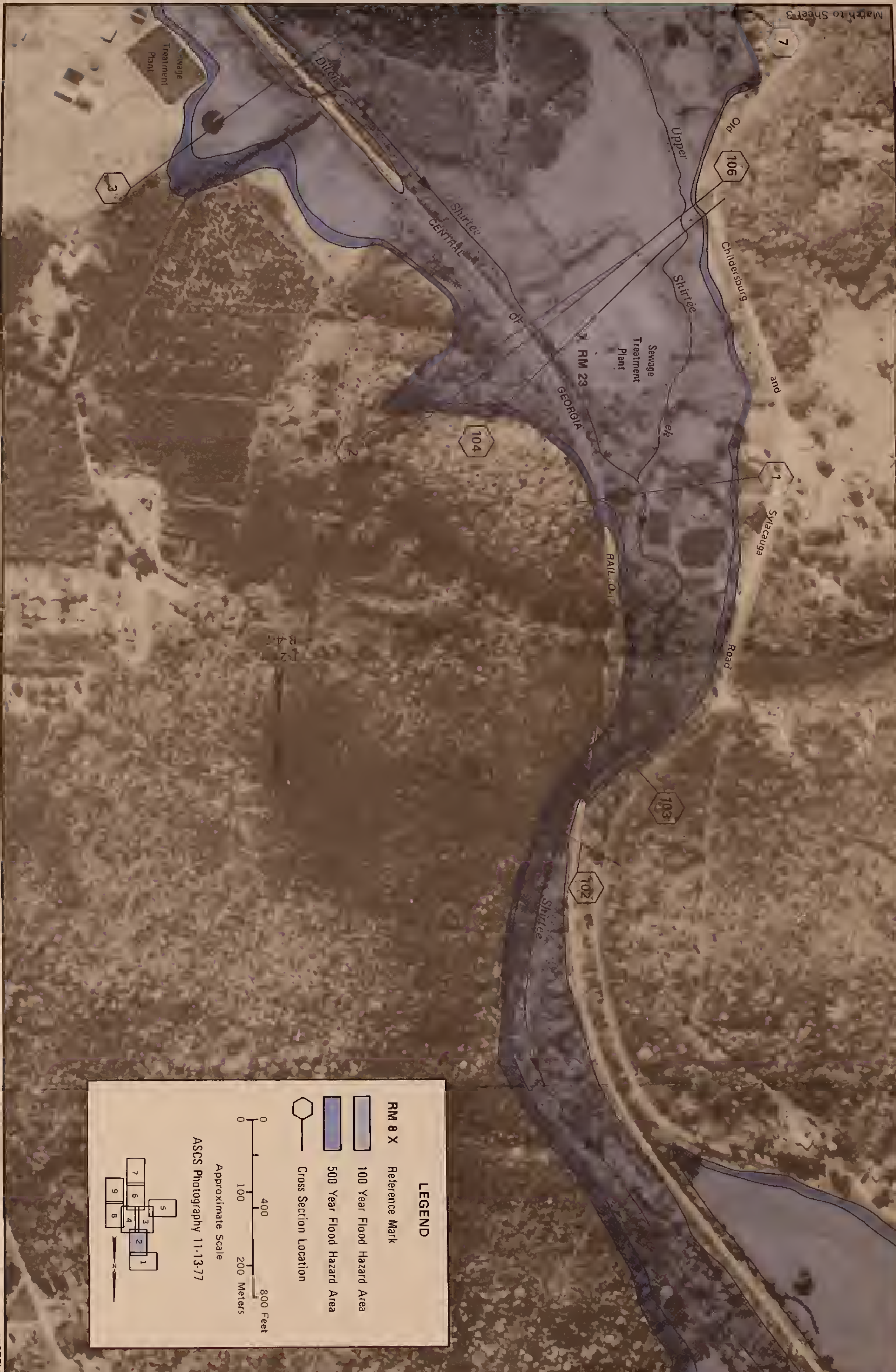
SEPTEMBER 1983 4-R-38543

FLOOD HAZARD AREA

SHIRTEE CREEK AND TRIBUTARIES

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SYLACAUGA, ALABAMA
FLOOD PLAIN MANAGEMENT STUDY
TALLADEGA COUNTY

SEPTEMBER 1983 4-R-38543



FLOOD HAZARD AREA

SHIRTEE CREEK AND TRIBUTARIES

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SYLACAUGA, ALABAMA
FLDDD PLAIN MANAGEMENT STUDY
TALLADEGA COUNTY

SHEET 2 OF 1

SEPTEMBER 1983 4-R-38543

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SYLACAUGA, ALABAMA
FLOOD PLAIN MANAGEMENT STUDY
TALLADEGA COUNTY

FLOOD HAZARD AREA

SHIRTEE CREEK AND TRIBUTARIES

SHEET 3 OF 17

SEPTEMBER 1983 4-R-38543

SEPTEMBER 1983 4-R-38543

SHEET 4 OF 17

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SYLACAUGA, ALABAMA
FLOOD PLAIN MANAGEMENT STUDY
TALLADEGA COUNTY

FLOOD HAZARD AREA

SHIRTEE CREEK AND TRIBUTARIES

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SYLACAUGA, ALABAMA
FLOOD PLAIN MANAGEMENT STUDY
TALLADEGA COUNTY

FLOOD HAZARD AREA

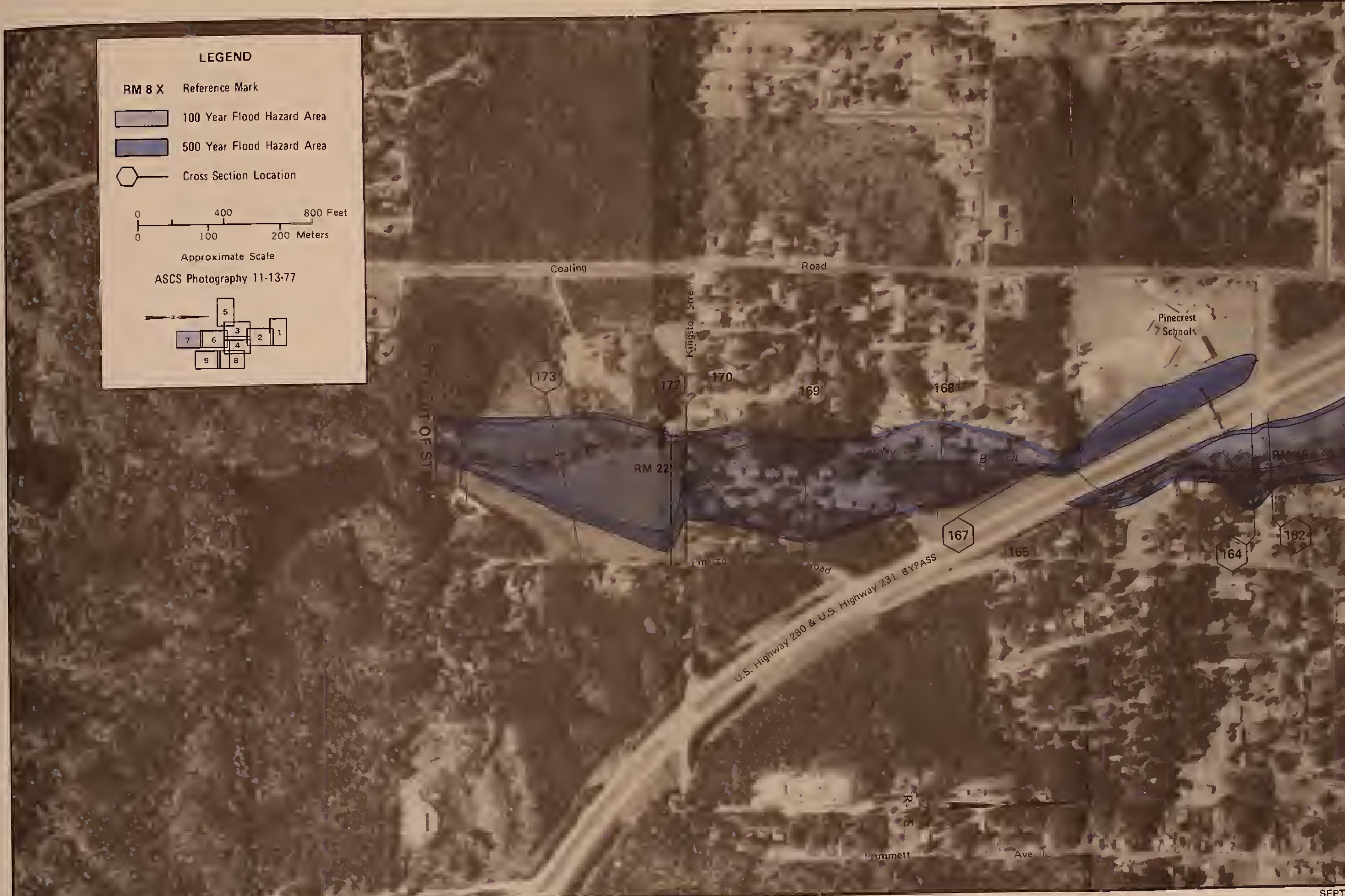
SHIRTEE CREEK AND TRIBUTARIES

SEPTEMBER 1983 4-R-38543

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE SYLACAUGA, ALABAMA FLOOD PLAIN MANAGEMENT STUDY TALLADEGA COUNTY	**FLOOD HAZARD AREA** **SHIRTEE CREEK AND TRIBUTARIES**

SHEET 6 OF 17

SEPTEMBER 1983 4-R-38543



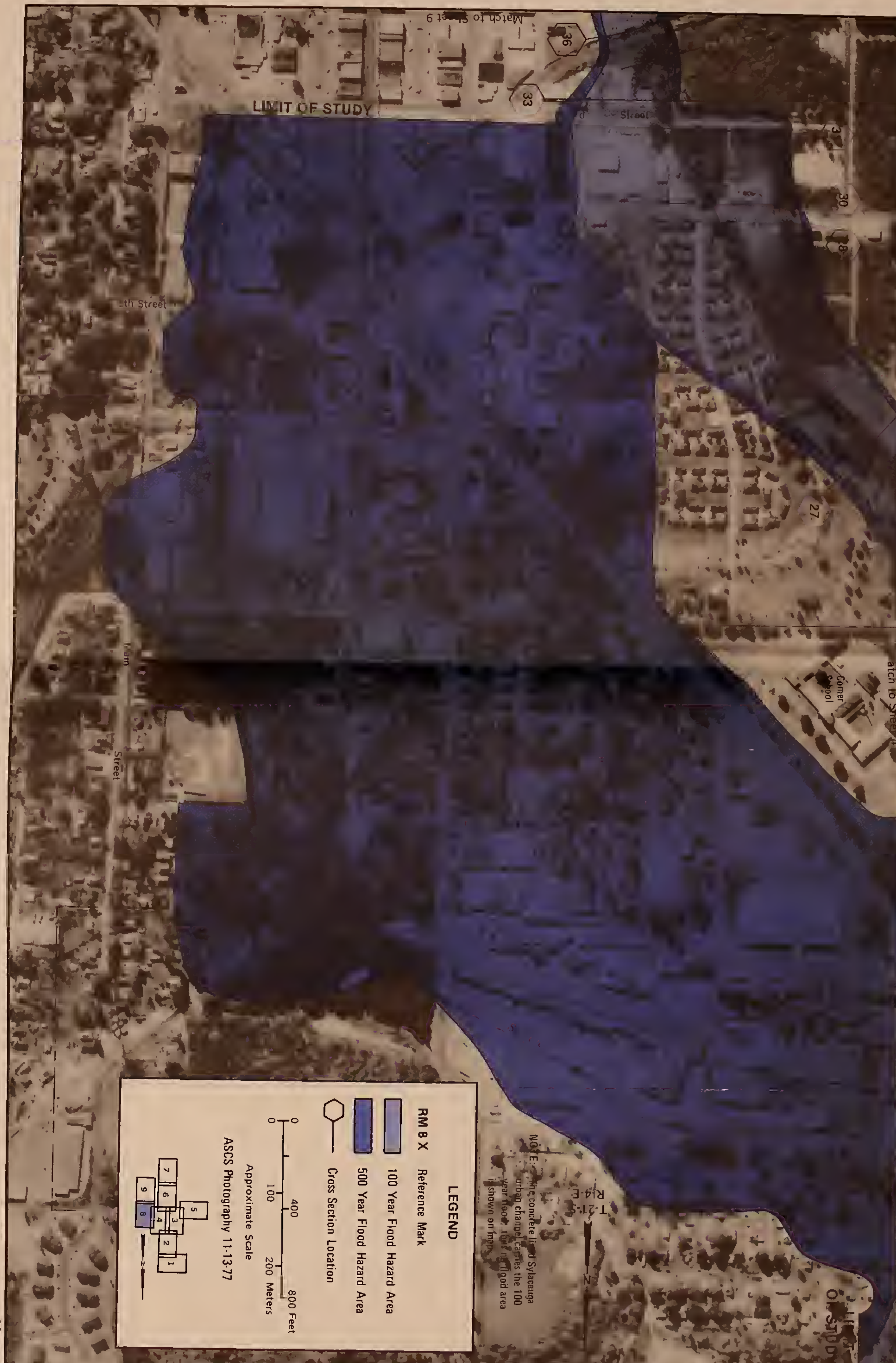
FLOOD HAZARD AREA

SHIRTEE CREEK AND TRIBUTARIES

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SYLACAUGA, ALABAMA
FLOOD PLAIN MANAGEMENT STUDY
TALLADEGA COUNTY

SHEET 7 OF 17

SEPTEMBER 1983 4-R-38543



FLOOD HAZARD AREA

SHIRTEE CREEK AND TRIBUTARIES

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SYLACAUGA, ALABAMA
FLOOD PLAIN MANAGEMENT STUDY
TALLADEGA COUNTY

SHEET 8 OF 17

SEPTEMBER 1983 4-R-38543

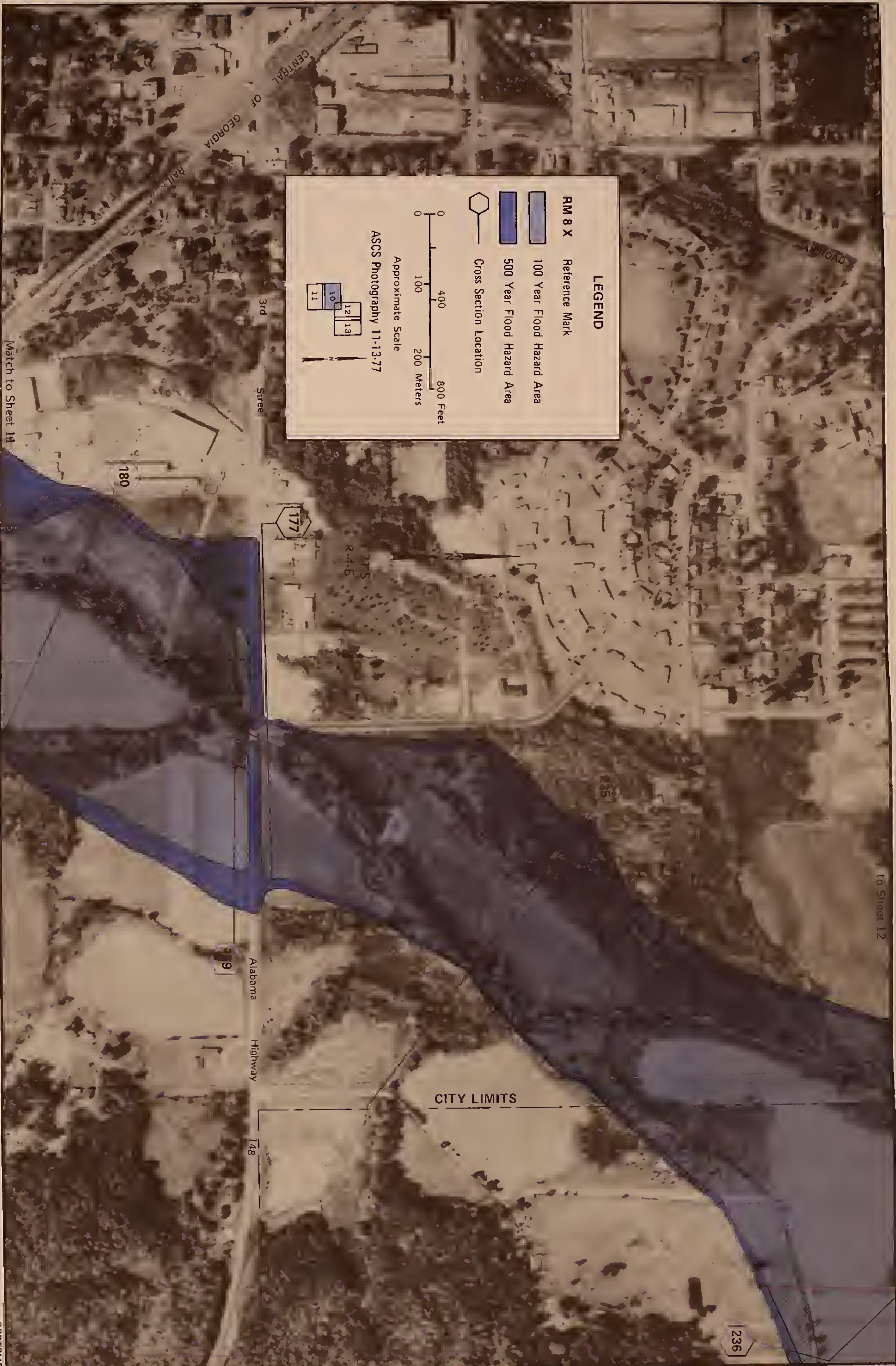
SEPTEMBER 1983 4-R-38543

SHEET 9 OF 17

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SYLACAUGA, ALABAMA
FLOOD PLAIN MANAGEMENT STUDY
TALLADEGA COUNTY

FLOOD HAZARD AREA

SHIRTEE CREEK AND TRIBUTARIES



SEPTEMBER 1983 4-R-38543

SHEET 10 OF 17

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SYLACAUGA, ALABAMA
FLOOD PLAIN MANAGEMENT STUDY
TALLADEGA COUNTY

FLOOD HAZARD AREA

CROOKED CREEK

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SYLACAUGA, ALABAMA
FLOOD PLAIN MANAGEMENT STUDY
TALLADEGA COUNTY

FLOOD HAZARD AREA

CROOKED CREEK

SHEET 11 OF 13

SEPTEMBER 1983 4-R-38543

SHEET 12 OF 17

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SYLACAUGA, ALABAMA
FLOOD PLAIN MANAGEMENT STUDY
TALLADEGA COUNTY

FLOOD HAZARD AREA

CROOKED CREEK

SEPTEMBER 1983 4-R-38543

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SYLACAUGA, ALABAMA
FLOOD PLAIN MANAGEMENT STUDY
TALLADEGA COUNTY

FLOOD HAZARD AREA

CROOKED CREEK

SEPTEMBER 1983 4-R-38643

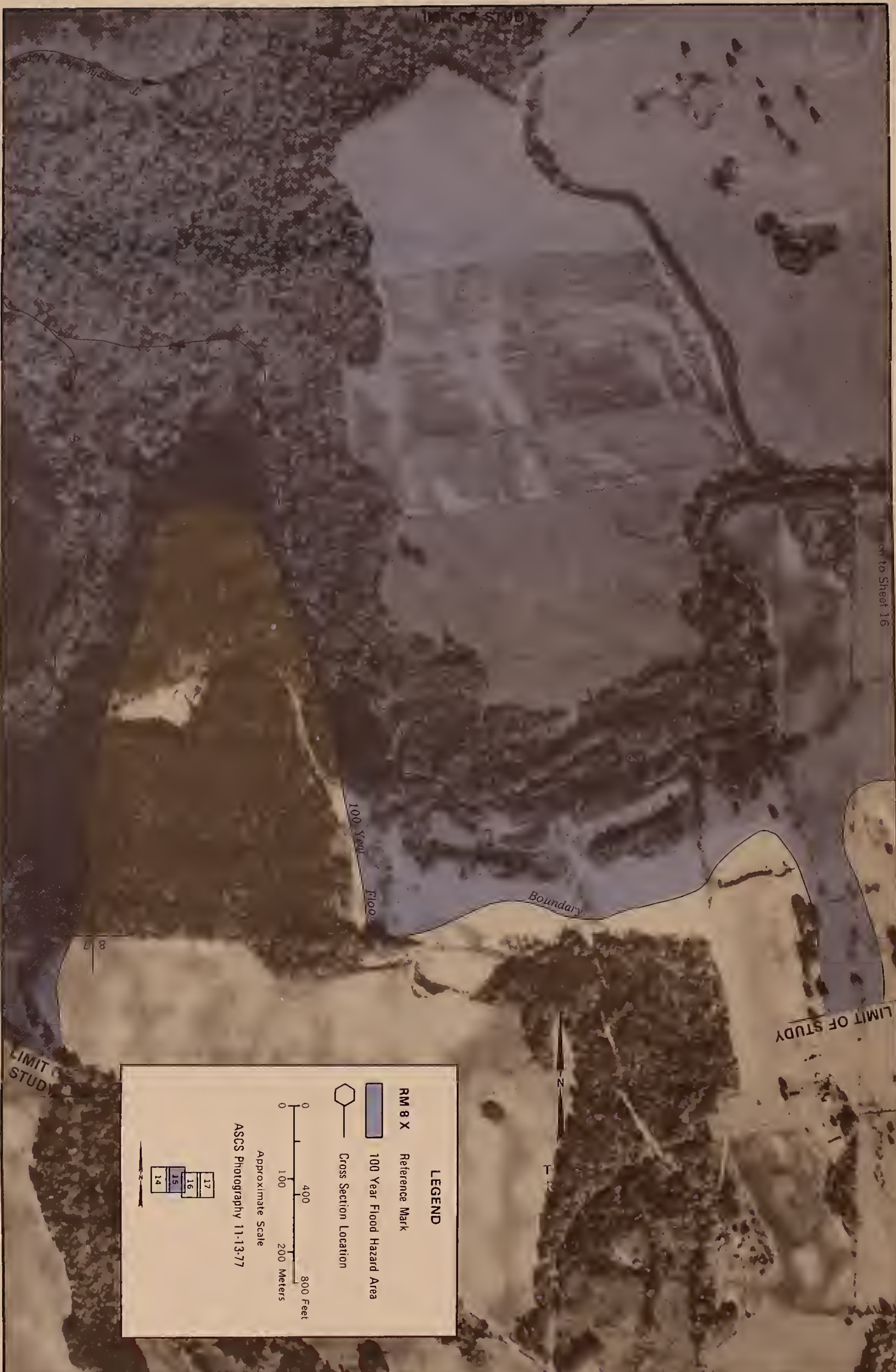
SHEET 14 OF 17

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SYLACAUGA, ALABAMA
FLOOD PLAIN MANAGEMENT STUDY
TALLADEGA COUNTY

APPROXIMATE FLOOD HAZARD AREA

TALLASEEHATCHEE CREEK

SEPTEMBER 1983 4-R-38543

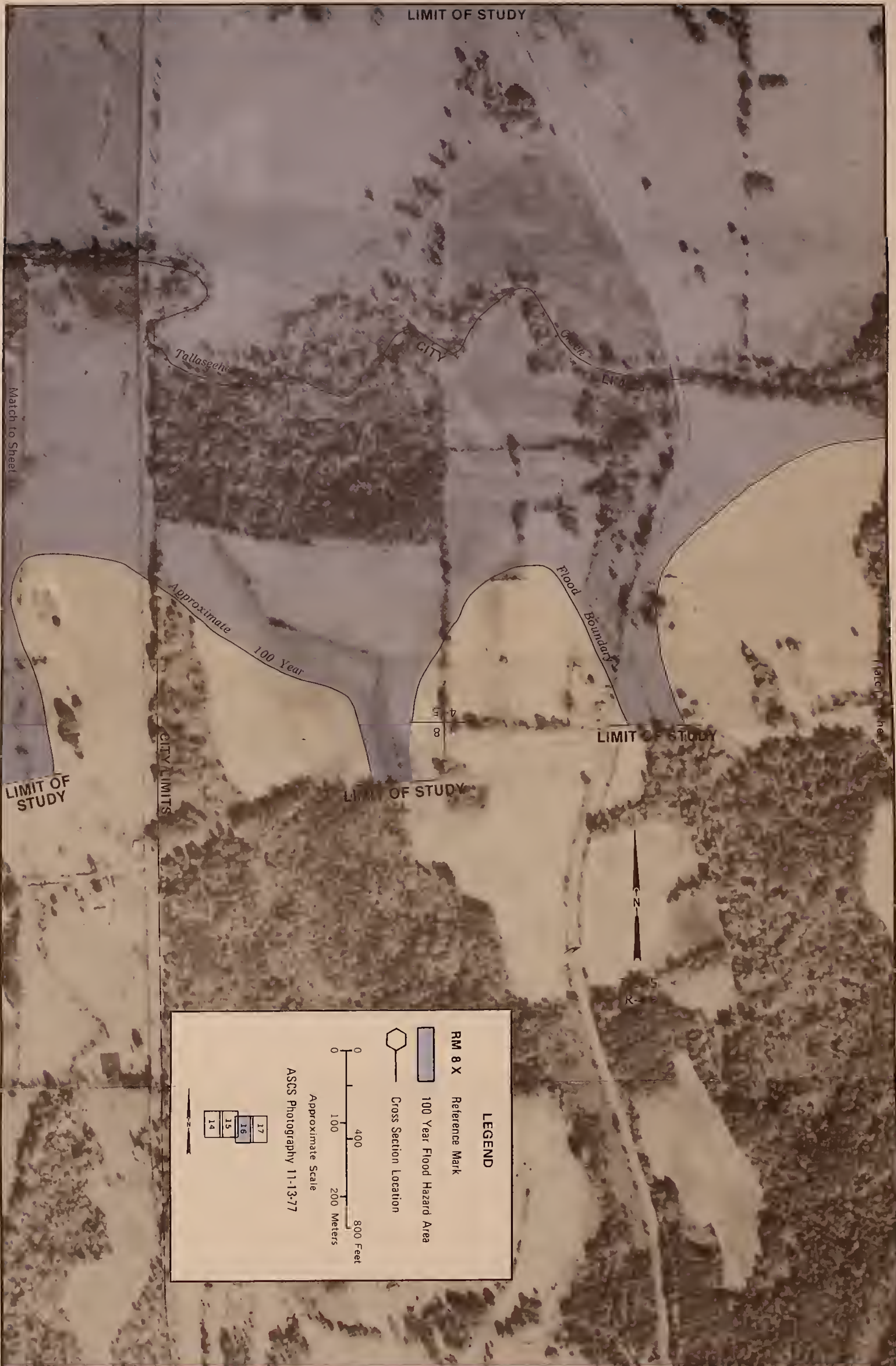


APPROXIMATE FLOOD HAZARD AREA

TALLASEEHATCHEE CREEK

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SYLACAUGA, ALABAMA
FLOOD PLAIN MANAGEMENT STUDY
TALLADEGA COUNTY

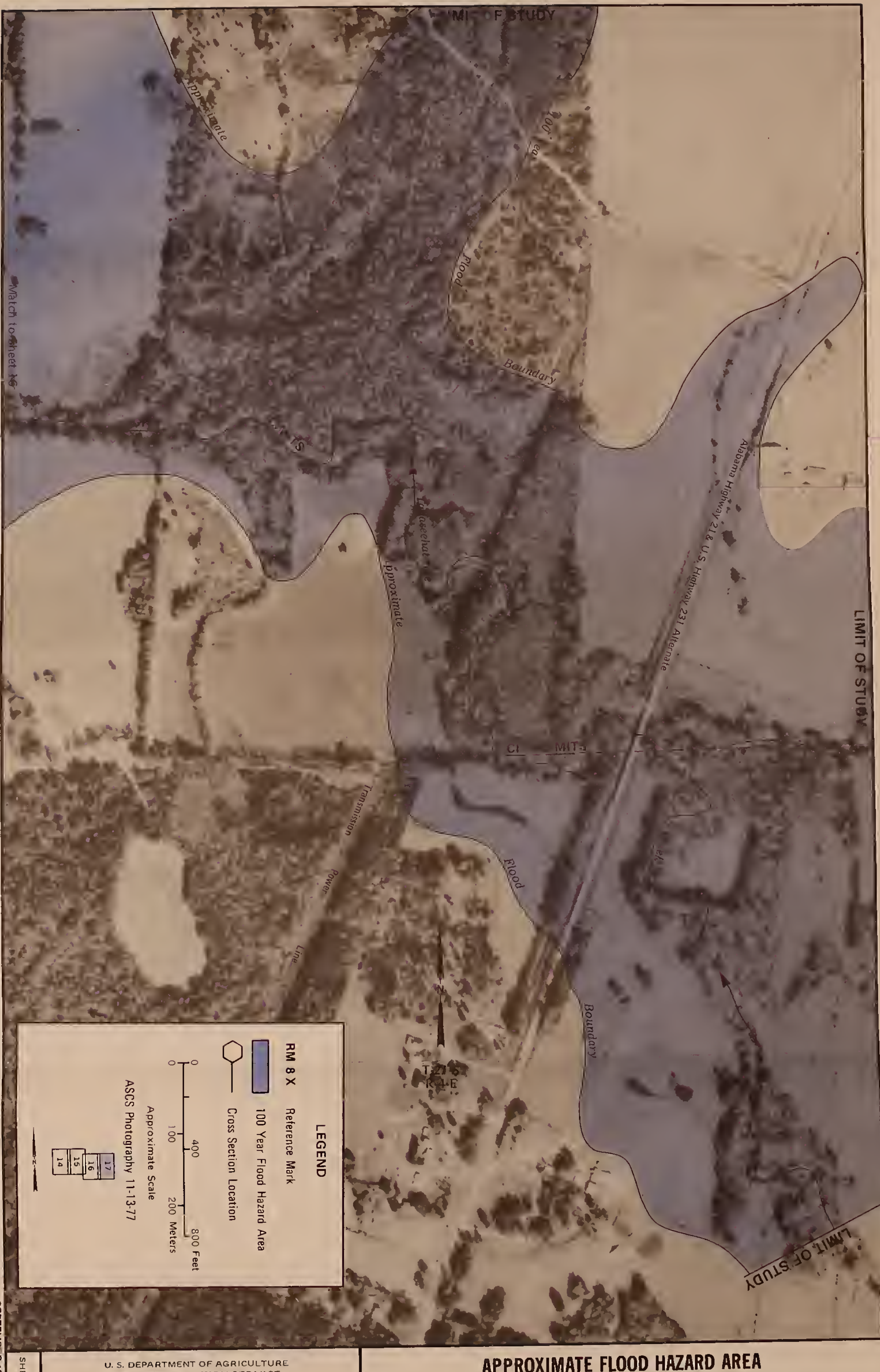
SEPTEMBER 1983 4-R-38543



U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE SYLACAUGA, ALABAMA FLOOD PLAIN MANAGEMENT STUDY TALLADEGA COUNTY	**APPROXIMATE FLOOD HAZARD AREA** **TALLASEEHATCHEE CREEK**

SHEET 16 OF 17

SEPTEMBER 1983 4-R-38543



U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SYLACAUGA, ALABAMA
FLOOD PLAIN MANAGEMENT STUDY
TALLADEGA COUNTY

APPROXIMATE FLOOD HAZARD AREA

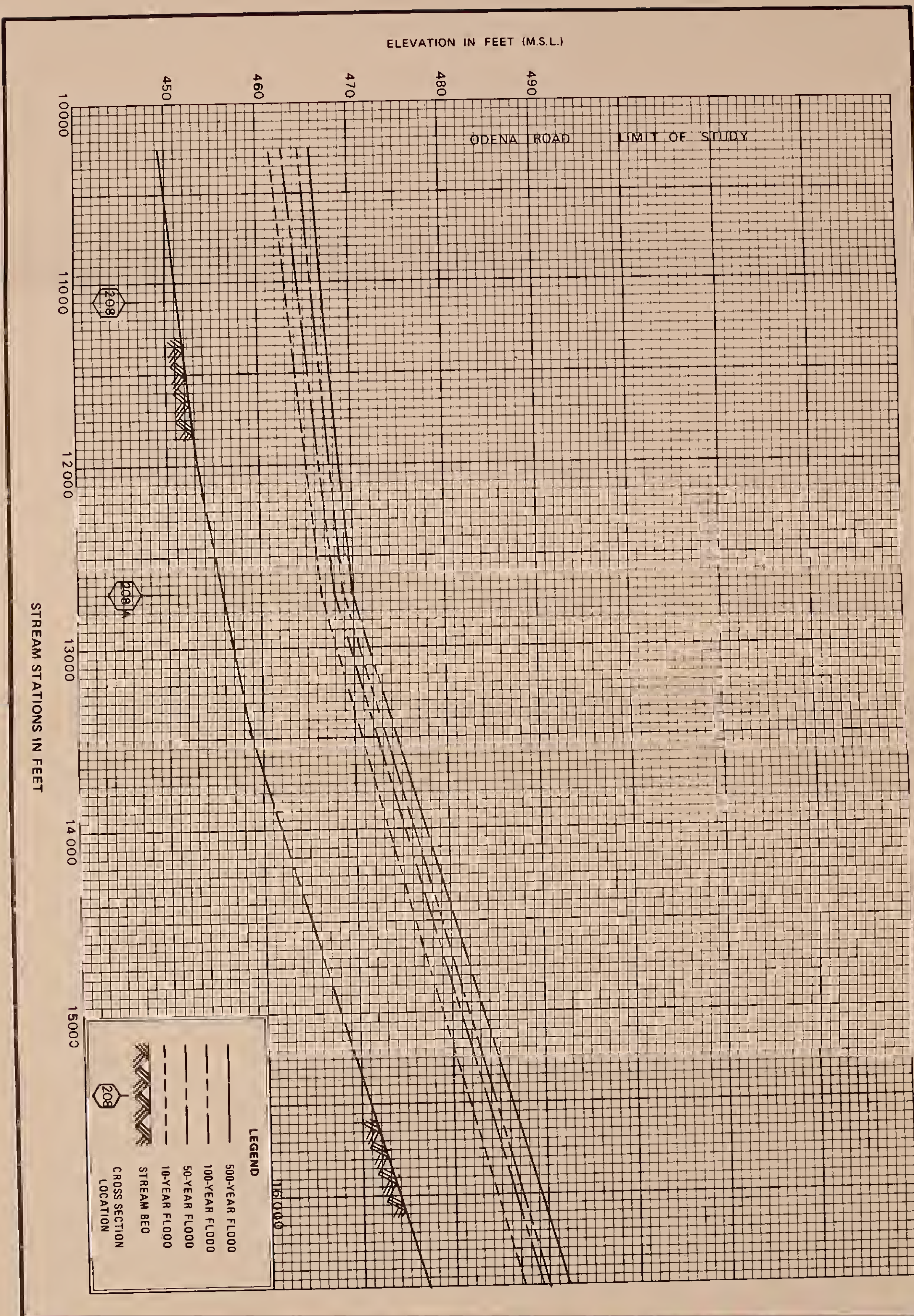
TALLASEEHATCHEE CREEK

SHEET 17 OF 17

SEPTEMBER 1983 4-R-38543

APPENDIX B

FLOOD PROFILES



U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

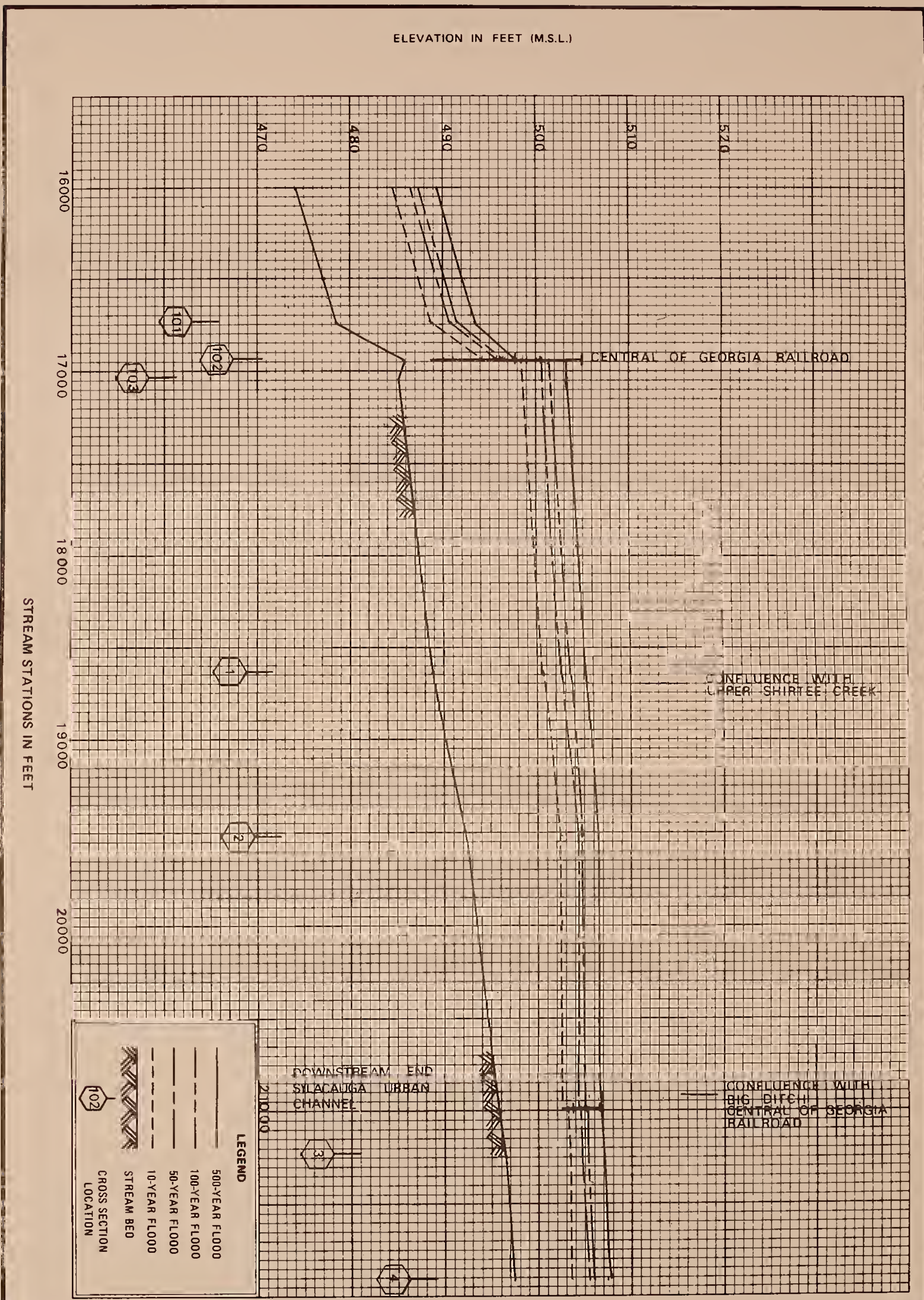
SYLACAUGA, ALABAMA

(TALLADEGA COUNTY)

FLOOD PROFILES

SHIRTEE CREEK

01 P



02P

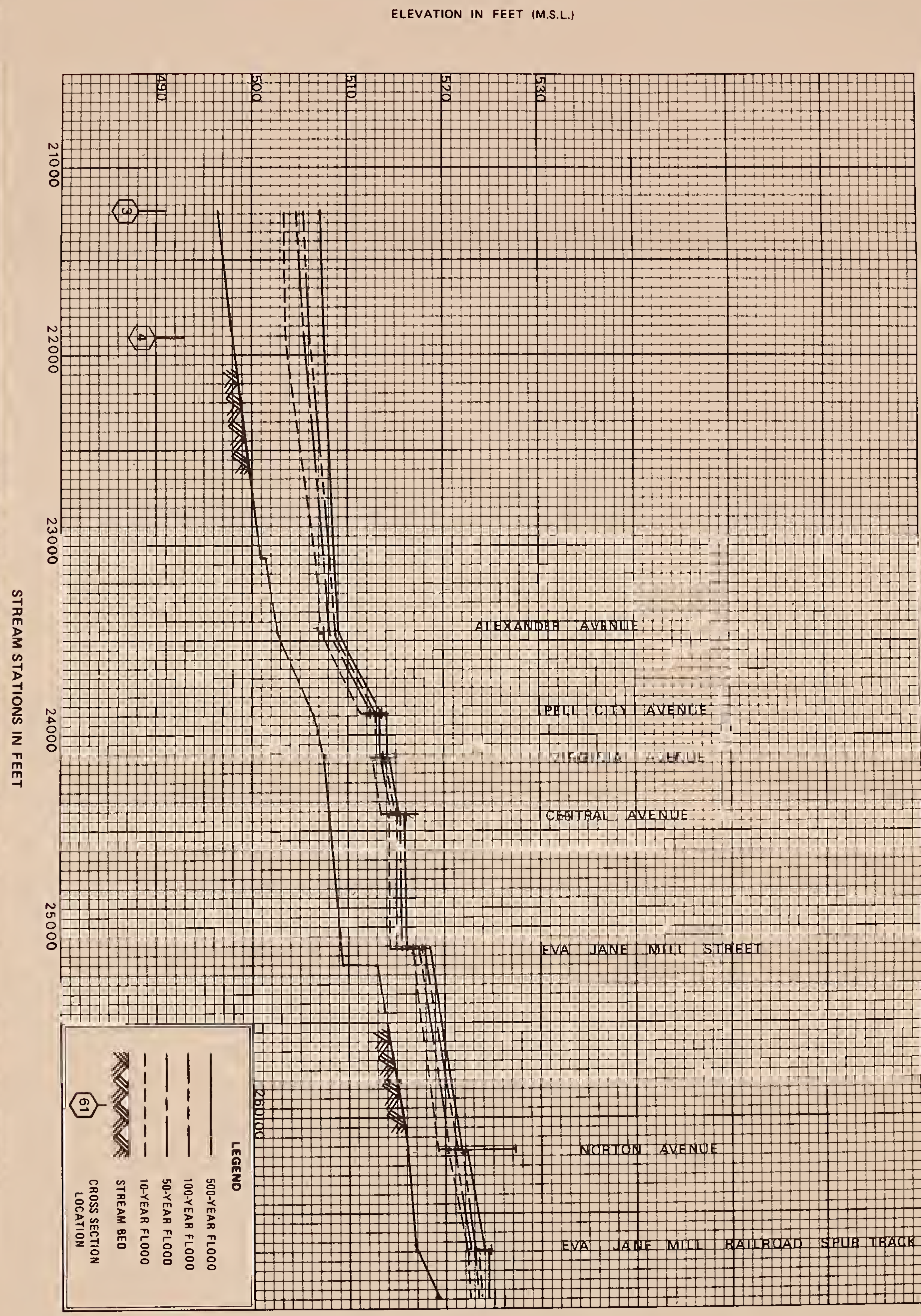
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SYLACAUGA, ALABAMA

(TALLADEGA COUNTY)

FLOOD PROFILES

SHIRTEE CREEK



03 P

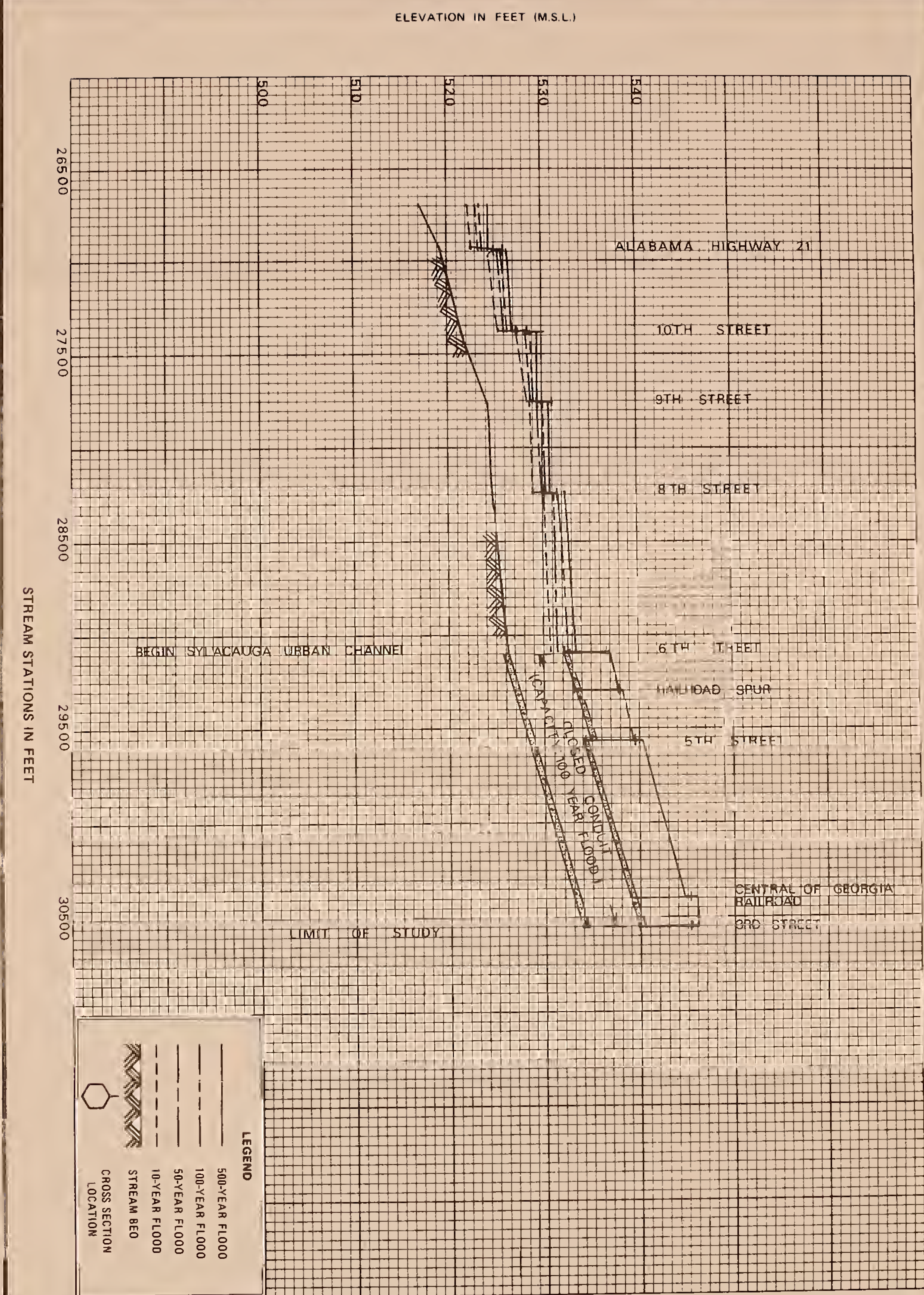
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SYLACAUGA, ALABAMA

(TALLADEGA COUNTY)

FLOOD PROFILES

SHIRTEE CREEK

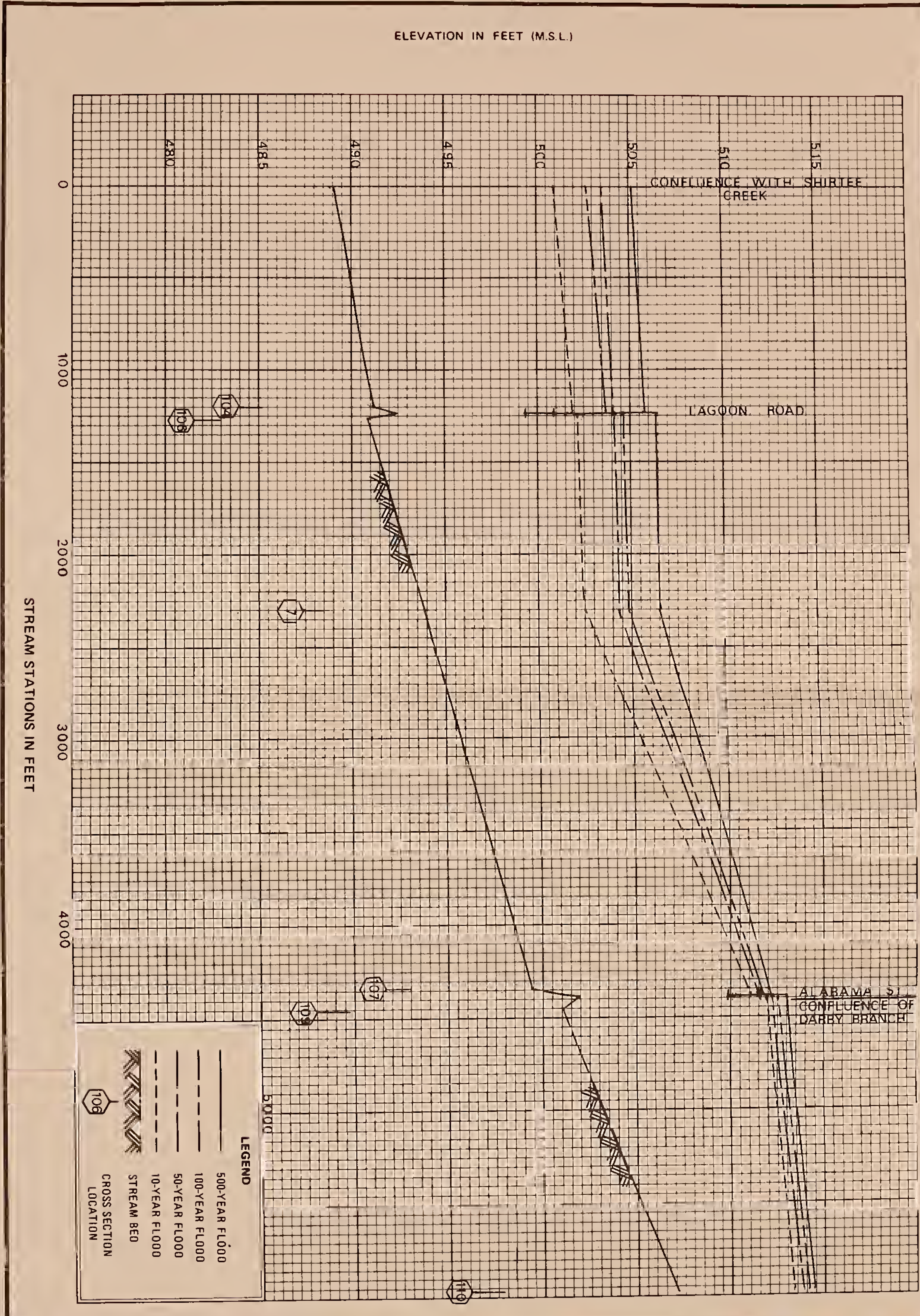


04 P

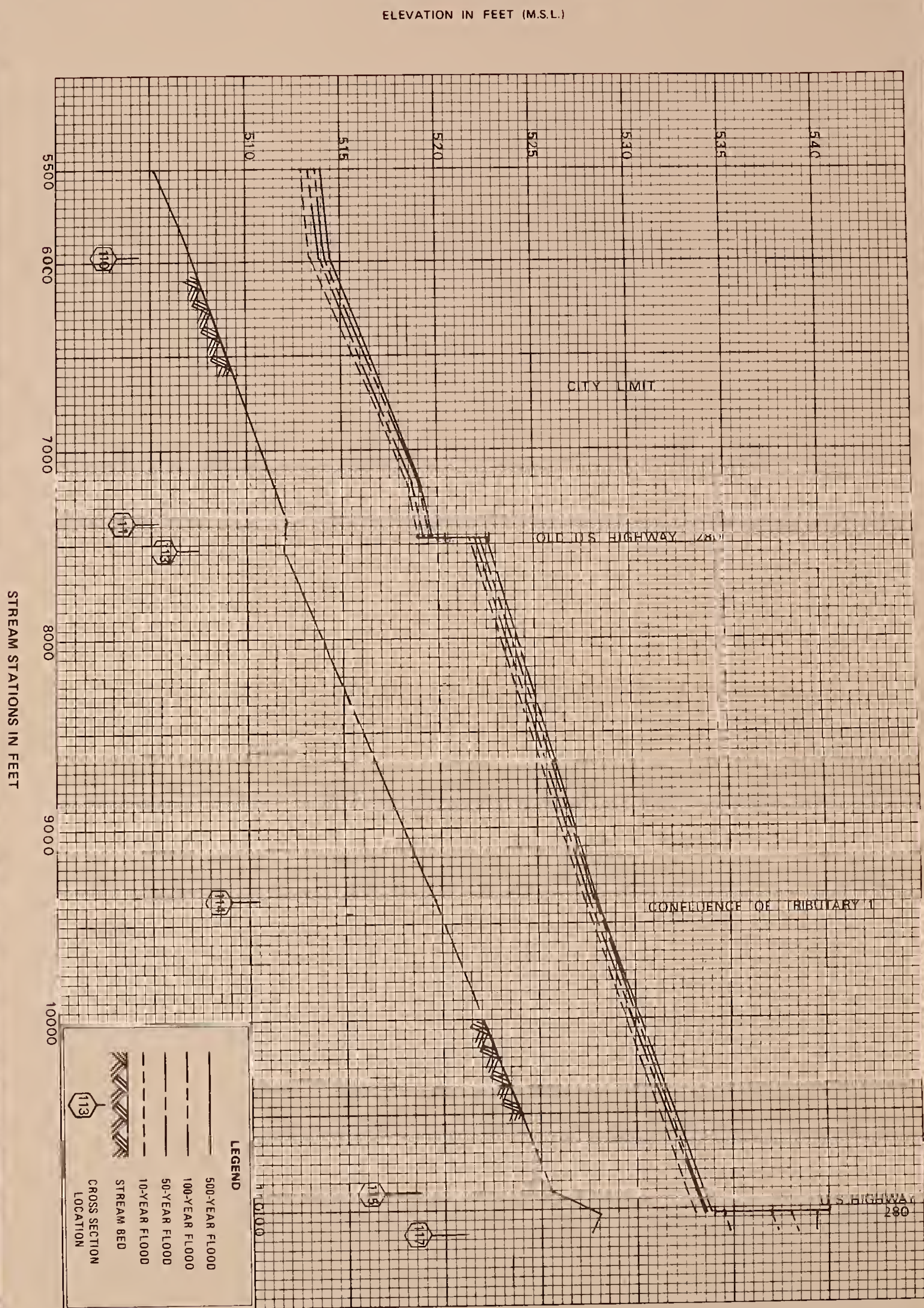
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SYLACAUGA, ALABAMA
(TALLADEGA COUNTY)

FLOOD PROFILES

SHIRTEE CREEK



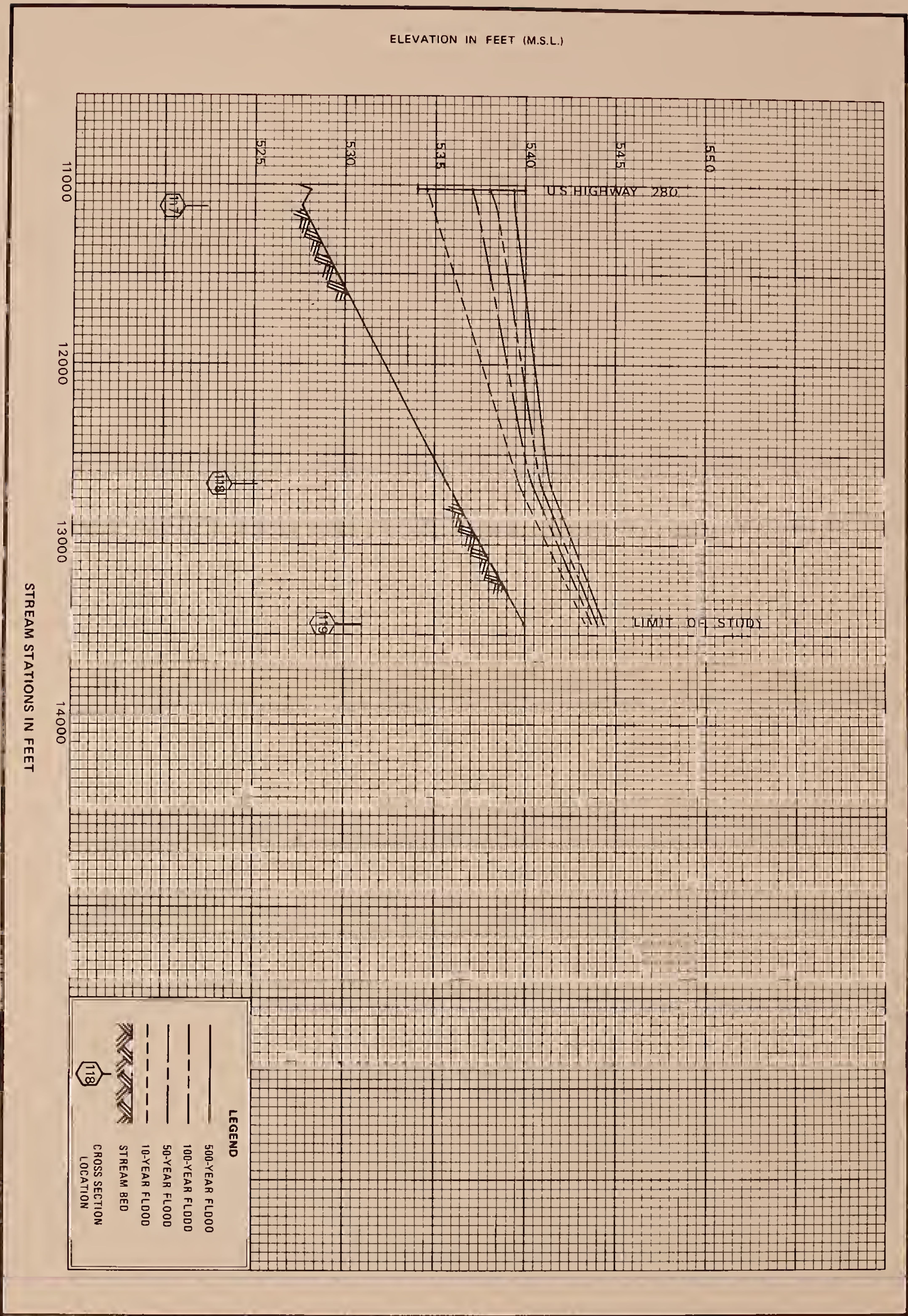
05 P	U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE **SYLACAUGA, ALABAMA** (TALLADEGA COUNTY)	**FLOOD PROFILES** **UPPER SHIRTEE CREEK**



06 P	U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE **SYLACAUGA, ALABAMA** (TALLADEGA COUNTY)

FLOOD PROFILES

UPPER SHIRTEE CREEK



07P

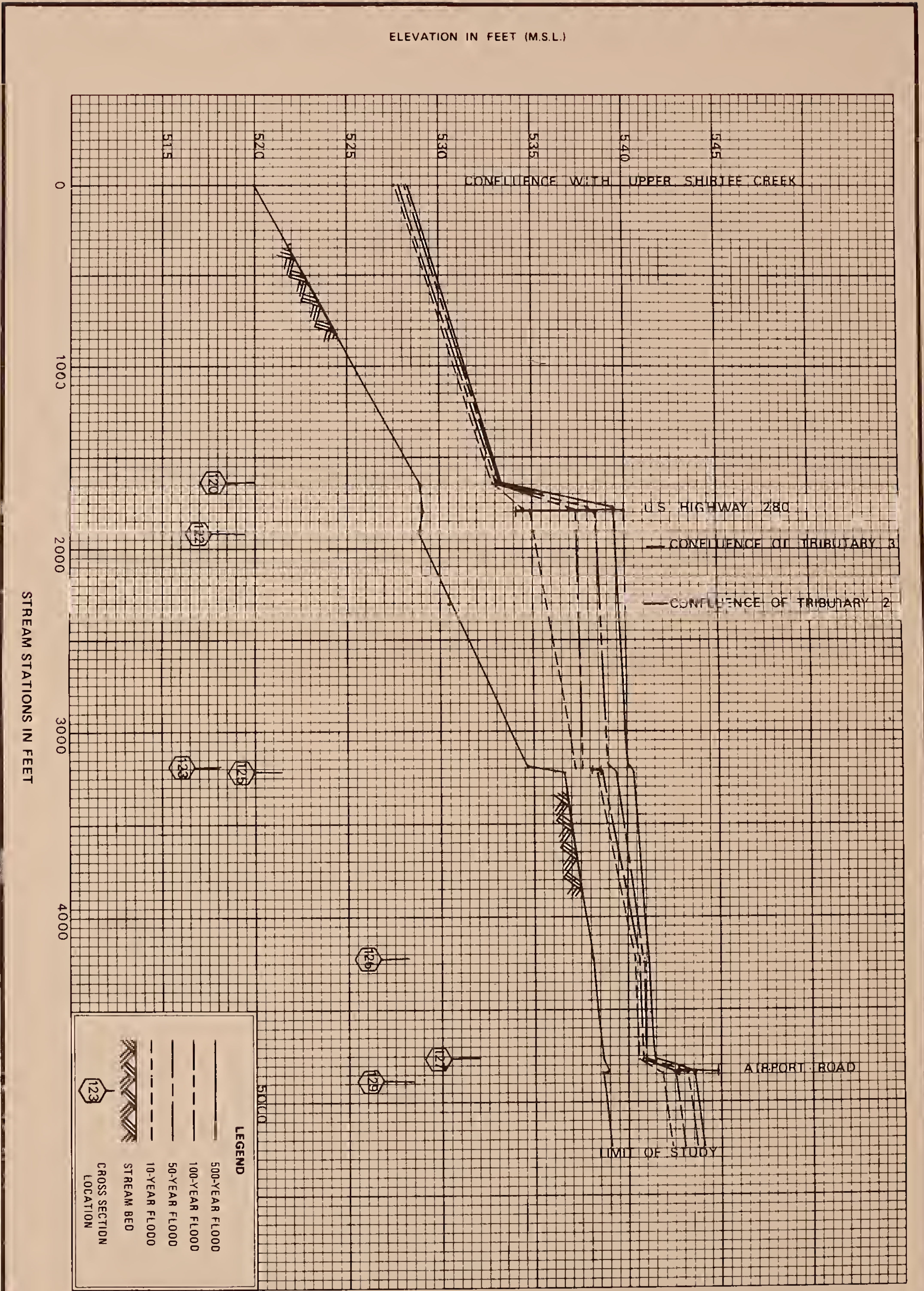
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SYLACAUGA, ALABAMA

(TALLADEGA COUNTY)

FLOOD PROFILES

UPPER SHIRTEE CREEK



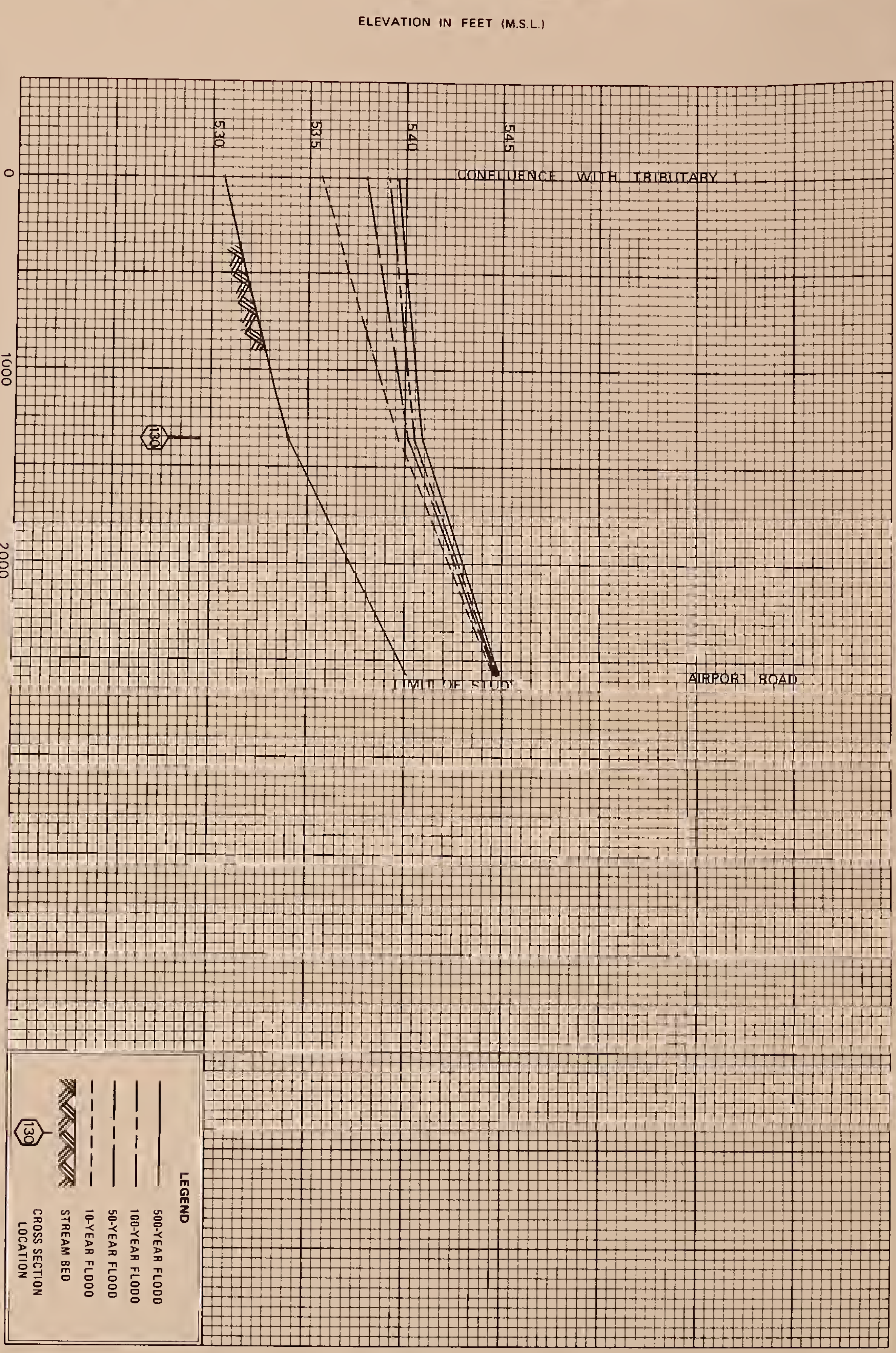
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SYLACAUGA, ALABAMA

(TALLADEGA COUNTY)

FLOOD PROFILES

UPPER SHIRTEE CREEK—TRIBUTARY 1



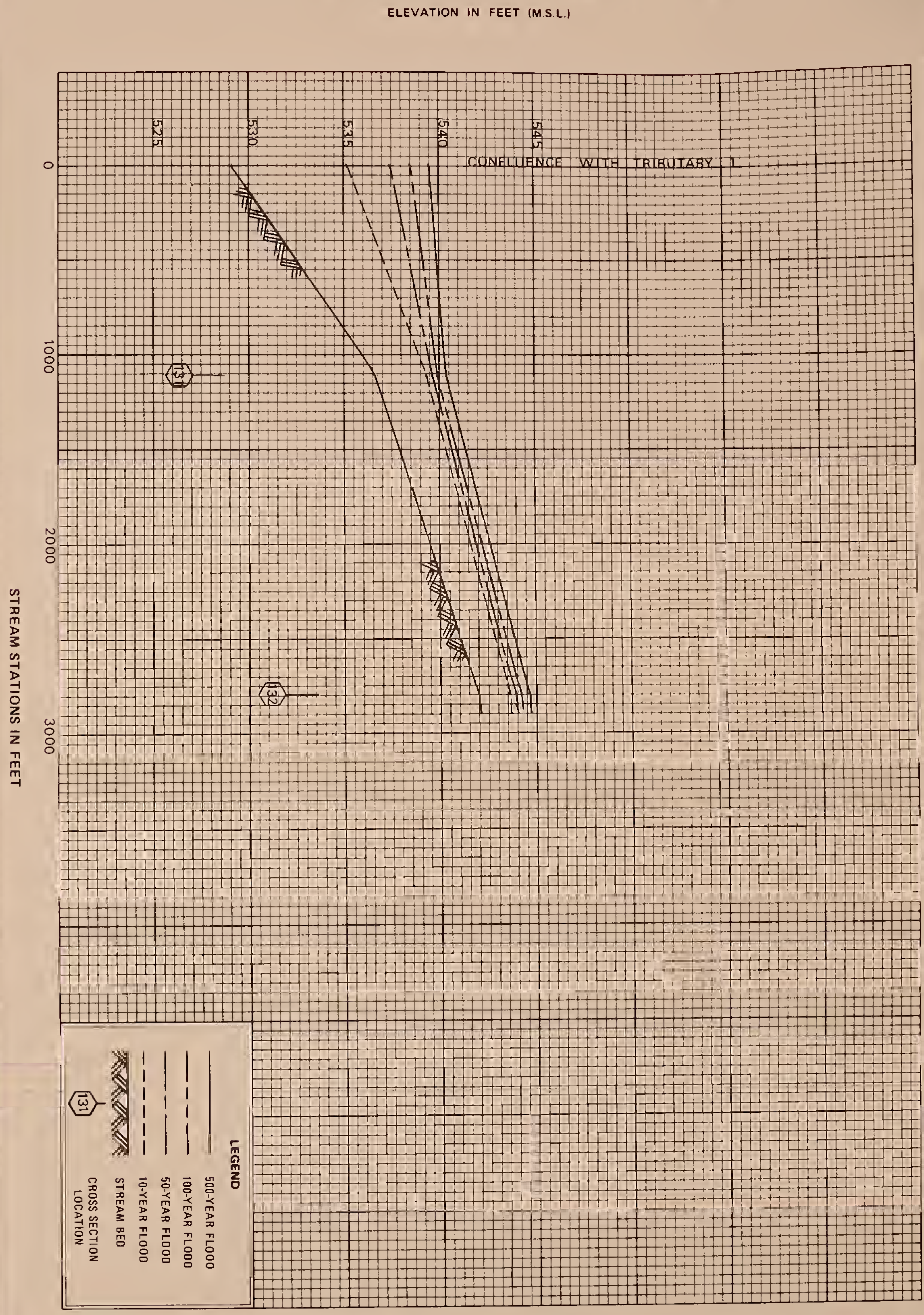
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SYLACAUGA, ALABAMA

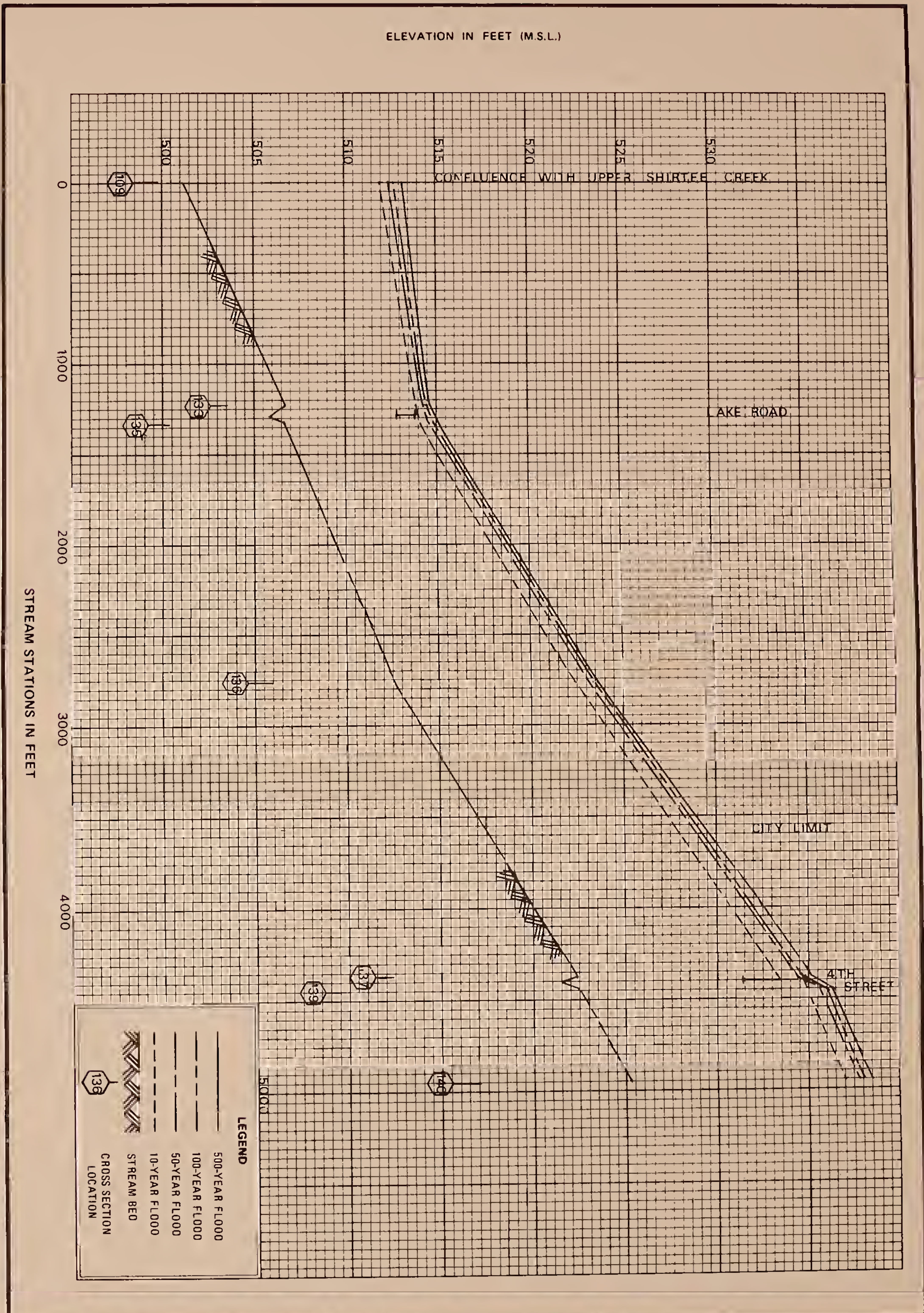
(TALLADEGA COUNTY)

FLOOD PROFILES

UPPER SHIRTEE CREEK - TRIBUTARY 2



10 P	U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE **SYLACAUGA, ALABAMA** (TALLADEGA COUNTY)	**FLOOD PROFILES** **UPPER SHIRTEE CREEK – TRIBUTARY 3**



11P

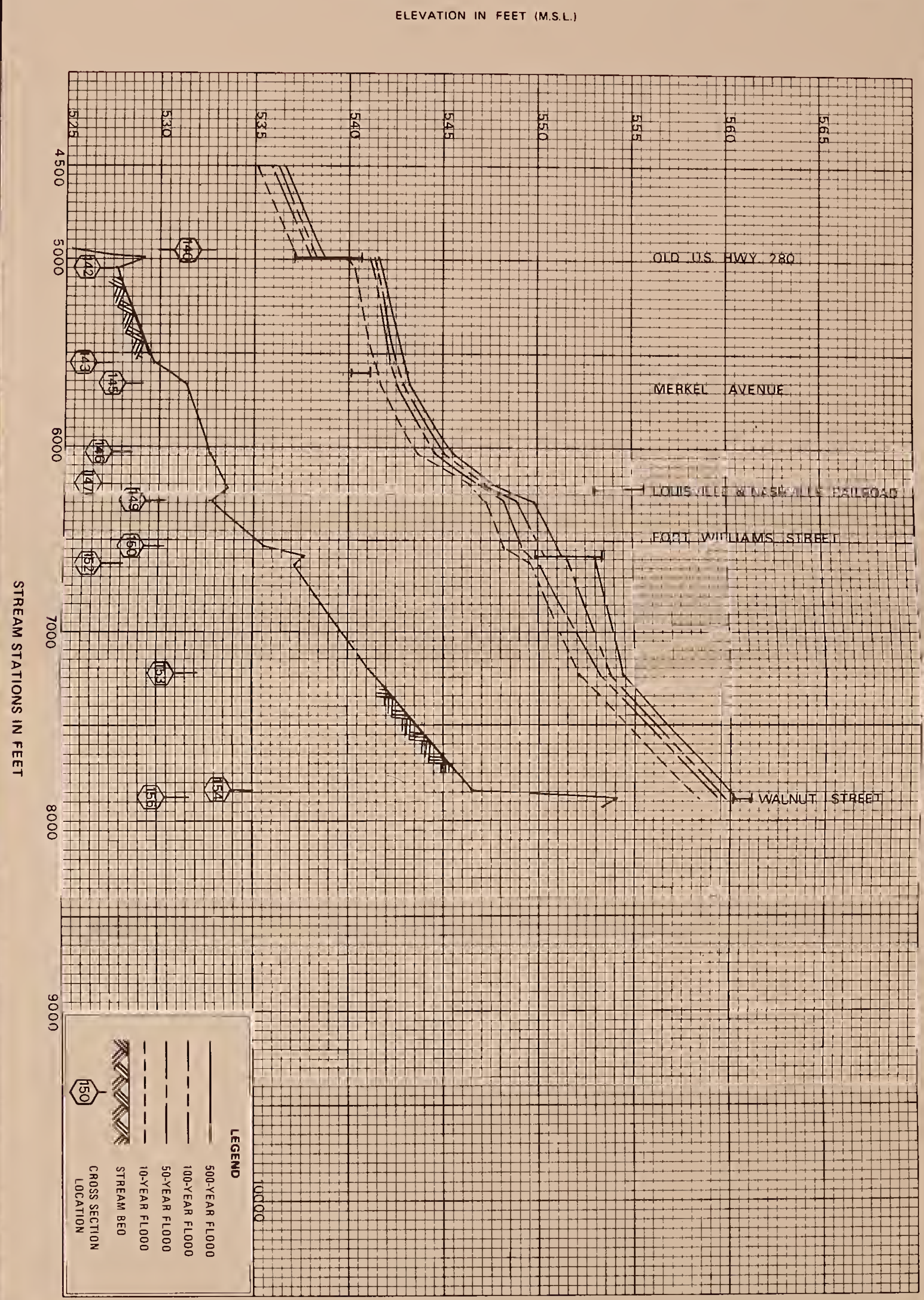
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SYLACAUGA, ALABAMA

(TALLADEGA COUNTY)

FLOOD PROFILES

DARBY BRANCH



12 P

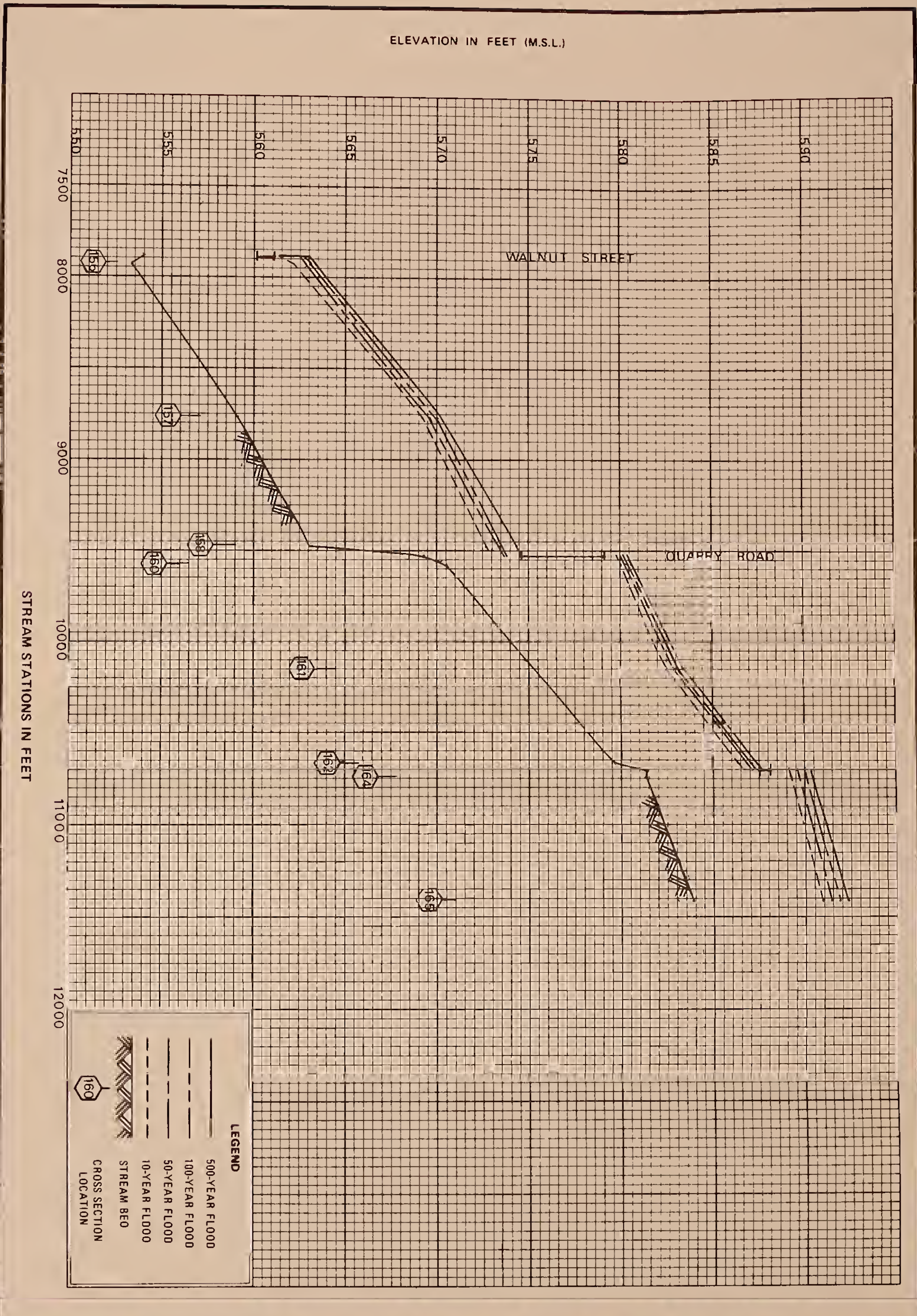
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SYLACAUGA, ALABAMA

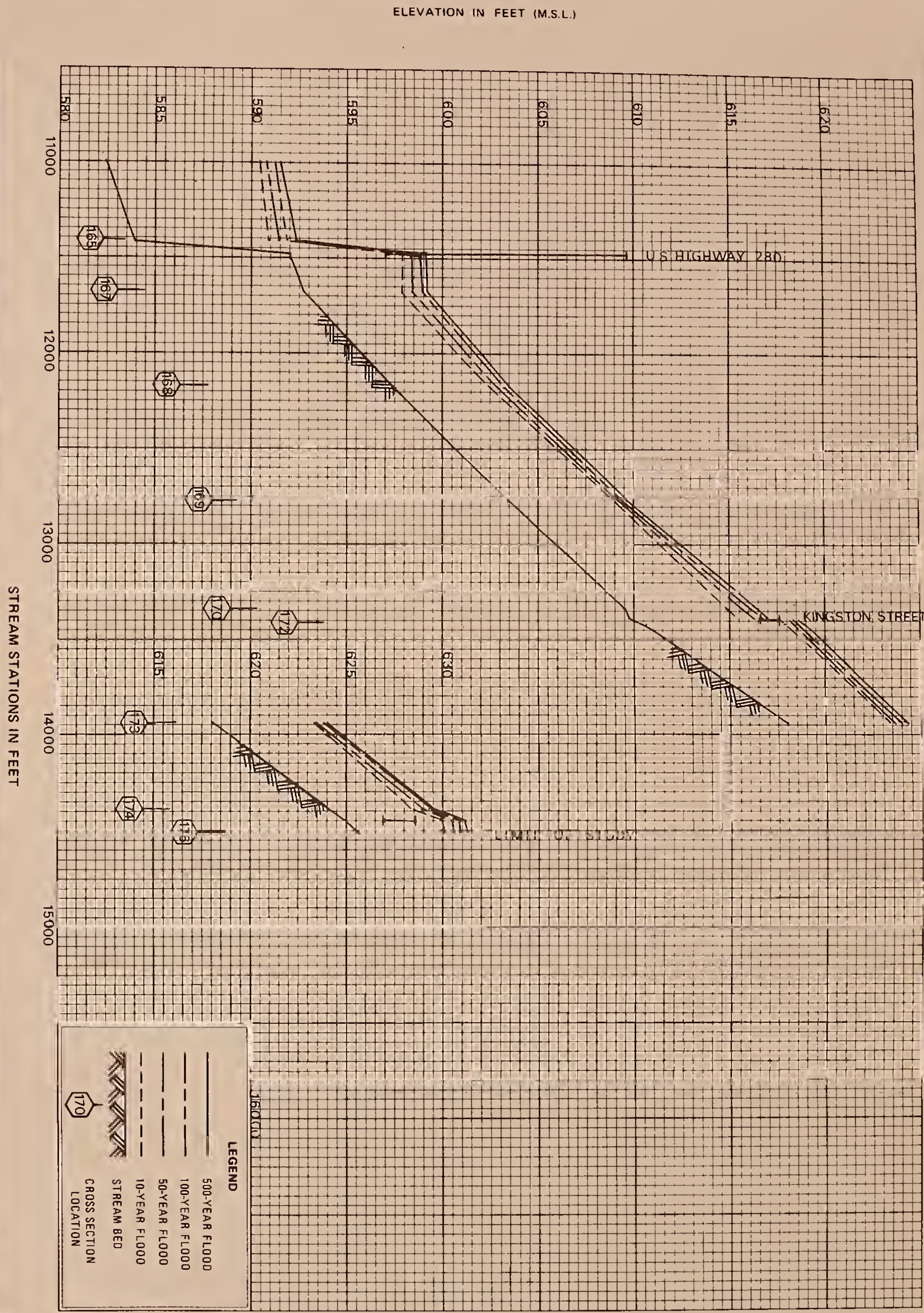
(TALLADEGA COUNTY)

FLOOD PROFILES

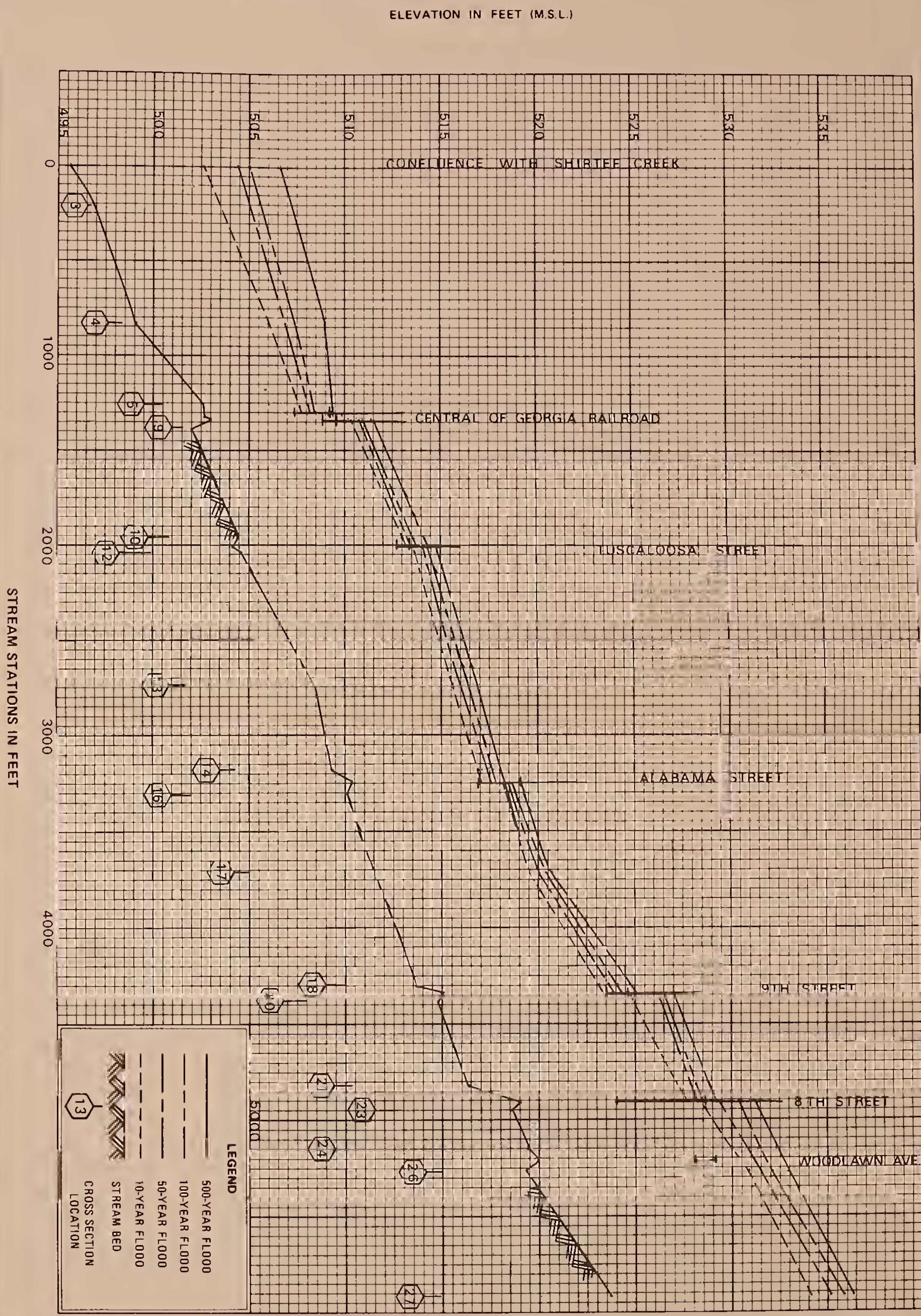
DARBY BRANCH



13 P	U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE **SYLACAUGA, ALABAMA** (TALLADEGA COUNTY)	**FLOOD PROFILES** **DARBY BRANCH**



14 P	U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE **SYLACAUGA, ALABAMA** (TALLADEGA COUNTY)	**FLOOD PROFILES** DARBY BRANCH



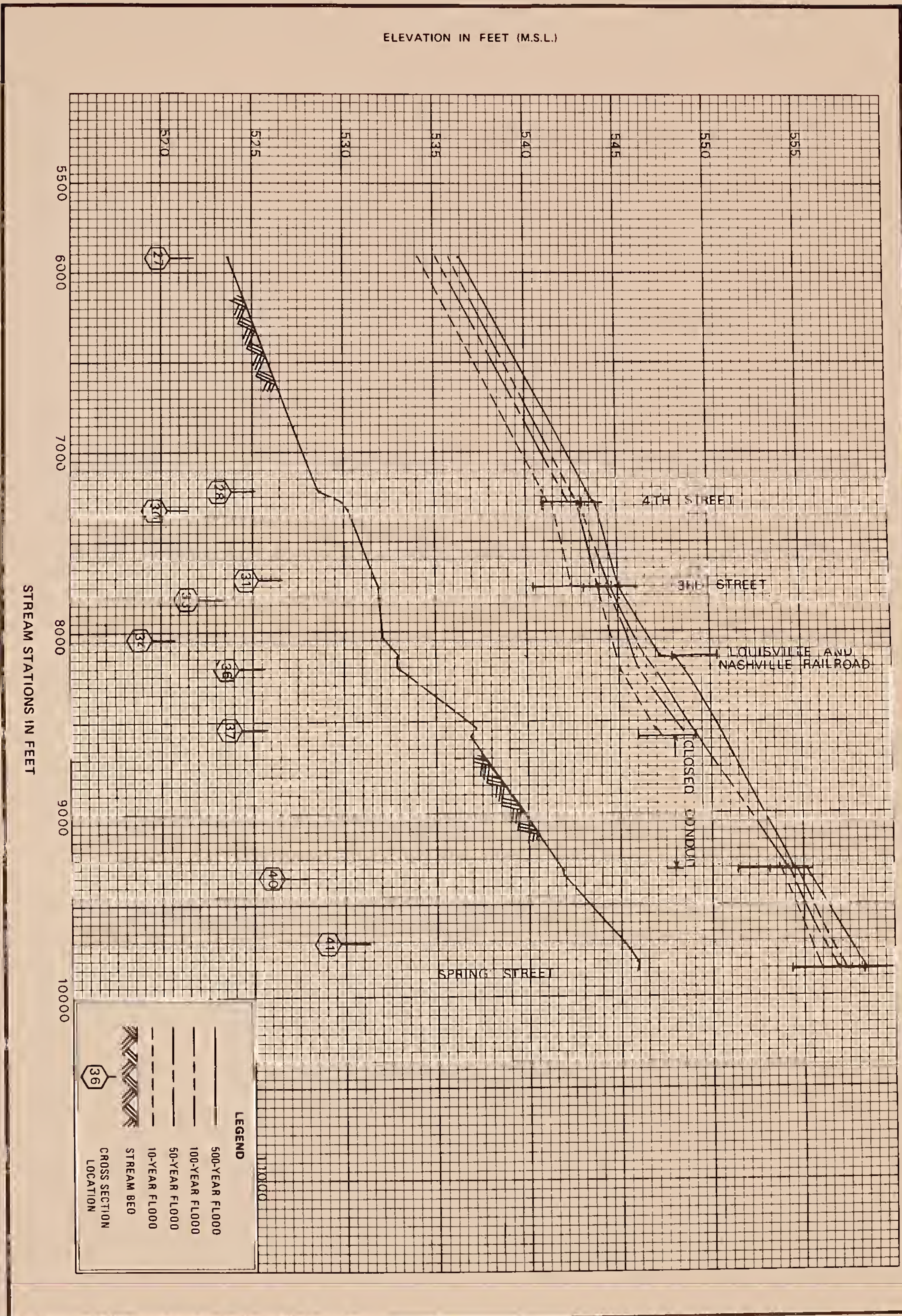
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SYLACAUGA, ALABAMA

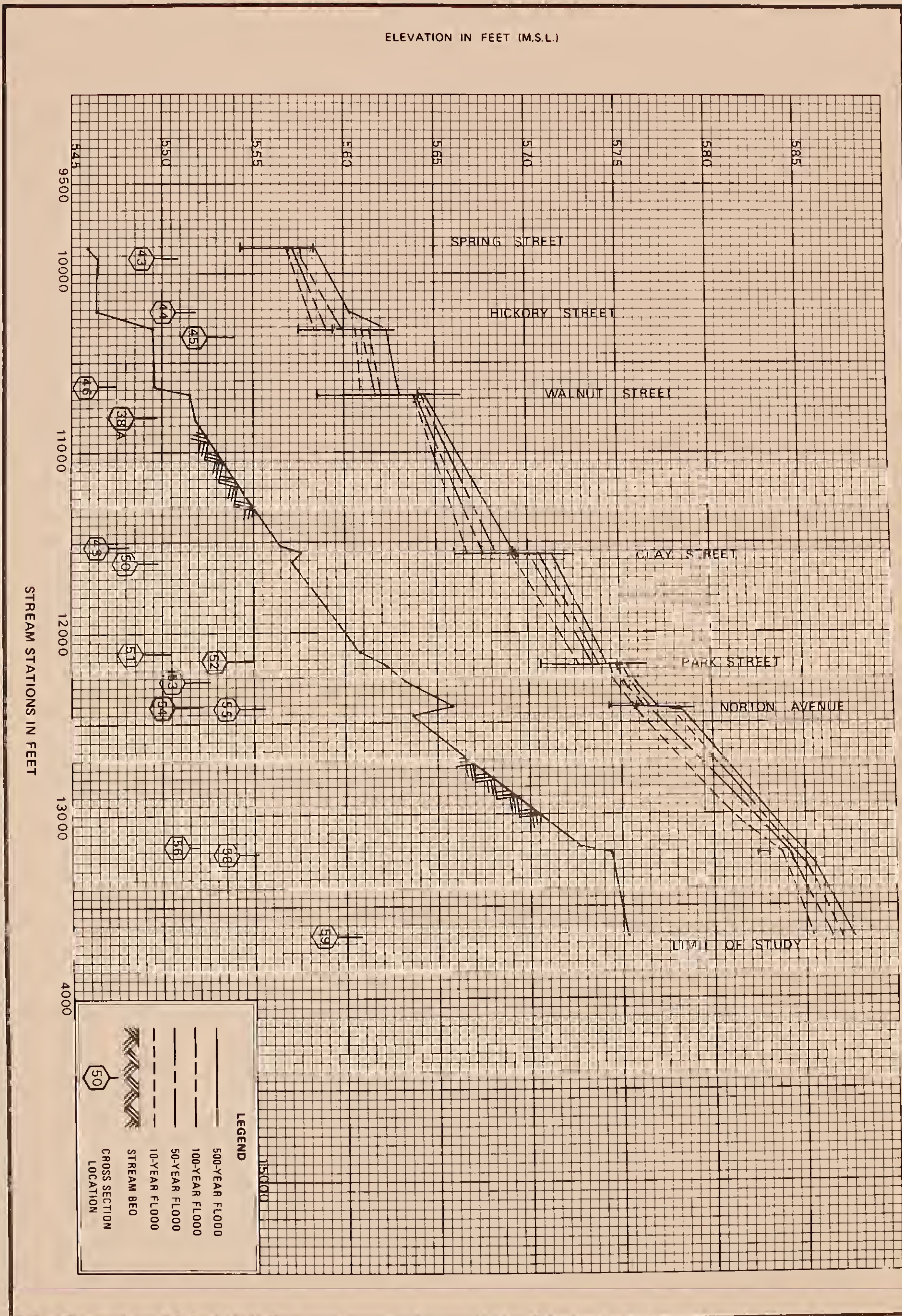
(TALLADEGA COUNTY)

FLOOD PROFILES

BIG DITCH



16 P	U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE **SYLACAUGA, ALABAMA** (TALLADEGA COUNTY)	**FLOOD PROFILES** **BIG DITCH**



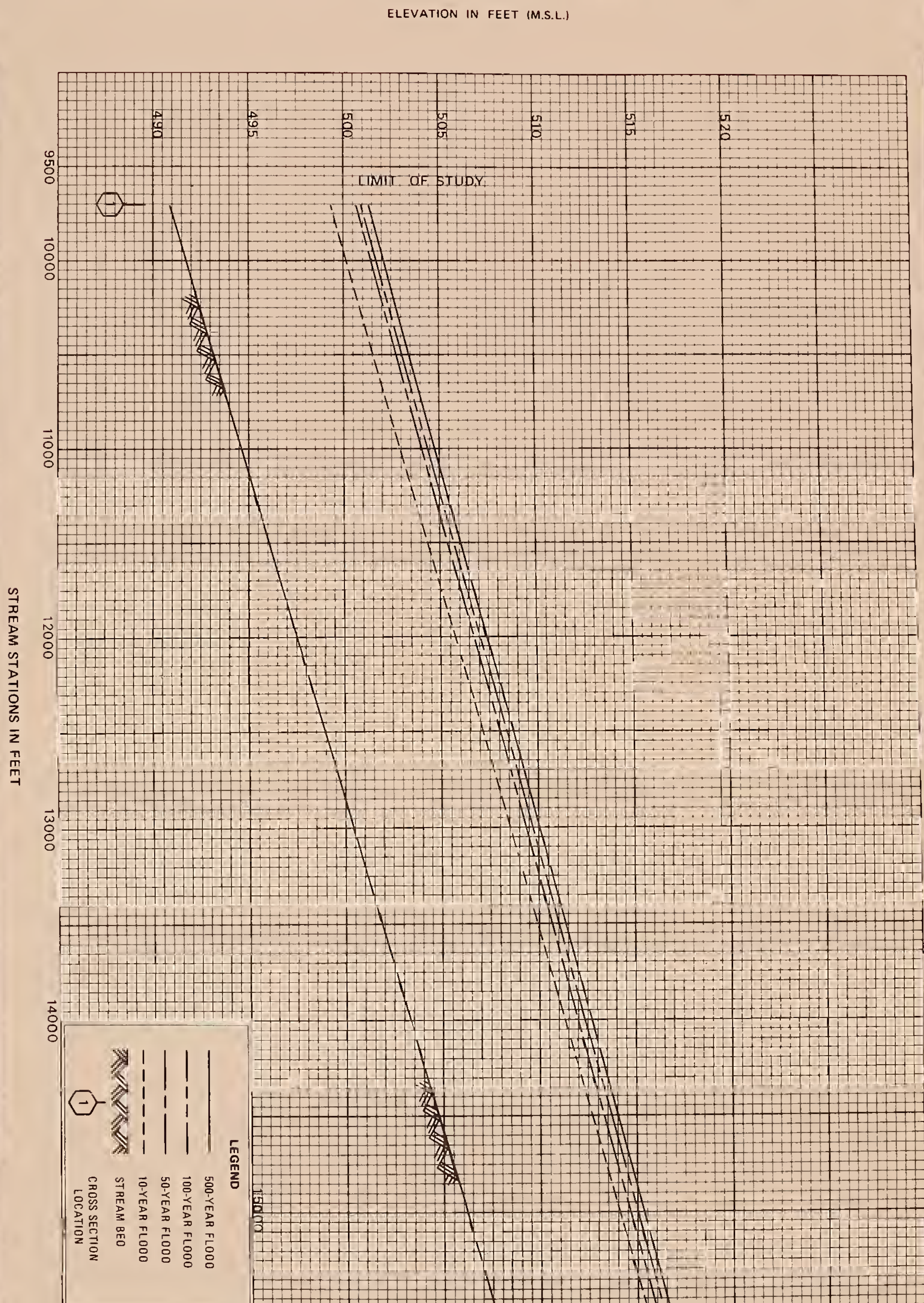
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SYLACAUGA, ALABAMA

(TALLADEGA COUNTY)

FLOOD PROFILES

BIG DITCH



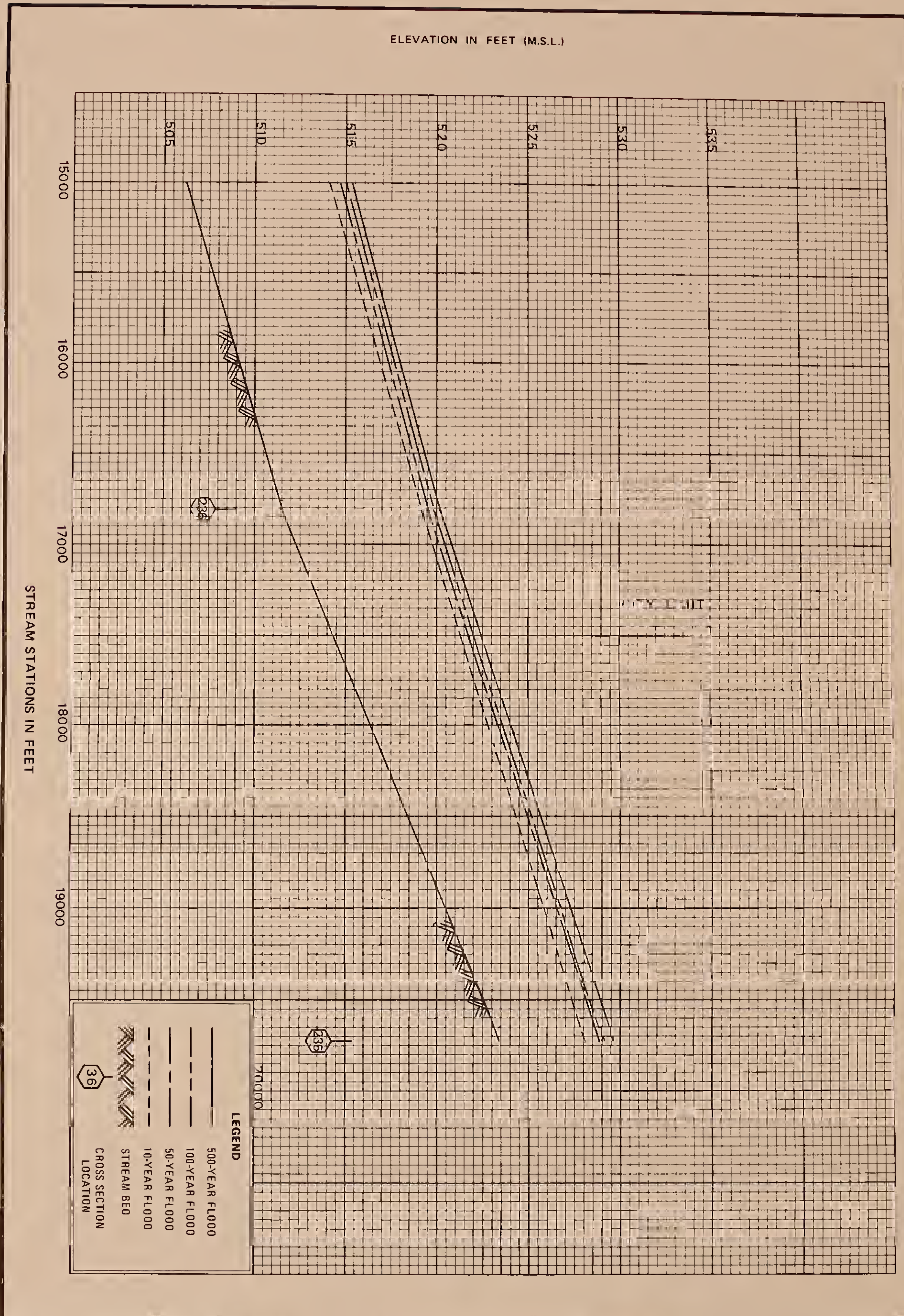
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SYLACAUGA, ALABAMA

(TALLADEGA COUNTY)

FLOOD PROFILES

CROOKED CREEK



U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

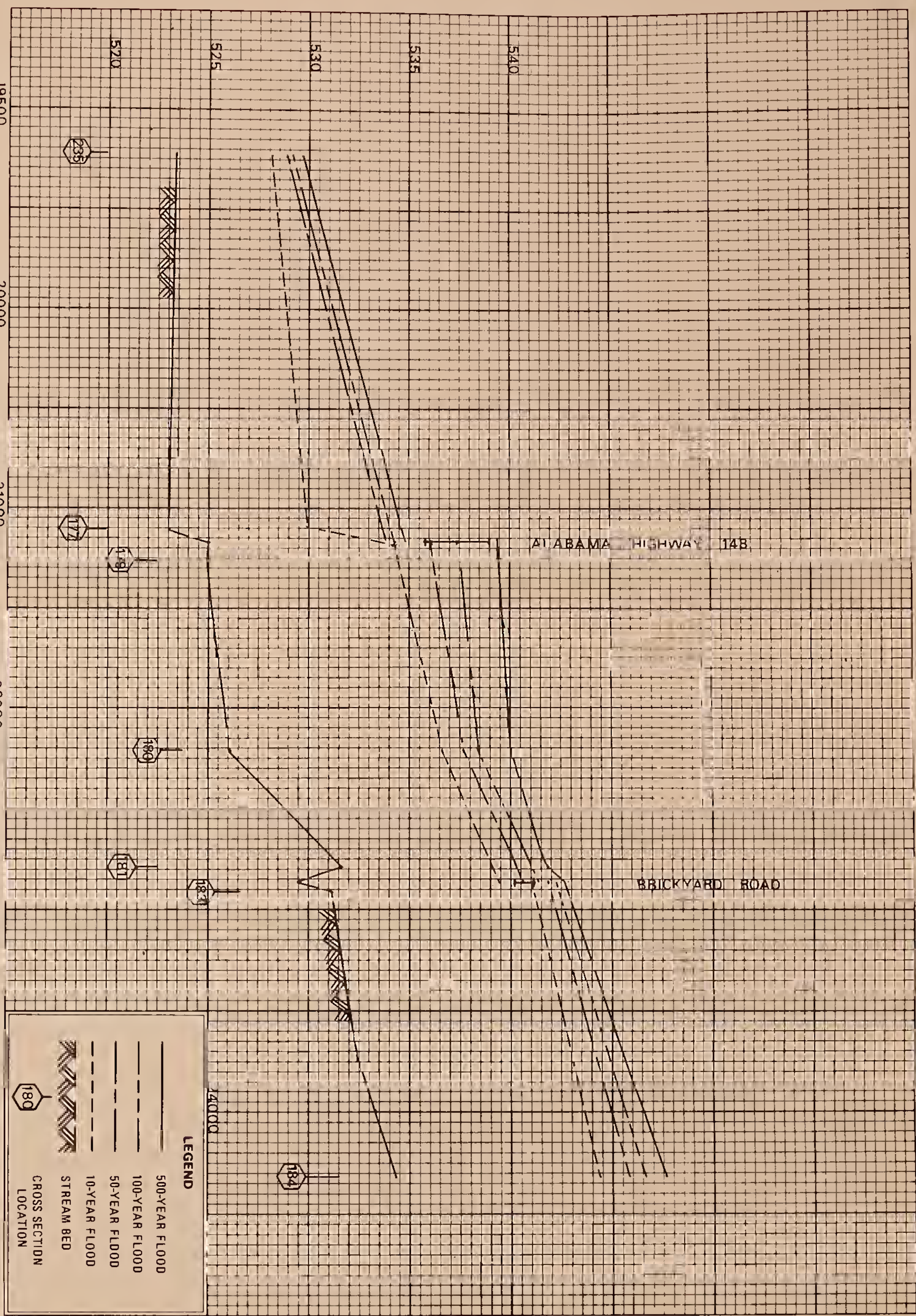
SYLACAUGA, ALABAMA

(TALLADEGA COUNTY)

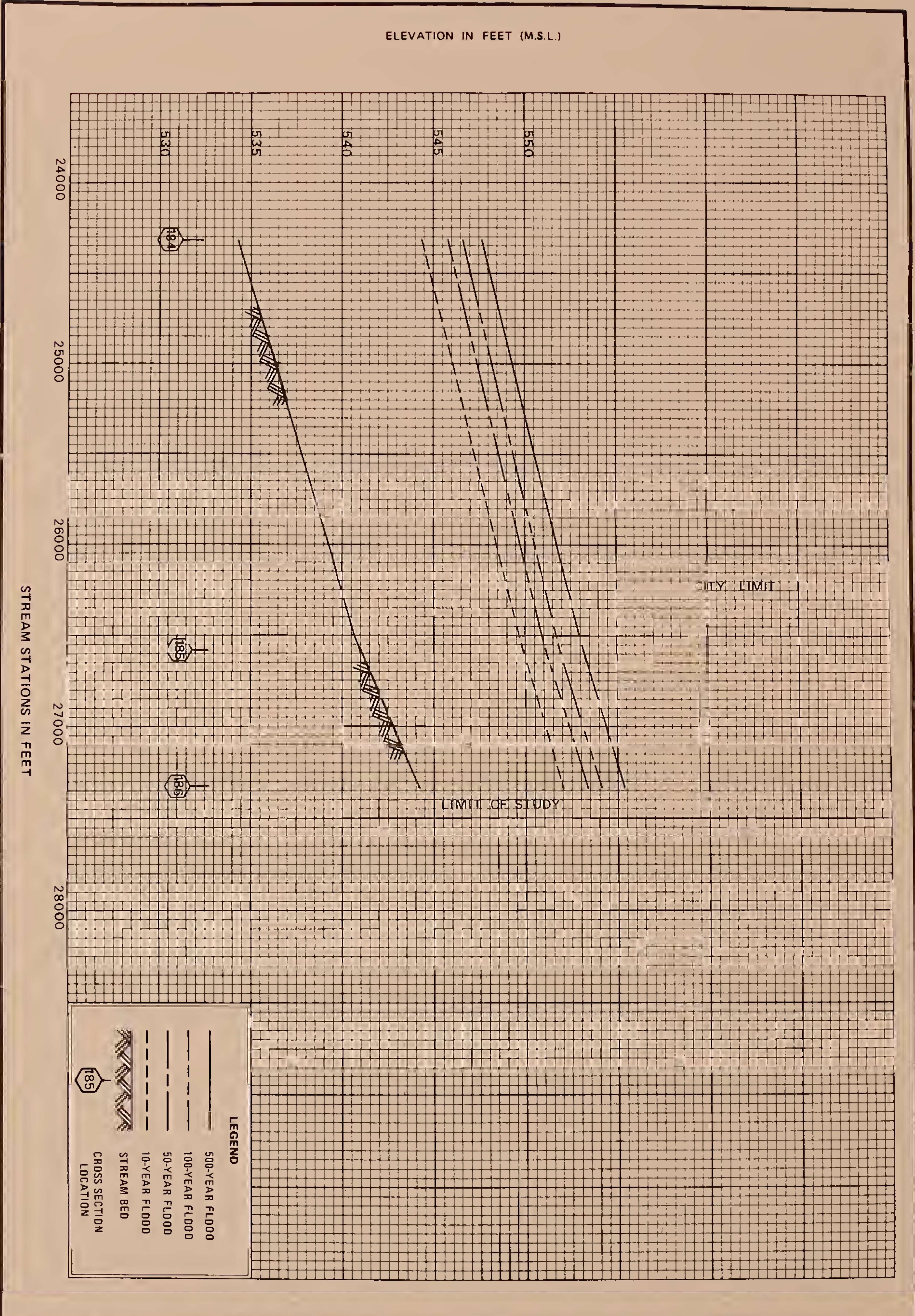
FLOOD PROFILES

CROOKED CREEK

ELEVATION IN FEET (M.S.L.)



20 P	U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE **SYLACAUGA, ALABAMA** (TALLADEGA COUNTY)	**FLOOD PROFILES** **CROOKED CREEK**



U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SYLACAUGA, ALABAMA

(TALLADEGA COUNTY)

FLOOD PROFILES

CROOKED CREEK

APPENDIX C

TECHNICAL STUDY PROCEDURES

ELEVATION REFERENCE MARKS

DISCHARGE-ELEVATION-FREQUENCY DATA

GLOSSARY OF TERMS

BIBLIOGRAPHY

TECHNICAL STUDY PROCEDURES

Hydrologic Data: Government agencies and city and county officials were contacted by SCS personnel during various phases of the study. The SCS field office in Talladega furnished land use data and other information used in this study.

The magnitude, in inches of rainfall, of the flood-producing storms used in determining runoff in the study area, are shown below:

Event (Frequency)	Storm Rainfall* (Inches in 24 Hrs.)
10-year	6.3
50-year	7.9
100-year	8.5
500-year	9.9**

* (U.S. Weather Bureau Publication TP-40)

** (Extrapolated from frequency curve)

Drainage areas were delineated and measured from U.S. Geological Survey 7½-minute topographic quadrangle sheets. 1/

The probability and magnitude of flooding are based on an analysis of rainfall and runoff characteristics correlated with regional flood characteristics as reflected by stream gage records.

In flood analysis work, storms with 24-hour duration rainfall are normally used to evaluate flooding. However, storms of shorter duration can cause flooding problems as severe as the 24-hour storm based on the intensity and volume of

rainfall. For instance, a 6-hour duration storm which produces 6.0 inches of rainfall is considered a 100-year storm. Therefore, it must be recognized that flood producing storms of different durations and intensity can produce similar flood depths.

A flood of 24-hour duration having an average frequency of occurrence in the order of once in 100 years (has a 1 percent chance of being equalled or exceeded in any given year) was selected to best reflect the present flooding problems. However, floods larger than the 100-year, 24-hour flood can, and have, occurred in the study area. A flood larger and more severe than the maximum known flood will eventually occur.

A 500-year frequency flood was used to show the effects of an extreme flood. The effect of a smaller flood (a flood that occurs more frequently) is shown by analysis of the 10-year frequency flood which has a 10 percent chance of being equalled or exceeded in any given year.

Flow-frequency curves were developed from "Flood Frequency of Small Streams in Alabama", HPR No. 83, U. S. Geological Survey (1977). 3/

Surveys: Field surveys completed in 1969 and 1982 included 111 stream channel and valley cross sections, 38 bridge and culvert sections, and 38 road profiles within the study area. Valley and channel cross sections were surveyed at selected locations to determine valley shape, width, and other hydraulic characteristics. Elevations of roads, bridges, culverts, and other control points were established. All of the surveys were referenced to mean sea level datum. The U. S. Geological Survey 7½-minute and 15-minute topographic quad-

rangle sheets (20 foot contour intervals) 1/ were used for orientation. Aerial photographs, scale 1" = 400', taken in 1977 were used for base maps.

Hydraulic Analysis: Using data from field surveys and topographic maps, elevation-discharge relationships at each cross section were developed by computing water surface profiles of four flood frequencies (10-, 50-, 100-, and 500-year events). The modified-step method for open channel flow, as developed in the SCS-WSP-2 computer program, 5/ was used in these calculations. This program solves the head-loss due to roads, bridges and culverts using the U. S. Bureau of Public Roads method. In making computations, normal bridge flow conditions were assumed. The effects of blockage by trash and debris were not considered.

Valley and channel roughness coefficients were determined from field investigation as outlined in SCS, National Engineering Handbook Section 5, Supplement B. 2/ The roughness values ranged from 0.025 to 0.085 for the channels and from 0.025 to 0.100 for the overbank areas.

Preparation of Map and Profiles: Flood Hazard Area Photomaps, scale 1" = 400', were prepared by drawing the limits of the 100-year and 500-year frequency floods on aerial photos (Appendix A, sheets 1 through 17) to indicate the extent of the area subject to inundation. The photomaps are reproductions of ASCS photomaps taken in 1977. The flood profiles were drawn at a scale of 1" = 500' (Appendix B, sheet 01P-021P). The profile stationing is in terms of hundreds of feet and is measured from the aerial photographs. The study reach on Tallaseehatchee Creek was drawn by the approximate method indicated by soils and topography for the 100-year frequency flood.

Natural and Cultural Values: Natural and cultural values in the flood plain area were evaluated via on-site field reconnaissance conducted by the staff biologist and the local district conservationist. Qualitative observations were made along a line transit in the study area.

ELEVATION REFERENCE MARKS

(See Flood Hazard Areas)

TABLE 4
ELEVATION REFERENCE MARKS*

REFERENCE MARK	ELEVATION IN FEET (MSL)**	DESCRIPTION OF LOCATION
USC&GS	544.99	At Sylacauga, in the northeast corner of the crossing of the Louisville and Nashville Railroad and Norton Avenue, about 80 yards west of the northwest corner of the L&N Freight Station, about in line with the north wall of the freight station, 59 feet northwest of the northwest rail of the main track, 29 feet east of the center line of North Avenue, 4.4 feet west of the west edge of a side walk, 16 feet north of the 1st power pole north of railroad, 5.8 feet east of the east curb of Norton Avenue, 2 feet north of a white wooden witness post, about level with the track and set in the top of a concrete post about flush with the ground.
USC&GC V33	570.74	From the Union Station in Sylacauga go south along Norton Avenue 0.9 mile to the south part of town, one block west of the intersection of old U.S. Hwy. 280 and 231, in the southeast angle of the intersection of North Avenue and Bay Street, 51.5 feet south of the center line of Bay Street, 33 feet east of the center line of Norton Avenue, 51.5 feet west of the northwest corner of a white frame house, at the northwest corner of the yard, and level with the street. A standard disk stamped "V 33 1934" and set in the top of a concrete post flush with the ground.
RM4	574.53	Railroad spike on south side of power pole on north side of west Park Street, 30 feet west of bridge over creek and 100 feet west of intersection of south Norton Avenue and west Park Street.
RM6	563.27	Railroad spike in west side of 30 inch oak tree, being on left bank of creek and on downstream side of bridge, 75 feet east of southeast side of nursing home joining the hospital on north side of west Walnut Street.

TABLE 4 CONTINUED

REFERENCE MARK	ELEVATION IN FEET (MSL)**	DESCRIPTION OF LOCATION
RM9	553.03	A chiseled square on top of the concrete railing on west side of creek, 3 feet above sidewalk, on south side of west Ft. Williams Street, and 100 feet west of intersection of south Douglas Avenue, 100 feet northwest of Jacks Hamburger.
RM11	549.66	A bolt projecting 3 inches in the back wall on the north side of railroad, and on left side of the creek, on northwest corner of the railroad bridge.
RM13	542.33	A chiseled square on top of the southeast corner of the floor of the concrete culvert, 30 feet south of west 4th street.
RM15	528.56	The highest point of a 2 inch cut off pipe projecting 1 inch above concrete, on northwest corner of bridge, 150 feet south of intersection of west 8th Street and north Woodland Avenue, and on west side of Woodland Avenue.
RM19	517.94	Railroad spike in the southside of a power pole. 30 feet north of Alabama Street, 8 feet west of west bank of creek, 35 feet northwest of concrete culvert with large corrugated metal pipe on each side, 400 feet north of Avondale Mill Office.
RM21	510.36	A chiseled square in the center of a concrete railing on the south side of a bridge, 75 feet upstream from railroad, 300 feet east of large tin building at Avondale Mills, and on Big Ditch.
RM23	499.42	Railroad spike in the east side of a light pole at old Sylacauga sewage treatment plant, 125 feet northeast of brick building.
RM27	536.00	A chiseled square on the floor of a box culvert on the north side of east 6th Street, 40 feet east of fenced play ground, 100 feet north of R. L. Rumsey Lumber Company office.

TABLE NO. 4 CONTINUED

REFERENCE MARK	ELEVATION IN FEET (MSL)**	DESCRIPTION OF LOCATION
RM29	530.74	A chiseled square on the southwest corner of concrete wall on the south side of a concrete bridge on east 10th Street and Big Ditch in Sylacauga, AL.
RM30	526.05	A chiseled square on the northeast corner of concrete wall on box culvert on Highway 21, and on west side of park, 150 feet south of railroad crossing, Highway 21, 300 feet north of east 10th Street in Sylacauga, AL.
RM32	518.11	A chiseled square on top of the headwall on the southeast corner of a bridge over creek, and being located inside of fence around Avondale Mill. Bridge is located 25 feet south of where creek comes from under building.
RM35	508.45	A chiseled square on the southeast corner of the concrete steps to building at the sewage pump house on the north side of urban channel and 120 feet northwest of end of Millhaven Street.
RM114	511.30	A chiseled square on top of the southwest wingwall of bridge over Shirtee Creek on county road 22,200 feet east of road intersection to Comer School 220 west of store.
RM SFH 3	523.30	A chiseled square on top of the southwest curb wall at the southwest corner of the bridge on Highway 511 in Sylacauga, AL
RM SFH 4	535.19	A chiseled square on the west end of a triple concrete box culvert on the north side of U.S. Highway 280, 150 feet east of mile marker 184.
RM SFH 6	545.06	A chiseled square on the north end of the bridge curb wall on County Road 23, 1,000 feet south of U.S. Highway 280 and on road to Sylacauga Airport.
RM SFH 8	512.79	Nails in side of power pole, 50 feet north of bridge on Darby Branch on Lake Road to Lake Louise in Sylacauga, AL.

TABLE NO. 4 CONTINUED

REFERENCE MARK	ELEVATION IN FEET (MSL)**	DESCRIPTION OF LOCATION
RM SFH 14	551.63	A chiseled square on the southwest corner of bridge over Darby Branch on Ft. Williams Street in Sylacauga, AL.
RM SFH 16	560.70	A chiseled square on the northeast corner of the bridge over Darby Branch on west Walnut Street in Sylacauga, AL.
RM SFH 18	577.66	A chiseled square on the west end, and the upstream end of the concrete box culvert on Darby Branch and on Quarry Road in Sylacauga, AL.
RM SFH 19A	588.10	A chiseled square on the east end, and on the upstream end of double barrel culvert on the first street running east, north of Pinecrest School and east of U.S. Highway 280 in west Sylacauga, AL.
RM SFH 22	617.50	A chiseled square on top of the west end, and the upstream end of a concrete box culvert under Kingston Street in west Sylacauga and south of Pinecrest School.
RM97	537.22	A chiseled square on top of the southwest wingwall on the bridge over Crooked Creek on Highway 148 east of Sylacauga.
RM SFH 23A	541.46	A chiseled square on top of the southeast wingwall of bridge over Crooked Creek on brick yard road east of Sylacauga.

*Locations designated on Flood Hazard Area Photomaps (Appendix A, Sheets 1 through 17).
**Mean sea level (MSL)

TABLE 5

DISCHARGE-ELEVATION-FREQUENCY DATA

Frequency		10-Year		50-Year		100-Year		500-Year	
Cross Section	Station	Elev. (MSL-Ft)	Disch. (CFS)	Elev. (MSL-Ft)	Disch. (CFS)	Elev. (MSL-Ft)	Disch. (CFS)	Elev. (MSL-Ft)	Disch. (CFS)
SHIRTEE CREEK									
208	11100	462.4	6000	463.9	8900	464.9	10000	465.8	13000
101	16740	488.9	6000	490.9	8900	491.6	10000	493.4	13000
103	17040	498.8	6000	499.0	8900	501.6	10000	503.4	13000
1	18640	500.7	6000	502.7	8900	503.5	10000	505.1	13000
2	19520	502.4	6000	504.2	8900	504.7	10000	506.4	13000
Railroad	20990	503.1	1370	504.6	1760	505.2	1930	506.9	2300
Alexander	23460	507.1	1370	508.0	1760	508.7	1930	509.0	2300
Pell City	23880	511.8	1210	512.9	1600	513.2	1780	514.0	2200
Virginia	24120	512.6	1210	513.5	1600	513.8	1780	514.3	2200
Central	24420	514.1	1210	515.0	1600	515.3	1780	515.8	2200
Eva	25120	516.8	900	517.5	1150	518.0	1280	518.6	1600
Norton	26170	520.1	800	521.0	1050	521.7	1170	522.3	1450
Hwy. 21	26945	524.4	480	525.3	630	525.6	680	526.2	820
10 St.	27377	527.4	480	528.2	630	528.7	680	529.6	820
6 St.	29086	530.8	330	531.4	430	532.9	470	533.4	580
UPPER SHIRTEE CREEK									
106	1270	502.4	5800	504.2	8600	504.7	9600	506.4	12500
207	2305	502.5	4200	504.3	6200	504.8	7200	506.5	9000
107	4345	510.1	4200	511.0	6200	511.4	7200	512.0	9000
109	4455	511.9	4200	512.4	6200	512.7	7200	513.2	9000

TABLE 5

DISCHARGE-ELEVATION-FREQUENCY DATA

(Cont'd)

	Frequency	10-Year		50-Year		100-Year		500-Year	
Cross Section	Station	Elev. (MSL-Ft)	Disch. (CFS)	Elev. (MSL-Ft)	Disch. (CFS)	Elev. (MSL-Ft)	Disch. (CFS)	Elev. (MSL-Ft)	Disch. (CFS)
				UPPER SHIRTEE (cont'd)					
110	5975	513.3	2200	513.8	3300	514.1	4000	514.4	4800
111	7390	518.8	2200	519.2	3300	519.4	4000	519.6	4800
113	7535	521.8	2200	522.1	3300	522.2	4000	522.3	4800
114	9375	527.4	2200	527.7	3300	527.9	4000	528.1	4800
117	11125	534.8	1900	537.3	2800	538.4	3200	539.4	3900
118	12665	539.7	1900	540.4	2700	540.9	3100	541.4	3700
				TRIBUTARY 1					
122	1920	534.8	500	537.3	700	538.4	800	539.4	1100
125	3225	538.4	190	538.6	260	539.4	310	540.3	400
127	4770	540.7	150	540.8	220	540.9	290	541.5	380
				TRIBUTARY 2					
130	1360	539.7	110	540.2	170	540.5	220	540.9	280
				TRIBUTARY 3					
131	1110	539.3	390	539.7	530	539.9	610	540.3	800
				DARBY BRANCH					
135	1330	514.2	1990	514.7	2800	514.8	3200	515.1	4000
136	2770	522.4	1800	523.1	2700	523.3	3100	523.6	3900
137	4370	533.3	1800	534.3	2700	534.7	3100	535.1	3900
139	4450	535.0	1700	535.7	2500	536.0	3900	536.3	3700

TABLE 5

DISCHARGE-ELEVATION-FREQUENCY DATA

(Cont'd)

	Frequency	10-Year		50-Year		100-Year		500-Year	
Cross Section	Station	Elev. (MSL-Ft)	Disch. (CFS)	Elev. (MSL-Ft)	Disch. (CFS)	Elev. (MSL-Ft)	Disch. (CFS)	Elev. (MSL-Ft)	Disch. (CFS)
				DARBY BRANCH (cont'd)					
142	5050	540.3	1700	541.3	2500	541.5	2900	541.8	3700
145	5660	541.7	1700	542.5	2500	542.8	2900	543.2	3700
147	6200	546.4	1600	546.9	2400	547.2	2800	547.6	3600
152	6630	549.6	1600	553.2	2400	553.7	2800	554.4	3600
154	7845	557.8	1300	559.0	1900	559.3	2200	560.0	2700
157	8765	569.2	1300	569.6	1900	570.0	2200	570.2	2700
160	9575	580.0	1100	580.2	1600	580.4	1900	580.6	2300
164	10740	589.3	1100	589.7	1600	590.0	1900	590.4	2300
167	11675	597.9	1100	598.4	1600	598.9	1900	599.2	2300
170	13345	614.9	860	615.6	1300	616.1	1600	616.5	1900
173	13940	623.3	860	623.5	1300	623.8	1600	624.1	1900
176	14510	630.1	860	630.6	1300	630.9	1600	631.3	1900
				BIG DITCH					
9	1185	510.5	1700	510.9	2500	511.1	2900	511.7	3800
12	1840	513.7	1700	514.2	2500	514.4	2900	514.8	3800
16	3110	518.3	1600	518.7	2300	518.9	2650	519.3	3550
20	4175	524.8	1600	526.3	2300	526.6	2650	527.1	3550
23	4750	528.7	1600	529.6	2300	530.6	2650	531.4	3550
26	5070	530.8	1600	531.5	2300	532.1	2650	532.9	3550

TABLE 5

DISCHARGE-ELEVATION-FREQUENCY DATA

(Cont'd)

Cross Section	Frequency Station	10-Year Elev. (MSL-Ft)	10-Year Disch. (CFS)	50-Year Elev. (MSL-Ft)	50-Year Disch. (CFS)	100-Year Elev. (MSL-Ft)	100-Year Disch. (CFS)	500-Year Elev. (MSL-Ft)	500-Year Disch. (CFS)
				BIG DITCH (cont'd)					
30	7120	541.3	1450	544.2	2000	544.8	2350	545.5	3250
36	8005	545.0	1450	546.1	2000	546.8	2350	548.6	3250
43	9715	557.0	1350	557.3	1800	557.7	2100	558.3	2800
46	10435	560.9	1350	561.6	1800	562.0	2100	563.0	2800
50	11415	560.3	1350	570.4	1800	570.8	2100	571.5	2800
55	12265	576.2	1050	577.0	1550	578.7	1800	578.1	2300
59	13465	585.3	1050	586.4	1550	586.9	1800	587.6	2300
				CROOKED CREEK					
177	21100	529.9	3200	533.7	4800	534.0	5700	534.6	7600
179	21260	534.4	3200	536.2	4800	537.5	5700	539.4	7600
181	22795	539.1	3200	540.3	4800	541.0	5700	541.8	7600
183	22920	541.2	3200	542.0	4800	542.4	5700	542.8	7600
184	24320	544.4	3200	545.8	4800	546.7	5700	547.7	7600
185	26580	549.9	3000	551.2	4400	551.9	5300	553.2	7000
186	27430	552.0	3000	553.3	4400	554.1	5300	555.3	7000

GLOSSARY OF TERMS

Bridge Area--The effective hydraulic flow area of a bridge opening accounting for the presence of piers, attached conduits, and skew (alignment), if applicable.

Channel--A natural or artificial water course of perceptible extent with definite bed and banks to confine and conduct continuously or periodically flowing water.

Flood--"Flood" or "flooding" means a general and temporary condition of partial or complete inundation of normally dry land areas from:

(1) The overflow of inland or tidal waters and/or

(2) The unusual and rapid accumulation of runoff of surface water from any source.

Flood Frequency--A means of expressing the probability of flood occurrences as determined from a statistical analysis of representative streamflow or rainfall and runoff records. It is customary to estimate the frequency with which specific flood stages or discharges may be equalled or exceeded, rather than the frequency of an exact stage or discharge. Such estimates by strict definition are designated "exceedence frequence," but in practice the term "frequency" is used. The frequency of a particular stage of discharge is usually expressed as occurring once in a specified number of years. Also see definition of "recurrence interval." For example - A 100-year flood is one having an average frequency of occurrence in the order of once in 100 years. It has a 1 percent chance of being equalled or exceeded in any given year. It is based on statistical

analysis of streamflow records available for the watershed and analysis of rainfall and runoff characteristics in the general region of the watershed.

Flood Hazard Area--Synonymous with Flood Plain (general). Used in FEMA National Flood Insurance Program. Commonly used in reference to flood map.

Flood Peak--The highest stage or discharge attained during a flood event; also referred to as peak stage or peak discharge.

Flood Plain (general)--The relatively flat area or low lands adjoining the channel of a river, stream, or watercourse; ocean, lake, or other body of standing water which has been or may be covered by floodwater.

Floodway Fringe--The portion of the flood plain beyond the limits of the floodway. Flood waters in this area are usually shallow and slow moving.

Flood Plain (specific)--A definitive area within a flood plain (general) or flood-prone area known to have been inundated by a historical flood, or determined to be inundated by floodwater from a potential flood of a specified frequency.

Flood-Prone Area--Synonymous with Flood Plain (general). Used in Alabama land management and use law.

Flood Profile--A graph showing the relationship of water surface elevation to stream channel location. It is generally drawn to show the water surface to elevation for the peak of a specific flood, but may be prepared for conditions at a given time or stage.

Flood Stage-- The elevation of the overflow above the natural banks of a stream or body of water. Sometimes referred to as the elevation and the flood peak elevation measures for a specific storage area.

Floodway--The channel of the stream and adjacent portions of the flood plain designated to carry the flow of the design flood. In Alabama this is the 100-year frequency flood.

High Water Mark (HWM)--The maximum observed and recorded height or elevation that floodwater reached during a storm, usually associated with the flood peak. The high water mark may be referenced to a particular building, bridge, or other landmark, or based on debris deposits on bridges, fences, or other evidence of the flood.

Low Bank--The highest elevation at a specific stream channel cross section at which the flow in the stream can be contained in the channel without overflowing into adjacent overbank areas.

Low Point on Roadway--The lowest elevation on a road profile usually in the vicinity of where the road crosses the stream. It is the first point on the roadway to be flooded.

Potential Flood--A spontaneous event (natural phenomenon) capable of occurring from a combination of meteorological, hydrological, and physical conditions; the magnitude of which is dependent upon specific combinations. See Flood and Flood Frequency.

Prime Farmlands--Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. Land that may qualify as prime farmland could be cropland, pastureland, rangeland, forest land, or other land, but not urban built-up land or water. It has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable Ph condition acceptable salt and sodium content and a few to no rocks. They are permeable to water and air. Prime farmlands are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding.

Recurrence Interval--The average interval of time expected to elapse between floods of a particular severity based on stage or discharge. Recurrence interval is generally expressed in years and is determined statistically from actual or representative streamflows. Also see definition of Flood Frequency.

Roadway at Crossing (Top)--The elevation of the roadway immediately above the stream channel. It may be higher than the low point of the roadway.

Runoff--That part of precipitation which flows across the land and enters a perennial or intermittent stream.

Stream Channel--A natural or artificial watercourse of perceptible extent, with definite bed and banks to confine and conduct continuously or periodically flowing water.

Stream Channel Bottom--The lowest part of the stream channel (either in a constructed cross section or a natural channel). Bottom may be plotted and connected to provide a stream bottom profile.

Stream Channel Flow--That water which is flowing within the limits of a defined watercourse.

Stream Terrace--A flat or undulating plain bordering a flood plain. Terraces normally occur at higher elevations than flood plains and usually are either free from flooding or flooded less often than once every two years.

Structural Bottom of Opening--The lowest point of a culvert or bridge opening with a constructed bottom through which a stream flows that could tend to limit the stream channel bottom to that specific elevation. This structural bottom may be covered with sediment or debris which further restricts the size of the opening.

Top of Opening--The lowest point of a bridge, culvert or other structure over a river, stream or watercourse that limits the height of the opening through which water flows. This is referred to as "low steel" or "low chord" in some regions.

Watershed--A drainage basin or area which collects and transmits runoff usually by means of streams and tributaries to the outlet of the basin.

Watershed Boundary--The divide separating one drainage basin from another.

BIBLIOGRAPHY

1. U. S. Geological Survey 7.5 Minute Series Topographic Maps, Scale 1:24,000, Contour Interval 20 feet: Sylacauga West (1980), and 15 Minute Series Topographic Maps, Scale 1:62,500, Contour Interval 20 feet: Goodwater, Alabama (1944).

2. U.S. Department of Agriculture, Soil Conservation Service, National Engineering Handbook; Section 4 Hydrology, Section 5 Hydraulics.

3. U.S. Geological Survey, "Flood Frequency of Small Streams in Alabama", HPR 83, 1977, D. A. Olin and R. H. Bingham, U.S. Department of Interior, Geological Survey, University, Alabama.

4. U.S. Department of Agriculture, Soil Conservation Service, TP-149, "Peak Rates of Discharge for Small Watersheds", April 1973 and U.S. Department of Agriculture, Soil Conservation Service, TR-No. 55, "Urban Hydrology for Small Watersheds", January 1975.

5. U.S. Department of Agriculture, Soil Conservation Service, TR-No. 61, "WSP-2 Computer Program", May 1976.

6. U. S. Water Resources Council "Regulation of Flood Hazard Areas to Reduce Flood Losses," Vols. I and II, 1971-1972.

7. U. S. Army Corps of Engineers, "Flood Proofing Regulations", June 1972.

8. U. S. Army Corps of Engineers, "A Perspective on Flood Plain Regulations for Flood Plain Management", June 1976.

9. U.S. Department of the Interior, Wetlands of the United States, Fish and Wildlife Service, Circular 39.